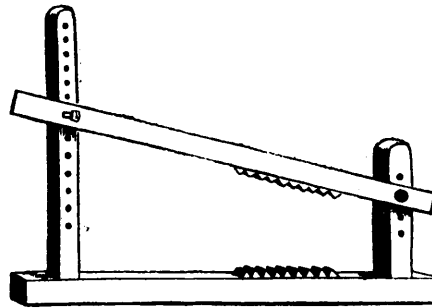


and their appropriate place in the compost-heap, and should be systematically conveyed there. Weeds when cut up with the hoe, or mowed by the scythe, are usually left to decay on the ground. This is very wasteful. They should be composted. Couch grass and thistles, two very bad weeds are rich in fertilizing matter, which ought not to be lost. In making a compost heap, the earthy and vegetable material of which it is composed should be in about equal proportions by bulk. If swamp muck or the like is not to be readily had, good loam will answer the purpose. Loam is capable of absorbing a large amount of rich fertilizing substance. The vegetable and earthy material having been mixed, the heap should be well watered with liquid manure. The urine from the horse and cow stables may be saved for this purpose. Chamber-lye should also be turned to the same useful account. After being well mixed, it is well to make the compost into long heaps about 3 feet high and 4 feet wide. They should be moistened from time to time with liquid manure of some kind. Of course to preserve the heap as rich as possible, it is best to keep it under a roof, but if this is not done, the outside of it must be protected with loam three or four inches in thickness.

A good compost for any common crop may be made in the proportions of one load of barn yard manure with two or three of muck, swamp mud, or loam, and ashes or potash. The following mixture has been used to advantage by a careful practical farmer: farm-yard manure 25 bushels, an equal quantity of muck or mud, and six bushels of leached ashes, or instead of the ashes, one bushel of lime slaked with saltwater. Thirty bushels of swamp muck and one bushel of guano thoroughly mixed, has been found to make an excellent compost. The same quantity of muck with two bushels of bones, also forms a valuable compost. Another mode is as follows: dig peat or swamp mud in the fall of the year. Next spring, mix 8 bushels of ashes with every cord; or with every cord, 20 pounds of soda ash, or 30 of potash, dissolved and poured carefully on the piles. Those who have an ashery within easy distance, should by all means avail themselves of the opportunity thus afforded, of enriching their land. Leached ashes used alone, or mixed with swamp muck, or used in the compost heap, are of more value and utility than most people imagine. Many instances have been reported of the beneficial effect of leached ashes applied by themselves; and, mixed with muck or other fertilizers, their influence is often far more beneficial. Yet huge unsightly piles of this valuable material disfigure the country, when it would be a relief to the ashery owners, and a source of incalculable profit to farmers were they spread on the land. The accumulations of the privy should also be carefully saved. Dry loam thrown from time to time into the receptacle, acts both as an absorbent and a deodorizer. Not only will dry earth prevent unpleasant odours arising from this material, but plaster of paris, copperas, Glauber's salt, sulphuric acid, Epsom salts, chloride of manganese, sulphate and chloride of zinc, and chloride of lime, all cheap substances and easily procured, will have the same effect. Thus the chief objection to disturbing and using this richest of all fertilizers is removed. The Japanese depend almost wholly upon the human animal for their supplies of manure, and there are no people under the sun who succeed in raising such crops as they do from small patches of land. Their little holding are worked up to the highest pitch of productiveness, mainly if not wholly by the use of a substance which more enlightened nations let go to waste, and allow to poison the air, and pollute the streams. This material well mixed with loam or plaster, is an important addition to the compost-heap.

Considerations of health as well as economy should induce the farmer carefully to scrape up all the decaying matter upon his premises, and turn it into manure. The gases that furnish food to plants are injurious and even fatal to man. Sulphuretted hydrogen and carbonic acid gas for example, are very noxious. They are generated in drains and sink-holes, in heaps of dirt, in damp neglected cellars, in ditches, muddy puddles, swamps, and all undrained places where stagnant water collects. Their presence is indicated by the fulness of the air. Whatever is offensive to the sense of smell is more or

less injurious to health, and where bad odours prevail, there is liability to disease. Hence the farmer who looks everywhere for manure, and collects it carefully from all places where filth is apt to accumulate, is not only enriching his fields, but taking measures to protect his health and that of his family. The sweepings of rooms, scrapings of cellars, dirt that has been lying for a long time under barns and the buildings, the contents of drains, cess-pools, ditches, bogs, dirty ponds, and swamps, are all suitable and valuable materials for the compost-heap. Collected together, commingled, and covered with a coating of loam or clay, they not only become harmless but useful. A farmer's premises cannot be too carefully kept clean, especially in the vicinity of the well whence the family obtain their drinking-water. The compost heap should always be made at a distance from the well, and it is a good plan to have under and around every such heap, abundance of clay or loam to absorb all the drainage and prevent its sinking into the earth.



Post or Rail Clamp.

DIFFICULTY is often experienced in firmly holding posts, or rails, or steaks when sharpening, hewing, or otherwise working them. A simple, cheap, but effective contrivance is herewith shown, designed to hold steaks or posts firmly. Any farmer, with a few tools, can make one in a couple of hours. The bed-piece and lever should be from eight to ten feet long; the former may be of any convenient size, but the lever should be of tough wood, and small enough to allow it to spring a little when brought down on the timber. A piece of iron ten inches long, with teeth cut in it, should be fastened to the bed-piece, and a similar one to the lever, as shown in the engraving.—*R. N. Yorker.*

Memoranda on Land Drainage.

