

H O M E S  
FOR  
HOME-BUILDERS;  
OR  
PRACTICAL DESIGNS  
FOR  
COUNTRY, FARM AND VILLAGE.

EDITED BY  
DAVID W. KING, ARCHITECT.

WITH NEARLY TWO-HUNDRED ILLUSTRATIONS.



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1886.

eighteen inch shingles, on good cullled boards, dressed. Cupola, gables, windows, etc., as shown in the illustrations.

**COST OF MATERIALS AND LABOR.**

2 sills, 8 by 8 inches, 22 feet long.	8 purline beams, 6 by 8 in., 16 ft. long.	
4 sills, 8 by 8 inches, 20 feet long.	40 rafters, 2 by 6 inches, 24 feet long.	
3 sills, 8 by 8 inches, 30 feet long.	60 joists, 2 by 8 inches, 15 feet long.	
6 posts, 8 by 8 inches, 16 feet long.	60 joists, 2 by 10 inches, 20 feet long.	
8 beams, 8 by 8 inches, 30 feet long.	60 studs, 2 by 6 inches, 16 feet long.	
4 plates, 8 by 8 inches, 22 feet long.	100 pieces, 2 by 4 inches, 12 feet long.	
4 purline plates, 6 by 8 inches, 22 ft. long.	75 pieces, 2 by 4 inches, 18 feet long.	
6 purline posts, 6 by 8 inches, 14 ft. long.	50 pieces, 4 by 4 inches, 18 feet long.	
Total timber, 11,600 feet, at \$18.....		\$208.80
2,000 feet roofing, at \$12.....		24.00
15,000 shingles, 18 inches, at \$4.50.....		67.50
2,800 feet novelty siding, at \$22.....		61.60
2,000 feet best common finishing boards, at \$30.....		60.00
500 feet battens, at 8 cents.....		4.00
5,000 feet 6 inch flooring, at \$22.....		110.00
2,000 feet 2 by 12 inch planks, 12 feet, at \$17.....		34.00
1,000 feet 2 by 12 inch planks, 16 feet, at \$17.....		17.00
8 windows, 8 lights, 12 by 14 glass, at \$2.25.....		18.00
2 windows, 3 lights, 12 by 14 glass, at 75 cents.....		1.50
5 windows, 1 light, 14 by 16 glass, at 60 cents.....		3.00
Nails and trimmings.....		40.00
Eave troughs.....		15.60
Foundation, \$35; painting, \$50.....		85.00
Carpenter work.....		175.00
Total cost.....		\$925.00

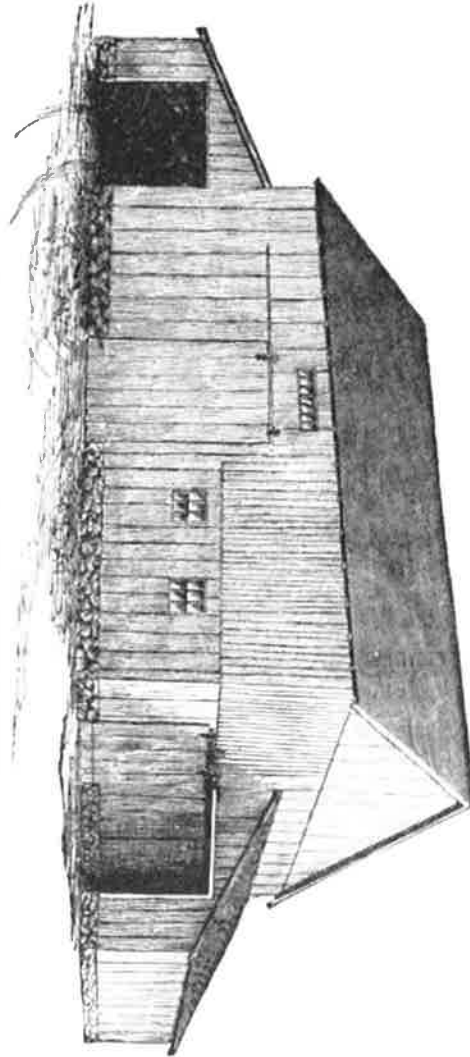
**DESIGN XVI.**

**A SMALL BARN.**

A general barn should provide ample store-room for hay, grain, straw, etc.; comfortable quarters for the live stock; convenient storage for wagons and all farm implements; and the best arrangements for making and preserving fertilizers to be returned to the land. The plan herewith presented is for a barn thirty-six by forty feet, with a lean-to shed upon each end. The threshing floor, eleven feet wide, is entered by a sliding door ten feet high, kept in place at the bottom by a hewed sill, placed nearly on the level of the floor and even with the gravel drive-way outside, making an easy entrance for heavy

loads. First, at the right, entered by a door-way three feet wide, is the shop, six by six feet, provided with work-bench, vise, etc., and lighted by two small windows. There is also a window of six, nine-by-fifteen lights, above the entrance, and a similar one at the other end of the

FIG. 75.—EXTERIOR OF A SMALL BARN.



threshing floor above the roof of the shed, which admit all the light needed. Next to the shop is a floorless room, eleven and one-half by sixteen, suitable for a wagon and farm tools; it is entered by a sliding outside door eight feet wide. A stairway, starting two feet back from the line of the threshing floor, leads through a passage

two and one half feet wide, to the floor of the scaffold and granary. The latter, sixteen by eighteen feet, entered by a door three feet wide, is provided with cribs for corn on two sides, two and one-half feet wide and nine feet high, sufficient for four to five hundred bushels of corn. Bins for other grain may be constructed on the other sides as desired. The loft over the granary is reached by a step-ladder (the fruit ladder may be kept there), and is a good place to store lumber, fruit packages, etc. The horse stable, fifteen and one-half by sixteen feet, is divided into three stalls, and has no floor. The slide door opening into the side shed is used in getting in dry earth and other absorbents, while the manure is thrown out at the rear door. A small door next to the stairs is very convenient, and a similar one opening into the rear stall makes a good place to feed a calf when one is kept there. The hay bay has a girt in front two or three feet high, supported by short studs, upon which boarding is fitted tight to the floor, to prevent any escape of grain in that direction while threshing. Similar boarding in front of the cow stable will serve the same purpose and keep the fodder in place. There should be a permanent ladder at the side of the centre post, reaching from the bay girt to the beam. The boarding in front of the stall next to the hay-mow should be hinged, so as to allow a passage-way there when the stall is not occupied. A sliding door at the rear affords a convenient place to supply absorbents, as well as a short passage to the shed. Through a sliding-board window, eighteen by eighteen inches, the manure may be thrown into a shed, where it can be worked over by hogs, when desirable. The mangers should be two and one-half feet wide, and provided with comfortable ties. The rear door of the threshing floor need not be more than eight feet wide and seven and one-half feet high, to slide on rollers like the others. The stable doors opening into the yard might as well have hinges. The cistern, seven or eight

feet in diameter, should be properly protected from the yard, and supplied with a pump and trough. A gate between it and the corner of the barn would allow the passage of a wagon when desired. There may be a floor

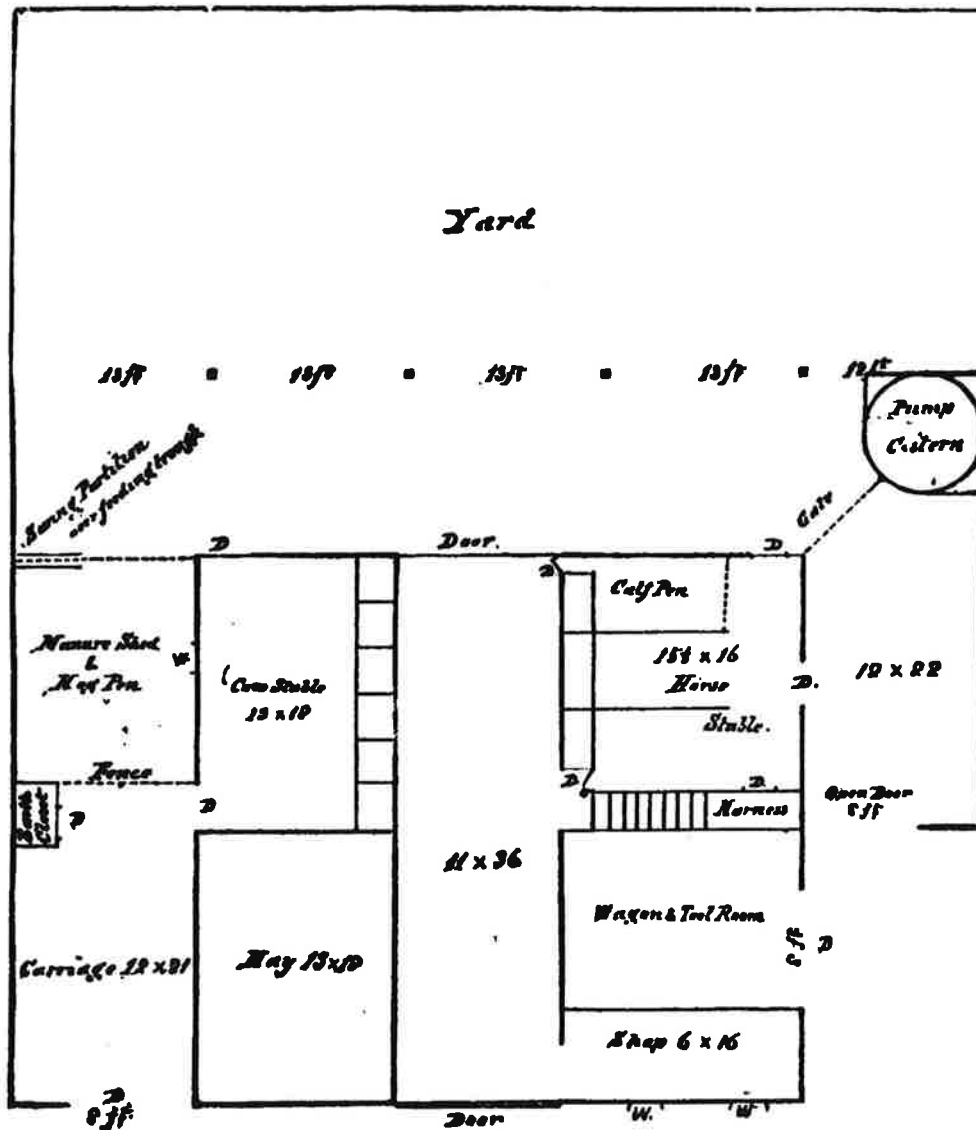


Fig. 76.—MAIN FLOOR OF BARN.

over the rear part of the threshing floor on a level with one in the shed, thus making more room for straw or fodder. The following estimate contemplates boarding the outside with ordinary barn boards, and lining the

cracks with cheap half-inch stuff, two to four inches wide, except the gables, which are without lining and lap over the boarding below the end rafters, being set flush with the same. The crib sides of the granary should be boarded with strips three or four inches wide and an inch apart, being set upon a narrow piece of zinc, nailed over the ends of the lower boards to keep the water out.

In the side of the granary, between the bins and crib, there might be an opening, through which corn could be

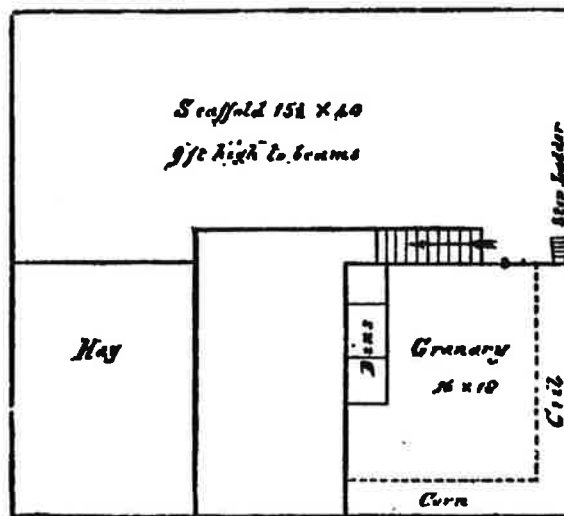


Fig. 77.—LOFT OF BARN.

shoveled from the wagon, and afterwards into the crib. A chute might be constructed, through which grain could be taken directly from the bins to the bags on the wagon in the shed below. The broad boarding upon the side of the wagon-room and granary affords a good place to hang rakes, hoes, shovels, forks, etc., where each can be taken down without disturbing the others, and all be convenient and out of the way. The general appearance of the building might be improved by using dressed boards of uniform width, and covering the cracks with good battens; and further by surmounting the roof with a neat ventilator, and covering with paint. The stables might be paved and cemented at no very great cost.

COST OF MATERIALS AND LABOR.

*Sills.*

- 2 40 feet long, 6 by 6, 240 feet.
- 3 36 feet long, 6 by 6, 324 feet.
- 1 48 feet long, 6 by 6, 144 feet.
- 1 30 feet long, 6 by 6, 90 feet.
- 1 22 feet long, 6 by 6, 66 feet.
- 3 16 feet long, 6 by 6, 144 feet.
- 2 11 feet long, 6 by 6, 66 feet.
- 1 13 feet long, 6 by 6, 39 feet.
- 3 8 feet long, 6 by 6, 72 feet.
- 1 6 feet long, 6 by 6, 18 feet.
- 2 4 feet long, 6 by 6, 36 feet.

*Posts.*

- 12 16 feet long, 6 by 6, 576 feet.
- 7 6½ feet long, 6 by 6, 136 feet.
- 4 8 feet long, 6 by 6, 96 feet.

*Beams.*

- 4 36 feet long, 6 by 6, 432 feet.
- 4 16 feet long, 6 by 6, 192 feet.
- 3 18 feet long, 6 by 6, 162 feet.
- 1 13 feet long, 6 by 6, 39 feet.

*Plates.*

- 2 13 feet long, 6 by 6, 78 feet.
- 2 11 feet long, 6 by 6, 66 feet.
- 2 16 feet long, 6 by 6, 96 feet.
- 2 purline, 40 feet long, 3 by 6, 120 feet.
- 1 shed, 64 feet long, 3 by 6, 96 feet.
- 1 shed, 48 feet long, 3 by 6, 72 feet.
- 1 shed, 30 feet long, 3 by 6, 45 feet.

*Girts, Braces, etc.*

- 50 pieces 16 feet long, 3 by 4, 800 feet.
- 6 pieces 13 feet long, 3 by 4, 78 feet.
- 20 pieces 18 feet long, 3 by 4, 360 feet.

*Rafters.*

- 43 24 feet long, 3 by 4, 1,008 feet.
- 71 14 feet long, 3 by 4, 994 feet.

*Joists.*

- 16 12 feet long, 2 by 6, 208 feet.
- 16 16 feet long, 2 by 6, 256 feet.
- 12 16 feet long, 3 by 6, 288 feet.
- 18 12 feet long, 3 by 6, 324 feet.

Total frame stuff, 7,761 feet, at \$18.....	\$139.70
Shingle lath, 6,192 feet, at \$6.....	37.15
Boards, 16 feet long, 5,000 feet, at \$25.....	125.00
Yellow pine, 12 feet long, 432 feet, at \$25.....	10.80
Hemlock, 12 feet long, 432 feet, at \$18.....	7.77
Hemlock, 13 feet long, 468 feet, at \$18.....	8.43
Hemlock, 16 feet long, 865 feet, at \$18.....	15.55
Half inch lining, 1,000 feet, at \$12.....	12.00
Cedar shingles, 4 by 24, 18,500, at \$3.50.....	175.75
Stone foundation.....	45.00
Labor.....	150.00
Nails.....	6.05
Rollers and hinges.....	6.70
Windows.....	5.00
197 feet eave gutters and tubing, at \$10.....	19.70
Cistern and pump.....	30.00
Sundries.....	5.41
<b>Total cost.....</b>	<b>\$800.00</b>

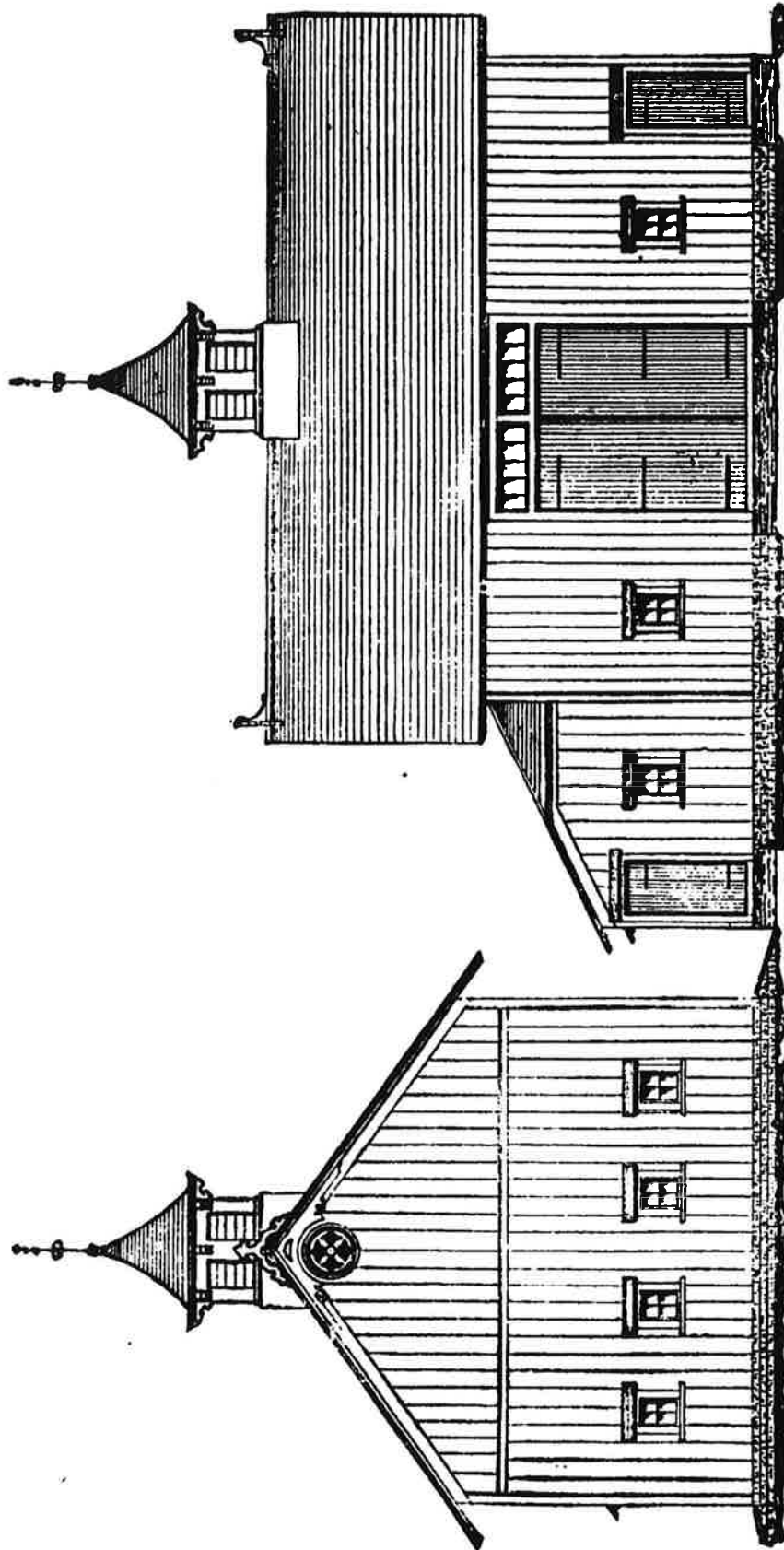


Fig. 79.—SIDE ELEVATION OF BARN.

