# ESSAY

ON THE

# CONSTRUCTION OF COTTAGES

SUITED FOR THE

## DWELLINGS OF THE LABOURING CLASSES,

FOR WHICH THE **PREMIUM** WAS VOTED BY THE

## HIGHLAND SOCIETY OF SCOTLAND.

## Illustrated by Working Plans

OF

SINGLE AND COMBINED COTTAGES,

ON DIFFERENT SCALES OF ACCOMMODATION AND COST.

## Also with

SPECIFICATIONS, DETAILS AND ESTIMATES,

BY

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See design N.o 4.

BLACKIE & SON, GLASGOW,
SOUTH COLLEGE STREET EDINBURGH
AND WARWICK SQUARE LONDON.

(1834)

TO THE

**Highland Society of Scotland,**

THIS ESSAY AND PLANS OF COTTAGES

IS

RESPECTFULLY DEDICATED,

BY THEIR VERY HUMBLE SERVANT,

GEORGE SMITH.

# INTRODUCTION.

The cottages forming the subject of this work, are of a far humbler class, than those which generally appear in works on Domestic architecture.

Most of the books on cottage architecture hitherto published, exhibit only designs for dwellings in which picturesque effect is the object principally attended to, while the accommodation of the interior arrangements, to the circumstances of the intended inhabitants is seldom kept sufficiently in view by the architect. But the Highland Society of Scotland considering it of great importance to improve the dwellings of the peasantry, did, in the year 1832, offer a premium for an essay "on the construction and disposition of dwellings for the labouring classes, calculated to combine salubrity and convenience with economy." The plans of cottages sent in competition for the premium, were, however, in general on too expensive a scale, and were deficient in the arrangements necessary for the health and comfort of the inhabitants. The offer was therefore repeated in 1833; and the author of this work having submitted a series of plans, accompanied with descriptions and remarks, which met the approbation of the Directors, the premium was adjudged to him. This Essay and prize plans in an extended form, are now offered to the public at the suggestion, and under the patronage of the Highland Society of Scotland, in the hope that they may be the means of ameliorating, in some measure, the condition of that large portion of the population, for whose benefit they have been designed.

To better the condition of the peasantry of the country, to supply them with the means, and to excite in them the

habits of industry, is no doubt the duty, as it is the interest, of the proprietors of the soil. To give a stimulus to such exertions, the Society have come forward with premiums, in order to encourage the planning and erection of comfortable dwellings, and to bring more prominently before the notice of the great proprietors, the defects of the wretched habitations which still exist in many parts of the country.

In the account of the improvements on the Sutherland Estates, published by James Loch, Esqr., M.P. in 1820, he gives a lamentable account of the houses of the peasantry in that part of the country; he says in page 52, "Their huts were of the most miserable description. They were built of turf, dug from the most valuable portions of the mountain side. Their roof consisted of the same material, which was supported upon a rude wooden frame, constructed of crooked timber, taken from the natural woods belonging to the proprietor, and of moss fir dug from the peat bogs. The situation they selected was uniformly on the edge of the cultivated land, and of the mountain pastures. They were placed lengthways, and sloping with the declination of the hill. Under the same roof, and entering at the same door, were kept all the domestic animals belonging to the establishment. The upper portion of the hut was appropriated to the use of the family. In the centre of this upper division was placed the fire, the smoke from which was made to circulate throughout the whole hut for the purpose of conveying heat into its farthest extremities. The effect being to cover everything with a black glossy soot, and to produce the most evident injury to the appearance and eye-sight of those most exposed to its influence. The floor was the bare earth, except near the fire-place, where it was rudely paved with rough stones. It was never levelled with much care, and it soon wore into every sort of inequality according to the hardness of the respective soils of which it was composed. Every hollow formed a receptacle for whatever fluid happened to fall near it, where it remained until absorbed by the earth." And again, in page 121, Mr Loch states, "that in order to encourage the people in building neat

cottages, Lady Stafford offered premiums to those who should build the most approved cottages during the years 1819 and 20." These had the best effect; the turf huts were soon replaced by strong and well built stone cottages; they were made warm and comfortable, with many more conveniences than in the ancient hovels of the country. The byre no longer formed part of the same habitation, nor were the pigs and poultry permitted to occupy the same apartment with the family.

As the rearing of pigs and poultry has become an object of great importance to the peasantry, the providing proper accommodation for these animals has been attended to in designing the plans given in this work.

Thus much, it has been thought necessary to state, in explanation of the benefits which, it is hoped, will be conferred on the proprietors as well as the peasantry, by the adoption of the improvements exhibited in this small work on cottage architecture.

Wemyss Place, Edinburgh,
June, 1834.

ON THE

# CONSTRUCTION OF COTTAGES,

SUITED FOR THE DWELLINGS OF THE LABOURING CLASSES.

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THE author of these plans has long turned his attention to the improvement of the different kinds of houses required upon landed property, and has, in the course of his practice, designed and executed, a variety of such plans; his great endeavour has always been to give the utmost extent of accommodation at the least expense; in order, if possible, to add to the comforts of the agricultural labourers and peasantry of Scotland; a class of people, who have hitherto been lodged in houses ill constructed and arranged, both for comfort and decency. That description in particular, termed Hinds' houses, are such wretched hovels, that in some districts, they are scarcely fit for lodging cattle. A row of from eight to twelve of these houses are in general built in the neighbourhood of the more extensive Farm-steadings, for lodging the yearly servants of the Farmer.

Such dwellings have seldom more than one apartment, about 18 feet in length by 14 or 15 feet in width, without ceiling or flooring; and the only finishing is a door, a small window and fire place. On the whole, therefore, the cattle in the Steading are better provided for and lodged than such servants generally are.

The Highland Society of Scotland having advertised a premium for plans of improved cottages, and for the best Essay on the construction and disposition of dwellings for the labouring classes, calculated to combine, as far as possible

salubrity and convenience with economy. The author resolved to send a series of his designs, for cottages on different scales of accommodation and cost, commencing at the most common erection of a Hind's dwelling, having only one large apartment; and gradually extending the degree of comfort and convenience so as to make them suitable for upper servants, country mechanics, and small farmers.

This Essay and these plans having been honoured by the Society's approbation, and the author rewarded by a premium, they are now offered to the public with the addition of some useful matter, and at a cheap rate, so as to bring them within the reach of country masons and carpenters, as well as proprietors and farmers.

It is to be hoped from the great exertions of the Highland Society that the labourers of this country will be gradually elevated in their habits, both physical and moral; towards which desirable end, nothing can conduce more than lodging them in such a way as to place comfort within their reach, by industrious exertion and the adoption of more cleanly habits.

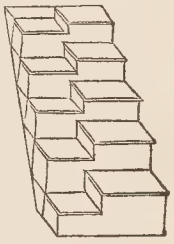
In the construction of cottages, economy and domestic convenience in the arrangement, combined with strength and durability in the quality of the materials, must be the chief points kept in view; from these will spring cleanliness, comfort, and decency.

When the cottager is allowed a house of only one room, to lodge himself, his wife, and children, there can be very little comfort to the occupiers, and the young people must contract indelicate habits unfavourable to their good conduct in after life.

For a single man, or even for a man and his wife without children, one large apartment may answer, if it is rendered comfortable by being well constructed, so as to make it warm and dry, with sufficient light and ventilation; and as such dwellings can be built for a very small sum, the author has commenced at that low scale, as exhibiting the minimum of accommodation for a labourer's family. (See design No. 1.)

This design of double cottages consisting of one good sized apartment for each, is not here given as a model for that class of cottages, except for economy. The situations of the beds are laid down in faint lines on the plan, but these being generally furnished and placed by the tenants according to their own ideas of comfort, they are not given as fixtures, as has been done in the other houses.

These cottages therefore cannot be recommended for married labourers having families,—they want the bed-closet for devotion or retirement; they want the necessary out-houses; in short they want the proper comfort of a human habitation. But how easy to add a few necessary conveniences to these; give them the simple out-houses of designs Nos. 2 or 3, raise the roof three feet higher and floor it for sleeping lofts, adding a trap stair such as shown in the annexed figure, (which is taken from Mr Loudon's excellent work on cottage architecture) they would then be greatly improved in point of comfort, and at the same time even with these additions, they would be found to be, the most economical cottages of the size that could be built.*



In cottages which are built singly the families are less liable to contention, than in those which are conjoined; but when built together, a considerable expense of walling will be saved, as the flues may be carried up one common stalk. At the same time, a range of cottages may be so planned, that the doors may be kept separate from each other, although the gables are united, (see design No. 9. which is given as a model for this class.)

Cottages should, if possible, be so placed as to have a south or south east exposure; but unfortunately the best situations are not always to be found for farm cottages.

* This description of stair occupies exactly one half the space of a stair in the ordinary plan, as every step, by the manner it is divided, makes the rise twice the usual height.

A low and marshy site ought above all things to be avoided, for in such a place they would be constantly damp, and would expose those who inhabited them to dangerous disorders.

No cottager should be without a garden, for it has been justly said, that a rood of land properly cultivated, will half maintain a careful family.

The first thing to be considered before planting the garden, is whether the ground be sufficiently dry. If not, dig a trench and form a ruble drain across the ground, from the corner at the highest level, down to the outside at the lowest level. The cottager should be careful in the choice of his trees or bushes, for as some trees are affected by the circumstances of the local situation, he should prefer the kinds *that flourish in similar situations in his own neighbourhood,* so that he may be enabled to make the most of his little garden. And if he is an industrious labourer, the cultivation of his garden would be done at extra hours after the ordinary day's labour was performed, and thus fill up his leisure time, which might otherwise be spent in idleness.

One of the first points to be attended to by the proprietor, or his builder, is to secure a good supply of pure water. If practicable, a reservoir should be constructed on a neighbouring height, and the water conveyed from it in a pipe to the cottage cistern, but as this must in a great measure depend upon local circumstances, no specific directions about it can be given. The most common method of supplying water is from a sunk well with a pump; but in some situations wholesome water cannot be got by sinking a well; in our wet climate, however, a supply of rain water for washing and other purposes may always be had, by conducting the water from the roofs into a cistern or tank, where it may be filtered for cooking, when spring water cannot be had.

The conveying water in pipes to each village house, and thus providing a constant supply of this pure element, will be one of the most important steps to the introduction of cleanliness and domestic comfort.

In the construction of cottages, one great requisite is the free admission of light and air. The old farm cottages in Scotland were very defective in this respect; small windows, and in many instances, these were not made to open; therefore the only ventilation was by the door and chimney. But these wretched hovels are now giving place to more substantial dwellings, brought about, in a great measure, by the patriotic, and well directed exertions of the Highland Society.

In many districts, the cottagers now vie with each other in comfort and cleanliness; we now see whitened walls, half covered with honeysuckles and roses, and a neat garden, either in the front or rear, where ornament is blended with utility.

The Scotch agricultural labourer deserves well of his country; he is in general, frugal, industrious, and contented; he is a stranger not only to the luxuries, but often to the moderate comforts of life: yet, in this humble condition, he has not lost that spirit of independence, which has so long distinguished him, and his chief ambition seems to be, to rear his family for the village school, where they receive the blessings of that education, which afford the first elements of their independence; for, in the parish schools, the sons and daughters of the peasantry inhale with their early breath the principles of devotion; they are there trained up in the discharge of every moral and religious duty, and are thus prepared to follow the simple rural life of their fathers. It is not therefore proposed, in these cottage plans, to hold out the allurements of superficial or useless luxuries; but to exhibit real and solid comforts, which may tend to the moral improvement of this industrious and deserving class.

Were they once placed in such cottages, there is no doubt but the proprietors and opulent farmers, while witnessing the efforts of the industrious cottagers, to cultivate their gardens and keep up their houses in a state of repair and neatness; would view them with the liveliest interest, and would be induced to reward and encourage them, and, in return, would command the grateful feelings of the cottagers.

It has been already stated that the conveying pure water in pipes to the interior of the labourers' cottages, would be one of the first steps to the introduction of cleanliness and regular habits. The next step in comfort, as well as economy, would be the introduction of gas into the cottages, when to be had in the vicinity, or whenever there is a sufficient number of consumers to warrant the erection of a small apparatus, such as has already been done in analogous situations.

The late Mr Strutt of Derby long since stated his opinion that coal gas would, in many situations, be the cheapest fuel for the cooking of the working classes; experience has now, in a great measure, verified his anticipations.

In country towns and villages that are lighted with gas, not only the houses in the town, but the neighbouring cottages ought to have it taken in for simple cooking as well as for lighting.

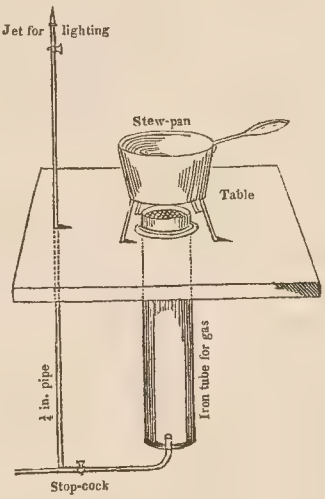
It must often happen that labourers are necessarily absent from their cottages from morning till night; therefore, to save the trouble and expense of putting on a fire to make their breakfast, each cottage should have a simple gas cooking apparatus fitted up, for boiling water, for baking, or for any thing else required by the family; and when the breakfast is over, the gas would be turned off, and the labourer would be at neither trouble nor expense, nor even at the risk arising from keeping up a fire during the day while absent at his work.

A cottager so situated will find gas the most economical fuel for lighting or cooking. It may be fitted up in this manner:—A small deal or stone table or shelf is to be placed as a fixture in any convenient situation in front of the window, and a gas pipe of three-eighths of an inch diameter taken as a branch from the main pipe, and carried under the table, and then inserted into the bottom of the tube made of sheet iron, of about thirty inches in length, and from three to four inches in diameter. The top of this tube should be covered by a piece of iron wire gauze (of about thirty six to forty wires to the inch,) fastened on by a hoop driven over it.

The tube should project about three inches above the table, if it be of wood, or one inch, if of stone.

The gas being admitted below will mix with the common air in the tube, and will rise through the wire cloth, where it may be kindled, and will burn with a flame of a blue and yellow colour. The thing to be cooked must be supported on an iron stand, about an inch and a half from the top of the tube.*

Sketch of a simple gas apparatus for lighting and cooking.




