

(No Model.)

J. ADAMSON.
TILE MACHINE.

No. 517,510.

Patented Apr. 3, 1894.

Fig. 1.

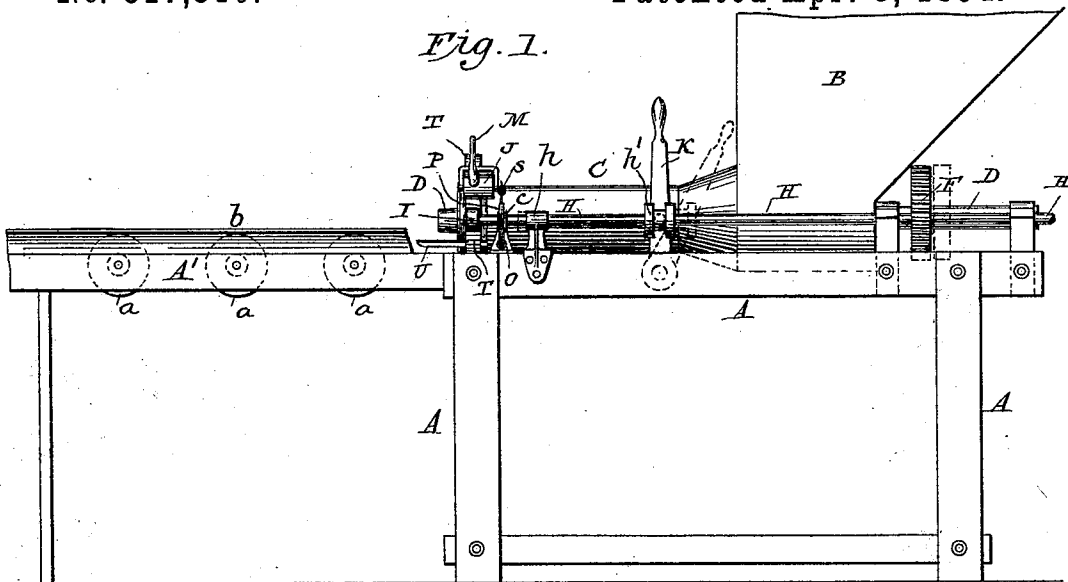


Fig. 2

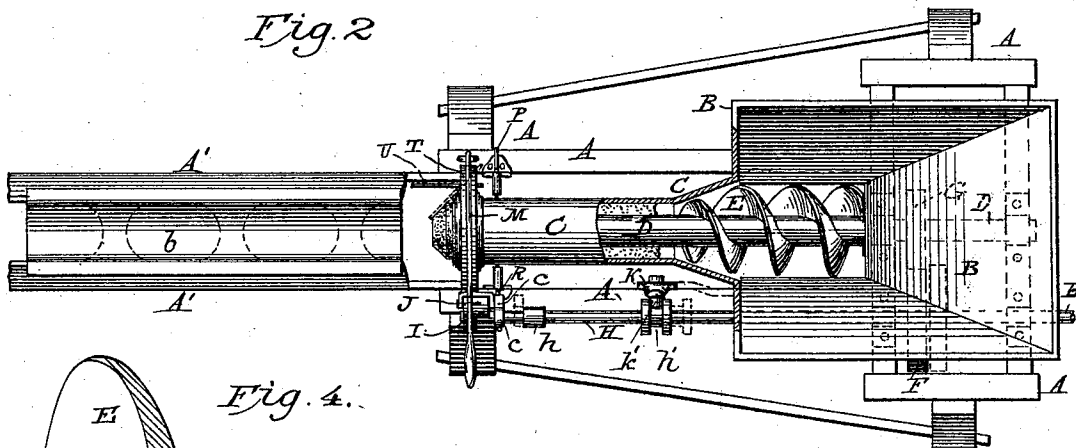


Fig. 4.

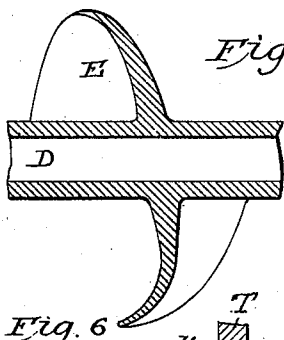


Fig. 3.

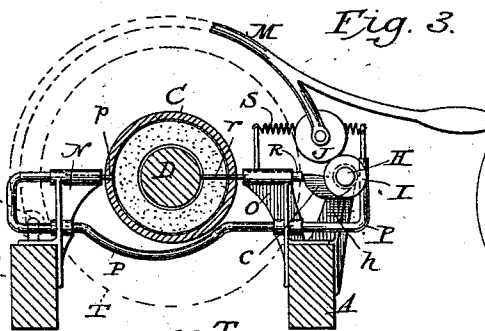


Fig. 5

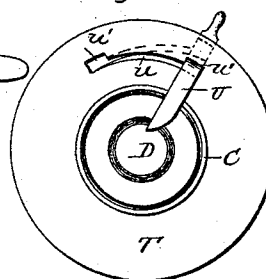


Fig. 6

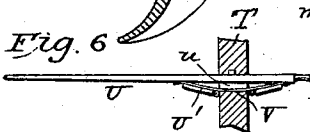
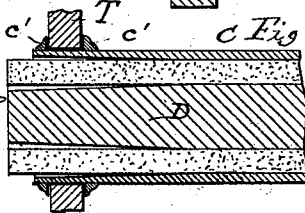


Fig. 7



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UNITED STATES PATENT OFFICE.

JOHN ADAMSON, OF FORT WORTH, TEXAS.

TILE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 517,510, dated April 3, 1894.

Application filed May 15, 1893. Serial No. 474,364. (No model.)