Fig. 78.—FRONT ELEVATION OF BARN.



## DESIGN XVII.

## PLANS AND DESCRIPTION OF A SMALL BARN.

For general dimensions see drawings, and for timber, etc., see estimates below. The foundation walls are started in a trench below frost and laid in mortar above the grade, eighteen inches high by eighteen inches thick, faced and pointed, with the sills imbedded and suitable openings left in the walls for ventilation. The horse

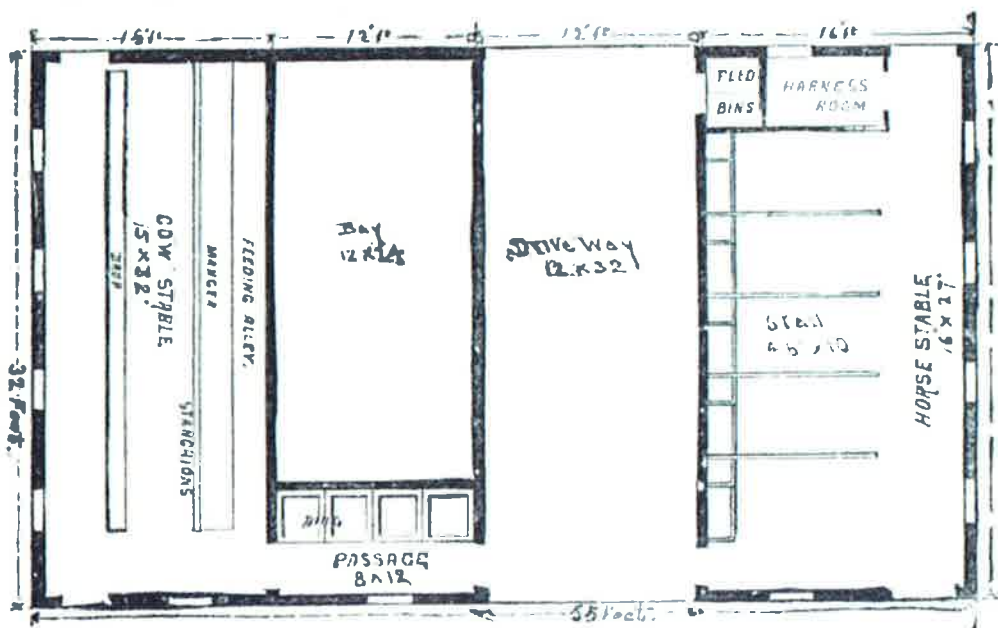


Fig. 80.—GROUND PLAN OF THE BARN.

stable is nine feet high between timbers ; its floor of two inch plank laid with three inch slope, the planks doubled in the stalls. It is fitted up with mangers, feed boxes, harness-room, etc., as shown. The cow stable is eight feet high between timbers ; floor of two inch plank sloping one and one-half inch back to the drop. It is fitted with stanchions, manger, etc., as shown. The driveway floor is of two inch plank dressed and matched, or square edged and lined plank. All the doors are made of one

inch dressed and matched flooring six inches wide. The floors over horse and cow stables are of eight inch matched

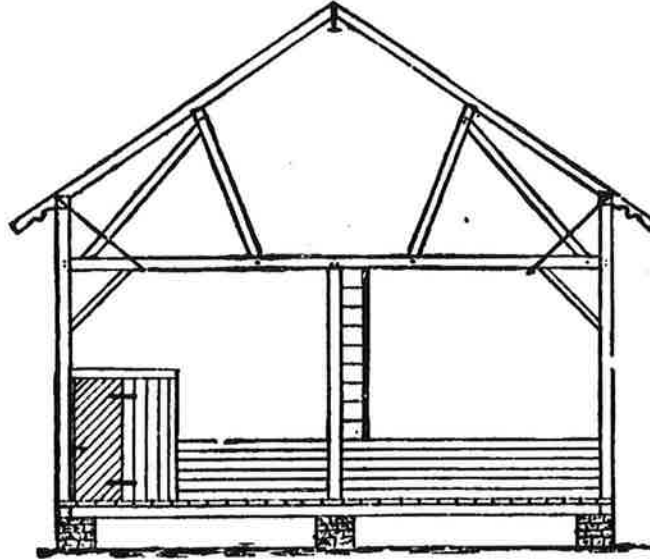


Fig. 81. BAY SIDE OF DRIVEWAY.

boards. The outside covering of one inch stock boards twelve inches wide, dressed and battened. The cornice

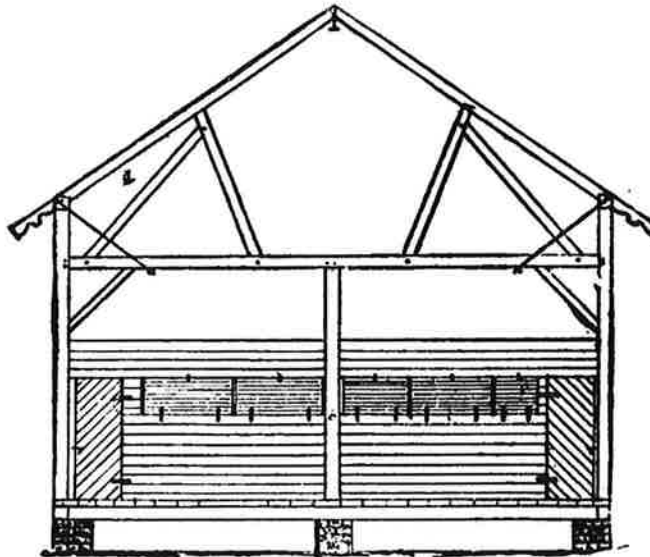


Fig. 82.—STABLE SIDE OF DRIVEWAY.

of the main building projecting about twenty-eight inches, is finished in good style with neat crown moulding. Ends of rafters cut to pattern as shown in section of cow stable.

Outlookers are cut in the same style in the gables. The roof is covered with the best quality of shingles. Cupola as shown on elevations, made thoroughly water-tight around its base. Rafters doubled and made four by six

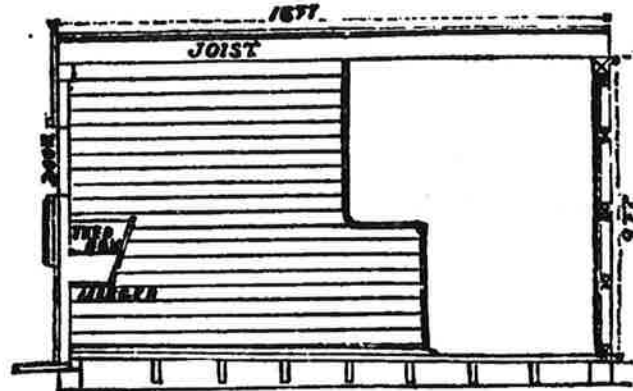


Fig. 83.—SECTION OF HORSE STABLE.

inches under cupola. The tops of the centre bents are secured by iron rods, as shown, in the place of framing. The large doors are hung with three heavy forged strap

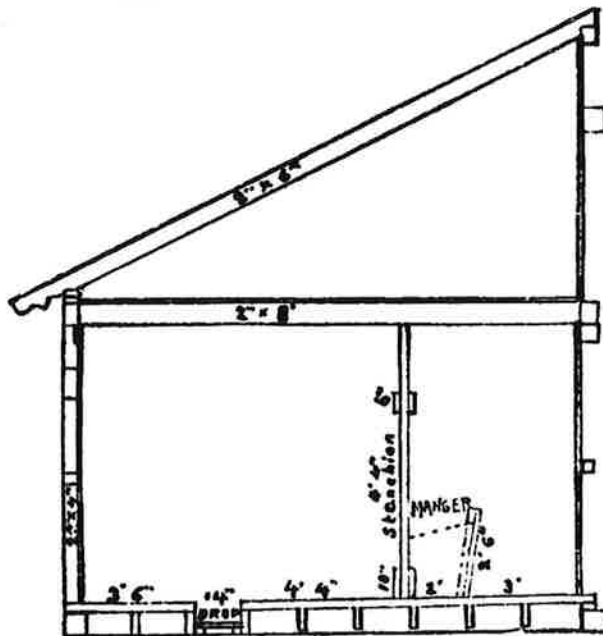


Fig. 84.—SECTION OF COW STABLE.

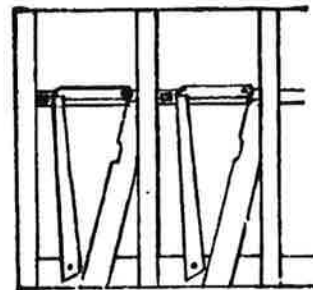


Fig. 85.  
THE STANCHIONS.

and hook hinges to each. All other doors are hung with T hinges, and provided with all necessary hooks, hasps,

latches, etc. The outside is painted two coats of iron or other prepared paints, of colors to suit the owner. All material for the small barn to be first-class of its kind, and the entire building to be thoroughly and completely finished, as specified.

**COST OF MATERIALS AND LABOR.**

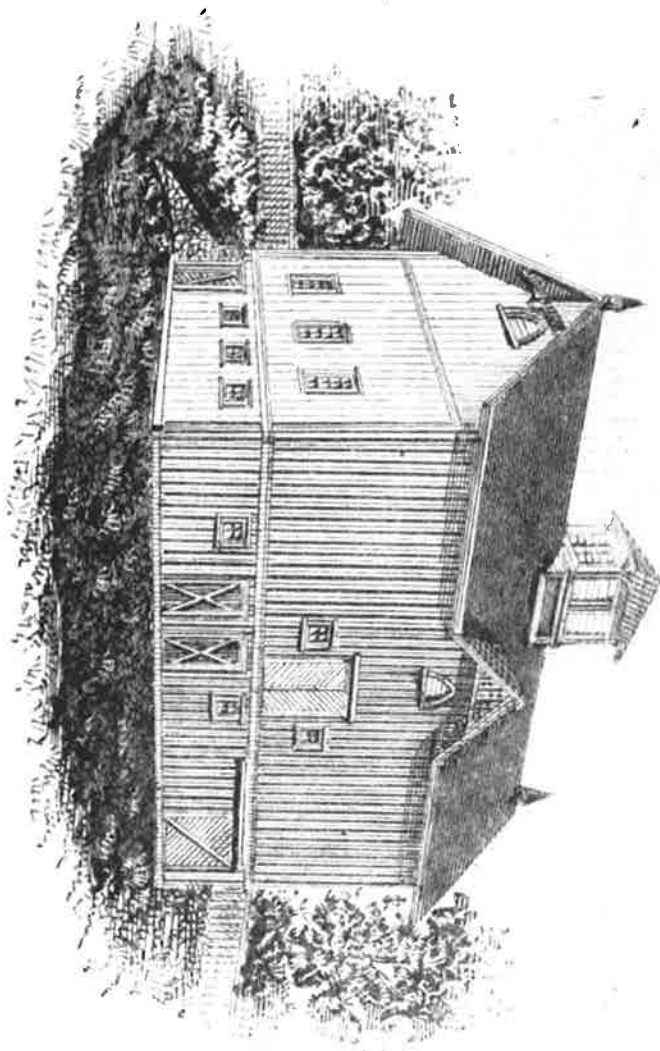
<i>8 by 8 inches.</i>		<i>Length.</i>	<i>6 by 6 inches.</i>		<i>Length.</i>
2 sills	{ To be }	30 feet.	8 plate braces		12 feet.
2 sills	{ spliced. }	23 feet.	6 pieces		16 feet.
5 sills		32 feet.	<i>4 by 4 inches.</i>		
2 sills		16 feet.	30 pieces		16 feet.
1 sill	.18 feet; 1 do.	12 feet.	30 pieces		12 feet.
4 beams		32 feet.	20 pieces		18 feet.
2 plates	{ To be }	26 feet.	20 pieces		14 feet.
2 plates	{ spliced. }	18 feet.	<i>2 by 8 inches.</i>		
8 posts	.18 feet; 2 do.	16 feet.	130 joists		16 feet.
<i>7 by 7 inches.</i>			20 joists		14 feet.
2 plates	{ To be }	26 feet.	<i>2 by 6 inches.</i>		
2 plates	{ spliced. }	18 feet.	40 rafters		21 feet.
8 posts		10 feet.	16 rafters		20 feet.
2 pieces, 6 by 8 inches		16 feet.	12 pieces		16 feet.
Total cost of timber, 12,252 feet, at \$18.			50 pieces, 2 by 4		18 feet.
			Total cost of timber, 12,252 feet, at \$18. \$220.53		
2,800 feet roofing, at \$12			33.60		
19,000 shingles, at \$4.50			85.50		
2,000 feet 1 by 12 inch stock boards, 18 feet long, at \$17			34.00		
4,000 feet 1 by 12 inch stock boards, 16 feet long, at \$17			68.00		
1,500 feet matched flooring, 16 feet long, at \$20			30.00		
2,200 feet 2 by 12 inch planks, 16 feet long, at \$16			35.20		
300 feet 2 by 12 inch planks, 10 feet long, at \$16			4.80		
850 feet 2 by 12 inch planks, 12 feet long, at \$18			15.30		
2,800 feet battens, at 80 cents per 100			22.40		
12 windows, 4 lights each, 12 by 14 glass, at \$1.25			15.00		
4 windows, 5 lights each, 12 by 14 glass, at \$1.25			5.00		
Mouldings, \$10; foundation, \$40			50.00		
Carpenter work, \$225; painting, \$50			275.00		
Spikes, nails, bolts, trimmings, etc			50.67		
Total cost			<u>\$945.00</u>		

## DESIGN XVIII.

## A MEDIUM-SIZED BARN.

The following design is well arranged for the convenience of the general farm of one hundred to two hundred

FIG. 88.—REAR PERSPECTIVE VIEW OF THE BARN.



acres. The plans show the general arrangement; the section of frame gives the disposition of middle bents, with a clear opening for the use of hay fork and carrier. The basement is nine feet in the clear; height of main building posts, twenty feet. The basement timber is oak; the rest,

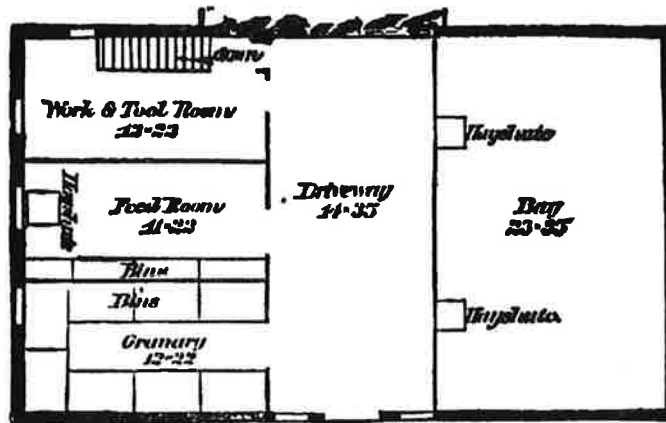


Fig. 87.—PLAN OF MAIN FLOOR.