The gas for a single burner will not cost above one halfpenny per day for cooking the breakfast and supper for a labourer's family.

A one fourth inch branch pipe may be carried up for a jet about two feet above the table for lighting the cottage.†

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## Roofing for Cottages.

THE roofs of the old Scotch cottages were commonly covered with thatch, turf, or heath, as being the most ready materials; but these have now generally given place to the more durable coverings of slate and tile.

In the department of roofing, we have not only to cover in the building, so as to make it wind and water tight,

* For a fuller description of the advantages of Gas for domestic purposes see Appendix, page 36.

† When a cooking apparatus is fitted up, the front of the table must alway be closed up with deal.

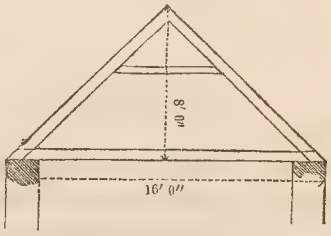
but we must frame the roof so that the side walls may not be injured by any undue pressure, but rather that the building may be strengthened and bound together by the roof. This is more necessary to be attended to in those buildings that have no cross bearing walls, to stiffen and support the erection.

It is for want of attention to the proper framing of roofs, that many farm buildings, and particularly those of a cheap or more humble construction, are so frequently seen propped up with buttresses, or brought to the ground perhaps half a century sooner than they would have been, if under better management.

An economy of this kind ought never to be adopted; for it is evident that an attempt to save a pound or two in the proper construction of a building in the first instance, will soon bring ten times the expense saved, upon the proprietor for repairs.

In our northern climate, subject to heavy rains and falls of snow, the pitch or angle of the roof ought to be considerably elevated; as low flat roofs require large slates, and the utmost care in execution: they therefore cannot be approved of for farm offices or village houses.

The roofs in the accompanying plans of cottages, are drawn to what is termed the square pitch, that is, the height of the roof is equal to one half the width of the house; thus




This makes a strong durable roof, when properly executed, and is well adapted to exposed situations.

The most economical manner of executing such a roof is with Dram or Norway battens: the ties and the rafters to be kept to the size of these battens as they are imported; say six and a half or seven inches deep, by two and a half inches thick; and to be cut to the length required.

Such a roof will answer equally well for either slate, tile, or thatch; for whatever covering is taken for the roof, the couples ought always to be framed so that they will bear either, and not injure the walls.

The best covering for roofs yet known is good slate, and, as there are several excellent slate quarries in different districts of Scotland, it thus encourages, in some measure, that species of home commerce. But, in some of the interior districts, where there are no slate quarries, and a long and expensive land carriage, then a thatched roof, made of straw and mortar is perhaps the best for common country purposes.

It may be thus prepared:—a regular stratum of common straw thatch is first laid on; then a strong mortar, well beat up, and mixed with cut straw, is laid over the thatch with a broad trowel.

This species of roofing should always be done by an experienced thatcher, and his labourer ought to be qualified to prepare the mortar in the proper manner.

Such a roof gives no shelter to vermin, like the common thatched roofs; nor, if properly done, will the strongest winds injure it; and it is perhaps the warmest covering for a roof that can be adopted.

Tiled roofs, although the cheapest in the first outlay, are always the dearest in the end, by constantly requiring repair to keep them wind and water tight. But when a roof is to be tiled, it is a good plan to lath and plaster the whole inside angles under the tiles, and paint the whole outside with a coat of strong oil grey colour; this will preserve the tiling much longer; but, as it raises the expense so much, there can be no doubt, that wherever good slate is to be had at a reasonable rate, it should be adopted, as it is the most durable, and, in the end, it will be found to be the most economical covering for a roof.

In the South and West of Scotland, where the large Welsh slates are generally used, there is no sarking or boarding laid over the couples, but merely lath rods, similar to what are used for tiling; for the best houses, the slates are nailed to

the lath, but in general, for the common houses, the slates are hung to the lath by wooden pegs.

To prevent rain or snow being blown through the overlaps, the whole inside joints must be pointed up with strong plaster.

In the districts where this species of roofing is adopted, it can be done for about one half the expense of a roof covered with sarking and Easdale slate.

Whatever roofing is adopted, whether slate or tile, it is of the utmost consequence that the lime used for pointing should be properly prepared. The slater's lime ought to be mixed up with pure sea or river sand, all the clay or earthy particles completely washed out; the coarser the sand, the more durable will the lime be; care should be taken not to mix up too much hair with it, as it soon rots, and makes the lime porous, and prevents it from taking a fine surface.

All lime composition for outside work, ought to be so prepared as to take on a fine close surface, and to be impervious to water, and able to resist the winter's frost.

In executing a range of houses, the stone division walls ought always to be carried up *through the roof*, so as to prevent the spread of fire; the skews thus formed on the roofs should be very carefully pointed up with the properly prepared lime.

There are three distinct styles of ancient Architecture existing in Scotland; namely, the Castellated, the Ecclesiastical or Gothic, and the old Scotch Manor house. Each of these styles, in succession, was composed and adapted to the spirit of the age, by the Architects of the different periods; but the aid of science had never been called to design the more humble erections of farm buildings until about the commencement of the present century. These were invariably erected by the country mechanic, according to his own ideas, and aided by the labourers of the district from such materials as were found in the locality. It is therefore not surprising that the houses of the farmers and their labourers should

have been constructed with such rude materials, and so ill arranged as to be totally void of family comfort. It is evident from the early attempts that were made merely to provide shelter from the inclemency of the weather, that few or no advances had been made in the erection of the agricultural houses of this country, until about the middle of the last century, when a general improvement began to take place over the country. From that time to this the larger farm houses and offices have been gradually advancing in improvement.

But not so the labourers' cottages; these have in a great measure been overlooked, as unworthy the aid of scientific skill in the construction. Nay, from the very fact of the Highland Society having found it advisable to hold out premiums, as an inducement for the improvement of this class of houses, it is but too evident that they have until now been neglected.

Whatever doubts may exist in the minds of some, in a national point of view, of an endeavour to elevate the condition of the peasantry of the country, there can be none in regard to the effects of adding domestic comfort to their dwellings; from which, it is presumed, will flow a greater measure of happiness to thousands that labour for their daily bread.

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## DESIGN I.

### GROUND PLAN, ELEVATION, AND SECTION OF A DOUBLE COTTAGE.

THIS simple design having already been fully explained in page 12, and the arrangement being of the most common description, nothing further remains to be stated but to give a short specification of the manner of executing it, and an estimate of the cost.

One general specification is given in the appendix of the manner of executing the different cottages in this work, with the exception of Design No. 1, which being of a still humbler class than the others, it is not intended that it shall have the same finish as those that are given for model cottages.

The walls of design No. 1, are proposed to be entirely built of rubble stone, and the corners, rebates, soles and lintels merely hammer dressed.

The roof to be formed of dram battens covered with ¾ inch deal sarking, and slated the same as the others. The walls to be plastered inside with one good coat of lime.

The floors to be elevated above the surface of the ground, as shown from the section, to be formed of a composition of lime, earth, and engine ashes, mixed up in equal proportions; this to be laid over to the thickness of 3 inches above a level stratum of dry stone shivers well beat down.

Each fire place to have a strong stone slab, and the entrance doors to have steps.

The window sashes to be framed of 1½ inch wood with cases, and made to open, and glazed with 3rd crown glass. The doors to be made of inch thick ploughed, tongued, and beaded deal with back bars, to be hung with good cross tail hinges, and to have strong stock locks and iron lifting latches.

The estimated cost of this double cottage will be £60; being £30 for each house.

The proprietor of an estate would consult his own interests were he to erect at least comfortable dwellings for his labourers; for if the cottage is made a mere hovel, it will be a cheerless abode for the occupier,—he cannot be expected to feel much attachment to his home, or even to his employer.

It may be said that such cottages as those in design No. 1, ought to be sufficient, as they are superior to the habitations of the Irish labourers, and to the hovels of the Russian, Prussian, or Polish peasantry; but by all accounts these are sunk into a state of degradation and misery that is greatly to be deplored.

"The peasants of Poland," says Mr Jacob in his Report

on the corn districts of Germany, "live in wooden huts covered with thatch or shingles, consisting of one room, with a stove, around which the inhabitants and their cattle crowd together, and where the most disgusting kinds of filthiness are to be seen. Their common food is cabbage, potatoes, pease, and black bread. Their chief drink is water, or the cheap whisky of the country, which is the only luxury of the peasants. In their houses, they have little that merits the name of furniture; and their clothing is coarse, ragged, and filthy, even to disgust."

It is deeply to be lamented that the peasantry and manufacturing labourers in Ireland, live in dwellings provided with few or no conveniences, and on the lowest and coarsest food, so much so in many instances as to enfeeble their bodies; their subsistence being so bare, that in times of scarcity any diminution of it would probably shorten their lives.

Can no feasible plan be adopted of raising those wretched beings from that state of degradation in which they are sunk! It is said that the Irish peasants cling with tenacity to their cabins, however wretched, if the place of their birth! but, surely, if the landlords would erect suitable cottages, with gardens attached, and improve their condition by providing employment for them, they would readily and thankfully embrace it,—and by holding out the stimulus of annual prizes to those who kept their cottages the neatest and cleanest, and their gardens in the best state of repair, much good would be done.

There are many extensive proprietors in Ireland that devote their time and resources to the improvement of their properties, and to the welfare of their tenants; but the evil being so extensive and wide spread, unless the plan be adopted generally all over the country, it is to be feared that the partial amelioration of a few districts will never cure the evil.

## DESIGN II.

### GROUND PLAN AND ELEVATIONS OF A SINGLE COTTAGE.

THIS is the first of a series of three designs of single cottages on different scales of accommodation and cost.

The ground plan exhibits a kitchen and room, each 16 feet by 12 feet; leaving a space of 4½ feet wide betwixt the two, for the beds and lobby. There is a scullery and closet in a lean-to (commonly called a to-fall) behind; and the cellar, privy, and ash-pit, are placed at the back of these. The fire-places are in the gables; but, to keep the whole heat inside, they have thick projecting backs.

In this description of single cottages, the fire-places are sometimes placed in a middle wall, with the door opening directly upon them; but the rooms are never convenient or comfortable when the doors and fire-places are thus placed; and the flues in general draw better when the door is placed at one angle of the room, and the fire-place on the opposite side.

If the cottage is planned to have the fire-places in a middle wall, it would be better to enter by a porch at one end, so as to cover the fire-place, and be out of the draught of the door, as is shown in design No. 6.

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## DESIGN III.

### GROUND PLAN, ELEVATION, AND SECTION OF A SINGLE COTTAGE.

IN this design a poultry-house is placed behind the kitchen fire-place, which, in point of economy, is the most suitable place in which it can be put; and, by keeping the back of

the fire-place only six inches thick, it will allow a portion of the heat to get through to benefit the poultry, which is of great advantage in the winter season for the laying hens, as well as for hatching or rearing.*

In this plan, the kitchen and room are each made half a foot narrower than in the plan of No. 2, so as to give more room for a bed-closet betwixt.

This is a simple and comfortable arrangement for a cottage: the kitchen is 16 feet by 11½ feet, with a scullery or pantry off the end, and a light bed closet in the middle, behind which is placed a narrow stair, leading to a loft over the whole; and in the lobby, there is a large closet. The room is, likewise, 16 feet by 11½ feet, which is sufficiently large for a bed in the corner: there is a good wall press in each apartment. To improve the ventilation of the room, there is a window placed in the back wall; but the kitchen does not so much require it, as the bed closet and scullery have each a window behind.

This cottage will be warm, well lighted, and ventilated; there is a cellar for fuel, and a privy, with ash-pit at the east end.

The rain water is proposed to be conducted into a cistern at the back of the scullery; or, if the pavement stone is expensive, a large barrel, well painted, will answer. No. 3 is rather more ornamented than No. 2, having a projecting door-piece, surmounted by a gable; and at each end there is a lofty angular chimney stalk. This kind of chimney will always draw well. No top cans will be necessary for any of these cottage chimneys.†

* The breeding of poultry for sale, is in some countries followed to a considerable extent, as a profitable species of industry for cottagers; and if suitable accommodation were to be given for it in the construction of his dwelling, it would soon become a source of advantage to the Scottish peasant, more especially if the benevolent plans of the Highland Society for the improvement of the breed of poultry be followed up by the institution of premiums and local competitions.

† That these chimney tops may be the more easily executed, they are given on a larger scale in separate plates.

## DESIGN IV.

### GROUND PLAN, WITH FRONT AND END ELEVATIONS OF A SINGLE COTTAGE.

[IN THE TITLE-PAGE A PERSPECTIVE IS GIVEN OF THIS COTTAGE.]

THIS design is arranged quite differently from the others: it may be called an irregular plan, and the effect of the elevation is more picturesque. It would answer for a gate lodge or gardener's house, where the mansion-house is in the old English style. The chimneys rise up in one stalk, in the centre of the house, and form an ornamental feature. The interior of this small cottage will be convenient and comfortable, and well lighted and ventilated; at the same time it will be kept warm by the porch.

What are called picturesque cottages, are often badly contrived in the interior, and are, in general, placed in situations, more with a view of giving effect to a particular scene, than with reference to the comfort of the cottager.

The stone walls of this kind of cottage look best when built in neat tooled courses, of from 6 to 8 inches deep, having the corners, and all projections of broached ashlar.

It may be remarked generally, that these cottage plans are built upon a basement, $2\frac{1}{2}$ feet high; one half of this is the foundation course under ground, and the upper half is built of dressed stone, and forms the base course of the house, rising two steps high. In low situations, it will require to be raised much more; but this depends upon the level of the site: but, in all cases, the floor ought to be elevated above the surrounding ground level. The area betwixt the foundation courses to be covered over with a level stratum of dry stone, shivers, and lime riddlings: this, under the kitchen, and other places to be paved, will be formed close up to the pavement; but the part under the floored rooms to have an open space of nine inches betwixt the top of the stratum and the under side of the joists, for the circulation of air. This is the best pre-

ventive against the decay of the timbers, and by keeping damp from the flooring, it renders it warm and dry; and, that there may be a proper circulation under the floored apartments, three or four air openings, must be left out in the base course, about eight inches square, and iron gratings put upon them.