1. IN the first place arrange the whole plan for the whole estate before commencing a single field. Do not fritter away your means in laying one field after another dry on plans proper enough for each, but not well fitted to one another. This is especially good advice where a whole estate, comprising several farms, is taken in hand for improvement. The selection of an outfall, and the fitting it for its purpose, the removal of spring water, the order in which the work shall be done, which is determined by two considerations, viz.: 1st, the necessity of working from the final outfall upwards; and 2nd, the possibility that water removed from one part may lay dry another; so that here, as opposed to the other consideration, the necessity may arise, or rather the propriety may be indicated, of draining a higher field first of that water which is thus hindered from re-appearing below—all these are, to use the words of a politician, not local but imperial questions needing attention in the first place. The arrangement of the plan for the whole estate should, in fact, be attended to before any of the work is commenced.

2. Next, get a permanent and sufficiently deep outfall, to allow, if possible, an easy fall from 4 feet below the lowest part of the land.

3. Remove all spring-water—tap all porous and water-logged beds—and in general provide, in the first place, for the removal of all the water which comes upon the land, or any part of it, otherwise than directly from the clouds. To this end straighten all water-courses, leaving, however, as few open ditches as possible.

4. Lay drains in all habitual water-courses; humour and attend to the habits where the water of

the estate has acquired, if you mean to obtain an immediate result. Let this, in the case of Grass lands with deep ridges and deep intervening furrows, go the length of inducing you to put drains in the furrows, however they may lead you, rather than up and down the slope in straight and parallel lines, with uniform intervals, disregarding the old ridge and furrow arrangement.

5. When all this has been done, then begin the drainage of the estate—field by field—the lowest first, and proceeding from the lowest part of each to the upper part. Dig a main drain with sufficient fall along the foot of the lowest field first, about 8 yards or thereabout from the hedge, and 4 feet 6 inches deep or thereabout, i.e., somewhat deeper than the drains which run into it, and wide enough in the bottom to take a 3 or 4-inch pipe—one large enough, at any rate to take all the water which is likely to run into it.

6. Dig trial holes here and there across the face of the slope 4 feet deep, and try the effect of a single narrow drain, 4 feet deep, taken right up the slope in their midst; and learn from the distance at which this minor drain will empty these holes the intervals between your drains, which in each field you will adopt.

7. Your minor drains should be 4 feet deep, both for the sake of their permanence and efficiency, and for the sake of the greater quantity of earth per acre which will thus be fertilized for the use of plants. They must take a two-inch pipe up to near the top of each; a one-inch pipe will suffice to the upper end, where less water runs. They will be from 7 to 8 yards apart in homogenous clays—10 to 12 yards apart in freer and more open soils; and any greater distance in rocky or gravelly sub-soil, which are unable to discharge their water naturally, but which a single deep drain will often lay dry for acres by the artificial outlet thus provided.

8. As to the way in which, when the method which any field requires has been determined on, the work is actually set out; it may suffice to mention that the place of each drain right down the slope should be pegged out, and (especially in the case of Grass lands) the line itself may then be opened up by the plough, which will, with horse labour, thus take out to its full width the first 6 or 8 inches of the depth. A working man of ordinary size can easily stand and work in a drain 3 feet deep, if it be a foot to 13 inches wide at top. He stands in such a drain, and takes out the remaining foot in depth, making a 4-foot drain without difficulty. In the case of a draining match held some years ago before the Hertfordshire Agricultural Society, there were 17 sets of men at work, and the prizes went for drains 1. inches and 1 1/2 inches wide at the top respectively. One drain was opened 4 feet deep, with only a 9-inch opening at top.

9. As to the cost of work, earth capable of being lifted in masses by the grafting tool can be cut into barrows for 2d. per cubic yard; and the difficulty of working in a narrow drain adds only this much to the cost, that the labour of cutting and lifting earth in making drains varies from only 2 1/2d. to 2 3/4d. per cubic yard. A 4-foot drain thus costs from 6d. to 8d. per rod for cutting it.

10. Let us here enumerate the items of cost per acre. If drains be 5 1/2 yards apart, 880 yards are needed per acre; if 8 yards apart, 605 yards per acre are needed; if 11 yards apart, 440 yards per acre will be required. If the mere cutting be 6d., the cost of opening the drains will be 4l. 2l. 15s., and 2l. per acre; if it be 8d. per rod, the cost will be 5l. 6s. 8d. 3l. 13s. 4d., and 2l. 13s. 4d. per acre respectively. If the tiles used be 2-inch pipes, at 20s. per 1000, they will cost 50s., 36s., and 25s., per acre in these several cases. If collars be needed to connect the tiles, you must add one-half more to their account. Add some 5s. an acre for superintendence, and 1d. per perch for filling in the earth after laying the pipes; and you have as the cost of drainage 10l. to 8l. per acre, according to the quality of the work in near drainage, and 4l. 10s to 6l. per acre, according to the character of the work in the wider drainage. The average cost under ordinary circumstances, including the extra cost of mains and outfalls, may be put at 5l. per imperial acre. There cannot be a doubt that, thus add from 8 to 10 per cent. to the cost of the estate, they often result in an increase of 30 to 50 per cent. in its value. *J. C. M. in Agricultural Gazette.*

A NEW STUMP MACHINE.—A correspondent of the *Rural Register* states that Mr. Jno. Barnes of Baltimore, removed a troublesome stump from near his house, in the following manner:—"Last fall, with an inch auger, he bored a hole in the centre of the stump 10 inches deep, and into it put about half a pound of oil of vitrol, and corked the hole up tight. This spring the whole stump and roots, extending through all their ramifications, were so rotten that they were easily eradicated." Any one having faith in this stump extractor, can try it at small expense.