To all whom it may concern:

Be it known that I, JOHN ADAMSON, a citizen of the United States, residing at Fort Worth, in the county of Tarrant and State of Texas, have invented a new and useful Improvement in Tile-Machines, of which the following is a specification.

My improvements relate to tile pipe molders; and the object of my improvements is to provide a pipe molder which shall expeditiously and cheaply make subirrigating pipe right at the side of the ditch where it is to be laid. I attain this object by mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side view of the machine. Fig. 2 is a top or plan view, partly in section. Figs. 3, 4, 5 and 6 are sections and details. Fig. 7 is a longitudinal sectional view of the delivery end of the tube.

Similar letters refer to similar parts in the several views.

A. A. is the main frame, constructed of longitudinal and upright scantling bolted together, substantially as shown.

B is a large hopper, preferably of sheet iron, into which the material of which the pipe is to be molded, is thrown.

D is a shaft running longitudinally of the frame, and journaled in suitable bearings in the cross pieces of the frame to the right, as shown, the left end being free, and is the matrix for forming the inside of the pipe, and therefore that end is to be made of suitable size for that purpose. Where shaft D. passes through the bottom of the hopper it is provided with an endless screw E. The leaves of this screw are curved concave toward the left, as more fully shown in Fig. 4, so as to more thoroughly compact and crowd forward the material.

Attached to the left end of hopper B and fastened to the top of the frame, is a cylindrical iron tube C. This tube is funnel shaped for a short distance from the end of the hopper, as shown. A semi-cylindrical continuation of the tube to the right forms the bottom of the hopper, and into this the endless screw fits accurately, as shown. The object of the funnel part is also to assist in compacting the pipe material. The inner sur-

face of the tube after leaving the funnel part is the matrix for the outer part of the pipe.

On the shaft D is a gear G. This gear G is driven by another gear F on a parallel shaft H. Shaft H is journaled in bearings on the frame, as shown, and is the main shaft, to which power is applied at the right in any suitable manner. An ordinary shifting device K *h'* enables this shaft to be thrown to the right as shown in dotted lines, for reasons hereinafter to be explained.

I will now explain my device for cutting off the end of the pipe. The shifting device is used to throw shaft H to the right. This disconnects gears F and G, so that the pipe is not crowded along, that is to say, manufactured. A loose ring pulley T is placed near the outer end of the shaft, held in position by rings *c'*, (see Fig. 7.) This ring may be caused to revolve as follows: Shaft H is still running, and has solid pulley I, which is now opposite to loose pulley T. A rod M which is hinged to the opposite side of the frame at *m*, as shown, carries a loose pulley J, (see Fig. 3.) The handle of rod M may be used to bring the pulley J down, forming a connection between pulleys I and T, thereby revolving pulley T. Pulley T carries the knife U which cuts off the end of the pipe. This knife has a spring V, and a nipple on its upper side, (see Fig. 6) to hold it in position when in use, and when not. There is a slot *u* in pulley T, which has a spiral twist in it, (see Fig. 5.) When not in use the knife is put in the recess *u'* in the left end of the slot *u* which recess is formed at a right angle to the face of the pulley and then sticks straight out as shown in Figs. 1 and 2. When it is desired to use the knife, the spring V is pressed flat against knife U, when it can be released from the recess and moved to the right into the other recess *u'* which is formed at an acute angle to the face of the pulley. Here it is at the proper angle, shown in dotted lines in Fig. 2, to cut off the end of the pipe. After a revolution of the shaft, in the position we have considered, shown in dotted lines, the pipe end being now cut to the proper bevel, the knife and shaft are shifted back. Shaft H is provided with a cam *c*, as shown in Fig. 3 for operating the punching mechanism which

is now brought into the proper position for that purpose. The pipe is now again pressed forward, and the cam *c* is brought again against the punching device, which will now be explained. Bolted to either side of the frame are the guides *N* and *O* for the horizontal punches. (See Fig. 3.) These punches *r* and *p*, are made of desirable size, usually so small that only a small stream of water may trickle from the hole. These punches *r* and *p* are kept back by springs *S*, when not pushed forward by cam *c* in its revolution. A bent arm under the pipe tube connects the punch *p* to the right side, bringing it in behind the cam *I*. The revolution of this cam alternately presses the punches *r* and *p* through the pipe. When the shaft *H* is thrown to the right during the cutting operation, the cam is out of connection, and the punches are held back by the springs *S*.

In Fig. 7, I show how I flare out the tube *C* and decrease the size of shaft *D*, so that the punched holes may not be closed up as the pipe is pressed forward.

An extension of the frame *A'* to the left carries rollers *a, a, a*. These rollers carry sheet metal gutters *b*, to receive the manufactured pieces of pipe.

In operation I place the machine and its operating power close at the side of the ditch. I then dig down till I find soil, which with some cement which I have at hand, will make pipe. These I mix in a box, throw in a hop-

per, start up the machine, and lay the tile in the ditch. The irrigating stream being turned into a system of pipes, finds its way out through the little holes.

It is obvious that my tile can be used for drainage, *mutatis mutandis*.

What I claim is—

1. In a tile machine the combination of a tube *C*, a loose ring pulley *T*, on the end thereof, having formed therein two recesses, one at a right angle to the face of said pulley, and the other at an acute angle thereto, a spiral slot connecting said recesses, a knife provided with a spring and nipples for holding it securely in either recess, the power shaft having a pulley fixed thereon, a hinged handle provided with a pulley adapted to connect the two pulleys above named, substantially as and for the purpose set forth.

2. In a tile machine, the combination of a tube *C*, the shaft *H*, a cam secured thereon, punches located on either side of the tube, an arm connected with one punch and adapted to be engaged by the cam while in one position, said cam engaging the other punch when in an opposite position, and springs for controlling the punches, substantially as and for the purpose set forth.

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Witnesses:

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