A common privy, attached to the ash-pit, is given to each cottage. Certainly, this necessary appendage for comfort, cleanliness, and decency, ought, on no account, to be omitted; although the idea of fitting up water closets in the interior of every cottager's house is not commendable.

In Scotland, at least, there are no plumbers to be found but in large towns; therefore, as the machinery and pipes of closets are so apt to go wrong, and can only be rectified by a plumber, water closets are not adapted for such dwellings; but, in fact, the cottage labourer would much rather prefer going to his retired privy out of doors, than use a water closet, even if he had one at his service, within his house.

In this design, the scullery is fitted up with a boiler, water pipe, and sink. The comfort of this cottage is very much enhanced by the entrance porch. The porch is really a feature that becomes both ornamental and useful, and it ought, as in this design, to be built of the same material as the walls of the house.

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## DESIGN V.

### GROUND PLAN, ELEVATION, AND SECTION OF A DOUBLE COTTAGE.

This is the first of a series of three designs for double cottages gradually rising in accommodation. This species of cottage can be built cheaper than two single ones; and, in general, these double cottages are found to be warmer and fully as comfortable as single ones.

In this design there are two porches back to back in the centre, and by dividing the garden in front by a wall, it renders the dwelling completely separate.

Each cottage of this plan has a kitchen 16 feet by 12 feet, with a scullery and pantry in the lean-to behind, and a room 16 feet by 11, with wall closets in inside walls; and behind, a cellar, privy, and pig-sty.

The elevation is of the simplest construction, with gables at each end to stop the roof.

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## DESIGN VI.

GROUND PLAN WITH FRONT AND END ELEVATIONS OF A DOUBLE COTTAGE.

This design is much the same, as to dimensions and form as the last: but, by placing the porches at the end, the arrangement is a little different, and the accommodation more complete: for in this, each has an entrance porch, with tool-house behind, and a kitchen 16 feet by 13, with a back scullery, fitted up with a boiler, water pipe, and sink. Off the scullery are a pantry and cellar, and a room 16 feet by 11, while behind there is a privy with dust hole, pig-sty, and poultry-house with yards.

The roof of this cottage is pavilioned, made to overhang the side walls ten inches, and supported by a plain stone projecting course, which adds to the effect of the elevation and keeps the walls dry.

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## DESIGN VII.

GROUND PLAN, ELEVATION, AND SECTION OF A DOUBLE COTTAGE.

This design makes a handsome double cottage. The arrangement is both compact and convenient, and the elevation is rather ornamental, and looks like a large single cottage.

In addition to the accommodation of the other double cottages, No. 7 has bed-rooms over the centre, and lofts over the kitchens,—thus making each cottage a house of three apartments, with a closet, scullery, pantry, cellar, privy, &c.

The out-houses of these plans are well connected with the main building, and by being built as lean-to's, are economical in the execution. The fire-places are all placed in inside walls, and at the same time completely protected from the outside doors.

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## DESIGN VIII.

### GROUND PLAN, ELEVATIONS, AND SECTION OF COMBINED COTTAGE FOR FOUR FAMILIES.

This is a plan of a combined cottage, arranged for four distinct dwellings. The design consists of a centre and two wings; each of the latter forms one dwelling-house fronting a garden, completely closed in by itself. The accommodation is a kitchen and room, each 16 feet by 12 feet, with wall presses (these ought always to be placed in *inside walls*, else they are cold and damp, and of no use), and stance for beds between; and, at the kitchen end, there is a shelved pantry or scullery, with a water sink: this place is lighted from the top, as the pig-sty is behind it; and the out-houses consist of a cellar, pig-sty, privy, and ash-pit.

The two houses in the centre compartment have each a kitchen 17 feet by 12 feet, with a back scullery, a room 12 feet by 10½ feet, and a pantry in the lobby, and in the back court there is a poultry-house and yard, a cellar, privy, and ash-pit. It will be observed, that the poultry-houses are placed in most favourable situations, behind the kitchen fire-places; and the front rooms again will be rendered warm by being placed at the backs of the other kitchen fire-places; thus the whole heat of these four combined cottages is kept inside, and rendered serviceable.

When three or four cottages are combined in this manner, one cow-house will, in general, be found sufficient. In this design, there is a cow-house placed in the middle of the back court; and, if the cottager on the right side inclines to keep a cow, the door on the other side will be closed up; and the

reverse if the cow-house is given to the one on the left side This design will answer well for a road-side.

In point of economy, family comfort, and convenience, this combined cottage, it is humbly presumed, will be found a good model cottage for that class.

In this design, two of the cottages have poultry-houses, and the other two pig-sties; as it is seldom that four cottagers, united in this manner, would each be inclined to rear both pigs and poultry.

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## DESIGN IX.

GROUND PLAN, ELEVATIONS, AND SECTION OF A RANGE OF COTTAGES COMBINED FOR SIX FAMILIES.

This design would answer well as a compartment of a country village, or for a road-side range of farm labourers' houses.

Each married cottager requires a certain accommodation, either for convenience, comfort, or decency; and, by a proper arrangement, this can be given at but little expense. It is yet too much the prevailing custom of landlords and farmers, when about to build their labourers' houses, to contract with a mason to build a row of hovels, giving to each so much internal space of length and width; and this being roofed over, the only finishing is a door, two small windows, and a rough coat of plaster on the walls, leaving the tenant to fit up the interior as he is able, or may think proper.

He commonly divides it with one or two close boarded timber beds, leaving the largest space for the living room; which has an opening for the smoke, and a hearth-stone at one end; but there is seldom a grate; and the floor is made of clay puddle, or earth composition.

When the cottager has a family, this sort of dwelling is ill adapted for the observation of decency.

The general practice of making the cottagers furnish their own bed-steads, is by no means commendable. The landlords ought to take this into their own hands, and have strong hardwood bed-frames fitted in, to suit as fixtures for the cot-

tages, or rather give them iron bed-frames, which are now so much approved of in places where there is a risk of vermin. (These iron bed-frames are manufactured in Edinburgh at from 25s. to 30s. each.) It is much to be wished that those close wooden bedsteads were abandoned; but, to effect this, the landlord must fit up the few fixtures wanted for every cottage; and, by giving them two distinct apartments, (as in this design,) well lighted and ventilated, and by adding a pantry, cellar, pig-sty, and privy, the poor cottager will then have every comfort that his station entitles him to. And if there is a piece of ground attached, he may have his cow-house. These necessary comforts would tend to the decency, and even the refinement of their lives, and would have a powerful effect in improving both the respectability and usefulness of this class.

It would be of immense advantage to the health and morals of the working classes in towns, if they could be induced to live in the suburbs, in rows of suitably constructed cottages, in place of huddling together in the crowded parts of the towns.

The character and condition of that numerous portion of the population which is employed in our manufactures and trade, are materially, and very far from being favourably affected, by the manner in which they are crowded together within large cities; and, in proportion to the number so crowded within a *given space*, is the deterioration rendered more palpable: especially when that space happens to be *deep* within the interior of a large town, and covered by old and dilapidated buildings.

Is it not evident, that to remove the poor from a situation, where vice, crime, and profligacy, sickness, disease, and pestilence, exist in their most fearful and concentrated forms, to the suburbs, where these destructive agents would exist in a more *diluted* state, where the poor would have the physical advantages of freer and better air, and the moral advantages of greater exposure to observation, would be to effect a great good, not only for this class themselves, but also for the whole community?

When crowds of paupers and profligates are allowed to harbour in old decayed tenements, in the central parts of our great towns, the grade of the inhabitants gradually changes. It is much to be lamented, that sober and industrious tradesmen and labourers are often obliged to occupy portions of such buildings, not only to the injury of health and domestic comfort, but also, what is of still higher importance, to the contamination of their morals, and the premature initiation of their children in vice, so that they are apt, in time, to sink into a state of degradation and worthlessness, through that increase of their number, to which allusion has been made.

This great evil might, in some measure, be avoided, by erecting comfortable cottages for the industrious labourers, in the neighbourhood of large towns. These, for economy, might be in combined ranges of four or six, similar in design to those of No. 9, which is planned on the most economical principles, at the same time giving to each house every convenience that comfort and decency require.

The great abundance of limestone which is now quarried in this country, and used so extensively as mortar in building, has been one of the principal means of improving the stability of our buildings. So late as the middle of the last century, not only the cottages for the labourers, but many of the farm houses, were constructed without good mortar.

The walls were composed of mud strengthened with posts: or they were built of stone, laid in moist loam, and sometimes turf. The universal covering was thatch; and nothing else was to be seen over the whole country, for the habitation of the peasantry, but those mean and frail hovels. These never exceeded one story, for the materials of their construction had neither strength nor firmness to bear more.

The old mud walls have now entirely given place to those of stone laid in mortar; it is thus they have acquired permanence: therefore, by laying out a little money on the comforts of such habitations, it is not lost, as, by the substantial manner in which they are now constructed, they last for the enjoyment of at least two generations.

# APPENDIX.

## GENERAL HEADS OF A SPECIFICATION

FOR THE

## Construction of Cottages.

*Digging and Levelling.*—The whole area for the building to be reduced to one uniform level; and the trenches for the foundations to be excavated 30 inches below the floor line, and to the width of 3½ feet all round.

*Mason Work.*—The foundation course to be laid with large flat-bedded stones, to the breadth of 3 feet, and the walls to be brought into the thickness of 2 feet, by an offset at each side, as is shown in the sections. The whole walls to be built of the best rubble stones found in the district, all laid on their natural bed, with properly prepared mortar. The division walls of the double cottages to be carried close up to the slates.

*Hewn Work.*—The base course, the corners, the rebates, soles, and lintels of doors and windows, the chimney tops and skews, the door steps and kitchen chimney jambs, and all projections, to be executed with neatly broached ashlar; the corners to be broached to the breadth of six inches on each face, and to be back-checked half an inch for harling. The kitchens and other places on the ground plans, to be all floored with droved Arbroath, or Caithness pavement, neatly squared and jointed, and laid on a level stratum of lime riddlings and dry stone shivers, bedded and jointed with lime. The jambs, lintels, and hearths of the room fire-places to be polished stone.

The water-cisterns to be formed of droved pavement, half-checked, and pointed with white lead.

The waste and rain water to be conducted in open surface drains to the ash-pits; or, as shown in Plate VIII. small under-ground drains will be carried from each water scullery sink, to the ash-pits.

The cow-house in Plate VIII. to be causewayed with whin-stone set in sharp sand, and an open surface drain formed of the same to be carried to the ash-pit.

There will be four openings, 8 inches square, cut out of the base-course round the floored rooms, and iron gratings put in the same, for circulating air under the flooring.

A dwarf wall, 12 inches thick, will be built across under each of the floored rooms, for supporting the sleeper joists.

*Carpenter Work.*—All the doors and windows to have inside safe lintels, of one inch in thickness to every foot in length; and to have at least nine inches of solid hold of the walls at each end.

The scantlings for the roofing to be formed out of Baltic white wood battens, to be not less than 6½ inches broad, by 2½ inches thick, for the ties and rafters.

The couples to be set at the distance of 18 inches from centre to centre, on level wall plates, 7 inches by 1½ inch.

The whole roofs to be covered with ¾ inch thick sarking, close jointed.

The joists of the floored rooms to be 7 inches by 2½ inches, all placed at 18 inches betwixt centres, and floored over with white Dram timber 1⅛ inch thick, grooved and tongued on the edges, and laid with good flooring sprigs. The stairs to be formed of the same quality of timber.

The partition standards to be 4 inches by 2 inches, placed at 16 inches betwixt centres, and covered over, as well as the whole ceilings, with the best Baltic split lath.

All the outside doors to be made of 1¼ inch ploughed, tongued, and beaded deal, and to have three cross bars, 6½ inches broad, of 1⅛ inch thick deal, nailed on the back of each; and all to be hung on posts with strong cross-tailed hinges. The door frames to be 4 inches by 2½ inches, and strongly batted into the cheeks; the whole to be finished with stops of ¾ inch deal.

The room and closet doors to be made in the same manner, of inch deal, and inch thick cross bars.

The outside doors to have strong stock-locks, and iron lifting latches. The closet doors to have press locks; and the room doors to have latches. The window-sashes to be all framed two inches thick, with ¾ inch astragals, to have corresponding cases, and to be glazed with 3rd crown glass. The sashes to receive a priming coat of good white lead before being glazed.

The doors and windows to be finished with 3-4th inch deal facings, four inches broad. All the apartments to have plain skirting, of 3-4th inch deal, six inches deep. The closets and pantries to be shelved, as shown in the plans, with inch deal.

The sinks in sculleries, and the seats of the privies, to be framed of 1¼ inch deal.

The hen-houses to be fitted up with roosts and laying boxes; and the yards to be closed up with spars of one inch square, nailed on top and bottom rails of 1¼ inch deal, three inches broad.

The framing of the windows to be Memel, the flooring and roofing to be Dram battens. The doors to be cut out of either Memel or Petersburgh battens; the inside finishings to be American deal. The whole to be of sound timber well seasoned.

*Slater Work.*—The roofs to be covered with such of the following slates, as can be conveyed, at the lowest rate, to the district, viz. Easdale, Ballachulish, Dunkeld, or the best Aberdeenshire blue slate.

*Lead Work.*—The ridges and flanks to be covered with lead, 12 inches broad, and of five pounds to the superficial foot. The scullery-sinks to be lined with lead, at six pounds per superficial foot; to have feeding 3-4th inch pipes and two inch soil pipes, leading into the drains; each sink to have a crane and plug, (or the sinks may be cut out of stone, if it be found in the district at a lower rate.)

*Plaster Work.*—All the walls, ceilings, and partitions, to be finished with two coats of good plaster lime, hard finished.

*Painting*.—The whole outside doors and windows to get three coats of the best oil paint.

The tradesmen to furnish the whole material and workmanship; but all the land carriages to be done for them; therefore the estimate will be formed accordingly.

