

2x10 planks should be bedded in mortar (see fig. 1). In laying the sill, the top plank should not be fastened to the others but left loose, for reasons soon to appear. The studding should be 2x10 plank, preferably 18 ft. long. After carefully sawing the studs to uniform length and squaring both ends, arrange them in a horizontal position, re-tie on the edges, and placed 16 inches apart; they should be supported on a level with and at right angles to the sill upon which the

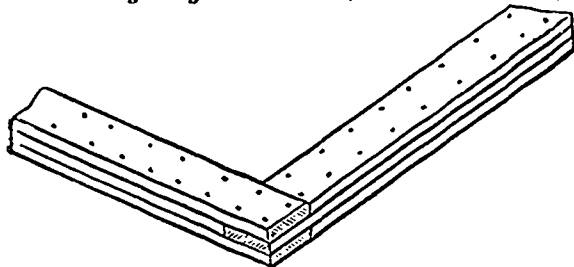


FIG. 1.—Showing how planks of sill are joined.

bent is to be raised. Then spike the loose plank of the sill to the foot of the stud; and when all have been firmly fastened as directed they should be secured at the top in the same manner. After fastening the studding to sill and plate-planks, the side or end, as the case may be, is ready for raising. After the bent has been raised in a vertical position to its place on top of the other two planks of the sill, the third one that was nailed to the foot of the studding before the bent was raised can be firmly spiked to the lower ones. This first bent can be held in place by temporary stays until the remaining sills are raised; the plates can then be nailed at the corners and the skeleton frame is complete; two 2x10 planks will give all the strength necessary for the plate. It will be observed that by following this plan the studs are securely fastened, top and bottom, and the full strength of sill and studding is saved, there being no mortises cut in the sill and no tenons on the studding. After the frame is up the next thing to be done is to bridge the studding. This is a very simple thing to do, but of so much value in strengthening the walls that it ought never to be omitted in a silo. In case the silo is 18 ft. deep, it would be advisable to put in two rows of bridging. By thus spiking planks between the studs it makes it just as impossible for the studs in the centre of the wall to spring out as it is for those nearest the corners. We are now ready to commence lining the silo. Each one can follow his choice as to the outside covering, since it plays an unimportant part in the preservation of the ensilage; some will prefer to use drop siding or ship-lap, others common lumber, and in some parts it is possible to put on a covering of low grade shingles cheaper than any other way. It is not necessary, for the preservation of the ensilage, that paper be used on the outside of studding, but to keep out frost it is advisable to use it, since it makes the silo much warmer. Since a good deal of moisture rises from the ensilage, it is well to provide for ventilation at the roof. This can be done by openings in the gable ends of the building, or a dormer window in the roof. It is much better to carry off the moist air by ventilation than to have it congeal on the rafters during cold weather and drop back again when mild days come.

#### LINING THE SILO.

Care should be exercised in lining the silo. The lumber for this should have no knot holes and should be dressed on one side, and is better if edged so that the joints will be reasonably tight. The lumber need not be of uniform width, but boards from eight to ten inches wide are preferable. The inside of the studding is first covered with boards, laid horizontally (see fig. 2), ten-penny nails being used; building paper is then tacked over the whole surface. Upon the paper nail a second layer of boards. Care should be taken to break joints, which can be indicated by chalk marks on the paper. This double lining, with paper between, must reach from the top of the silo to the bottom of the sill.

The floor of the silo need be nothing but the earth; as already mentioned, it is a good plan to fill in the silo until the floor is on a level with the top of the stone wall; a layer of straw spread on the bottom before commencing to fill with corn will prevent the loss of any ensilage.

The silo should be tied across the top at two or three places with joists, or a cheap cable; this latter

may be made by twisting three strands of galvanized wire, which costs about three cents per pound; five pounds will make a cable sufficiently long to reach across an ordinary silo.

If the silo is more than thirty feet long the sills should be secured at two or three places with a cable of this kind, which, as it rests on the ground, is entirely out of the way. The modern silo will not tolerate partitions of any kind, they are relics of the past. There are several methods employed for cutting off the four corners of the silo. Perhaps the simplest plan is to bevel the two edges of a foot wide plank and nail it securely in a vertical position in the corner. A dormer window in the roof of the silo affords a satisfactory means of getting the corn into the silo in the fall.

The door way should be made sufficiently large to permit the entrance of a car or some other vehicle for moving the ensilage from the silo to the cattle. There is no necessity for running the doorway to the top of the plate since the ensilage always settles considerably, and even if it fills the silo above the top of the doorway there is little trouble in digging down

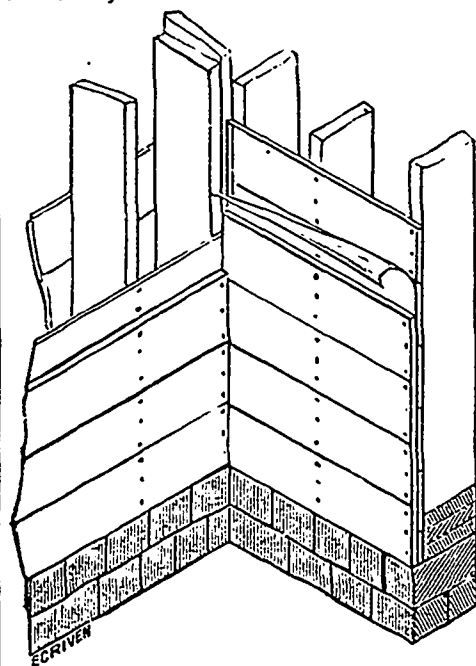


Fig. 2, showing double-boarding on inside of silo.

