and adjusts it with care as closely as possible to its neighbour; and so on, as far as the drain is bottomed out.

All this, difficult as it is to describe in words, is easy to understand when once it has been seen in operation ; and with four men, the whole affair goes on like clock work, after the first few rods have been opened. It will answer no one's purpose to sot a single hand at this work. The supervision must be constant, and the more rapidly the business is carried on the less likely is the superintendent to go sleep over it.



Fig 3-Draw-scoop.

Fig 4-Broadscoop.

Fig. 5-Pipe-l.-yer.

Up to the present time we have been sailing along with ease. We have met with no obstacles, except a stone or two. or a piece of hard-pan. The tramp-pick or the ordinary one, or perhaps a blast, have soon rid us of these enemies. But a danger now heaves in sight-a foc indeed; but convertible with care into a friend-I mean a running sand. Its enmity is displayed in an overwhelming desire to choke the pipes; but, if properly treated, it may be baulked of its aim; and as its presence always denotes a vein of shattery soil, it will admit of the drains being placed at wider intervals than where the soil is of the usual homogeneous texture. I do not mean that I like quick-sands. By no means ; but they are not so terrible as they are usually thought to be; and I would treat them, when met with, in some such manner as this :

Before laying the pipes, make the bottom a little wider, say two inches, than usual, and lay on it narrow lengths of half-inch boards : place the pipes on the boards, which should be no longer than four feet, and fill up the interval between the pipes and the sides of the drain with the stiffest clay you can find, jamming it in with any handy tool as hard as possible, but taking all pains to keep the pipes straight. To do this well is a difficult job, for not a foot must be set in the drain. Two men will manage better than one; the first to hold the pipes steady, at the junction of each pair, with the pipe-layer; the other to drop the clay into its place. The pipes should be covered with a thick coat of the stiffest of the soil, the whole should be well trodden down, and when the drain is three parts filled, one wheel of a heavy laden cart a sort of shoe, or second tire, made of any pliant material, such as bark, might be added-anything and everything

laborious job, is draining a running sand, but few things pay better when well done.

I am afraid this is a very desultory article; but the fact is, that as I am describing what I have done years ago, I am obliged to jot down things as they occur to my mind; and I find that although my memory is a pretty good servant, it is rather irregular in its action.

Note-when a certain length of drain has been laid, before continuing work in the upper portion a strainer (a bunch of hay or straw) should be placed across the mouth of the last pipe, to prevent any silt from making its way into it; if the soil is quite dry at the time, this precaution will not be requisite, but it is as well to make a practice of it, and then it will never be forgotten when really necessary.

The most wonderful instance I-ever saw of converting an enemy into a friend, from an agricultural point of view, was at Lord Hatherton's, Teddisley Manor, Staffordshire. Above the farm-buildings lay about 70 acres of bog, full of reeds and other water-plants, and affording shelter to lots of wild-ducks and snipe. This was drained, and the springs were so copious that, being led to the yards, they drove an overshot wheel (12 horse power), which did all the threshing, grinding, chaffoutting, and sawing for 1200 acres of land; and having performed these duties, it ran off into the brook in the valley, irrigating, on its .oad, 15 acres of meadow, the yearly produce of which was worth at least £12 (860) an acre. Unfortunately, I forget the name of the planner or this great work. He deserved immortality.

I have not laid down any here and fast rules for the dis-tance between the drains It wou. be absurd to attempt it, without a trial, or experimental, drain in each field to be drained. I have never seen, however, any land here where I should fear to allow 40 feet between the drains if they are to be 4 feet, or so, deep. Our heaviest clays in England were dried at 33 feet intervals, and there is nothing like them here. If pockets of gravel or sand occur, the distance may



Fig. 6.

be safely 50 fect; and where the whole subsoil is broken, drains sunk 5 feet, or perhaps 6 feet, in the last few rods at the top of the incline, may be expected to answer well at from. 60 to 90 feet. Remember that, as I said before, the wet They lie spots on a slope are not the sites of the springs. higher up; so there is no good in wasting money by placing the drains deep at their lower end; out of the reach of frost, is all that is necessary. Fig. 6 is an engraving of a field, all might be run up and down it-if the wheels are too narrow, in one plane, with a fall from a b to c d. The outburst of the springs is along the lines r.s, t.u; and e.f, g.h; are the main drains emptying into the ditches a c and b d; should be tried to consolidate the earth. It is a troublesome, J.k. & m, &c., are the drains running deeply into the ground.