Agreeably to the above specifications, the different cottages, as designed in this work, will cost as follows:—

| | | | | |
|---|---|---|---|---|
| Design No. 1. | Double cottage, £30 each, . . . . . | £60 | 0 | 0 |
| Do. | 2. Single cottage, No. 1. . . . . | 70 | 0 | 0 |
| Do. | 3. Do. do. No. 2, . . . . . | 75 | 0 | 0 |
| Do. | 4. Do. do. No. 3, . . . . . | 83 | 0 | 0 |
| Do. | 5. Double cottage, No. 1, £65 each, . . | 130 | 0 | 0 |
| Do. | 6. Do. do. No. 2, 68 each, . . . | 136 | 0 | 0 |
| Do. | 7. Do. do. No. 3, 80 each, . . | 160 | 0 | 0 |
| Do. | 8. Combined cottage for 4 families will cost £63 each, | 252 | 0 | 0 |
| Do. | 9. A range of cottages for six families will cost £60 each, . . . . . | 360 | 0 | 0 |

It may be useful here to detail the different kinds of ashlar-work, as practised with freestone, which is the most common building stone that is used in this country.

1st. *Broached Ashlar* is that which is finished on the face with a square tool drawn to a sharp point, called a puncheon. It is run along the face of the stone in straight parallel lines; and the fineness of the work depends upon the closeness and regularity of the lines or grooves, which vary from 25 or 30, to 70 or 80 in the foot. Broached ashlar should always have a margin-draught round the edges of the sides and ends, and the finer the broaching, the narrower the draught should be.

2d. *Droved Ashlar* is that which is finished on the face with a broad flat-edgetool, called a drove. It varies from one to two inches in breadth; and the harder the stone, the narrower must the drove be. After the stone is properly prepared, it is run regularly along with the tool, the workman always beginning at the side next himself; and the beauty of the work consists in the marks of the drove being equal in size, and opposite each other.

3d. *Tooled Ashlar* is finished with a broad drove, the marks of which must be of exactly the same size, taken out deep, and run straight across the stone in a regular manner, like parallel flutes, and placed perpendicular in the building. It is well adapted for the basement course of a building, where the rest of the work is polished, and is also used for the finish of gate pillars.

4th. *Droved and Striped Ashlar*.—This is first prepared in the same way as droved ashlar, and then striped with a tool one quarter of an inch broad. The stripes are kept about one inch apart. A good example of this kind may be seen on the side and north front of the Register house, Edinburgh.

5th. *Polished Ashlar*.—This kind of work is first prepared with a short drove, and made quite equal on the face. The work is then finished by rubbing or polishing the face with a piece of sandstone and water. The term is inappro-

priate, inasmuch as the surface does not receive a polish properly so called, and might be changed for that of *smoothed* ashlar.

6th.—A kind of ashlar work, dotted on the face with a pick is a good deal used for piers and bridges. A very fine specimen of it may be seen in the new lodge and gateway at Heriot's hospital. It is closely picked on the face with a puncheon, and makes a handsome ground for the ornamental work. The projecting angles should be finished with a broad margin, and back filleted.

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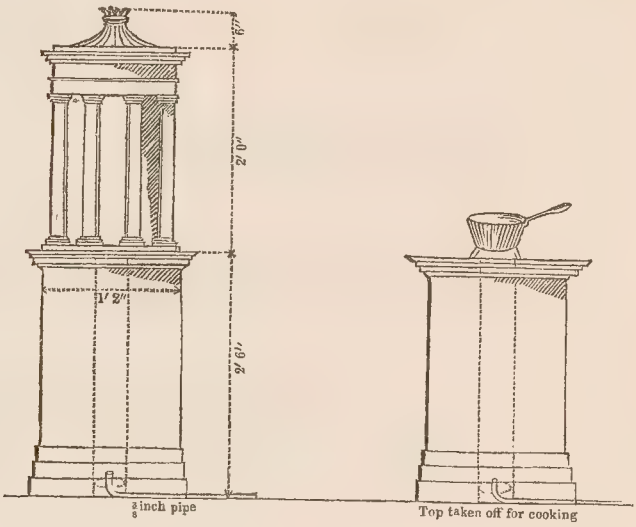
SKETCH OF THE MODEL FOR HEATING AND COOKING BY GAS, AS EXHIBITED IN OPERATION IN THE CALEDONIAN MUSEUM, WEMYSS PLACE, EDINBURGH.




The importance of the application of coal gas to warming houses does not yet appear to have received that attention which the subject naturally deserves. An interesting notice of the capabilities of gas, applied as a heating medium was brought before the Society of Arts for Scotland, on the 12th March last, by Mr R. Ritchie, Ironmonger to their Majesties, Edinburgh. By a small stove which he has made, and exhibited in operation before the Society, after using it for some months previous, he showed that a stream of warm air of 12 square inches, moving at the ordinary rate at which warm air passes from heated air stoves, could easily be raised to a temperature considerably above the boiling point, without injuring the purity of the air: with a very small supply of gas; little more indeed than what is required for a common argand burner.

Taking the quantity required to heat an ordinary sized stove on Mr Ritchie's plan at six feet per hour, and allowing eight hours a-day as the common range of burning in severe weather, the total quantity of gas required for ordinary consumption would be 48 feet.

This, at the rate of charge for gas in Edinburgh, (11½d. per 100 feet,) would be under sixpence per day; being little more than would be incurred in ordinary management, to heat an iron stove of equal power with coal, or any other

fuel. The gas also presents several very important advantages; these, as pointed out by Mr Ritchie, seem to be the great saving of trouble, requisite in attending a stove, to keep up a uniform and regular temperature; the absence of dust, smoke, and ashes. The inconveniences from gas seem very trifling indeed, if the chief difficulty can be overcome; that of the separating the current of air to be warmed, from the chamber where the gas is burned, to avoid the least risk of smell, or the consumption of the oxygen of the air in the apartment; which would be of most material consequence in the cases of warming the apartments of invalids. This, Mr R. has pointed out, can easily be done, if the stove is made a fixture, which undoubtedly would be the plan adopted, if this manner of heating was generally introduced in houses, whereby the purity of the warm air could be insured, and the velocity of the current increased by giving a greater rise to the air. From the stove, however, made and now exhibited in the Caledonian Museum, in Wemyss Place, it is shown how very simply and safely gas may be applied to heat a *portable warm air stove;* and that this stove can be used with or without the cockle, or inner cover, at pleasure, and can readily, in one moment, be converted into a cooking apparatus. Mr R. has also suggested, and can show by his model, the great simplicity with which heat may be conveyed to a distance, in iron tubes, of 3, 4, or 5 inches diameter, admitting the heat to be conveyed with ease and safety. This arises from the great draught created in placing an iron funnel above the burner; which would also tend, in a great measure, to prevent those numerous and fatal accidents, of so frequent occurrence to children taking fire when left without attendants in the cottage of the poor. It seems to us, therefore, that Mr Ritchie's plan might be very useful, as applicable to cottage warming; as in one instant the apparatus can be applied to cooking, and in the next in warming, as exhibited in the engravings at the head of this notice. It would enable the cottager to leave his cottage in safety with the gas burning, and the cottage would be kept in a comfortable state of warmth, at an expense not more than what it would take to keep fuel constantly burning in an open fire-place, where one half of the heat passes up the chimney, and the cottage is filled with smoke. (Every cottage ought, nevertheless, to have a chimney for ventilation.) Mr Ritchie's plan simply consists in applying a small iron cockle, or cover, above the burner, leaving sufficient space to admit air to carry on the combustion freely; and, in order to retain the heat longer at a lower level of the apartment, from the steady radiation of the metal, an outer case is put over the cockle, leaving a few inches of space between the cases, the air being admitted below or from without as convenient.

A steady current of air passes rapidly upwards, throwing a stream of warm air, at a high, or a moderate temperature, according to the quantity of flame; it being obvious that the degree of warmth is increased or diminished, according to the power of increasing the velocity of the current.

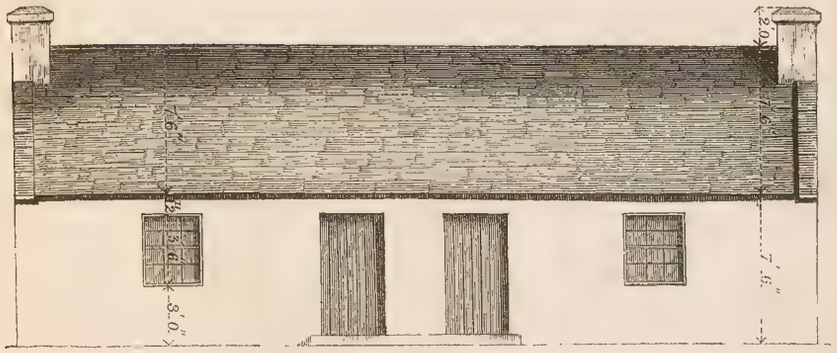
The advantages which this plan of warming possess, consist in easily admitting the external air to be warmed; the separating the air where the gas is burned, from the air heated; and the conveying the consumed air to a chimney or other flue. All these, Mr Ritchie in his model, has shown, can readily be applied; but, in his opinion, the plan can also be so far simplified, when required merely to give heat, as to allow of the inner cockle being entirely removed, and

only an outer case used, to protect the flame from being accessible to children, while the gas is set on with a key, which the person then removes. Mr Ritchie has also shown that another simple plan of a safety stove heated by gas, without using the wire gauze at all, might be introduced.

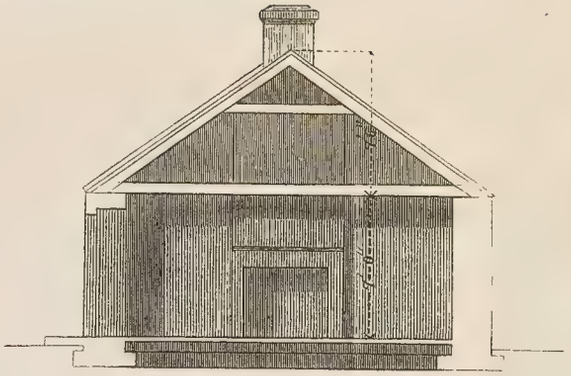
It is generally considered, however, that an increase of heat is gained by burning the gas through the wire gauze, from the more thorough combustion which takes place; this is, however, of less consequence, if the value of gas in any way, as a heating medium, be proved; and if the expense does not operate against its use in different places, where gas may be higher than at Edinburgh. The important advantages, as already pointed out, must make such a manner of heating, in particular cases, where expense is of minor importance to utility, of great value to the community.

# DESIGN I.

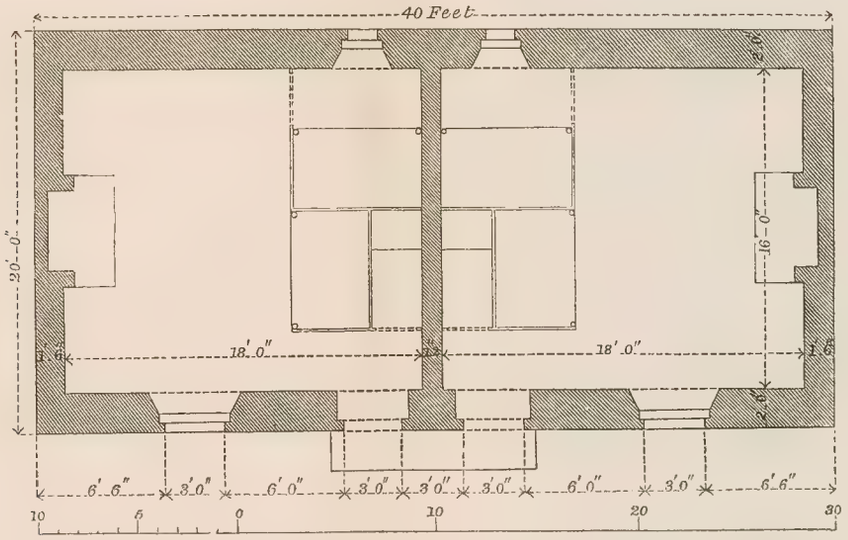
## Ground Plan, Elevation, and Section of a Double Cottage.




ELEVATION.



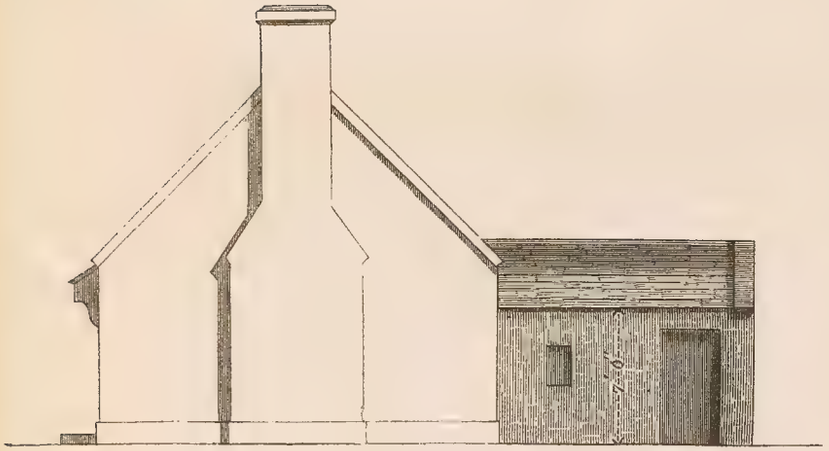

SECTION.



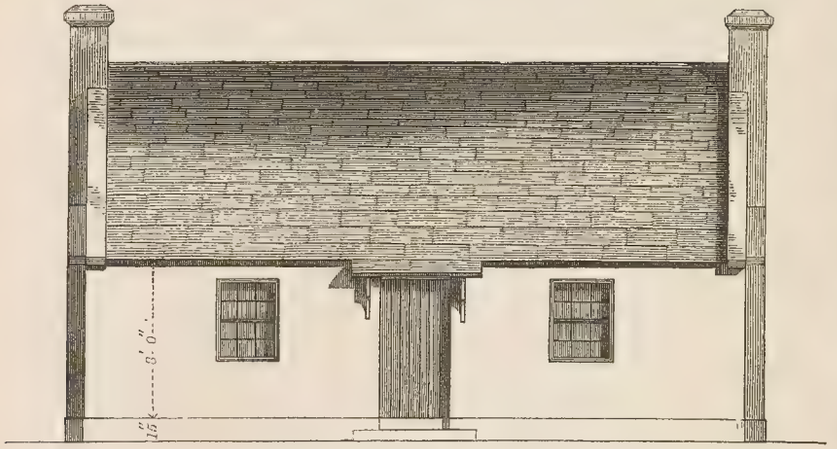

GROUND PLAN.

