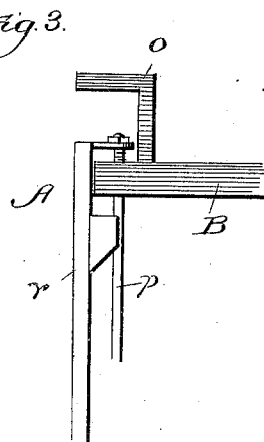
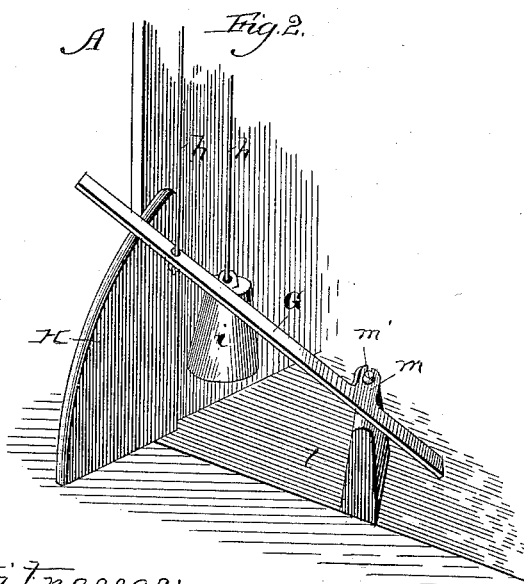
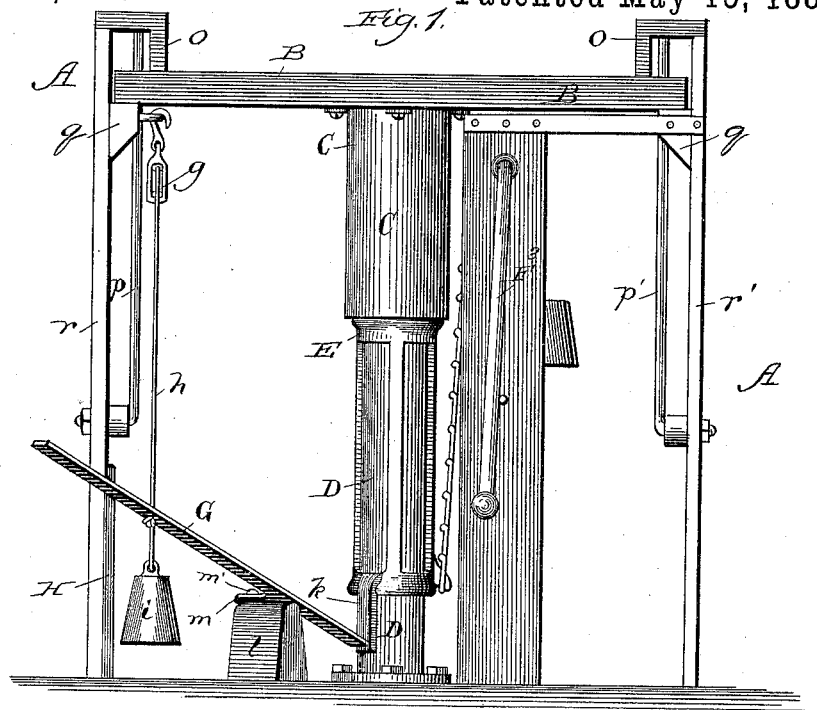


L. G. HAASE.

MACHINE FOR MAKING CEMENT PIPES.

No. 382,974.

Patented May 15, 1888.



