performed these duties, it ran off into the brook in the valley, irrigating, on its road, 15 acres of meadow, the yearly produce of which was worth at least £12 (60) an acre. Unfortunately, I forget the name of the planner of this great work. He deserved immortality.

I have not laid dowu any hard and fast rules for the distance between the drains. It would 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 fett, 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

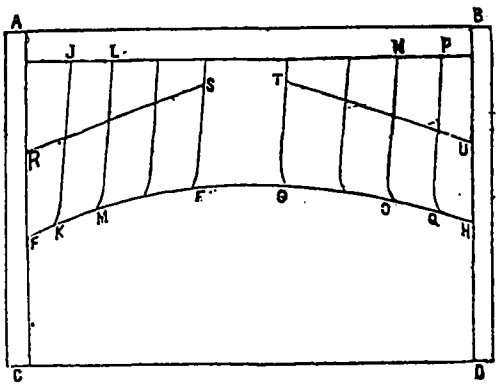

Fig. 6

sand occur, the distance may be safely 50 feet; 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 spots on a slope are not the sites of the springf. They lie 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 au engraving of a field, all 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*; *j k*, *l m*, &c., are the drains running deeply into the ground above the outburst. A really deep cut here may drain acres, but of course a large conduit will be required to carry off the water. Any one can see with half an eye, that in this harp-fashion of placing the drains they must cut into the site of the springs—they can't avoid it.

In the case of a hollow spot with a fall in the upper part inclining on each side to the centre of the hollow, the main should run up the hollow, and the small drains still down the greatest fall—like what is called by ladies "herring-bone" fash-

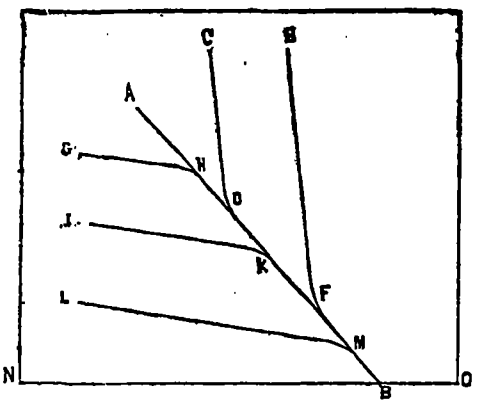

Fig. 7.

ion—see fig. 7, where *n o* is the open ditch, into which the main *a b* empties, and *c d*, *e f* &c., the small drains running up and down the greatest fall in the direction of *c d*, *g h*. The part of the main next the ditch being the recipient of all the water should be of a safe size, the higher up we go the smaller may be the conduit. As drains should never be more than 200 yards long, if the small drain pipes be 1¼ inches the main should be 2½ inches, for ordinary work, at the ditch, and 2 inches for the upper part—*i. e.* in fig. 1, *m* to *f* 2½ inches, and from *e* to *m* 2 inches—but the economy is hardly worth the trouble, except on a large scale.

And now we come to the cost of the work: and a difficult thing to calculate it is. If it is to be done by the rod, there is no fear of the men opening the top spit too wide; but if by the day, they will, for the sake of a trifling convenience, move many an unnecessary cubic yard of earth.

What adds so much to the expense here is, that we have no gangs accustomed to the work. Good spadesmen there are, I dare say, here and there, but draining tools of the proper sort are unknown to them, and without these, no economical operations can be conducted. I recollect perfectly the cost in England, and the number of rods (16½ feet) a gang of four men did in a day. From these data we may arrive at something like a conclusion, as to what the cost should be in this country. Day wages being 14s, or $3.50 a week, the men expected to earn 18s, or $4.50, in the