# DESIGN II.

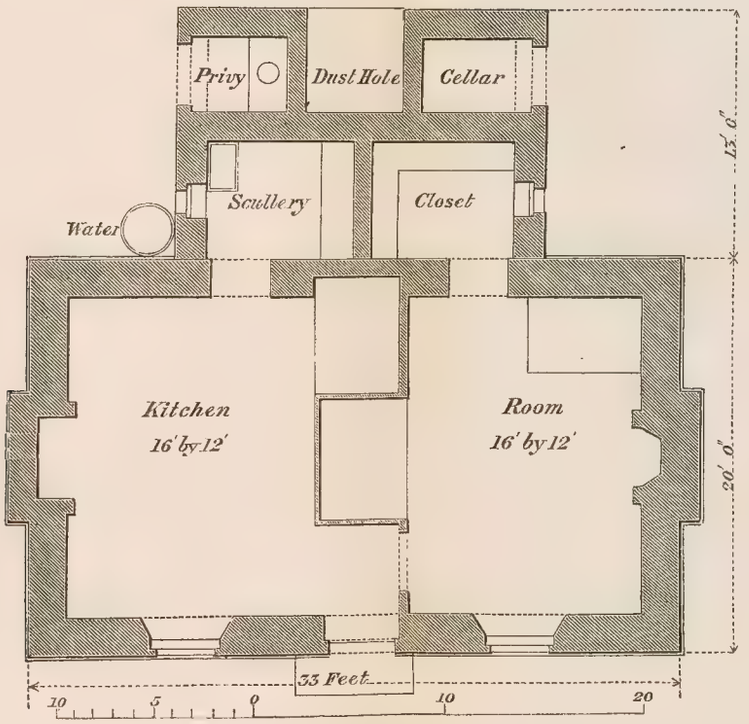
## Ground Plan and Elevation of a Single Cottage.




END ELEVATION.



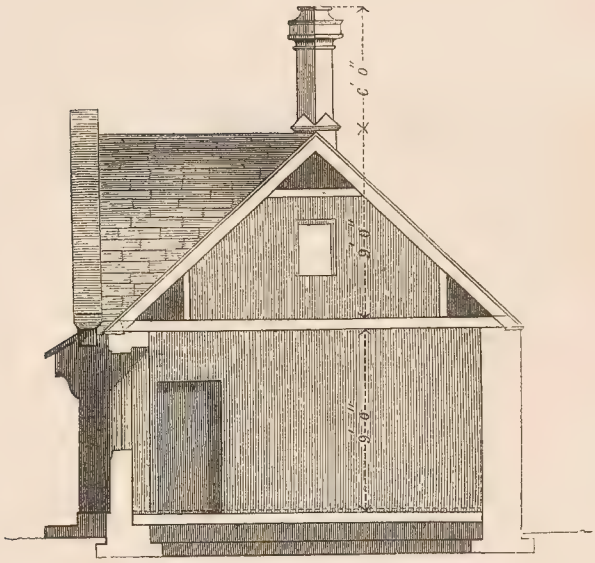

FRONT ELEVATION.



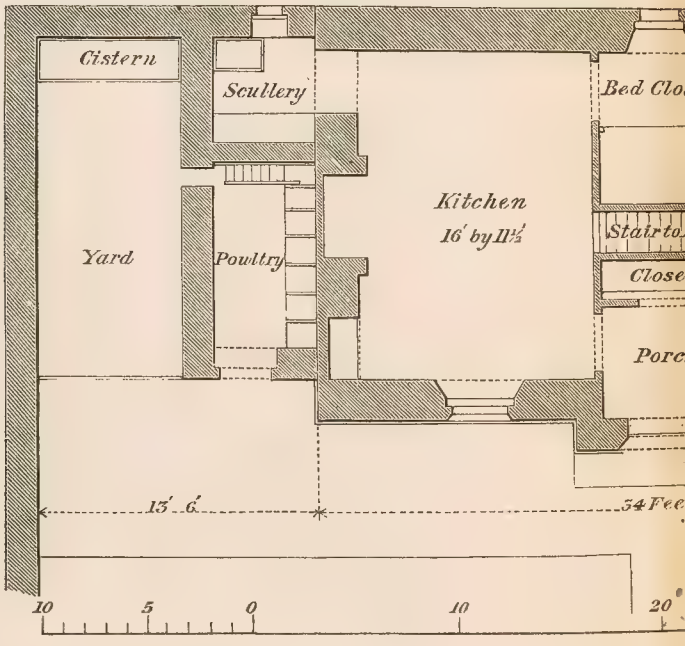

GROUND PLAN.

# DESIGN

## Ground Plan, Elevation, and Section




SECTION.

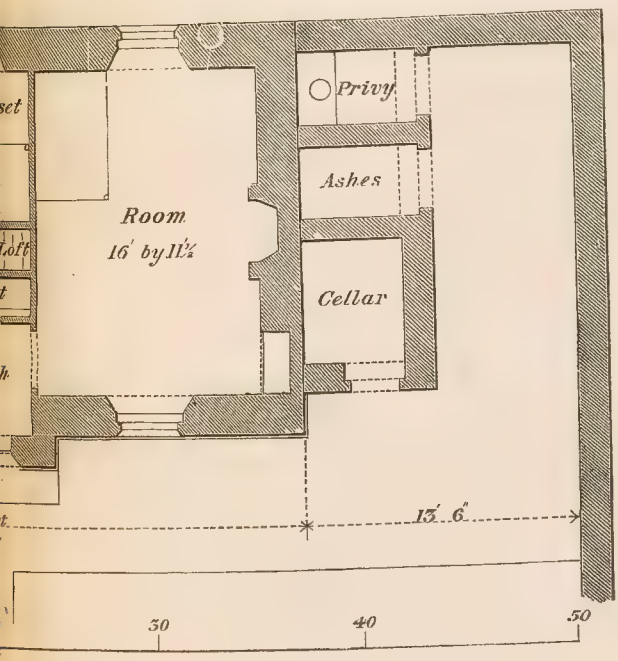



GROUND

## ...II.

...of a Single Cottage.


ELEVATION.

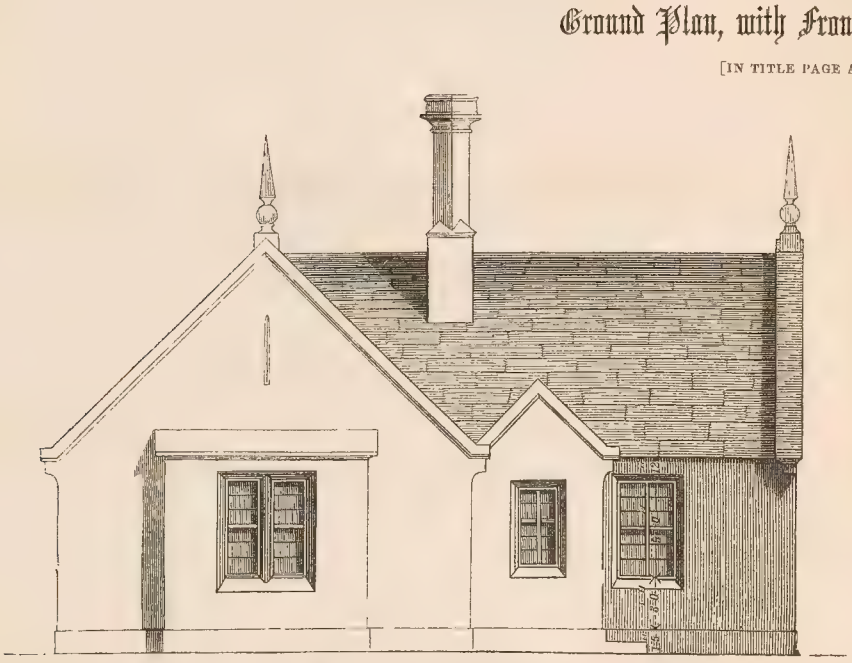



PLAN.

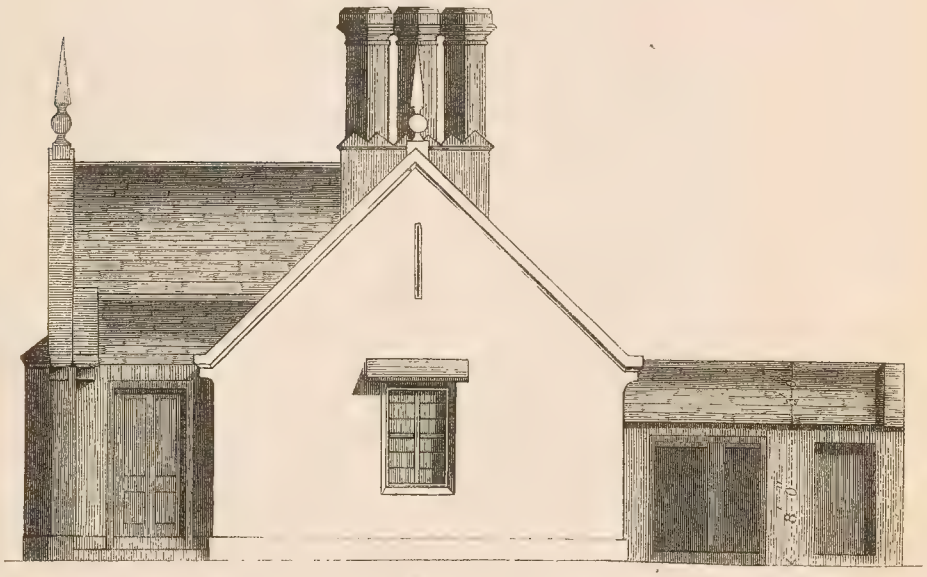
# DESIG

## Ground Plan, with Front and En

[IN TITLE PAGE A PERSPECTIVE



FRONT ELEVATION.

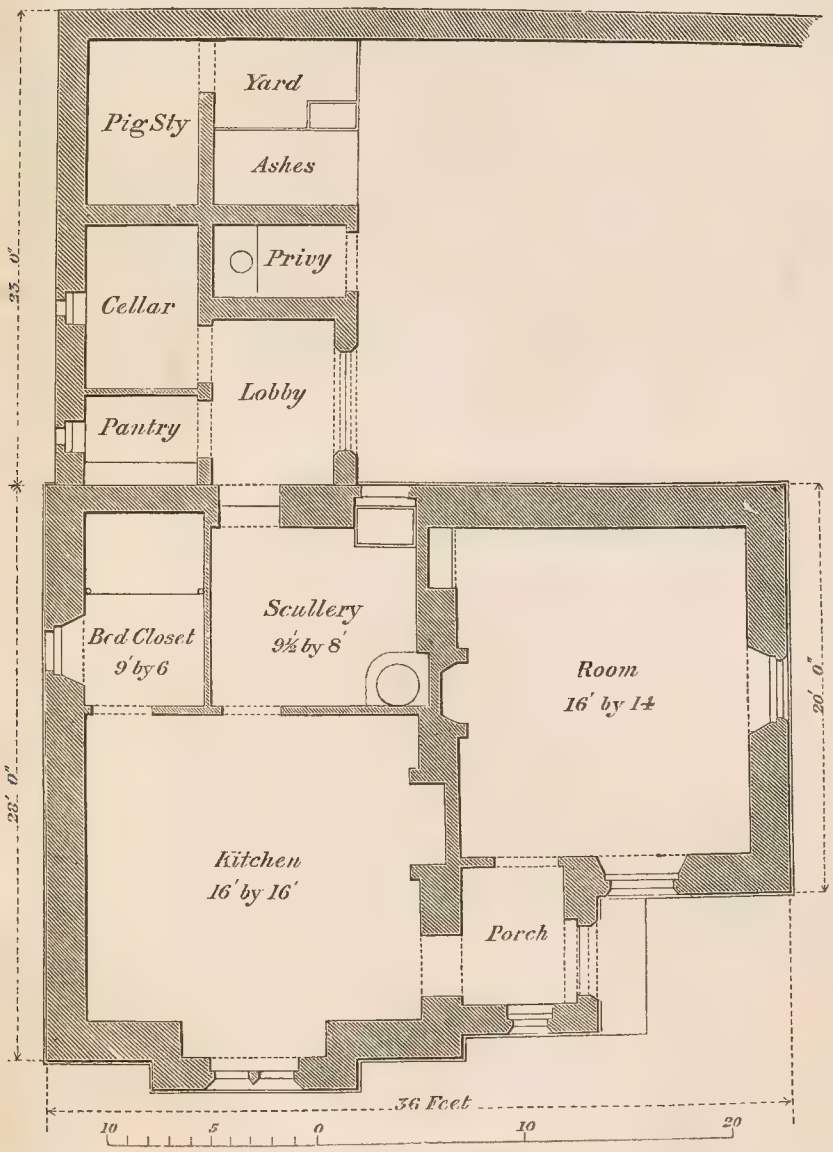


END ELEVATION.

# N IV.

## d Elevations of a Single Cottage.

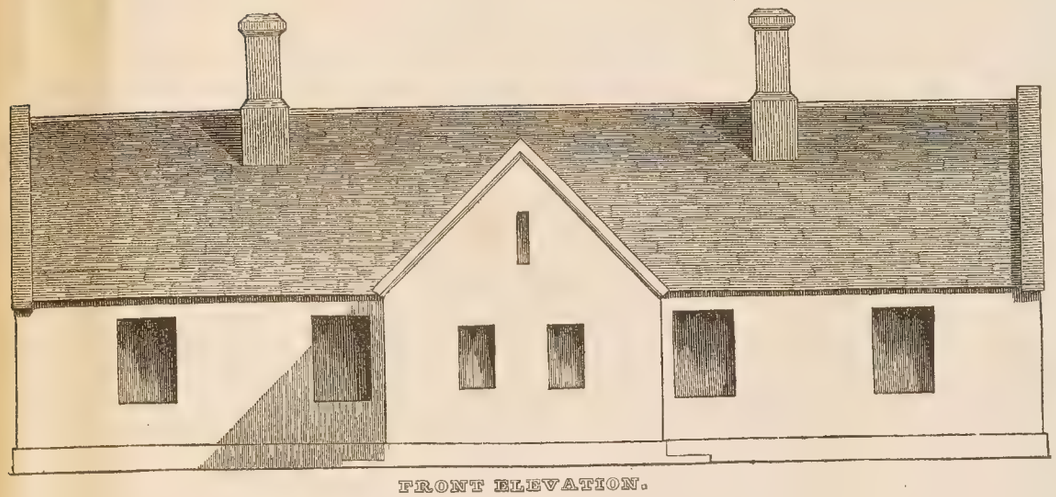
E IS GIVEN OF THIS COTTAGE.]