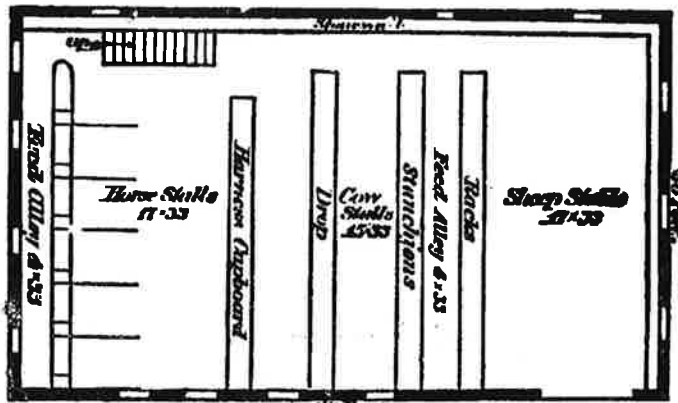


Fig. 88.—PLAN OF THE BASEMENT.

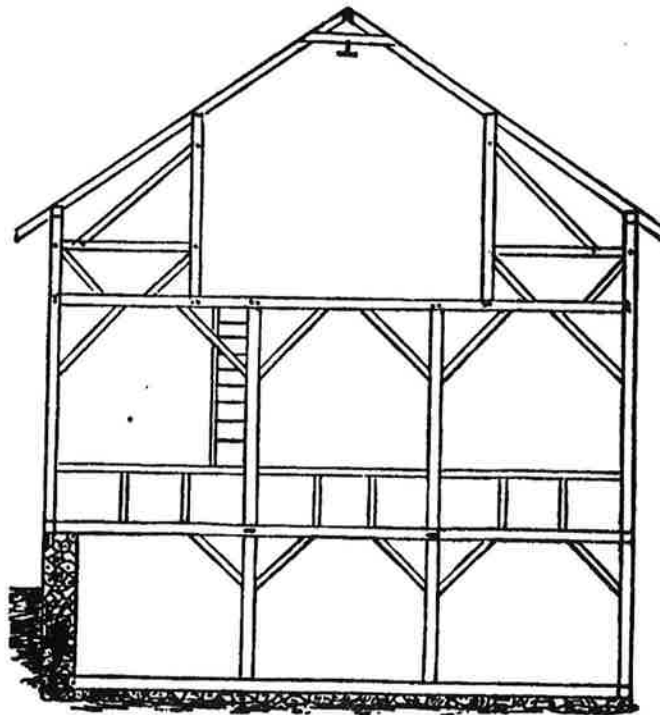


Fig. 89.—SECTION OF FRAME OF BARN.

and covering, is of pine. The cost is about one thousand five hundred dollars. The barn fronts the east, with basement wall extending along the west side and across the north end. The practical farmer will find in building that there are a great many little conveniences that can be worked into a barn of this kind that are difficult to describe, but add much to handiness and ease of doing work.



## DESIGN XIX.

### HILLSIDE CATTLE BARN.

The barn shown in figs. 90 to 97 is planned especially for a dairy farm, but can be readily adapted to other live stock, by an appropriate arrangement of the divisions on the cattle floor. It is provided for a sidehill situation, of which there are multitudes of good ones in this and other parts of the country. The side view, figure 90, in connection with the other figures, will show its general construction. The main building is fifty feet square, with a covered extension of the upper main floor or bridge, twenty feet to the roadway, which has supporting side walls of stone, dressed or undressed, as may be convenient. This arrangement allows hay and grain to be hauled from the higher ground directly into the main floor at the very top of the building, so that all unloading and moving of the material is downward, until it reaches the manure pit, thus saving lifting. Under the bridge is another driveway, the side next the barn sustained by a stone wall, parallel to and four feet from it, leaving a passage-way for animals into the basement. Figure 91 is an outside or elevation view of the end on the lower side, opposite the main entrance. Figure 92 shows the framing or tim-

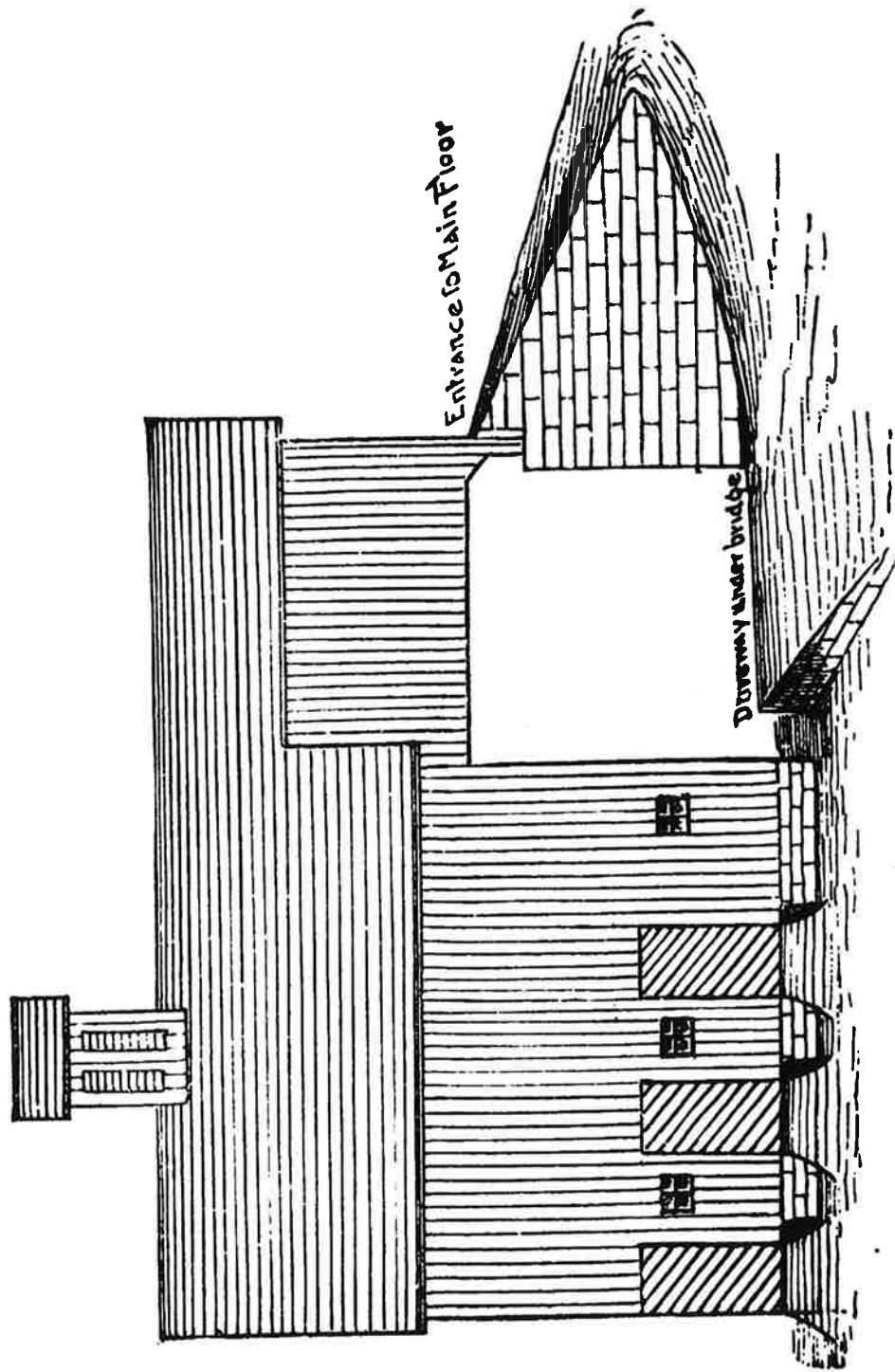


Fig. 90.—SIDE VIEW OF A HILL-SIDE BARN.



bers of that end, and the position of the main drive floor, and other parts. Figure 93 is the main drive floor; *a, a,* are chutes, the side of each next the hay being short boards set in loosely as the bays are filled, and removed piece by piece as they are emptied, so that there is no lifting of hay up into the chutes. *B,* a good-width stair to the floor below. Figure 94 is the middle, or granary and feed floor; its position is indicated in figure 92. A platform extends from this floor four feet out to the lower driveway, for

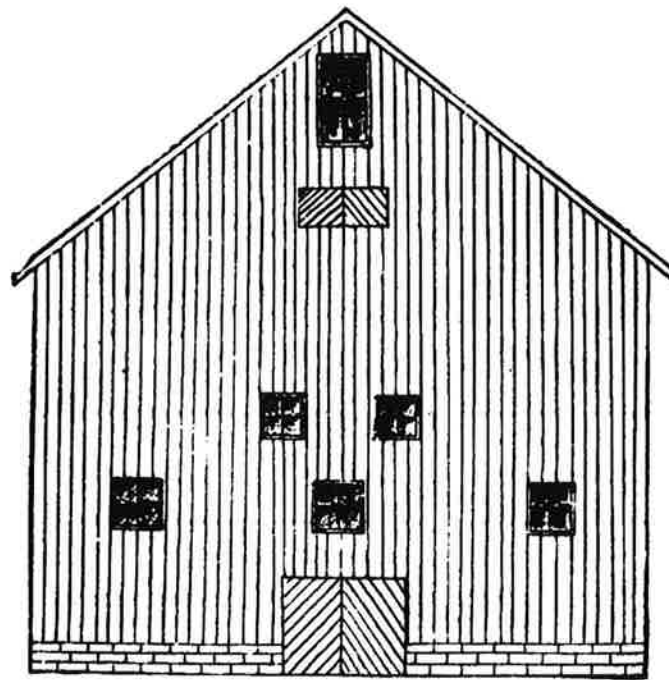


Fig. 91.—LOWER END OF BARN.

loading and unloading grain, bringing in implements, etc., etc. So much of this floor as is needed is devoted to grain and feed bins, and the rest to storing farm machinery, implements, sleds, and sleighs, and may be used for corn, fodder, etc. *A, a,* are the continuation downward of the chutes; *b,* stairs and floor above (same as *b,* figure 93); *c,* stairs to floor below; *d,* door to bins; *e, e, e,* bins, and *f,* passage-way between them. It is convenient to have a spout to bring grain from the threshing-floor

down to these bins, and other spouts to convey ground feed, etc., from the bins to the feeding alley or the cattle floor below. Figure 95 is the cattle floor (marked basement in figure 92), which is arranged for thirty cows, three feet being allowed to each cow, but by utilizing part of the space given to calf pens, etc., the floor may accommodate forty cows, for which there is ample room in the barn to

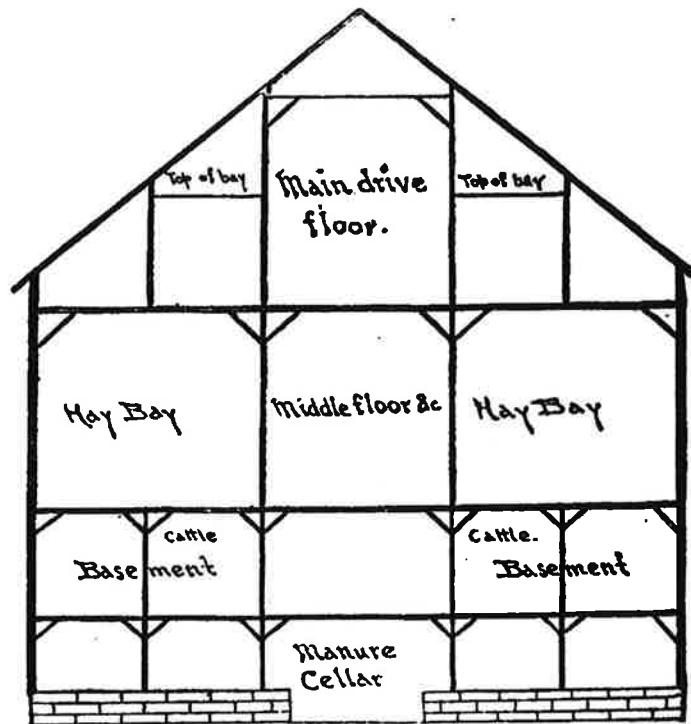


Fig. 92.—FRAMING OF LOWER END.

store sufficient feed, all under one roof, to take them through the severest winter. Height of ceilings, eight feet. It will be noted that the alley, mangers, etc., of this floor run across the building, the windows, *w, w, w*, in the lower side of the engraving being those of the lower row on figure 91, and the doors on the right side the same as those shown in figure 90. The calf stable is for calves the first winter, and will hold six head. The calf pens are for very young calves. The stall with manger is for a bull. The feeding alley is ten feet wide; it has chutes overhead, through which hay comes down from the mows.

Other spouts, not shown, come from the bins above. The feeding mangers are two feet wide. The platforms are four and one-half feet for medium-sized cows, and two inches wider for larger ones; it is well to have this width vary and place the larger cows on the wider portions. The gutters are eighteen inches wide, four inches deep at the ends and in the center, and six inches at the drain-

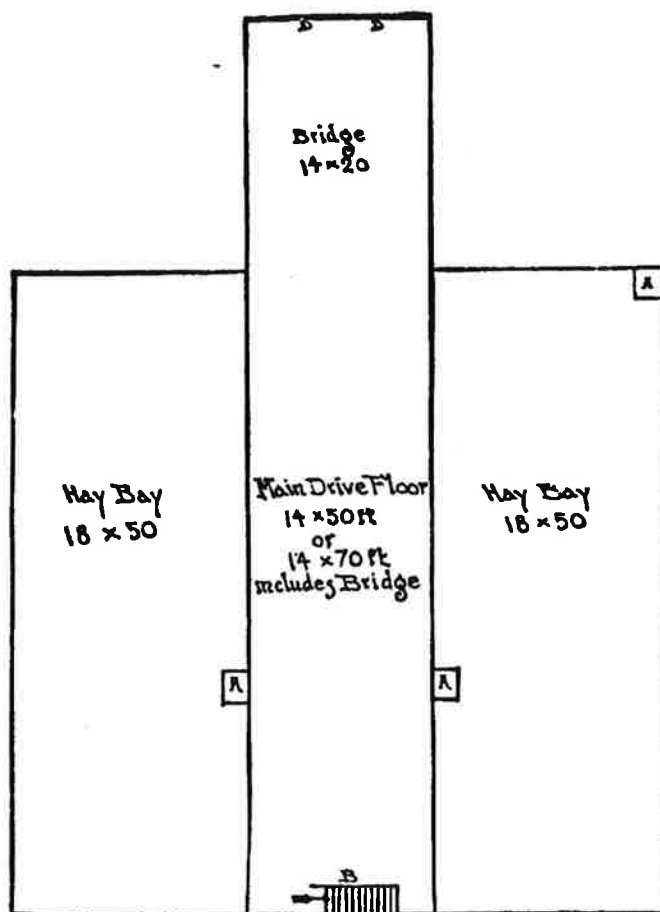


Fig. 93.—THE MAIN DRIVE FLOOR.

age holes, giving an incline to carry off the urine. The manure is passed to the cellar through *m, m, m, m* (to *m, m, m, m*, figure 95). The walks behind the cows are four feet wide. The small *x*'s show the places of the posts, which it will be noticed are planned to be out of the way, those in the stalls passing between the cows. Gates *y, y, y,*

three and a half feet high, serve for partitions as well. The doors and windows, *d, d,* and *w, w,* admit plenty of light and air for ventilation in summer, and the whole arrangement allows of "soiling" cattle where this is practiced. For fastening cows I prefer a chain or rope around the neck fastened to a large ring sliding up and down on an upright round post. Figure 96 shows the sub-

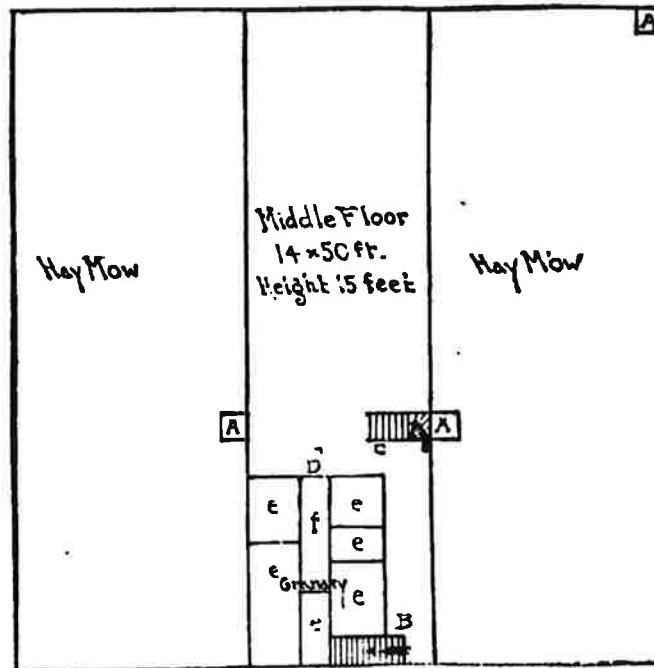


Fig. 94.—MIDDLE OR FEED FLOOR.

basement, its entrance being at the lower end, as shown by the large doors in figure 91. This is only twenty-four feet wide and thirty-two feet long. The entrance is at least ten feet wide, with two hinged doors, or one sliding one. The driveway is inclined downward from the entrance, the manure carts being backed in for loading. *M, m, m* show the manure as dropped through from *m, m,* in figure 95; it is of course spread out along the sides and at the rear as it accumulates. The posts, *p, p,* are on firm, solid bases, to support the weight above, as these, or their continuation, extend up to the roof. Windows, *w, w,* in the walls or underpinning, supply air currents

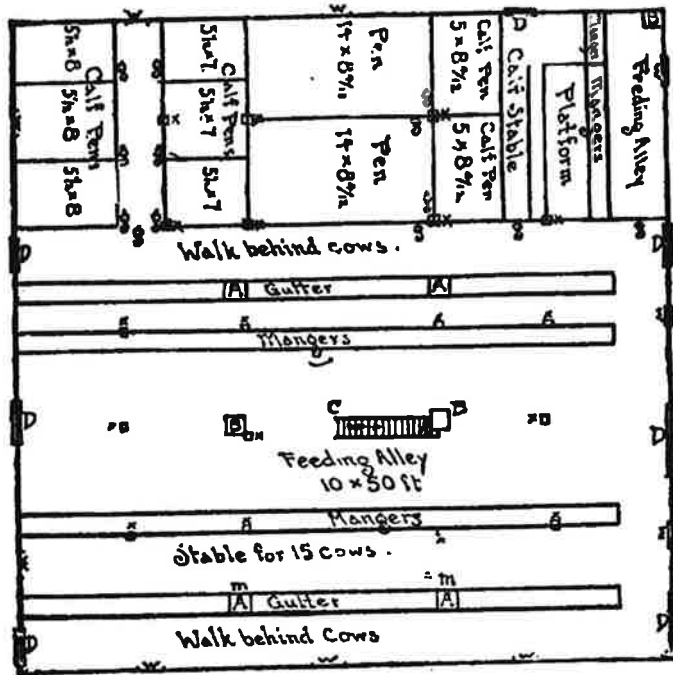


Fig. 95.—THE CATTLE FLOOR.