Witnesses:  
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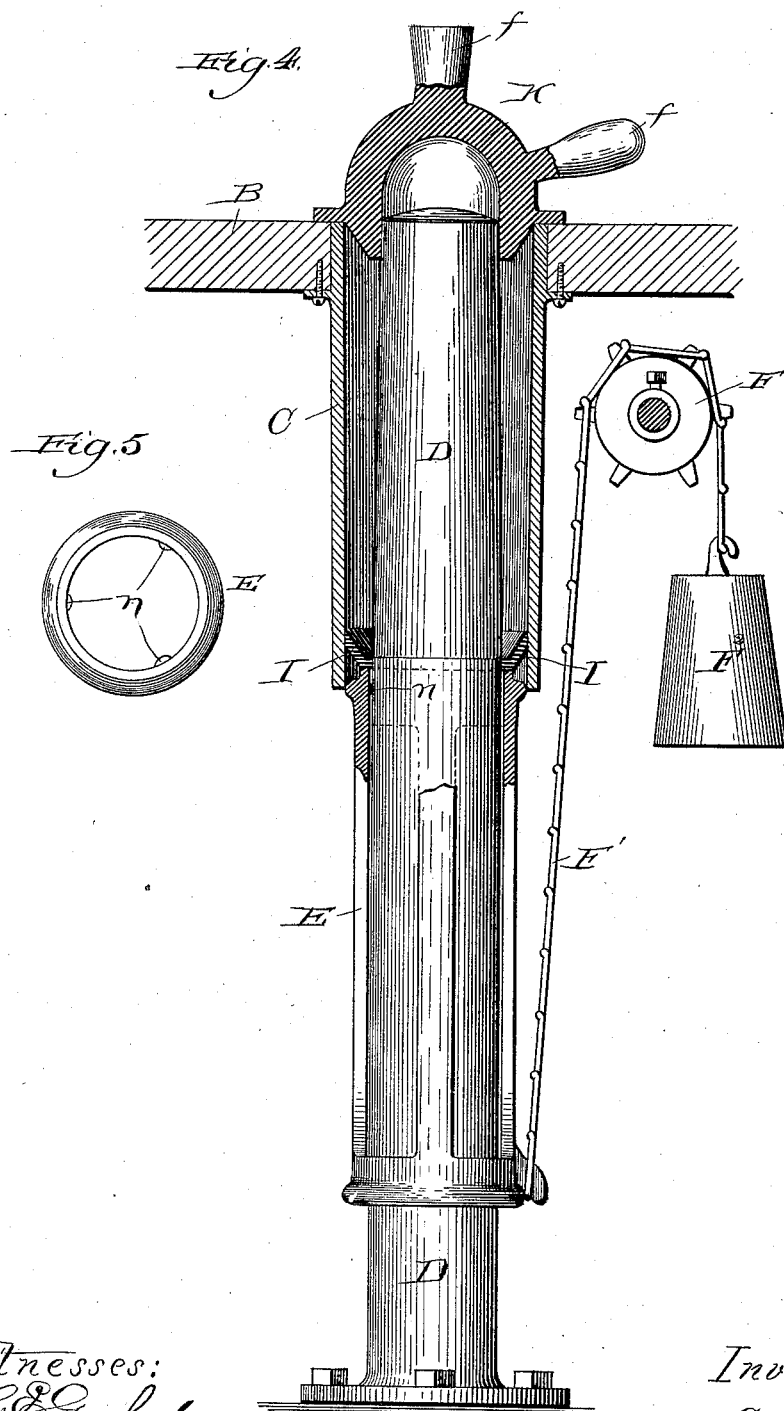
Inventor:  
*Leo G. Haase.*  
*By Dyrenforth & Dyrenforth*  
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Att'ys

# UNITED STATES PATENT OFFICE.

LEO G. HAASE, OF OAK PARK, ILLINOIS.

## MACHINE FOR MAKING CEMENT PIPES.

SPECIFICATION forming part of Letters Patent No. 382,974, dated May 15, 1888.

Application filed August 16, 1887. Serial No. 247,055. (No model.)

*To all whom it may concern:*

Be it known that I, LEO G. HAASE, a citizen of the United States, residing at Oak Park, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Machines for Making Cement Pipe, of which the following is a specification.

My improvement relates to a machine especially adapted to the manufacture of the smaller sizes of cement pipe, and particularly such as are employed as drain-tile.

My object is to provide a machine for the above-named purpose which shall be thoroughly effective and easy of operation, and by means of which the pipe, after being formed by tamping the material composing it into the mold of the machine, may be readily removed from the mold and without injuring it.

To this end my invention consists, broadly, in a cement-pipe machine comprising a core tapering in one direction and a jacket surrounding the core and tapering in the opposite direction.

My invention further consists in the general construction of my improved machine; and it also consists in details of construction and combinations of parts, all as hereinafter more fully set forth.

In the drawings, Figure 1 shows my improved machine in front elevation. Fig. 2 is a broken perspective view of the auxiliary lever detail; Fig. 3, a broken view of a portion of one side of the machine, showing the table raised toward the limit of its rise; Fig. 4, a vertical section of a portion of the machine, showing the construction of the mold considerably exaggerated; and Fig. 5, a plan view of the sleeve surrounding the core and operative to raise the pipe out of the mold.