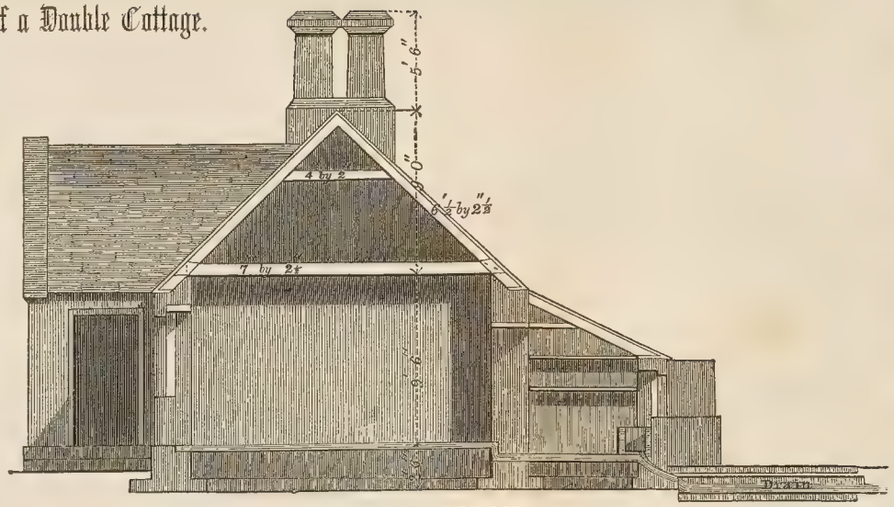

GROUND PLAN.

# DESIGN V.

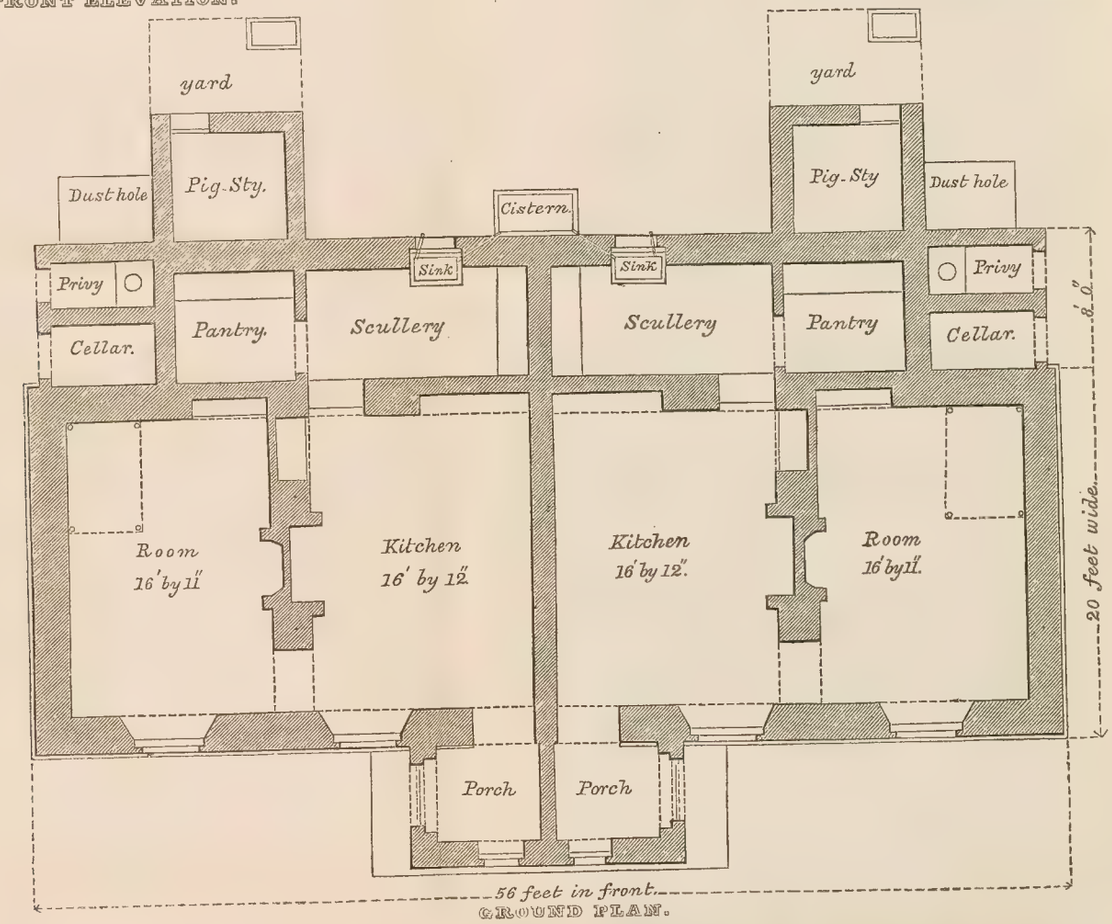
## Ground Plan, Elevation, and Section of a Double Cottage.



FRONT ELEVATION.



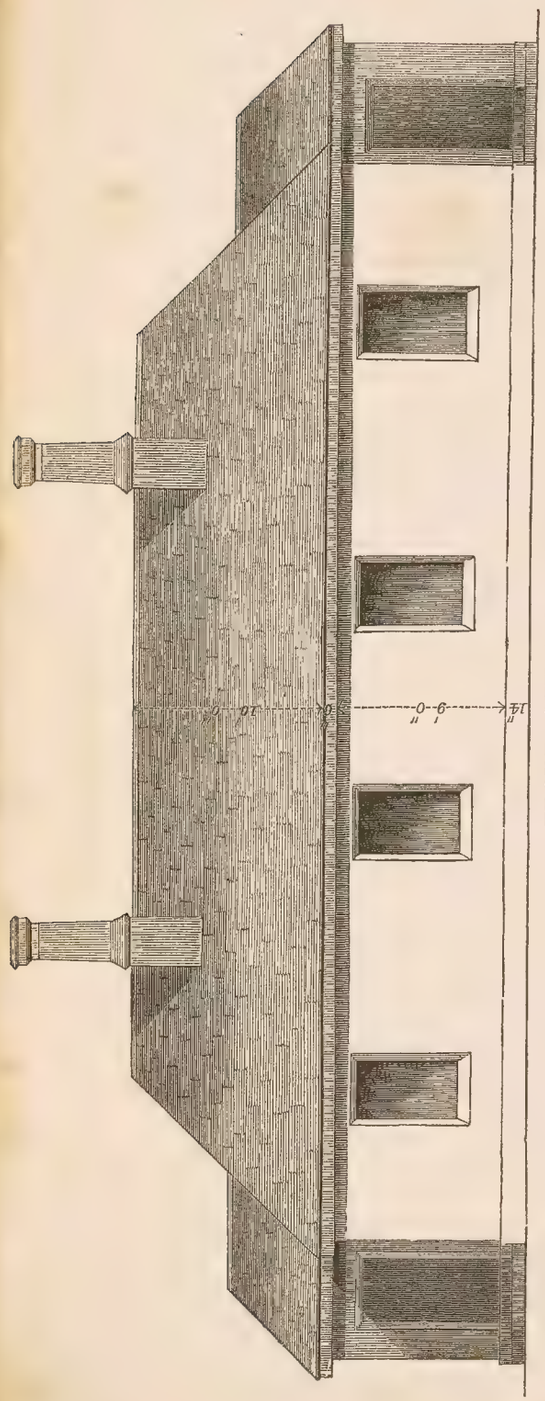

END ELEVATION.



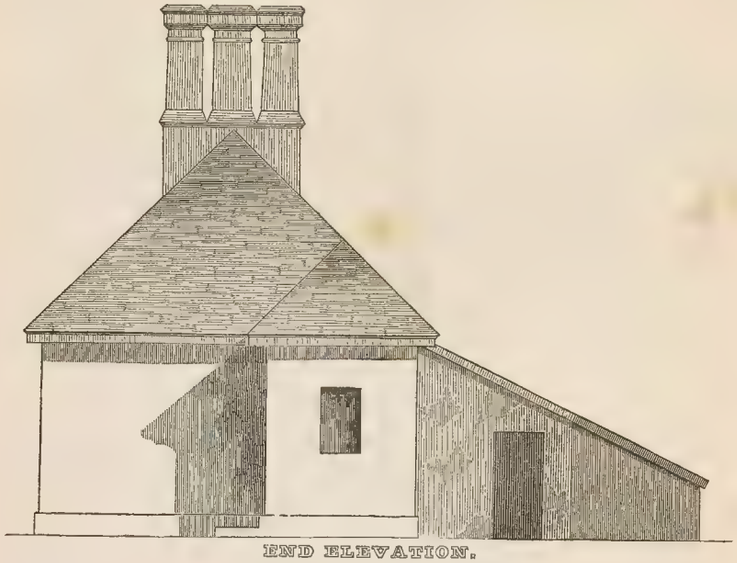

GROUND PLAN.

# DESIGN VI.

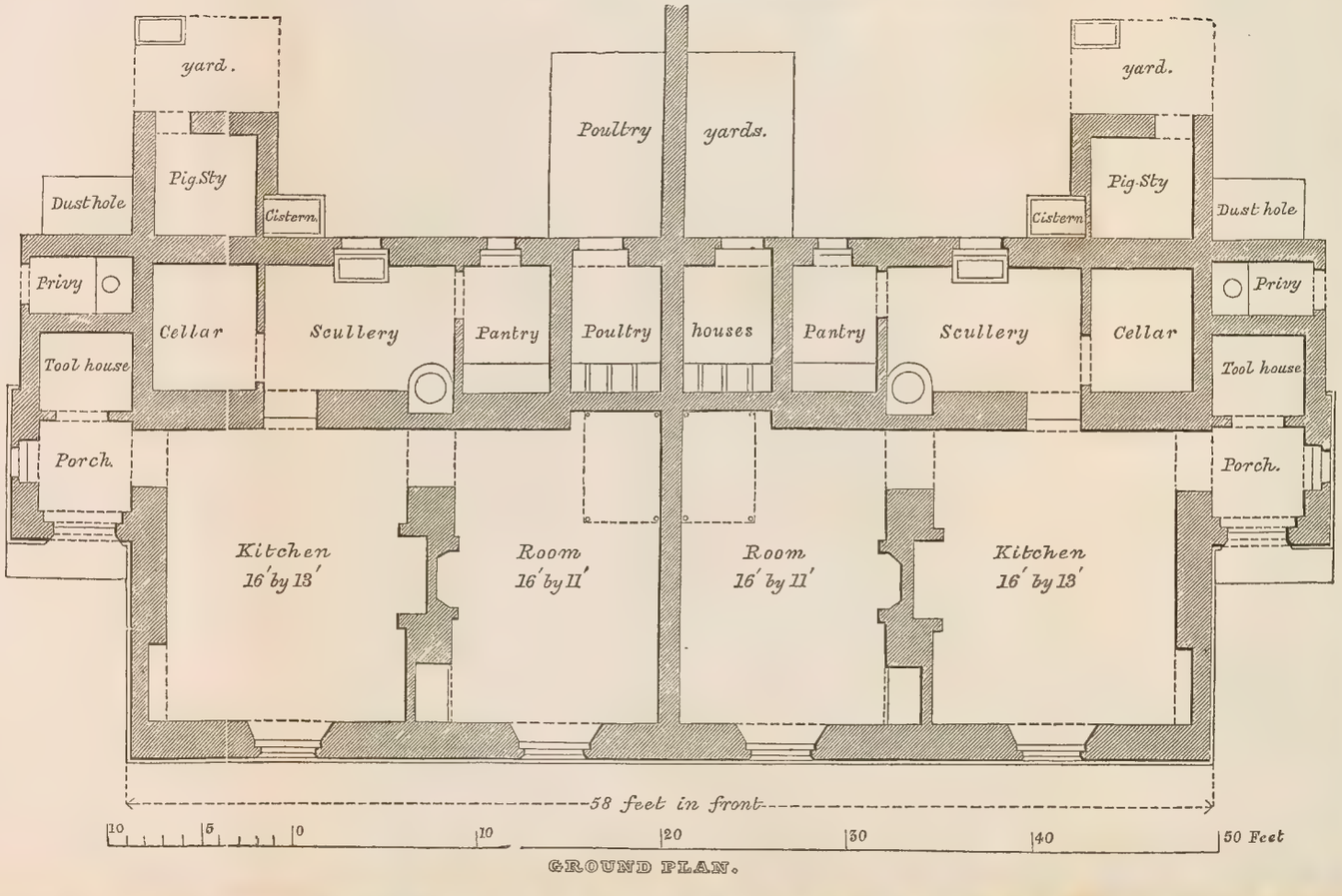
Ground Plan, with Front and End Elevations of a Double Cottage.



FRONT ELEVATION.



END ELEVATION.