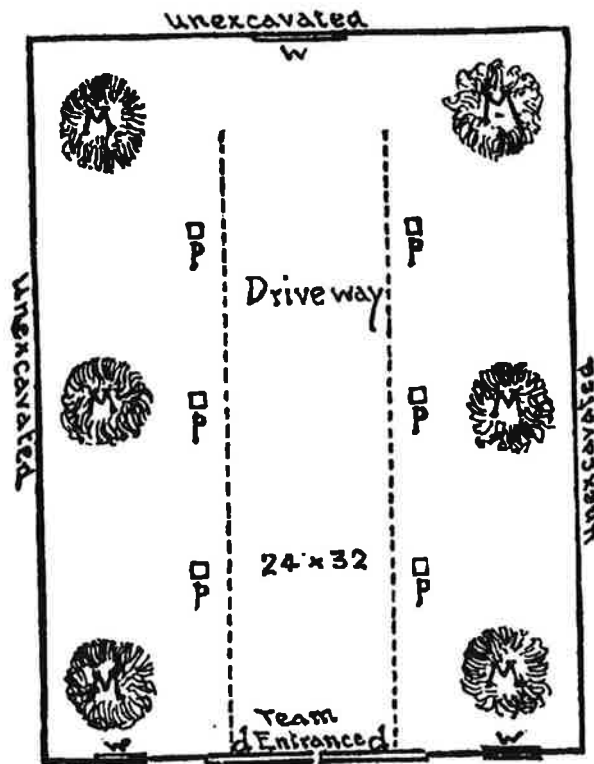


Fig. 96.—THE MANURE CELLAR.

through the cellar. This manure cellar, to which some object, I consider one of the best features of such a barn, after a dozen years of experience. I would much sooner risk cattle over them than without them, for the reason that they can be kept cleaned out in summer, and have currents of pure air constantly flowing through, while the ordinary stable floors are seldom water-tight, but more or less of the liquid manure leaks through and accumulates for years, gathering in sickening pools and sending up anything but healthful effluvia. Except where the cost of excavating is very great, in rock and hard pan, this building can be erected for from two thousand to two thousand five hundred dollars, covered with matched pine boards, painted outside two coats, and finished inside in good shape. The cost will depend upon location, price of material, whether timber and lumber is supplied on the farm, etc.



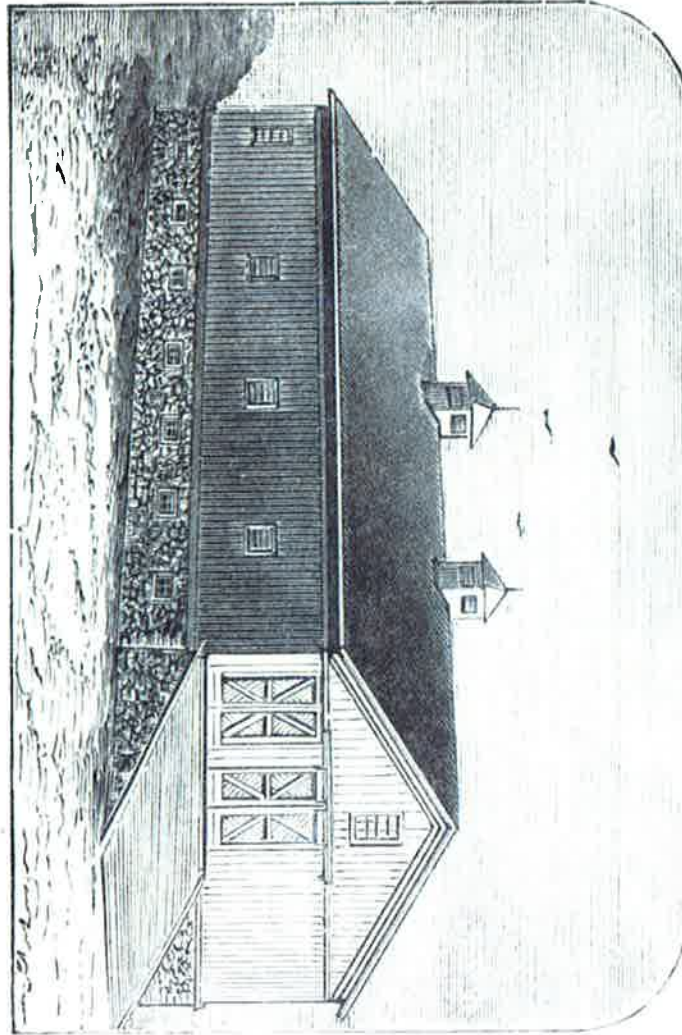
## DESIGN XX.

### A GRAIN AND STOCK BARN.

This design is of a barn recently erected by Prof. S. Johnson at the State Agricultural College Farm, near Lansing, Mich. The building is for storing hay and grain, with basement so arranged that a good part of it may be used for keeping live stock. The front elevation of the barn is shown in perspective, and the rear end and other side are also given. With these engravings, very little is required to be said as to the construction of the barn and its general appearance. In the plan of the basement there is provision for two rows of cattle stalls.

A silo, fifteen by eighteen feet, for the preserving of grain fodder, occupies one corner. The two small squares, four by four feet, show the position of ventilators, which also serve as chutes for the descent of hay, straw, etc. The second floor has a drive-way, fourteen by

FIG. 97.—FRONT ELEVATION OF THE BARN.



eighty feet, running the whole length near the center of the barn, with a tight floor above with the exception of sixteen feet. On one side is a large bay going down to the basement floor. The granary, thirteen by twenty-two feet and ten feet high, occupies one end of the wheat

mow. It is ceiled with matched oak. The mow is thirteen by fifty-eight feet to the top of the granary, where it extends the whole eighty feet, or length of the barn. The position of the stairway to the basement is

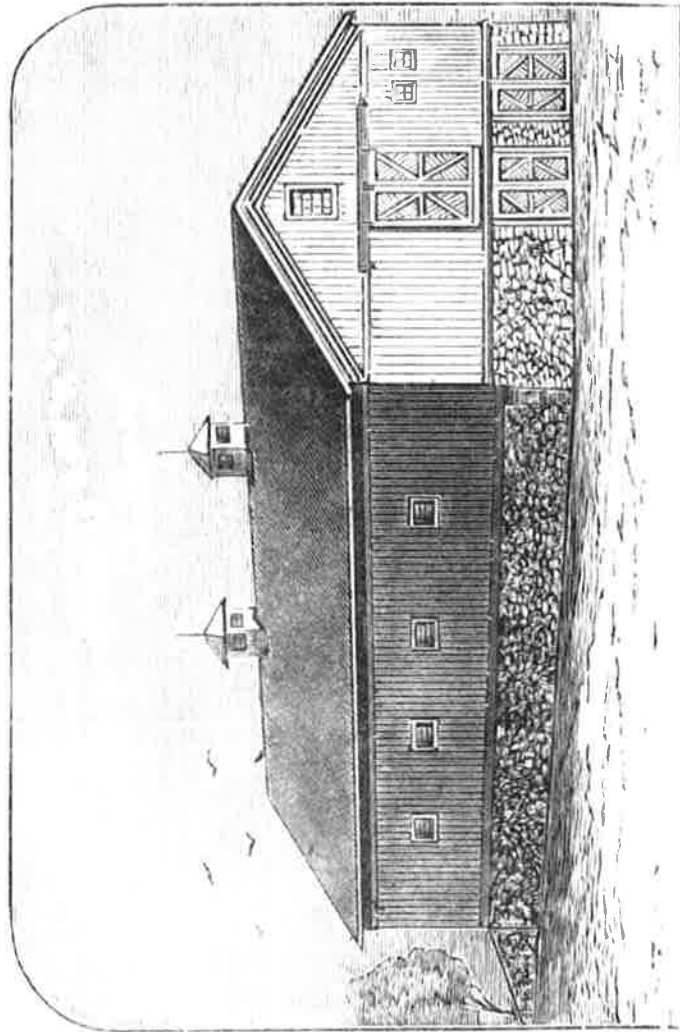


Fig. 98.—REAR ELEVATION OF THE BARN.

shown at one end of the bay, and by the side of the driveway near the entrance doors.

Professor Johnson, in his notes accompanying the architect's plans, says: "The drive-floor runs the long way of the barn, to give room for the machine and straw-carrier inside when threshing. The grain will be



stored in the mow and above the drive-floor on the south end. In threshing, the straw-carrier will convey the straw to the floor over the north end of drive-floor, from

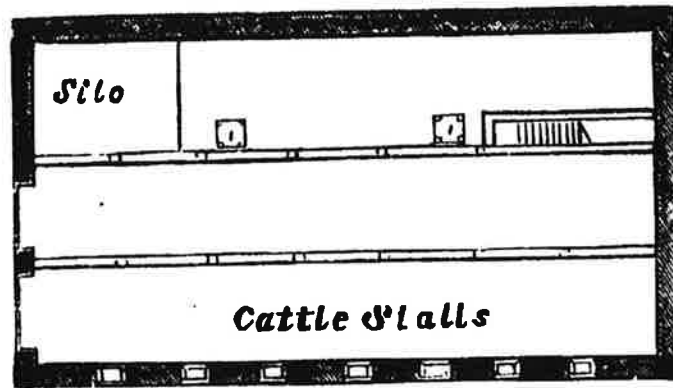


Fig. 99.—PLAN OF THE BASEMENT.

which it will be distributed to the bay, so as to keep all straw inside. The mow will then be clear to receive corn, straw, and other forage crops. The cost of the

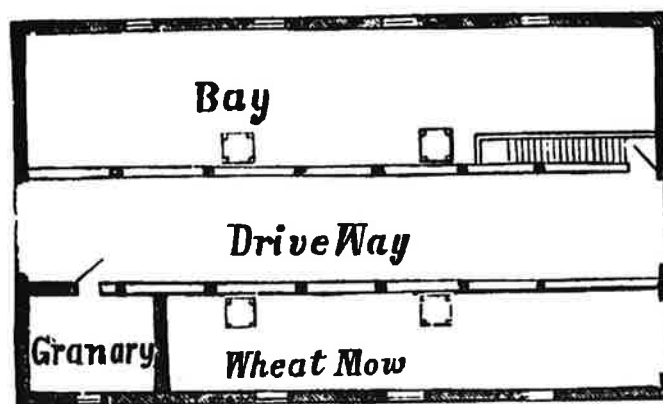


Fig. 100.—PLAN OF MAIN FLOOR.

barn, with two coats of paint, will be about eighteen hundred dollars.”

## DESIGN XXI.

A LARGE FARM BARN, COSTING \$2,000.

The elevations show the exterior of this barn, and a plan shows the main floor, in which *g* is a grain bin, with

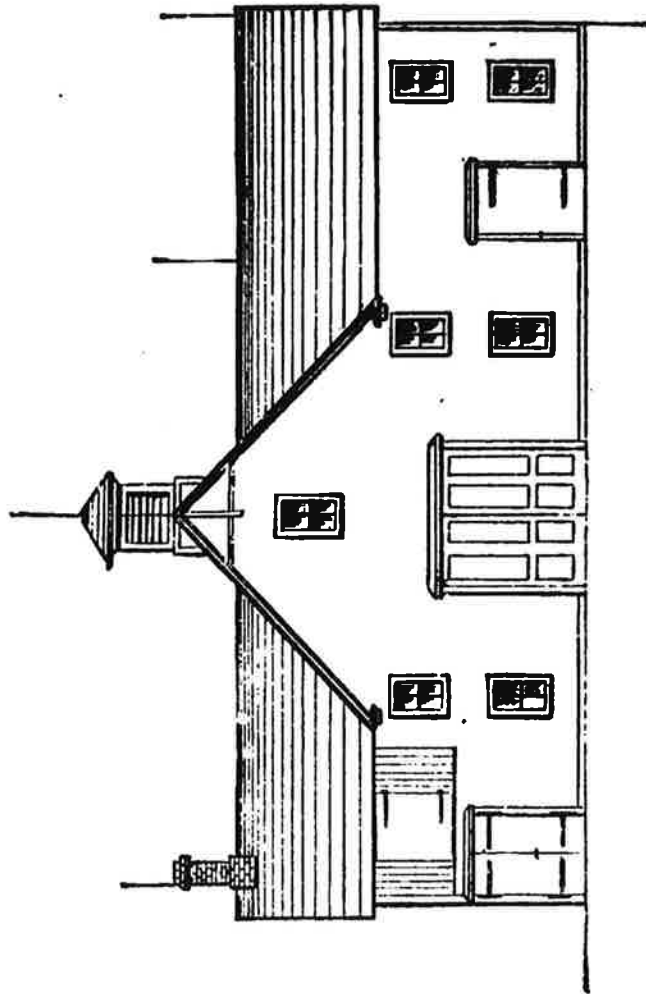


Fig. 101.—FRONT VIEW OF LARGE FARM BARN.

chutes to the floor below; *t*, opening for filling steam chest; *s*, hay chutes; *r, r, r*, openings in floor for handling the hay. The granary has chutes to feed the mill below. The ensilage cutter is on this floor, and is run by shafting from the engine room. In the plan of the

feeding floor the steam chest is at *a* ; *b*, small boiler ; *c*, carpenter's bench ; *e*, elevator from root cellar ; *m, m*, mixing trough ; *l*, stairs to granary ; *f*, to cellar ; *w, t*,

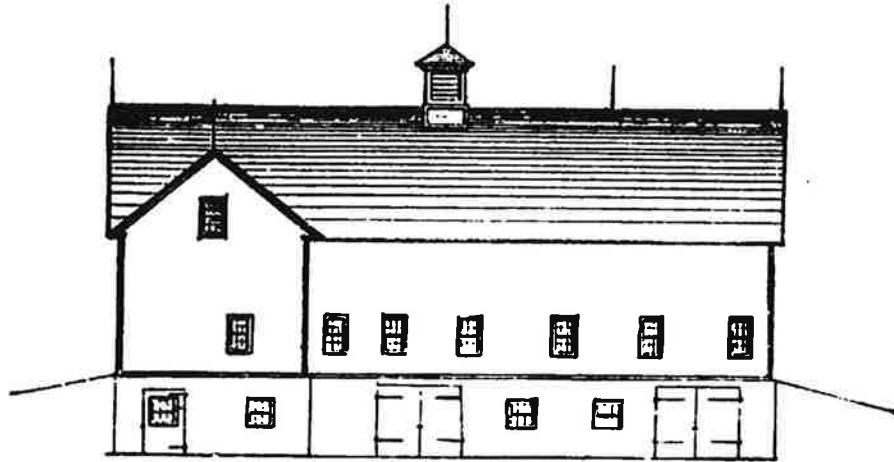


Fig. 102.—SIDE VIEW OF BARN.

water trough ; *lb*, loose boxes ; *s*, hay chute to cellar ; *t*, trap-door ; *r*, trap to root cellar ; *h*, harness closet ; *y*, water tank for cattle ; *x, x, x*, manure traps. The en-

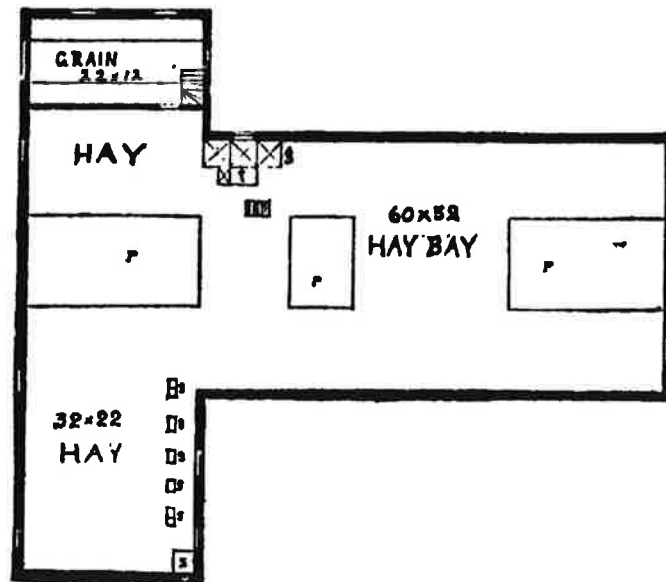


Fig. 103.—MAIN FLOOR OF BARN.