just at that point and making an opening. Of the numerous doorways described the simplest form is probably the best. Tack cleats on each of the studs which form the sides of the doorway, so that boards six inches wide running across the doorway come just flush with the inner lining of the silo. If the doorway is wide set a stud in the middle to prevent the boards springing. Repeat the cleat and boards for the outside walls. During filling, as the ensilage accumulates, place a layer of paper across from cleat to cleat and tack on six-inch boards until the doorway is closed; or it may be closed up at once when filling commences, and the silo entered by a ladder reaching a doorway on top of the plate. In opening the silo the boards can be knocked off as the ensilage is fed down.

#### HOW TO PAINT THE INSIDE WALLS.

Now that the silo is built the question naturally arises, what is the best and cheapest wood preservative that can be applied to the parts of the silo that come in direct contact with the moist ensilage. An examination of one of the Station's silos that had been treated with a coat of coal-tar possesses another great advantage: over ordinary oil paints, there being so much body to it that it readily fills up cracks in the lining, and aids greatly to make the silo air-tight. It is one of the waste products in the manufacture of gas, and can ordinarily be obtained in any quantity at the works at three or four dollars a barrel. As it comes from the gas works it is a liquid of about the

same consistency as molasses, and it is necessary to burn off considerable of the oil that it contains before it is in a condition to apply to a wall. This burning is a simple process: pour a quantity of the liquid into an iron kettle, set fire to a handful of straw and throw it in the kettle. The tar at once flashes up and burns with great heat. In order to tell when it has become sufficiently reduced, thrust a stick into the blazing kettle, then take it out and plunge it into a pail of cold water; when the tar clinging to the stick has become sufficiently cool to handle, take a particle in the hand and pull it out; if it will string out in fine threads a foot or more long, it has burned long enough and the fire can be put out by placing any tight covering over the kettle. It usually takes from one-half to three-quarters of an hour to reduce the tar to the proper consistency. This preparation must be applied hot, and it will be necessary to swing the kettle up from the ground and keep a fire under it until the work is done. The odor and smoke from the hot tar is very disagreeable, but by taking small quantities of the liquid and applying it very hot with mops or whitewash brushes, the surface can be gone over rapidly.

A single season's experience with a wood preservative cannot count for much, but we think very favorably of the method here described, and intend coating the walls of a large silo with coal tar the coming season for an additional test.

### More than Pleased with their Silo and Silage.

EDITOR CANADIAN LIVE-STOCK AND FARM JOURNAL.

SIR,—As the subject of silos and ensilage is a matter of interest to dairy farmers and many who can hardly be so described, but who keep a number of cows, perhaps our experience with the above may be of interest, and to some useful.

We built a silo last summer at the side of the barn and cattle stables, the floor of the silo being within one or two feet of the floor of cattle stables, so that access is easy. Quite late in May we planted five acres of the large Southern White corn, generally known as the B. and W. It grew to an enormous height and size, and was the wonder and admiration of all. Owing to pressure of work from building the planting was thus late, and in consequence it did not mature, very few ears having reached the glazed state. Frosty days and shortening nights admonished that it must be cut, whether mature or not. You will remember that last fall it was very wet, and this corn being on a piece of flat, low ground, made it difficult to get it wilted, as recommended by those most experienced. Fearing sharp frosts, we set a number of men to work, and cut the whole down with axes, thus covering the whole ground. We were very anxious lest it should be injured before we could get it into the silo, and this feeling was not allayed by "Job's comforters" around us. However, we took it philosophically, and having provided ourselves with a Smalley Ensilage Cutter and Carrier, worked by a steam engine, we set to work getting three saw-mill trucks, on which we nailed planks projecting a good distance over the wheels, and two teams and drivers. At the end of the cutter we built a platform on the level with the machine. We thus kept a wagon loaded with corn always standing near the operator, and we got the whole cut and into the silo in a little over four days. We had read advice as to partitions in the silo, *pro* and *con*, and as that great authority on this subject, Hiram Smith, of Wisconsin, says there is no more use for a partition in a silo than there is in a pork barrel, we concluded to dispense with it. Our silo is 50 feet long, 20 feet wide, and 13 or 14 feet deep. The carrier was so arranged that the first day we dropped the cut corn about one-third of the distance in the silo, the second day a stage further on; the third day, at the final stage, and on the fourth day commenced again. We thought we had taken great pains in treading it down in the corners and at the sides, but the result shows that we did not do so as thoroughly as should have been done. This has been a condition against good silage to some extent; second cause was as stated before, corn not being quite as ripe as it should have been; thirdly, the silo was only half full, hence there was not sufficient pressure; and last and worst, after it was all packed in, circumstances necessitated turning up the bottom of the roof on iron, and the tinker, with singular stupidity, chose a desperately wet day for this purpose. Result, considerable water found its way in at one place. These