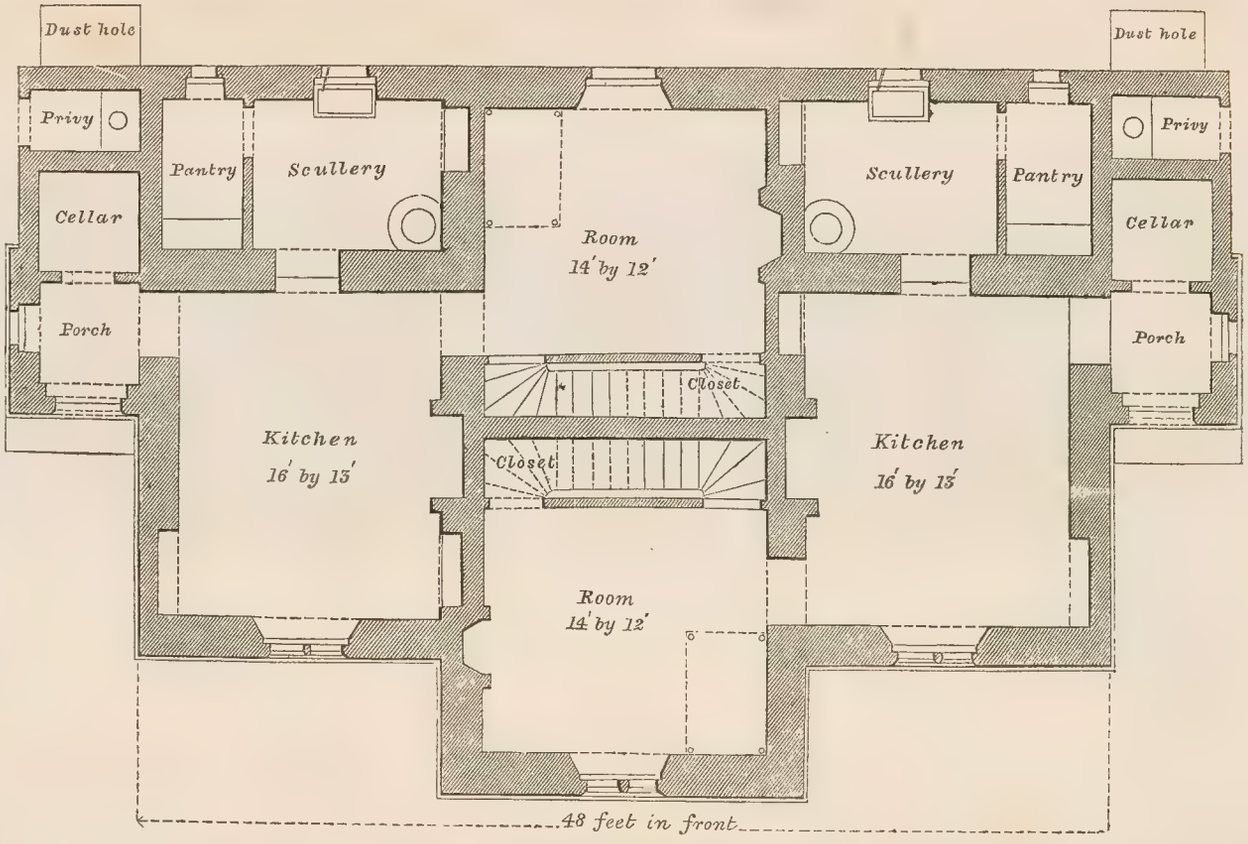

GROUND PLAN.

# DESIGN VII.

## Ground Plan and Elevation of a Double Cottage.

[FOR SECTION OF THIS COTTAGE, SEE PLATE OF *DETAILS.*]

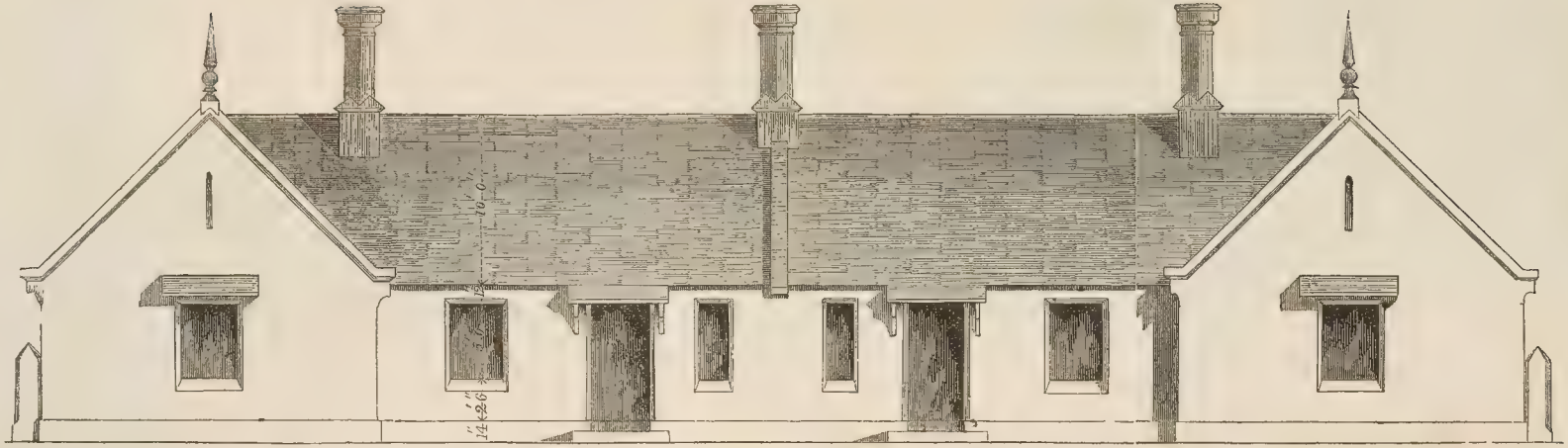
ELEVATION.



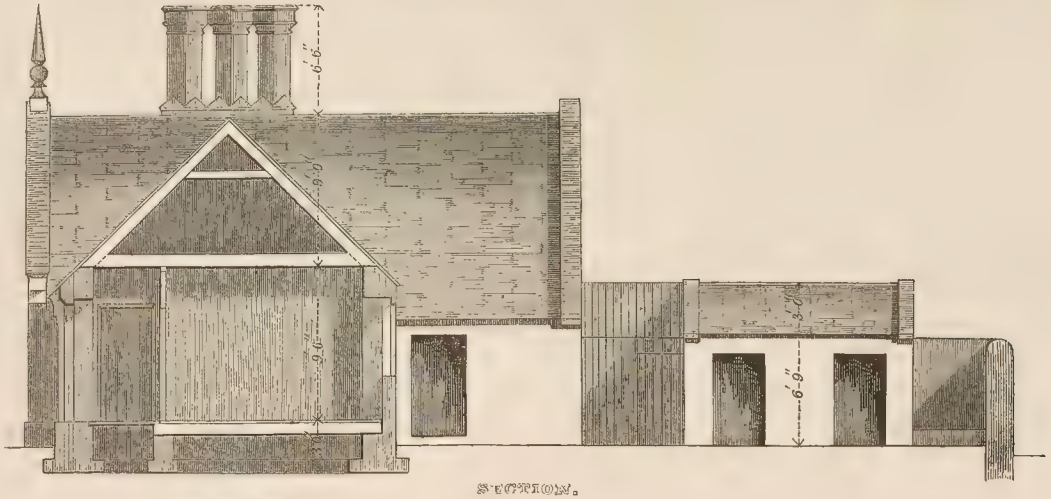

GROUND PLAN.

# DESIGN VIII.

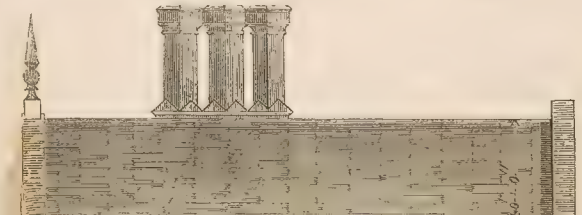
Ground Plan, Elevations, and Section of a Combined Cottage for Four Families.

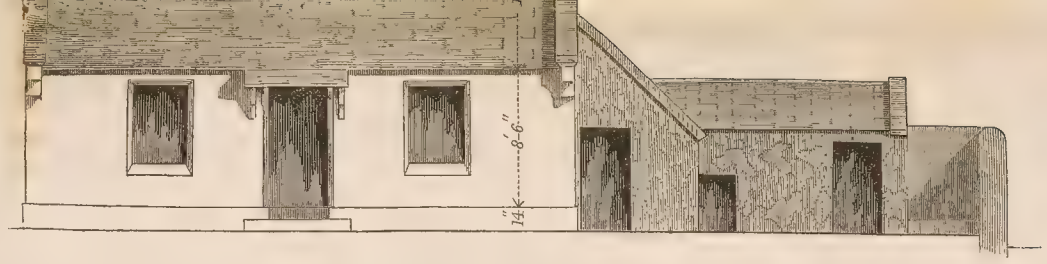



FRONT ELEVATION.

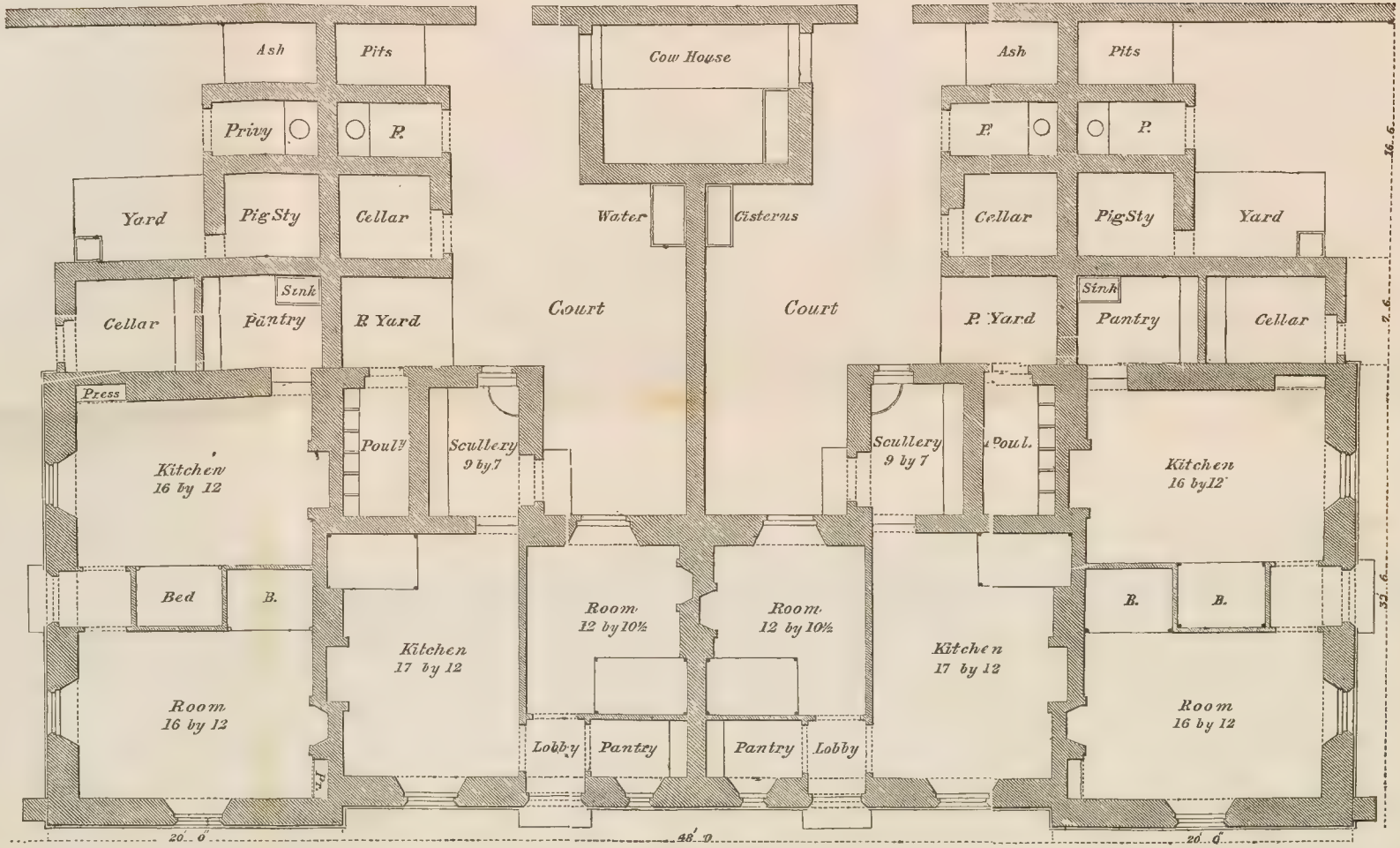



SECTION.






END ELEVATION.

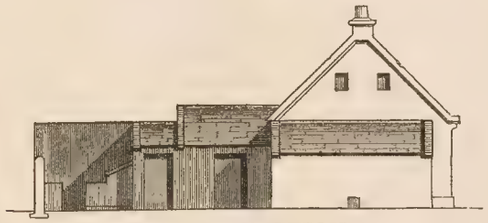



GROUND PLAN.

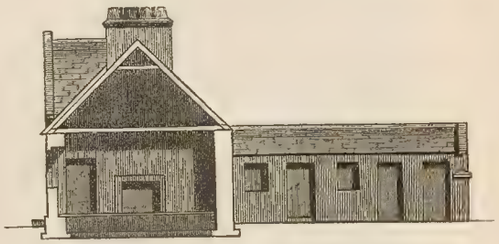
# DESIGN IX.

Ground Plan, Elevations, and Section of a Range of Six Cottages.