gine room contains a portable feed mill and a forge. The tool room is large enough to contain all the farm

machinery when stored at the close of the season. The floor of this room and all the space over the unexcavated

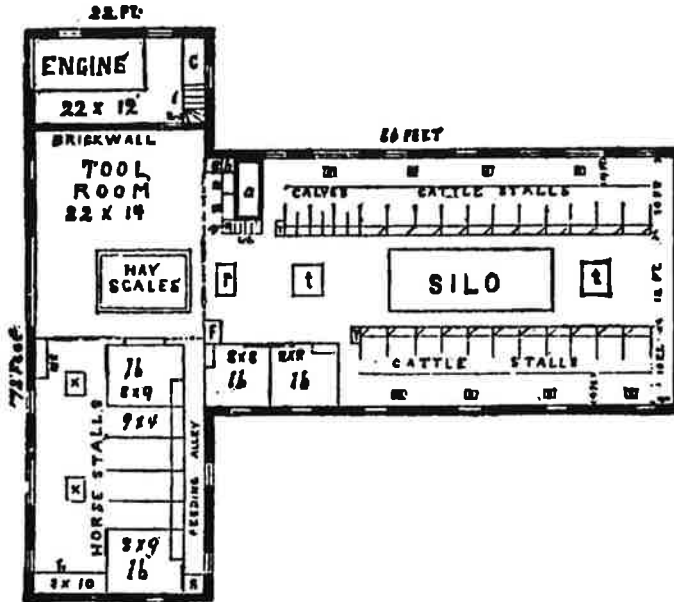


Fig. 101. - THE FEEDING FLOOR.

portions are of concrete. The silo is filled from the floor above, or the feeding floor, as desired. Each floor is

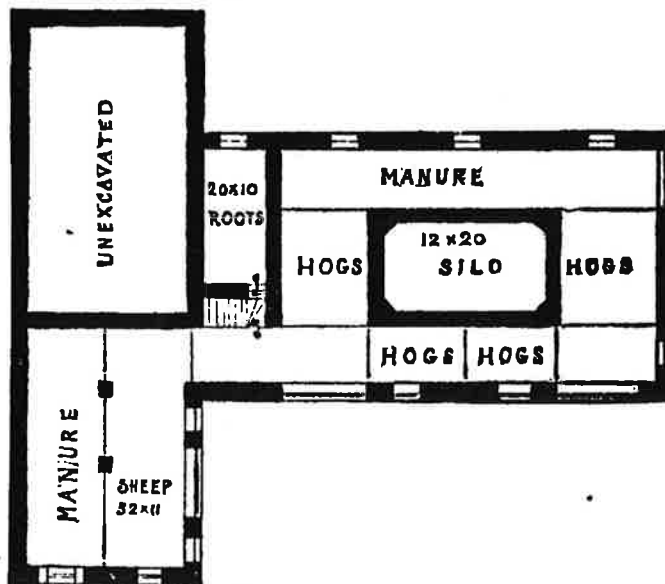


Fig. 105.—CELLAR OF BARN.

nine feet in clear, with front and rear doors twelve feet wide. The arrangement of the stalls and mangers for

cattle is shown in a separate plan and side-view. The galvanized trough, *t*, is for water. The manger fronts are set in cleats, and may be moved to shorten or lengthen the stalls. A plan of the cellar is also given. All par-

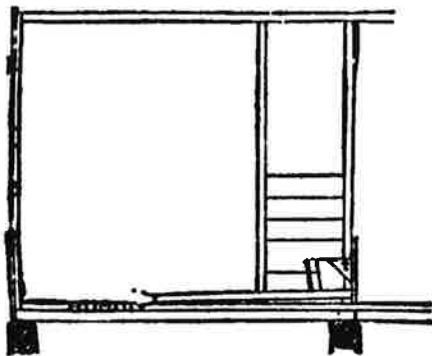


Fig. 106.—SIDE VIEW OF STALLS.

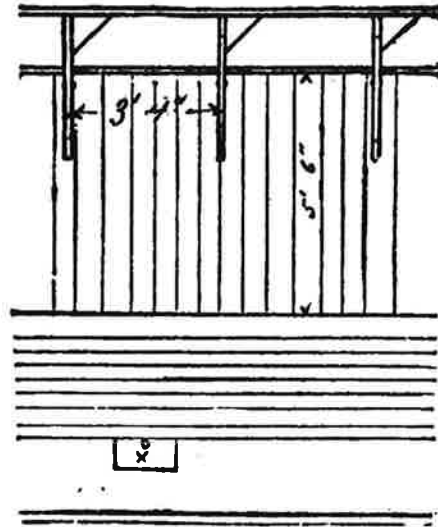


Fig. 107.—PLAN OF STALLS.

titions are movable, for access of carts to any part for removing manure. The portion under the horse stable would make a warm hen-house in winter.

**COST OF MATERIALS AND LABOR.**

2,600 feet 4 by 6 inch posts, spruce, 18 feet.	1,328 feet 2 by 6 inch rafters, 24 feet.
2,000 feet 4 by 6 inch sills, spruce.	864 feet 2 by 6 inch rafters, spruce, 18 feet.
1,200 feet 3 by 6 inch plates, spruce.	1,000 feet 2 by 6 inch stall posts, etc., spruce.
2,600 feet 2 by 6 inch floor joist, spruce, 12 by 16 feet.	4,000 feet 3 by 4 inch braces, girts, etc.
Total, 15,600 feet, at \$16.....	\$ 249.60
4,500 feet 6 by 6 inch sills, chestnut.....	112.50
60,000 shingles, at \$3.....	180.00
6,000 feet hemlock roof, at 14 cents.....	84.00
9,000 feet matched pine, at 25 cents.....	225.00
4,000 feet matched spruce, at 22 cents.....	88.00
4,000 feet 2 inch matched spruce, at 16 cents.....	64.00
100 yards concrete, at 50 cents.....	50.00
1,500 brick, at \$10.....	150.00
86 windows, at \$2, \$72.00	11 windows, at \$1, \$11.00.....
2 double slide doors, \$25.00; 16 pairs hinges, at \$1.25, \$20.00.....	45.00
1 ventilator.....	20.00
200 lbs. white lead, at 62 cents.....	15.00
8 gallons oil, at 7½ cents.....	4.96
400 feet mouldings, at 2½ cents.....	10.00
140 cds. stone work.....	140.00
Carpenters' work, \$350.00; Brick work, .105.00.....	455.00
Painting, one coat, \$30.00; Nails, etc., etc, \$35.00; Gutters, etc, \$15.00.	80.00
Total.....	\$2,056.06

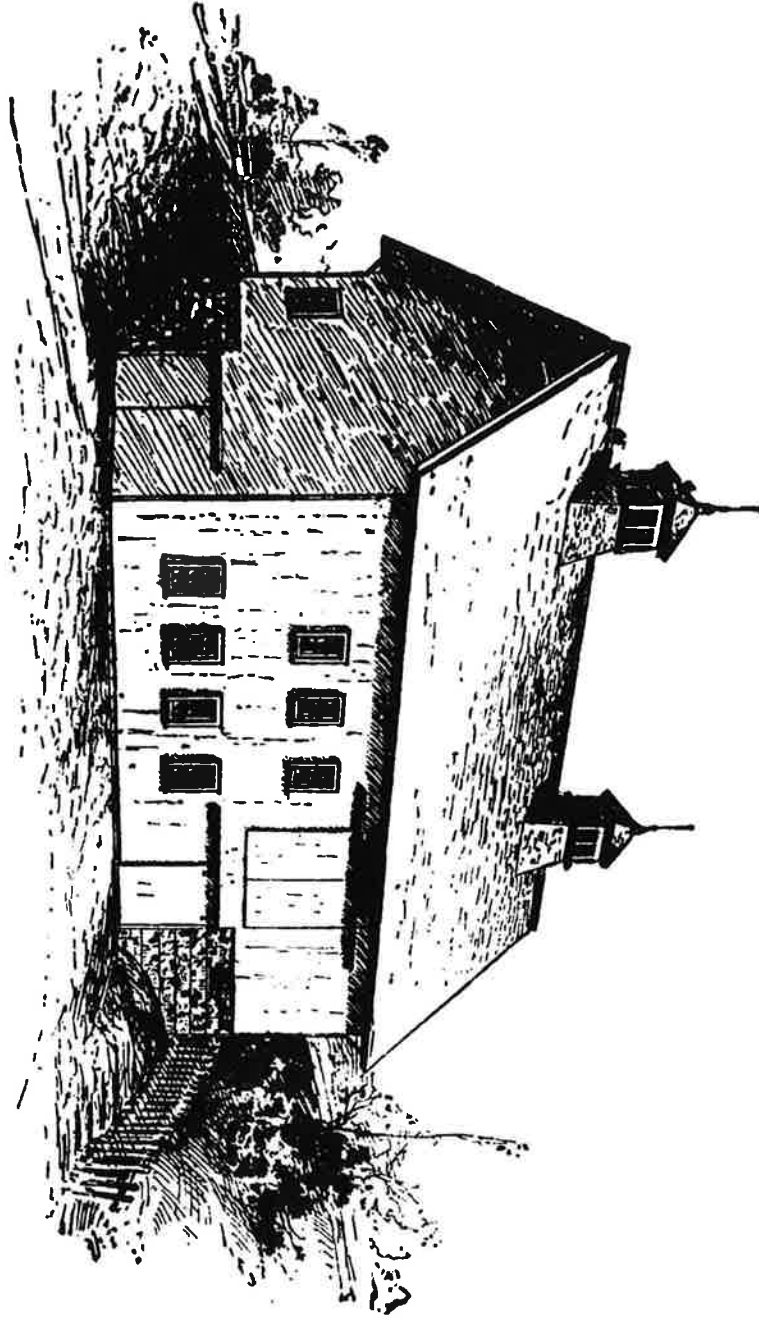
The engine, feed mill, etc., are not fixtures. A watering arrangement would cost about \$1 per stall.

## DESIGN XXII.

## A VERY COMPLETE BARN.

This barn, recently built for Judge Charles L. Benedict, of the U. S. District Court, at Far-view, Richmond Co., N. Y., may be said to be one of the most complete structures of the kind in the country. The basement contains a vegetable cellar, a cow stable, ten feet high, with two box stalls, stanchions for twenty-four cows, stairway, room behind the stalls, and a driveway between. The main story has single stalls for four horses, a box-stall, harness, feed, and tool rooms, and a calf-pen. Here are the threshing-floor and passages, space for stairways, ventilators, and two mows for hay. The third story has a granary and a large storage loft. The dimensions upon the ground plan are thirty-six by seventy-six feet, and eighteen feet high, from top of stone wall to top of plate. These are the smallest dimensions that would give the required accommodations. The foundation walls are two feet in thickness, built of good field stone, hammer-dressed, so as to secure a flat bed; all well bonded, laid in mortar composed of best freshly-burnt Rosedale cement and clean, sharp sand, in the proportion of one part of the cement to two parts of sand. The walls are laid to a line on both faces, grouted, and the joints flushed full of mortar, all neatly pointed on the inside and thoroughly plastered on the outside. Suitable blue-stone door and window sills are set and built in the masonry in the usual way; flag-stone footings are set in cement, for the foundation of the basement posts which support the girders. The bottom of the entire basement is paved with small cobble stones well pounded down, covered with a concrete floor six inches in depth, made of freshly-burnt Rosedale cement

FIG. 108—FAR-VIEW BARN—SEEN FROM A NEIGHBORING HILL.



and clean, coarse sand and gravel. These ingredients were mixed dry upon a plank bed, using one part of the cement to two parts of the sand and gravel. This concrete was laid down in board moulds, rammed well in place, and brought to a true surface. Gutters, eighteen inches in width, graded so as to carry off the liquids, are formed behind the cow-stalls. At the lower ends of each, a cast-iron stench-trap is set and connected with a vitrified earthen drain pipe, which connects with a manure pit, about one hundred feet distant. Suitable timbers are bedded in the concrete, to receive the nailing for the necessary woodwork. The ground is excavated so that the side and end towards the barn-yard are built of wood to within one foot of the ground: an eight-inch brick wall is built under this part so as to raise the sill eight inches above the top of the concrete. The framing timber is of sound, seasoned, yellow pine and spruce, sawed square and true, and all framed, braced and pinned together with dry hard-wood pins. The exterior side walls are covered with one-inch dry, merchantable, white-pine, rabbeted siding, put on vertically, and securely nailed to each girth, and the joints battened with white-pine moulded, mill-worked battens, nailed to each bearing with two ten-penny finishing nails. The roof is covered with one-by-six-inch rough hemlock fence boards, placed two and one-half inches apart, and shingled with best quality eighteen-inch white-pine shingles, laid five and one-half inches to the weather. The cornices are formed by nailing tongued and grooved boards upon the rafters, with the surfaced side down. The ventilators have white pine louvres on each side, as shown in figure 108.

The cattle stalls in the basement are floored with two-inch planking, firmly nailed to the bed pieces. A layer of salt is put between the concrete and floors, to prevent rotting. The mangers are built of dry, white pine. A strong plank stairway, from the basement to the main



floor, is inclosed with tongued and grooved dry pine ceiling boards, with a door at the bottom, hung with strong

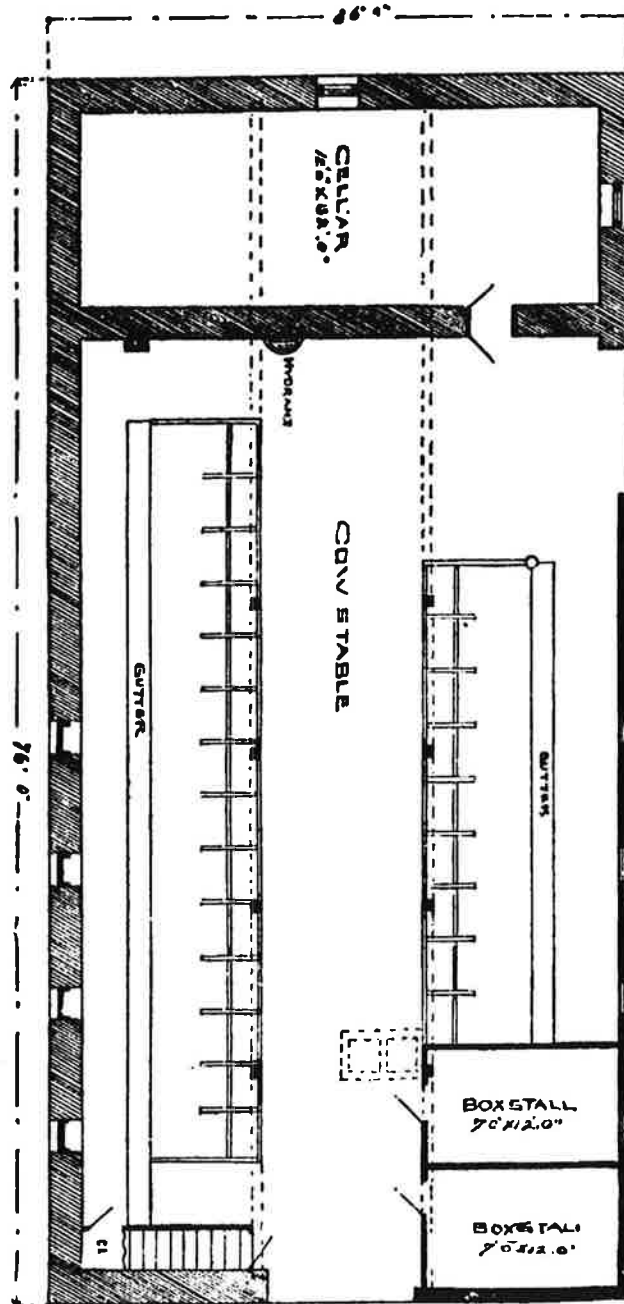


Fig. 109.—BASEMENT.

iron butts, and provided with a spring to hold it closed. Around the opening in the harness room is a neat railing.

The floor of the main story is of two-inch tongued and grooved spruce plank, surfaced on one side, well driven together, and nailed to each joist with twenty-penny nails. The floors under the horse-stalls and calf-pen are dropped below the level of the main floor, and a bed of concrete five inches deep, composed of best Portland cement and sand is laid on top of the planking. A cast-iron open gutter, set in the concrete, connects with an iron soil pipe, which leads to the manure pit.

The partitions between the horse stalls are of two-inch, tongued and grooved spruce plank, with the tops covered and the outer ends let into a groove in eight-inch turned posts, which are secured firmly to the floor. A band of iron is screwed to the tops of these partitions, to prevent horses from gnawing them. Each stall is floored with two-inch rough plank, so arranged that it can be removed when desired. The side walls, ceiling and floor of the granary are of tongued and grooved, dry, sound hemlock; the space between the studding is filled in with concrete eight inches high, to prevent the working of rats and mice. All outside walls of the horse stalls, and partitions of harness room, tool-room, ventilators, calf-pen, hay mows, closets, and inclosing of stairs, are of dry, tongued and grooved, surfaced pine. The storage loft is floored with dry, tongued and grooved spruce. One side of the ventilator over the stable is used as a hay chute, with a series of doors arranged to open at different heights, in which to throw the hay as it is required. A ladder is placed in the other compartment, for the purpose of ascending to the storage loft. Three chutes to the vegetable cellar are made, with trap-doors accessible from the threshing floor. The eave troughs are so graded, as to conduct the water from the center of the eaves to a conductor, placed at each corner of the building.

