(No Model.)

M. F. ANDERSON.

MACHINE FOR LAYING TILES.

No. 316,515. Patented Apr. 28, 1885.

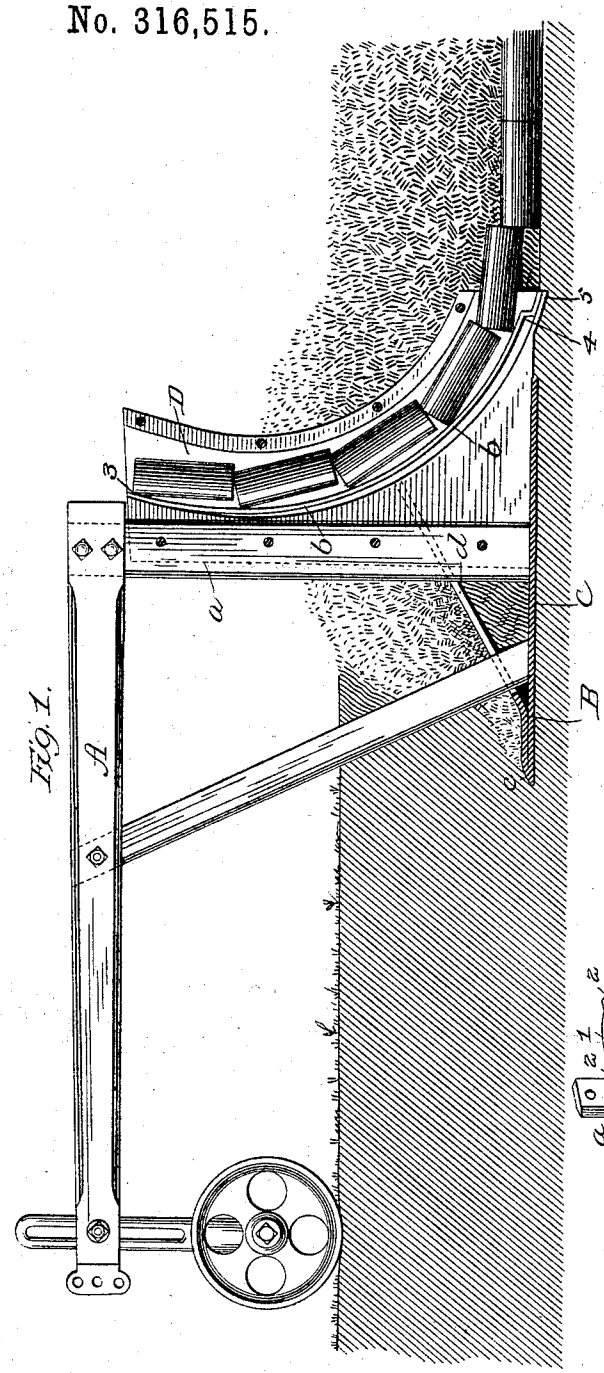


Fig. 1.

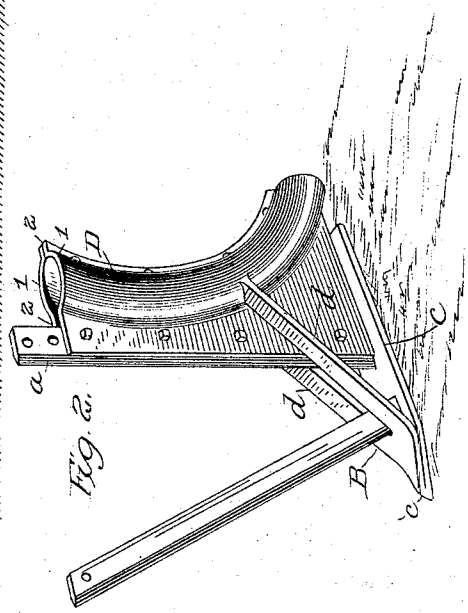


Fig. 2.

Attest:
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UNITED STATES PATENT OFFICE.

MILLARD F. ANDERSON, OF CORNING, IOWA.

MACHINE FOR LAYING TILES.

SPECIFICATION forming part of Letters Patent No. 316,515, dated April 28, 1885.

Application filed February 3, 1885. (No model.)

To all whom it may concern:

Be it known that I, MILLARD F. ANDERSON, of Corning, in the county of Adams and State of Iowa, have invented a new and useful Improvement in Machines for Laying Tiles, &c.; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates to the laying of tiles under ground for the purposes of drainage. As is well known, in forming drains of this description the tiles (being short sections of pipe formed of clay or other porous material) are laid close against each other a foot or so below the surface of the ground, a continuous pipe or drain being thus formed, into which the water percolates and runs through the internal bore thereof to any desirable place.

The object of my invention is to produce a machine in which will be combined devices for forming the ditch or trench, devices for feeding the tiles and placing them accurately in position against each other, and devices for covering the tiles thus laid uniformly with earth.

To perfectly carry out these objects my invention consists of a plowshare of peculiar form adapted to make the trench, a curved tube formed with or attached to the share and situated in the rear thereof, for holding and feeding the tiles, and a guiding-strip placed within the tube, by means of which each tile is laid close against the one preceding it to make a perfect joint; and, further, my invention consists in strips placed upon the plowshare, by which the earth is elevated to a proper point, from which it falls uniformly and with equal weight upon both sides of the tile, thus preventing any undue displacement of the same.

My invention consists, further, in various details of construction and arrangement of the parts, whereby the operation of the machine is rendered perfect and its construction simple and inexpensive.