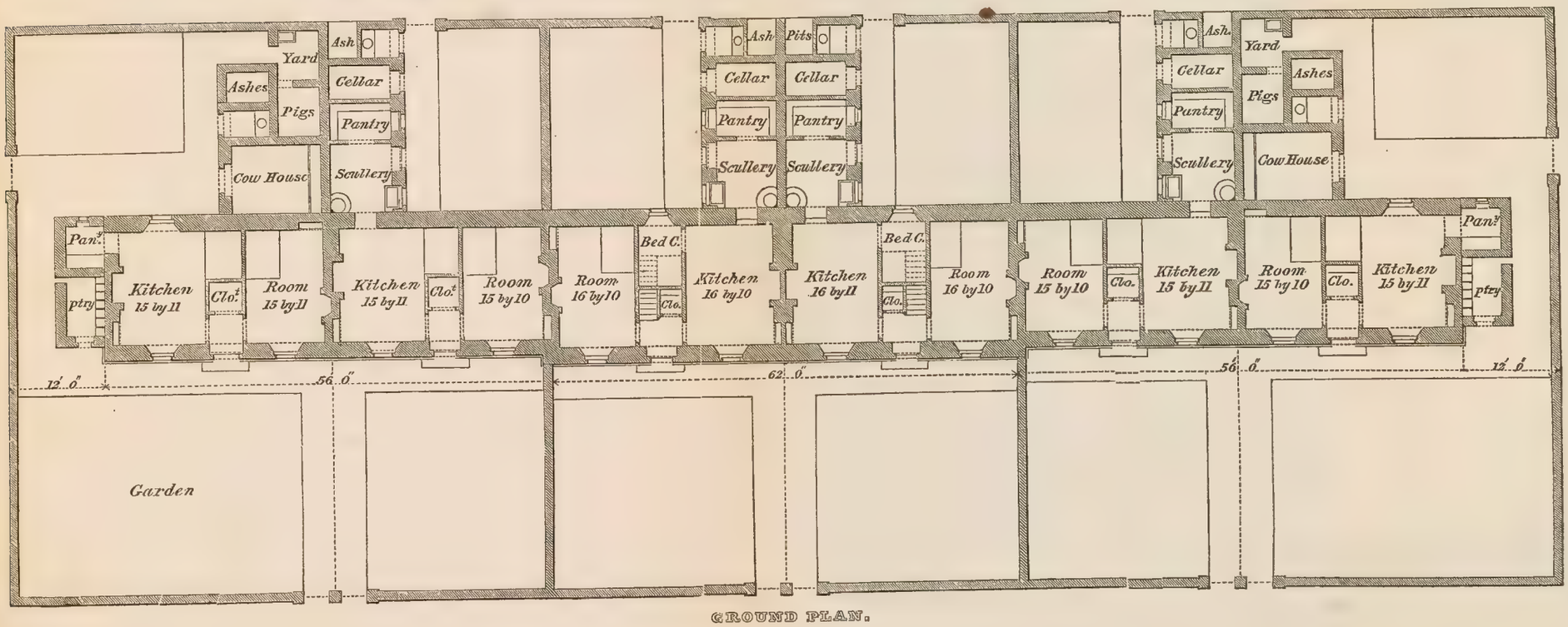
FRONT ELEVATION.



END ELEVATION.



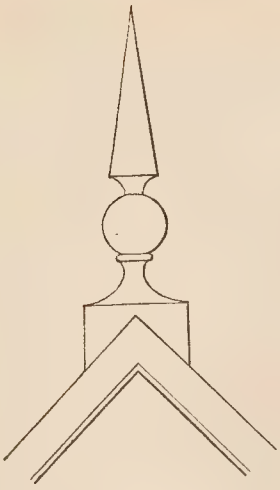
SECTION.



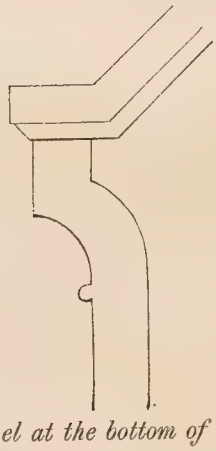

GROUND PLAN.

10 5 0 10 20 30 40 50 60 70 80 90 Feet

# DETAILS.

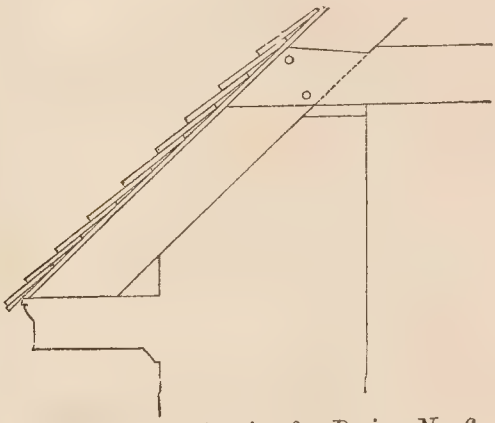


*Pinnacle for Gabels.*

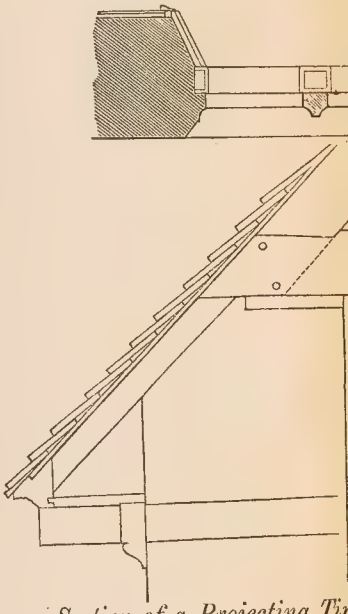


*Corbel at the bottom of Gabels.*

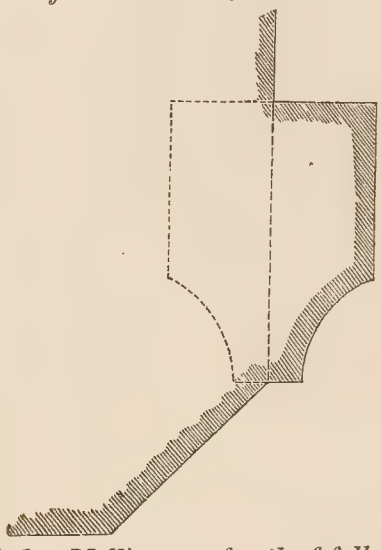
*Elevation and Plan of Win*



*Section of Stone Cornice for Design No. 6.*



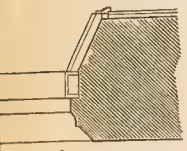
*Section of a Projecting Tin*



*Window Mullion, one-fourth of full size.*

*Label Moulding ove*

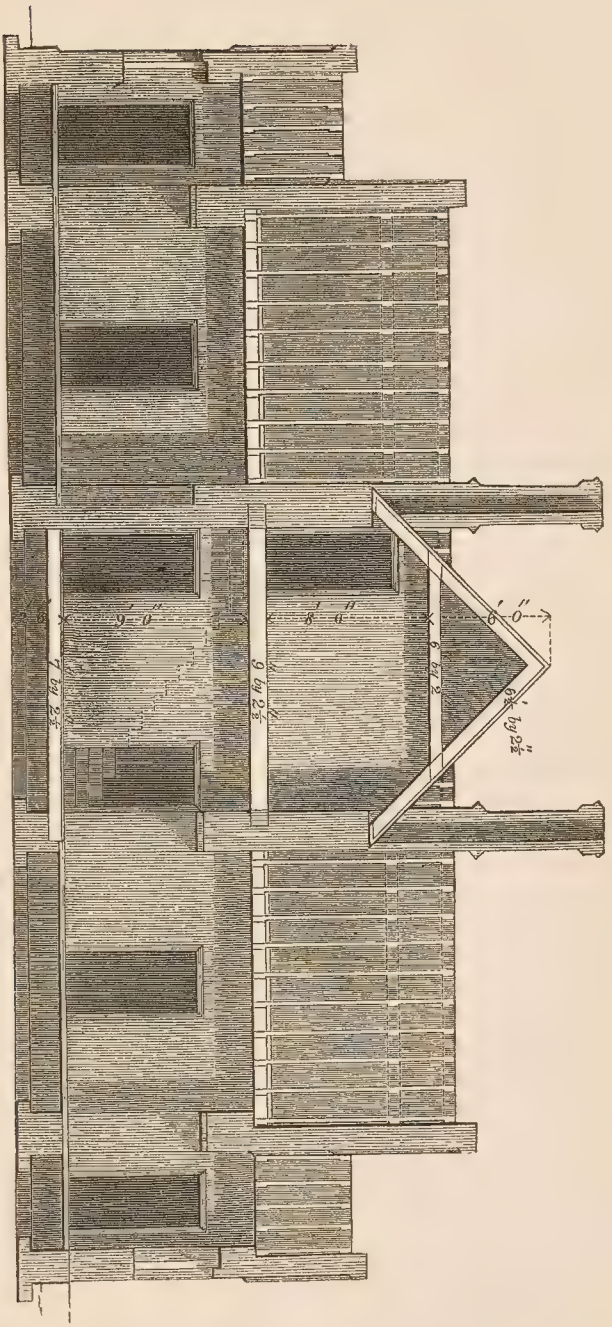
dow for Design No. 7.



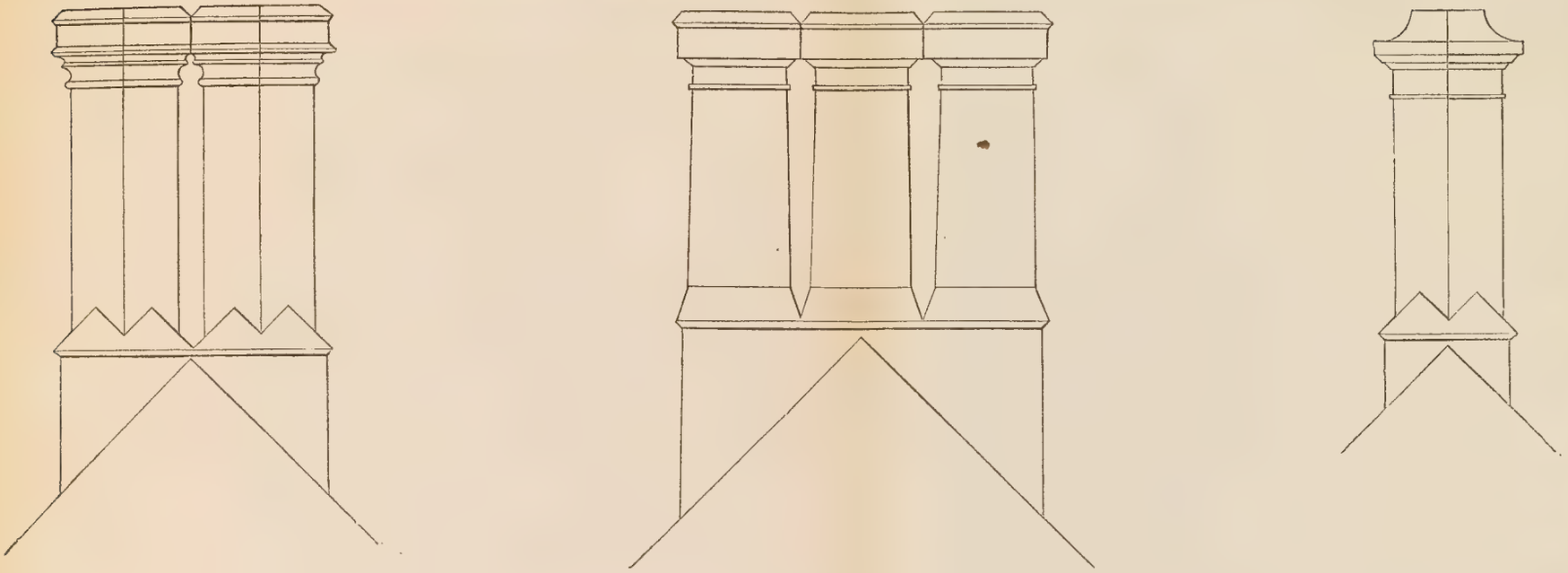
nber Cornice.

r Window.

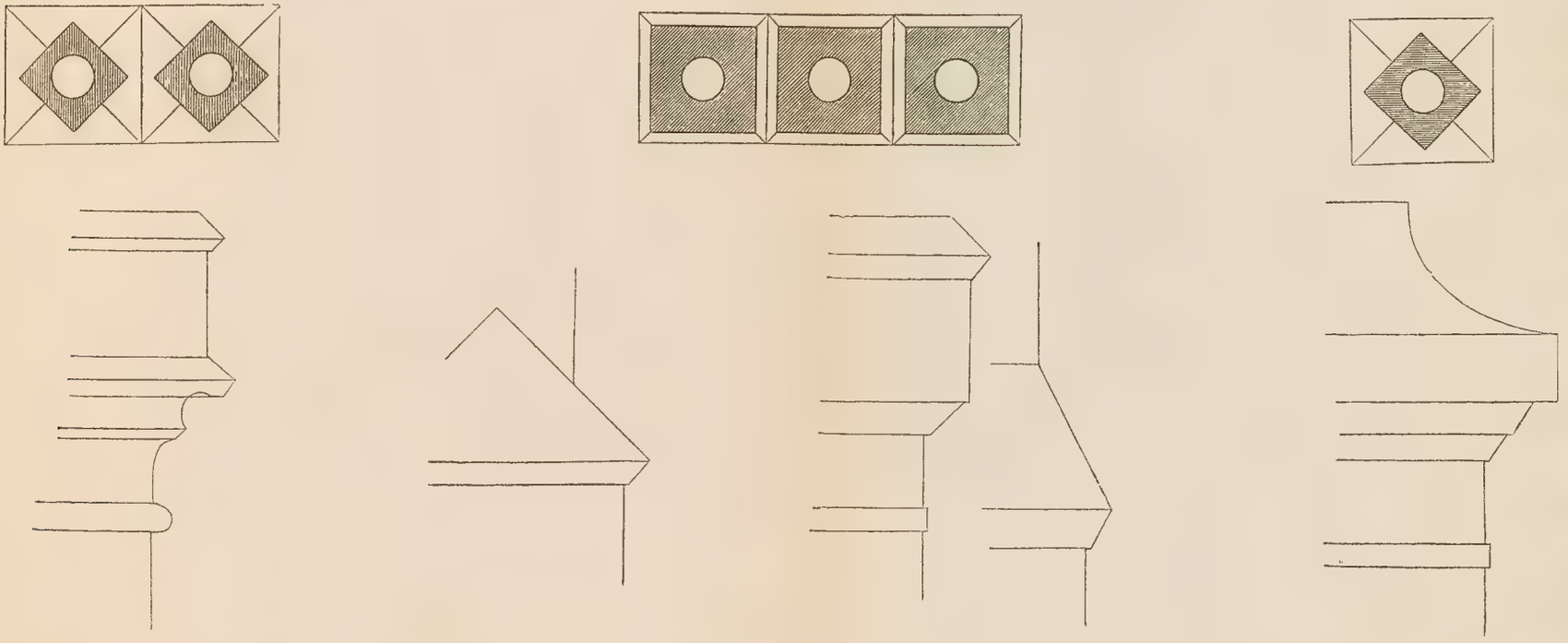
SECTION OF DESIGN NO. 7.



# CHIMNEY TOPS AND DETAILS.



*Elevations and Plans of Chimney Tops, to a scale of* 3 *inches to the* 10 *feet.*



*Cope and Base Mouldings to one-tenth of full size.*