An eight-horse power steam engine is placed in the tool room, which furnishes power to operate a grist-

mill, corn-sheller, feed-cutter, grind-stone, wood-saw, and threshing machine, all of which are placed on the main floor—also a vegetable cutter, which is in the basement.

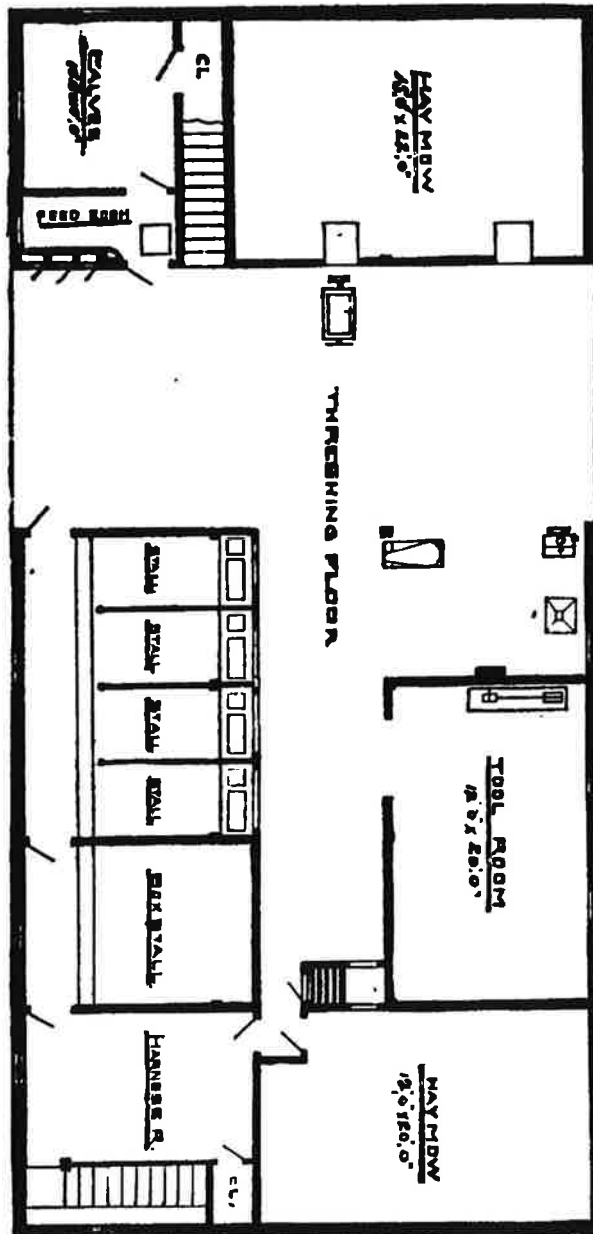


Fig. 110.—MAIN FLOOR.

A twelve-horse power tubular steam boiler is placed in a small building, eighty feet from the barn yard, which supplies steam to the engine, to a steam-pump, used to

fill the reservoir, and to a large steaming tank for cooking the feed.

A manure pit, at the lower end of the barn yard, twenty by thirty feet, by three feet deep, with walls of stone, cemented, and made water-tight, receives all the liquids from the stables. By the aid of the machinery for cutting the fodder, and the tank for cooking the same, and the manure pit to receive the compost, the percentage of waste is reduced to a minimum.

Without giving a full list of detailed expenditures, we append a condensed statement of the cost of building the above barn, including all the necessary hardware, plumbing, lumber, mason work, labor and fittings.

**COST OF MATERIALS AND LABOR.**

Excavations, drains, and mason work, complete.....	\$1,500
40,000 feet framing timber, sheathing, at \$20 .. .	800
8,500 feet spruce flooring, at \$20.....	170
11,000 feet white pine ceiling boards, at \$30.....	330
5,000 feet white pine siding, at \$30.....	150
1,000 feet white pine battens, at \$30.....	30
4,000 feet finishing lumber, at \$40.....	160
27 windows, complete.....	150
Hardware and stable fittings.....	275
Plumbing.....	60
Cartage.....	256
Painting.....	225
Carpenter work and labor.....	1,833
Incidentals.....	61
<b>Total.....</b>	<b>\$6,000</b>

## DESIGN XXIII.

## A MICHIGAN BARN REMODELED.

The old barn, figures 111 and 112, was thirty-four feet by forty-eight feet, with sixteen-foot posts, and built the

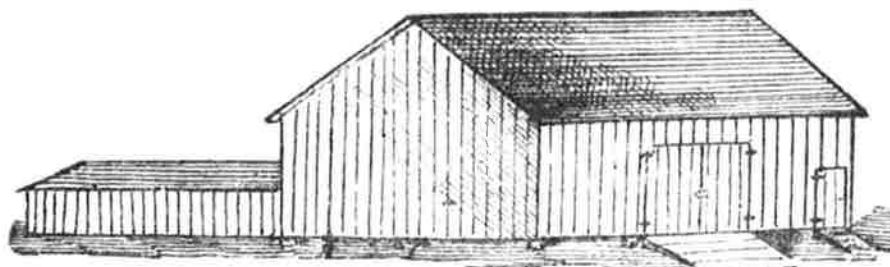


Fig. 111.—FRONT AND END VIEW OF OLD BARN.

usual way, with four bents. The threshing floor was twelve feet wide, with the stables on one side and hay-mow on the other. There was a shed in rear of barn, twelve by thirty feet. The sills of the barn rested on oak blocks, about one foot above the ground. In remodeling, the main building was raised two feet from the ground, a

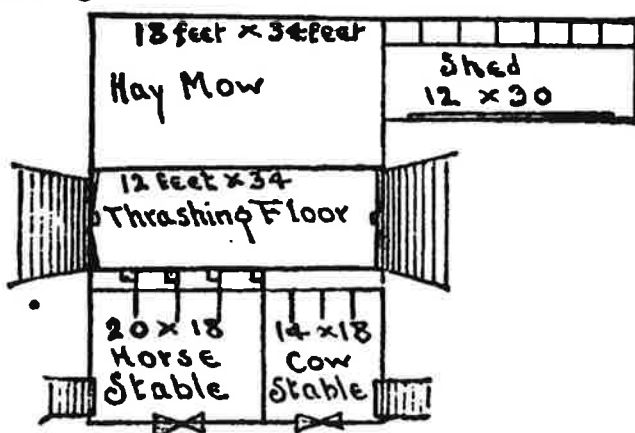


Fig. 112.—GROUND PLAN—OLD BARN.

stone foundation one foot thick being laid all around, and extending two feet into the ground, to be below frost. The threshing floor was raised two feet above the sills, and the ground excavated two feet under it. Cross-walls

were then built, making a cellar twelve by thirty-four feet, and six feet high. There are two small windows in front, and a door in rear of cellar. A foundation, similar to that under main barn, was then built for a wing thirty-four



Fig. 113.—REMODELED MAIN PART WITH SHEDS.

feet wide, and extending three feet back from main barn. The wing is same height as the barn, with roof hipped into main roof, and a ventilator built in the center of roof, as seen in figures 113 and 114. The old shed was moved to rear of the wing, and continued around each way fifteen feet on each side of wing, as seen in figures 114 and 115.



Fig. 114.—ELEVATION OF REMODELED BARN.

A new shed was built on each end of the main barn, twelve by twenty-four feet, open in rear, the lower part for manure, and the upper part for bedding, as shown in the figures 113, 114, and 115. The stables are twelve by twenty

feet, with stalls for horses and five cows. An alley four feet wide runs along in front of mangers for feeding. At the front end a door opens into the granaries. A harness room four by fourteen feet is convenient to horse stable. A box stall, nine by fourteen feet, next to cow stable, is used for cows with calf. An entrance way closed by a gate, allows access from stables to threshing floor. Floors over stables, granary, and threshing floors, admit storage

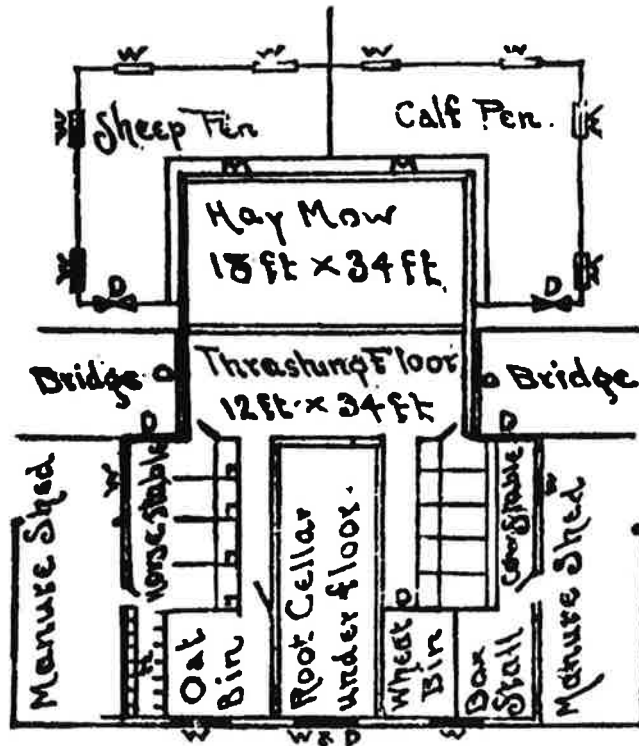


Fig. 115 — GROUND PLAN OF NEW BARN.

of un-threshed grain or hay. At the front of the barn is a sliding door with a large window in it for admitting light and air. The walls of granaries are made of two-by-four scantling, laid flatways one on top of another. Stables and granaries are eight feet high. The whole remodeled barn is painted red with white trimmings.

#### COST OF MATERIALS AND LABOR.

Sills, 6 by 8 inch, two 20 feet long, and four 34 feet long, 784 feet; sills for shed, 8 by 6 inch, 606 feet; posts, 8 by 8 inch, six, 16 feet long, and three 12 feet long, 704 feet; girths, 6 by 6 inch, two each of 18, 17, and 12 feet length, 283

feet ; plates, 6 by 6 inch, two 40 feet and two 31 feet, 444 feet ; three beams, 6 by 8 inch, 34 feet long, 408 feet ; thirty-five joists, 12 by 2 inches, 18 feet long, 1,260 feet ; scantling, 2 by 4 inches, for sheds, etc., 5,000 feet ; rafters, thirty-two, 2 by 4 inches, 22 feet long, 402 feet ; planks for floors and bridges, 4,200 feet.	
Total timber, 14,000 feet, at \$15.....	\$210.00
Shingles, 20,000, at \$3.....	60.00
Stock boards, 3,000 feet, at \$20.....	60.00
Roof boards, 7,000 feet, and battens, 704 feet, at \$10.....	77.04
Windows, nails, and trimmings.....	50.00
Carpenter work, \$150 ; painting, \$75.....	225.00
Excavation, 60 yards, at 20 cents.....	12.00
Stone for foundation, 1,500 cubic feet at 6 cents.....	90.00
Total cost of remodeled barn.....	<u>\$784.04</u>

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## DESIGN XXIV.

### A NEW ENGLAND BARN REMODELED.

Figure 116 shows an old New England barn, which furnished a fair amount of shelter to a few head of live stock.

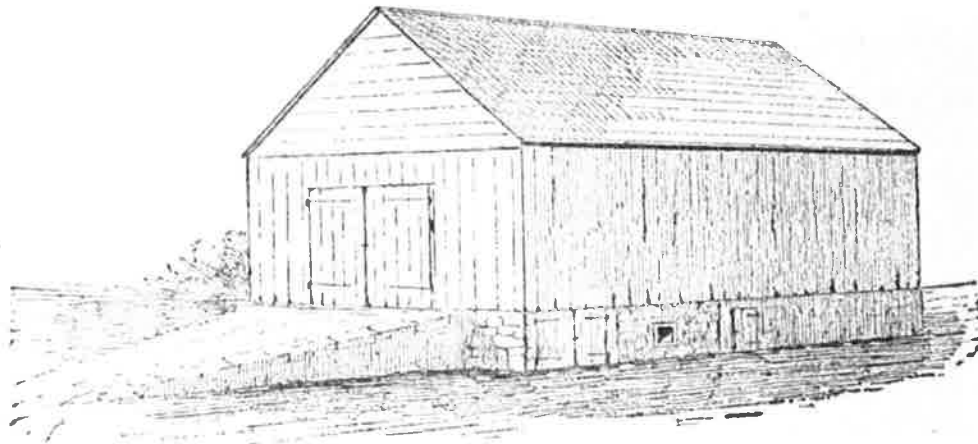


Fig. 116.—THE OLD BARN.

It was inconvenient for winter work, and had no provision for the economical saving of manure. Figures 117 and 118 show the interior of the old barn. An addition, figures 119 and 120, sixteen by sixteen feet, was erected ; a second floor for storage of fodder was put on, and the cattle stable transferred from the cellar to the ground floor. With



these changes, the barn accommodates more stock, with ample storage room, light, and ventilation. The exterior of the remodeled barn is show in figure 122, and the interior

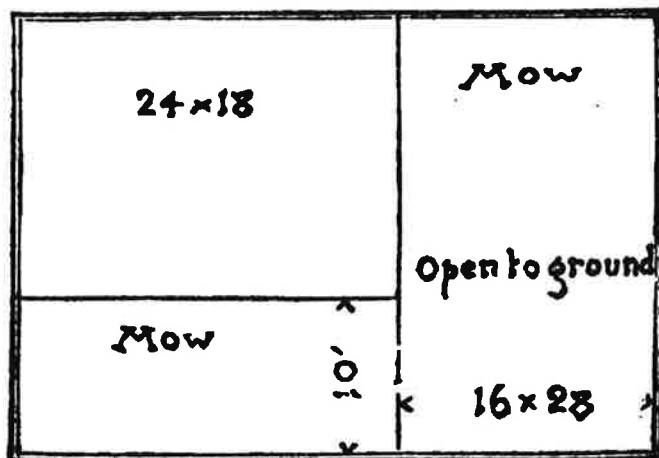


Fig. 117.—HAY FLOOR OF OLD BARN.

in figures 123 and 124. The cellar (figure 121) is arranged for storing roots, which are put in through a chute near the end door; it also contains a silo (filled from the feeding

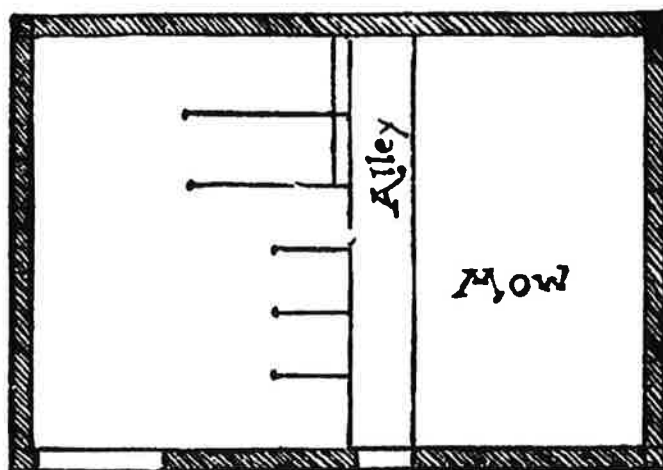


Fig. 118.—BASEMENT OF OLD BARN.

floor), manure pits, and a wagon shed. The old barn was not wide enough, and an addition along one side secures two rows of cattle stalls, if desired. The frame of the old barn was sound, and required no important

changes. The materials used in the main building are as follows :

4,400 feet matched siding, at \$25.....	\$110.00
1,900 feet chestnut plank, for floor, at \$25 .....	47.50
1,900 feet spruce flooring, at \$22.....	41.80
24,000 shingles, at \$3.50.....	84.00
600 feet spruce plank, for stalls, at \$20.....	12.00
1,000 feet, 2 by 6, spruce joist, at \$16.....	16.00
250 feet, 3 by 4, spruce stall posts, at \$16.....	4.00
2 large doors.....	25.00
Cupola ventilator.....	20.00
Stone work in silo.....	50.00
600 feet siding.....	15.00
168 feet, 4 by 6 bottom sills and posts .....	2.69
684 feet, 2 by 6 studs, rafters, etc.....	10.94
256 feet spruce flooring.....	5.63
500 feet spruce plank for horse stable .....	12.50
3,500 shingles.....	12.25
<b>Total .....</b>	<b>\$469.31</b>

The skilled labor necessary to remodel the barn should

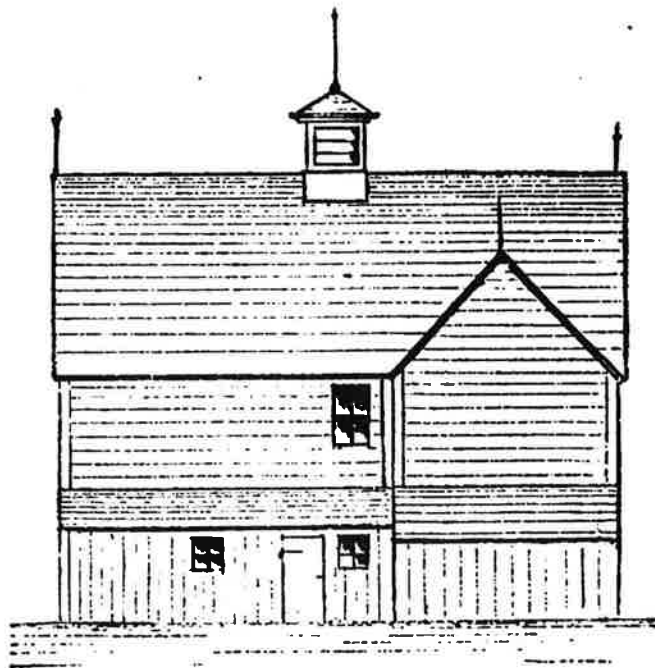


Fig. 119.—END VIEW OF WING.

not cost over one hundred dollars. To this add twenty-five dollars for hardware, and fifty-five dollars and sixty-nine cents for items, as glass, etc., not above mentioned, and we have the grand total of six hundred and fifty dollars for the cost of reconstruction. This estimate of

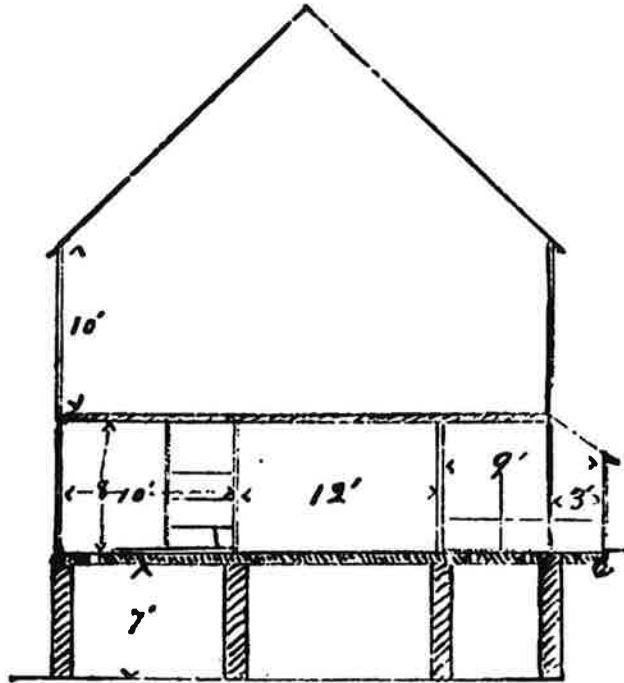


Fig. 120.—CROSS-SECTION OF WING.