In the accompanying drawings, Figure 1 is a side elevation of the machine with the feeding-tube and plow-point in central vertical section. Fig. 2 shows the feeding-tube and ditcher in perspective.

In these drawings, A represents the beam, and B the ditching plow or shovel. The beam is provided at its front end with supporting-wheels, which carry a guide-bar for the beam, and suitable adjusting devices for regulating its position vertically, these devices being of any ordinary construction.

Bolted or secured in any suitable way to the rear end of the beam is a flat vertical bar, *a*, beveled upon its front edge to present a cutting or dividing edge to the earth, for the purpose hereinafter described. Extending across the lower end of this bar is a plate, C, which terminates in front in a sharp point, *c*, to form the cutter for the ditcher.

The tube for feeding the tiles is represented at D in the drawings, and is preferably formed from two metal plates having semicircular portions 1 1 and flanges 2 2, the said flanges in front embracing the vertical bar *a*, and being bolted thereto, and those in the rear being riveted or suitably secured to each other.

I do not wish to limit myself to the precise construction shown, as the details may be varied without departing from the spirit of my invention. Thus the vertical bar and the tube may be formed in one piece, or the tube may be formed in one piece with flanges for securing it to the bar *a*. The longitudinal axis of the tube is an arc of a perfect circle; and, supposing the machine in position within the ditch, the bottom of the ditch would then be pretty nearly tangential to the tube at the exit-opening for the tiles, so that as the tiles issue from the tube they will be in such a position that their axes will be substantially parallel to the bottom of the ditch. The tube at its upper end terminates just in the rear of and in line with the plow-beam, thus giving a length sufficient to contain several tiles at the same time. The diameter of the tube is made considerably larger than that of the tiles, so that their downward movement will be perfectly free and regular.

To better control the downward movement of the tiles, I employ a guiding-strip of metal, as shown at *b*, which is secured to the inner periphery of the front wall of the tube at point 3. From this point (which is at the upper end of the tube) the strip gradually diverges from the front wall and approaches the rear

wall of the tube, and thus diminishes the size of the exit-opening. Just short of this end of the tube the strip is turned at right angles to form a square shoulder, 4, and is secured at 5 to the front wall of the tube. The function of this strip is now to be described. The tiles in their downward movement bear upon and are guided by the strip, and as they approach the lower end of the tube they are elevated slightly by reason of the end of the strip being raised. Each tile, therefore, as it issues from the tube, abuts against the front end of the one already laid at a point above the bottom of the ditch and in position parallel thereto, and is held firmly in this position by the weight of the tiles in the tube until the forward movement of the machine brings the notch or shoulder 4 under its front end, when it will drop into position from its own weight and the pressure of the remaining tiles in the tube, a perfect joint being thus formed between the tiles.

A colter of ordinary construction is secured to the beam at one end and to the ditcher-point at the other. Upon either side of this colter, and inclining from the point *c* upward to the rear, are provided plates or strips *d d*, extending far enough back to join the tube, to which they may be secured in any suitable manner upon either side of the same. As the furrow is cut the onward movement of the machine raises the earth along the inclined plates, it being divided as it rises by the colter and the front edge of the vertical bar *a*, so that half will be carried around one side and the remainder around the other side of the tube and deposited upon the tiles in uniform quantities and with equal pressure from both sides, thus preventing any displacement of the same.

The shape of the feeding-tube and its combination with the vertical bar *a* answers the purpose of a mold-board, one being provided for either side.

The inclined plates *d d* serve to hold the machine to its work in the ground, and, also, they loosen and break up the earth on both sides to such an extent that when it falls to the rear upon the tiles no displacement of them will take place, as before stated, and the earth above the tiles and for nearly two feet upon either side thereof will be in a loose and broken form, thus giving the water a better opportunity to percolate through to the tiles.

I do not wish to limit the use of the feeding-tube D to its combination with the ditching-plow, as obviously it may be used separate and apart with equally good effect, in which case, however, the ditching, laying of the tiles, and the covering of the same would have to be accomplished by different and distinct operations.

What I claim is—

1. In a machine for laying tiles, &c., and in combination, a ditching shovel or plow and a feeding-tube adapted to discharge the tile against the one already laid at a point above the bottom of the ditch or trench, and in position substantially parallel thereto, substantially as described.

2. In a tile-laying machine, and in combination, a ditching plow or shovel, a curved feed-tube for the tile, and a guide-strip within said tube, substantially as described, and for the purpose set forth.

3. In a tile-laying machine, and in combination, a ditching plow or shovel, a curved feed-tube for the tile, a guide-strip within said tube diverging from the inner front wall of the tube from its upper point of attachment to a point a little short of the discharge end of the tube, and a notch or shoulder, 4, all substantially as described, and for the purposes set forth.

4. In a tile-laying machine, a feeding and laying device, consisting of a curved tube provided with a guiding-strip within for the tiles, said strip being raised from the front wall of the tube at its lower end and forming a shoulder or notch, 4, substantially as described, and for the purpose set forth.

5. In a tile-laying machine, and in combination, a ditching-point, *c*, a vertical standard or bar, *a*, having a beveled front edge, a feed-tube, D, having a larger diameter than the thickness of the vertical bar, a colter, and plates *d d*, extending from the point *c* back to the feed-tube and secured thereto, the said plates inclining upward to the rear, whereby mold-boards are formed upon either side, all substantially as described, and for the purposes set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

MILLARD F. ANDERSON.

Witnesses:
W. W. PATTERSON,
E. H. CRIPPEN.