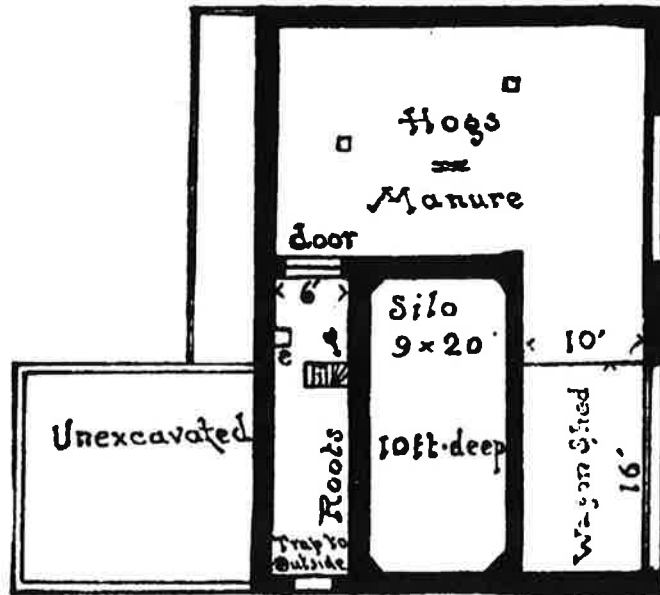


Fig. 121.—PLAN OF CELLAR.

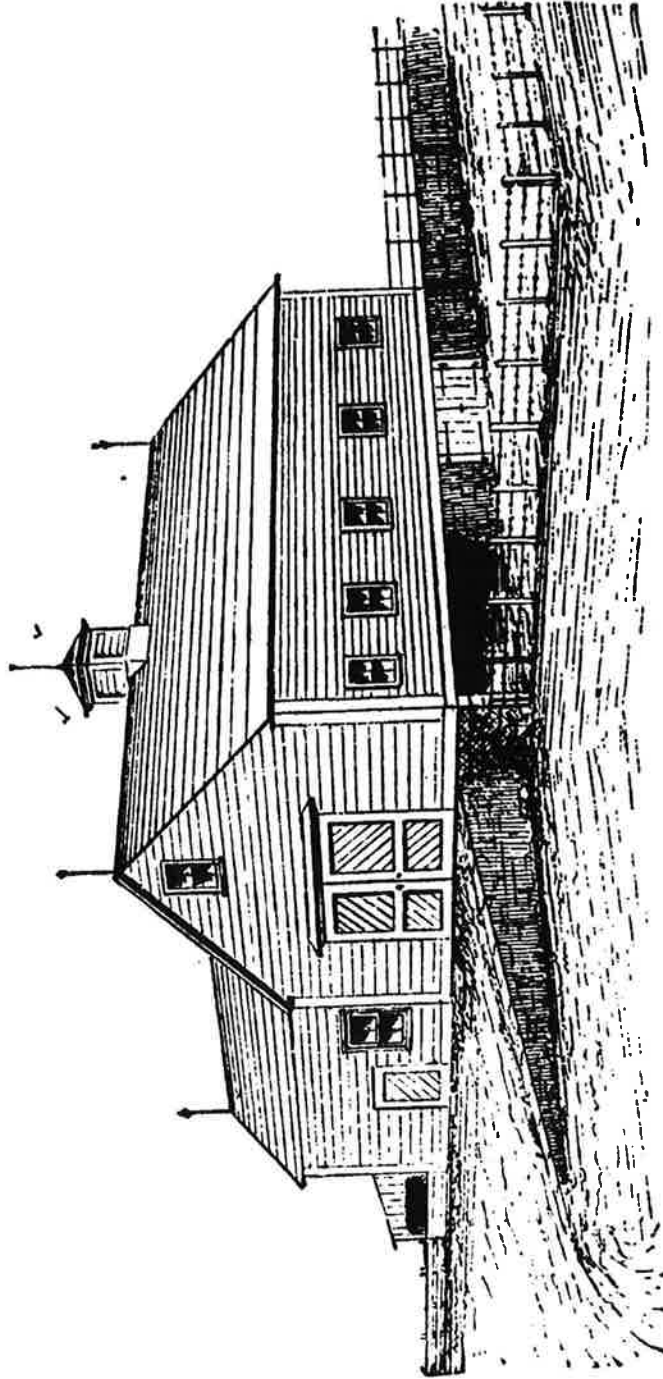


Fig. 122.—PERSPECTIVE VIEW OF A REMODELED BARN.

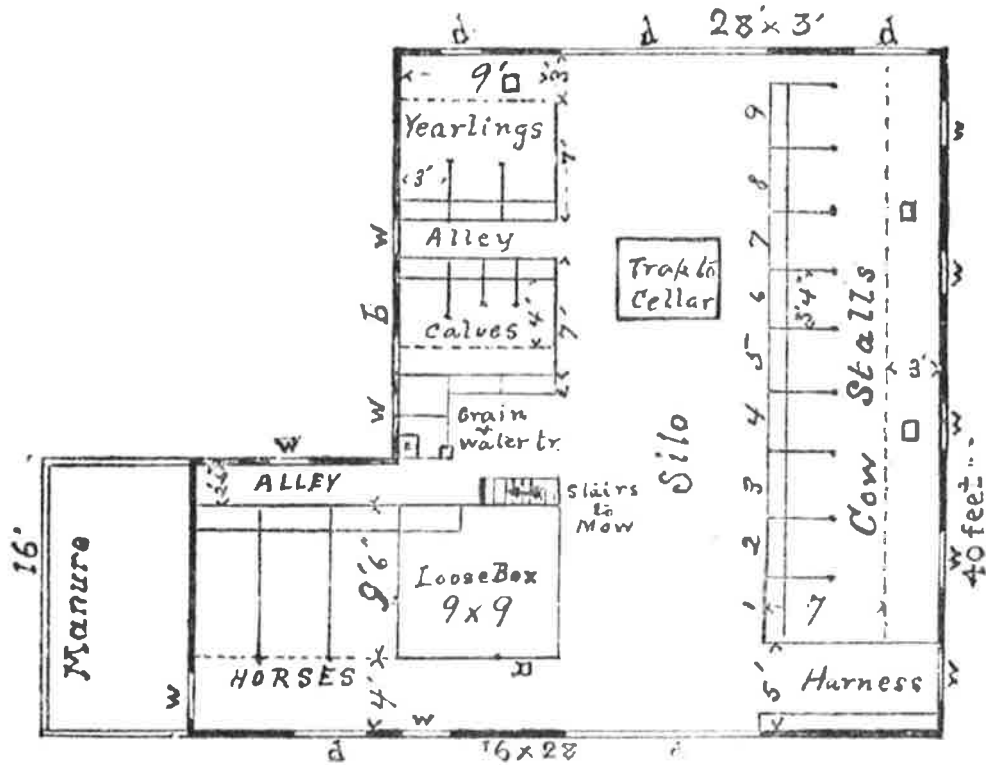


Fig. 123.—FEEDING FLOOR OF A REMODELED BARN.

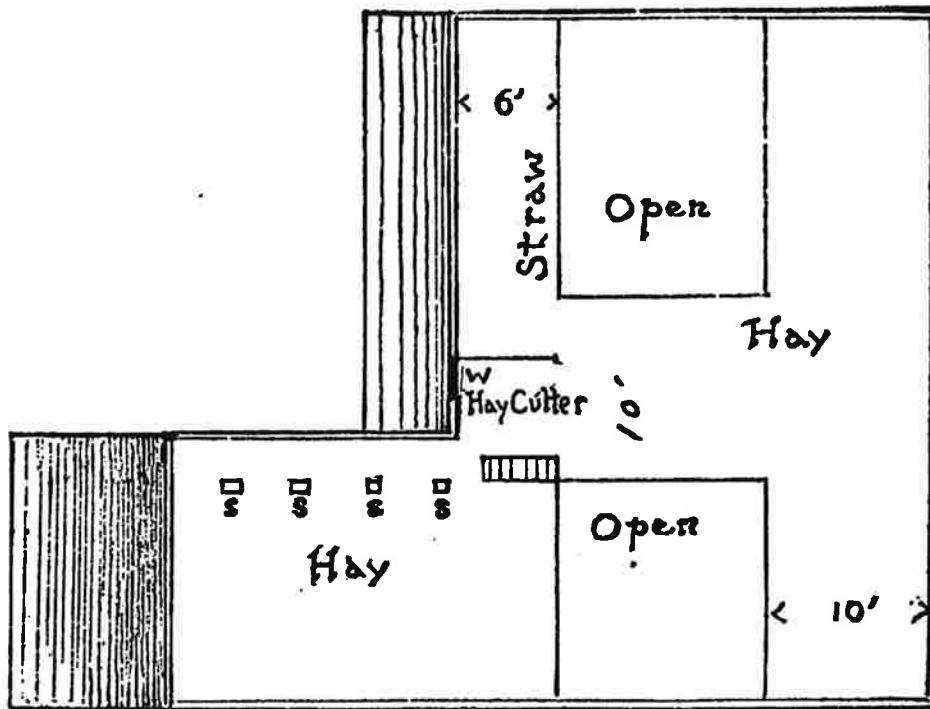


Fig. 124.—HAY FLOOR OF A REMODELED BARN.

expenses can only be general, and is mainly intended to show that the changes are important ones, easily made, and within reach of many farmers having poor barns.



## DESIGN XXV.

### A COMBINED CORN CRIB AND GRANARY.

The corn crib and granary measure twenty by thirty feet on the ground, with ten-foot posts. The corn crib

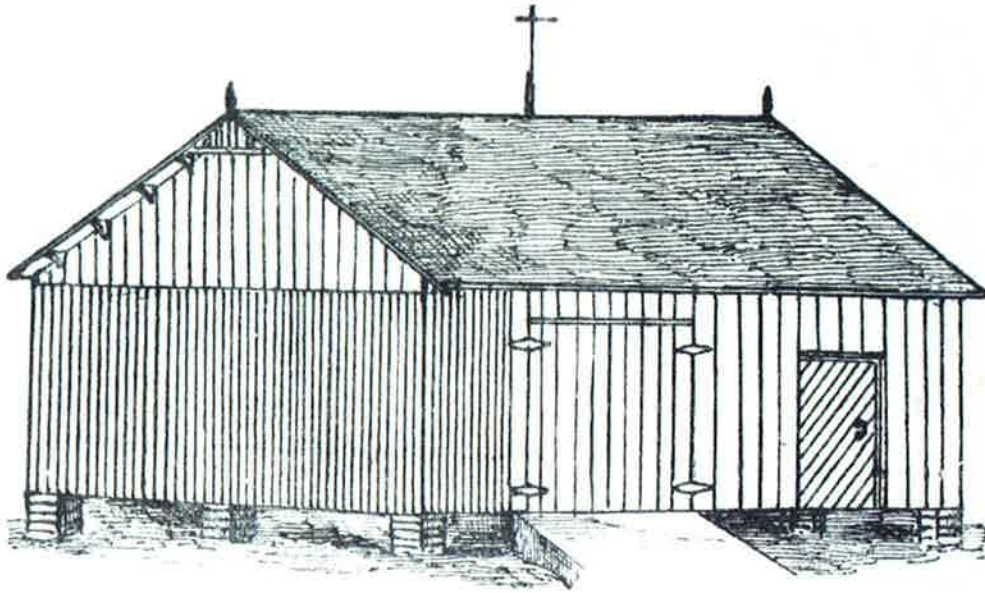


Fig. 135.—THE EXTERIOR OF CORN CRIB AND GRANARY.

part is fourteen by twenty feet, with a driveway through the middle, eight feet wide. The corn crib is five feet wide below and six feet at the top, eight and a half feet from the floor, and will hold about six hundred and thirty-four bushels of corn. The long side-box upon the floor is twelve inches wide and very convenient for removing corn. There is room over the driveway and granary for storing about one thousand bushels of corn. Figure 127

shows the arrangement for taking the corn out of the crib; figure 128 is a cross-section of the same.

The granary is sixteen by twenty feet; the inside is boarded up with planed and matched maple boards. It has six bins five by six feet, which will hold about seven

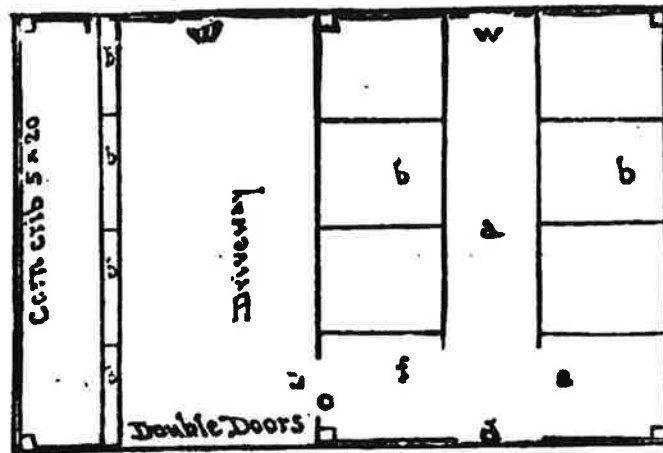
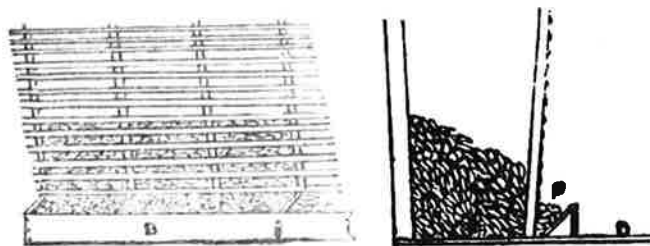


Fig. 126.—INTERIOR OF THE GRANARY.

hundred and ninety-two bushels of grain; or one hundred and thirty-two bushels in each bin. The bins are made of maple boards, planed and matched. The alley, *a*, is three and a half feet wide and runs to the back part of the granary. There is room in front at *e* and *f*, five feet wide for the fanning mill, platform scale, bag holder and



Figs. 127 and 128. —VIEWS OF THE CORN BINS.

truck, grain measures, bags, scoops, etc. The floor of the granary is of one and a quarter inch maple planks, planed and matched. The floor of the corn crib is of one and a quarter inch red oak planks, unplanned and matched. The door at *d* is convenient when carrying the corn to the granary as it is shelled.

## DESIGN XXVI.

## PLAN OF SHEEP BARN.

The main building in this plan is twenty-four by forty feet, with twenty-foot posts, and is used for hay from the ground up, the hay being unloaded from the west end (outside), with a horse fork and hay carrier projecting outside four feet, on the end not shown in the elevation. There is a large door in the west end. The wings, sixteen

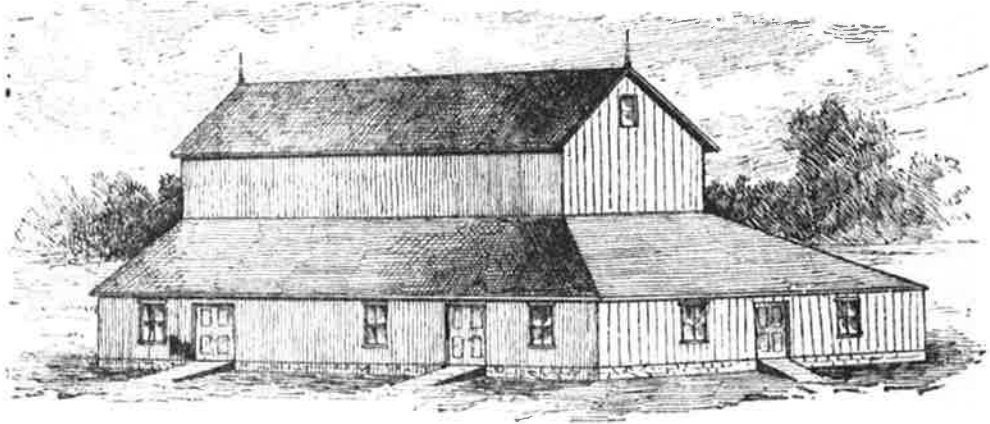


Fig. 129.—EXTERIOR OF SHEEP BARN.

feet wide and seven feet high at the low side, extend around three sides of the main building, and are divided as shown in the ground plan. The merits claimed for this plan are: that the hay being built on the ground, saves expensive frame-work, posts, and floor, such as are necessary to support the hay when the sheep are in the lower part of the barn—besides, the greater the depth of hay, the more the building will hold in proportion to space; that, the hay being in the center, it is more convenient to feed to the sheep in the different pens; and that it gives plenty of yard room on the different sides of the building. A room can be made for storing grain,



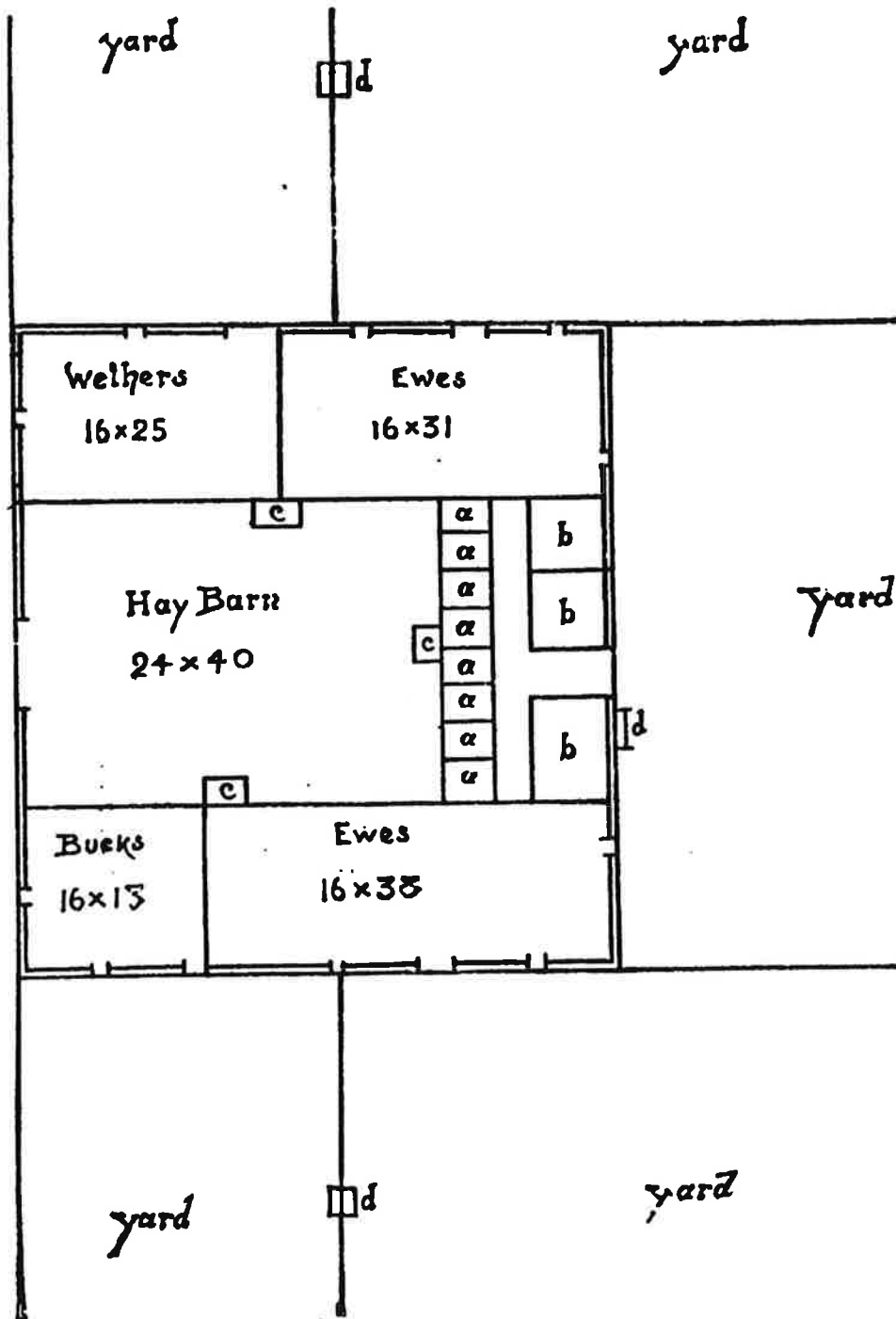


Fig. 130 —GROUND PLAN OF SHEEP BARN, WITH YARDS.

hay, and wool, overhead, in the sheep-sheds, if thought desirable.

There are no floors in either the main building or sheds. The barn is graded up a few inches with earth or gravel, which keeps it perfectly dry. It will accommodate from one hundred and seventy-five to two hundred sheep of the mutton breeds.

#### COST OF MATERIALS AND LABOR.

<i>Sills for Main Building.</i>		<i>Plates.</i>	
2 pieces, 6 by 6 inches by 22 feet, 132 ft.		2 pieces, 4 by 6 inches by 22 feet, 88 ft.	
2 pieces, 6 by 6 inches by 20 feet, 120 ft.		2 pieces, 4 by 6 inches by 20 feet, 80 ft.	
4 pieces, 6 by 6 inches by 24 feet, 288 ft.			
<i>Sills for Sheds.</i>		<i>Rafters.</i>	
3 pieces, 4 by 6 inches by 30 feet, 180 ft.		42 pieces, 2 by 6 inches by 16 feet, 672 ft.	
3 pieces, 4 by 6 inches by 28 feet, 168 ft.			
7 pieces, 4 by 6 inches by 16 feet, 224 ft.		<i>Studding for Sheep Sheds.</i>	
		40 pieces, 2 by 6 inches by 7 feet, 280 ft.	
<i>Posts.</i>		<i>Girts and Plates.</i>	
8 pieces, 6 by 6 inches by 20 feet, 480 ft.		12 pieces, 2 by 6 inches by 18 feet, 216 ft.	
2 pieces, 6 by 6 inches by 16 feet, 96 ft.		6 pieces, 2 by 6 inches by 20 feet, 120 ft.	
<i>Beams.</i>		<i>Rafters.</i>	
2 pieces, 6 by 6 inches by 24 feet, 288 ft.		67 pieces, 2 by 6 inches by 20 ft., 1,340 ft.	
<i>Girts.</i>		Common lumber for partitions,	
18 pieces, 4 by 4 inches by 14 feet, 336 ft.		etc .....	600 ft.
12 pieces, 4 by 4 inches by 12 feet, 192 ft.			\$ 88.50
Total, 5,900 feet, at \$15 .....			40.00
Roof boards, 4,000 feet, at 10 cents .....			82.00
Stock boards, 4,100 feet, at 20 cents .....			17.50
Battens, 700 feet, at 25 cents .....			108.00
Shingles, 360 squares, at \$3 .....			150.00
Carpenter work .....			50.00
Nails, windows, and trimmings .....			50.00
Painting .....			15.00
Stone underpinning, two cords laid .....			\$601.00
Total cost .....			

DESIGN XXVII.

A SHEEP BARN.

The sheep barn here shown is adapted for using the horse fork while storing the hay in the loft. There is not a single cross beam in the way. The barn is sixty

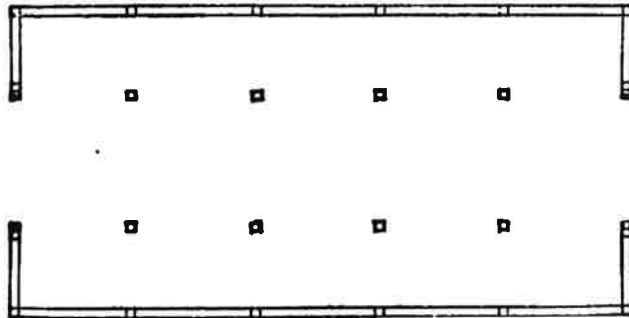


Fig. 131.—GROUND PLAN OF SHEEP BARN.

feet long and thirty feet wide. The first story is ten feet high, and the ridge-pole thirty-five feet. Forty tons of hay can easily be stored in the loft from either end, without a man being needed to pack it away. This is more than enough for the two hundred sheep which this

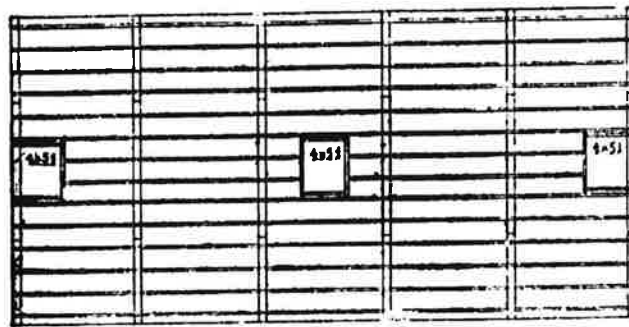


Fig. 132.—PLAN OF FLOOR.

barn will accommodate. The hay is thrown into the pens below as needed. The rectangular spots shown in the ground plan, are twenty-four stone posts, which are each four feet long, eighteen inches across at the base, and

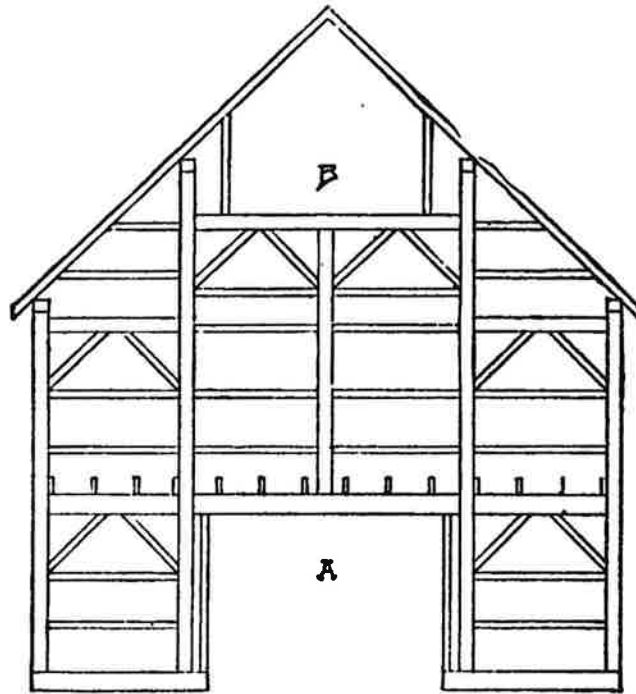


Fig. 133.—AN END BENT OF BARN.

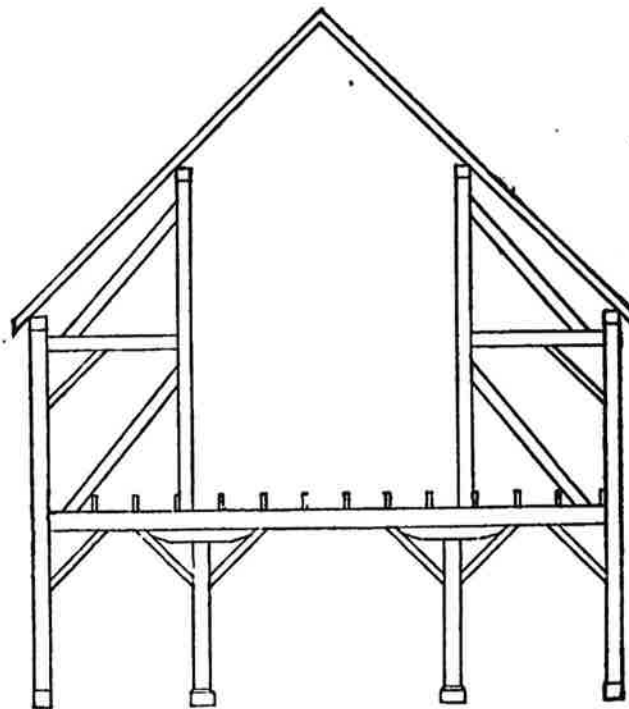


Fig. 134.—MIDDLE BENT OF BARN.

tapering to twelve inches at the top. Brick piers may be used where suitable stones are absent. The floor plan shows the joist bearers and hay chutes. The bent on the west end is shown, in which *A* is the door on the ground floor, and *B* the hay loft door, which is ten by ten feet, and is let down on the outside by a small rope and pulley.

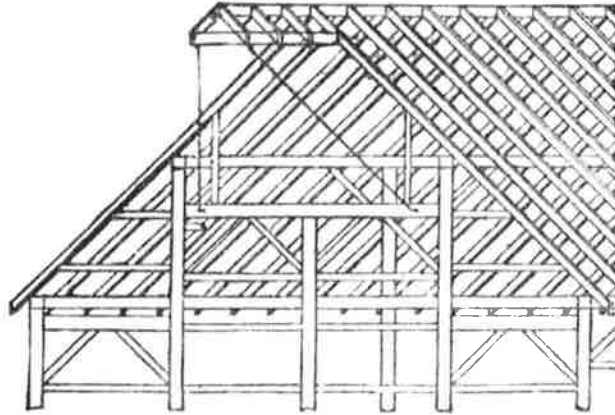


Fig. 135.—END FRAME WORK.

These hay doors, one at each end, are held by guides nailed to the weather boards, and a "stop" at the lower end. One of the four middle bents, with its standing braces, purline posts, etc., is also shown. These timbers are fitted with dove-tail tenons. The framing of one side of the barn from the sill to the plate, with all the cross-

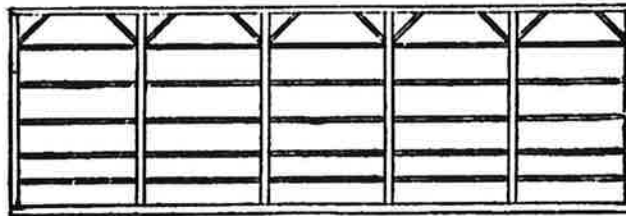


Fig. 136.—FRAME WORK OF SIDE.

pieces, is shown on a reduced scale, and there is a perspective view of the framing of the western end, showing the projecting support for the horse hay fork. The ends of the roof project, as seen, to furnish an attachment for the horse fork. The track, or "railway," extends from this back into the loft for twenty-six feet. Upon this

projection the hay is lifted perpendicularly, instead of being drawn against the end of the barn. The supports for this extension are two strong rods, extending to a girder six inches to the right and left of the doors.

The following estimates are for substantial oak frame, and No. 1 pine siding and shingles. Oak siding and oak lap shingles would lessen the cost.

**COST OF MATERIALS AND LABOR.**

2 sills, 10 by 10 inches by 37 feet.	4 plates, 7 by 8 inches by 37 feet.
2 sills, 10 by 10 inches by 25 feet.	4 plates, 7 by 8 inches by 25 feet.
4 sills, 10 by 10 inches by 9 feet.	2 end girders, 8 by 8 inches by 14½ feet.
4 joist beams, 8 by 12 inches by 30 feet.	70 joists, 2 by 9 inches by 12 feet.
4 joist beams, 8 by 12 inches by 8 feet.	32 end nail ties, 4 by 4 inches by 8 feet.
2 joist beams, 8 by 12 inches by 14½ feet.	50 nail ties, 4 by 4 inches by 12 feet.
8 caps, 8 by 8 inches by 5½ feet.	4 nail ties, 4 by 4 inches by 7 feet.
8 middle posts, 8 by 10 inches by 9 feet.	4 nail ties, 4 by 4 inches by 4 feet.
4 dove posts, 4 by 8 inches by 9 feet.	4 gable door posts, 4 by 4 in. by 5½ ft.
12 side posts, 8 by 8 inches by 20 feet.	62 rafters, 2 by 5 inches by 12 feet.
4 purline posts, 8 by 8 inches by 26 feet.	62 rafters, 2 by 5 inches by 11 feet.
2 center purline posts, 8 by 8 inches by 14½ feet.	29 brace pieces, 2½ by 4 inches by 10 ft.
8 purline posts, 8 by 8 inches by 18 feet.	1,800 feet oak flooring for hay loft.
12 shed ties, 8 by 8 inches by 8½ feet.	4,200 feet pine siding.
8 standing braces, 6 by 8 inches by 10 ft.	6,820 feet lath.
8 standing braces, 6 by 8 in. by 10½ feet.	22,816 shingles.
14,522 feet oak timber, at \$12.50.....	
1,800 feet oak flooring, at \$12.....	
4,200 feet pine siding, at \$24.....	\$181.20
22,816 pine shingles, at \$4.50 per 100.....	21.60
5 kegs nails, at \$3.50.....	100.90
8 pairs of hinges, at 50 cents.....	102.67
Carpenter work.....	17.50
Excavating and stone work.....	4.00
	175.00
	25.00
Total cost.....	\$616.67