A is a skeleton frame comprising sides or legs  $r$  and  $r'$ , supported upon any suitable base, (the machine I have in use is supported on a plank,) and provided on the inner sides, equidistant from their upper ends, with ledges  $q$ , upon which a table, B, rests near opposite ends. Rods  $p$  and  $p'$ , secured at their lower ends to the inner sides of the parts  $r$  and  $r'$ , extend upward through openings in the table in line with them to the height of the frame, and angle-pieces  $o$  and  $o'$  are secured at their vertical ends to extend transversely across the table near its lateral edges, and their horizontal portions project across the upper ends of

the frame, the parts  $o$  being of a height to bring the under surfaces of the horizontal portions against the upper ends of the frame and rods  $p$  and  $p'$  when the table is in its normal position of rest upon the ledges  $q$  and  $q'$ , and they afford shields against escape and consequent waste of material used to form the pipe at the sides of the table upon which it is piled to be within easy reach for handling. The table B is provided with a central circular opening, (see Fig. 4,) through which a jacket, C, tapering slightly toward its lower end, extends from underneath the table, and is secured to the latter in the manner shown, or in any other suitable manner.

D is the core, secured at its lower end to the base upon which the machine is supported, and extending upward through the jacket and table when the latter is in its normal position. The core D tapers slightly toward its upper extremity from the lower end of the jacket, whereby a tapering space is formed between the jacket and core. A sleeve, E, formed, preferably, as shown, of vertical bars connected at their opposite extremities by collars wider than the core toward its base and provided with guide-lugs  $n$ , surrounds the core below the jacket, with the guide-lugs in contact with the surface of the core, and is adapted to enter the jacket at the lower end of the same.

F is a sprocket-wheel supported below the table at one side of the mold, and a chain,  $F'$ , connected with the sleeve E near its lower end, passes over the sprocket-wheel and has attached to it a weight,  $F^2$ .

G is a lever provided below its center with a lateral lug,  $m$ , notched at its extremity to embrace a pin,  $m'$ , on a fulcrum-block,  $l$ , and the lever extends at the end of its shorter arm into a position normally adjacent to a lug,  $k$ , projecting downward from the lower end of the sleeve E. A weight,  $i$ , is secured to the longer arm of the lever G by a cord or chain,  $h$ , passing over a pulley,  $g$ , hooked to the frame of the machine, and serves to counterbalance the lever and return it to its normal position when moved therefrom, in the manner herein-after described, and a curved guide-bearing, H, for the lever G extends from the side of the frame A, across which the long arm of the lever projects.

To make the pipe with my improved machine, I proceed as follows: A supply of ma-

terial (Portland cement, gravel, and sand, mixed in suitable proportions, is the material I ordinarily employ) is dumped upon the table B around the opening therein. A ring, I, of suitable form and fitting into the base of the jacket, is dropped into the latter around the core, to which it fits snugly, and rests upon the upper end of the sleeve E. The material is then shoveled into the jacket around the core and tamped, all in the usual manner and for the usual purpose, and when the mold formed by the jacket, core, and ring is filled I tamp the upper end of the pipe by means of a cap, K, comprising a heavy metal inverted bowl provided with an edge of desired form to cause the end of the pipe to conform to it, and provided with a handle, *f*, by which to work it in its seat by oscillating it horizontally, and with a head, *f'*, at which to pound it down. When thus formed, the pipe is ready for removal on taking off the cap K. This operation of removing the pipe is performed by turning the sprocket-wheel F through the medium of a crank, F<sup>3</sup>. If the core and jacket were straight instead of tapering in opposite directions, in the manner shown, and the table were immovable, the packing of the material forming the pipe would render it so tight in the mold that it could not be forced out unless with the application of a power so great that it might break the machine and disintegrate the pipe. To prevent this and render the removal of the pipe a matter of comparative ease, I make the jacket and core tapering, as described, and the table vertically movable. When, therefore, power is applied to the crank to turn it, the rise of the sleeve E, instead of forcing the collar I upward in the jacket, forces the jacket and table upward to the limit of rise of the table—about two inches—thereby somewhat loosening the pipe from the core, owing to the tapering form of the parts. Continued turning of the crank to raise the sleeve and force the lower end of the pipe resting on the collar I to the upper end of the mold is assisted by pressure upon the foot-lever G. This lever has its fulcrum at one side, in the manner described, for the purpose of increasing its leverage by extending the long arm, and is brought into position by a lateral movement, in which it is guided by the cam or curved block H. This lateral movement of the lever is necessary, owing to the fact that the lug *k*, when the sleeve E is in its normal position, extends below the lever, which, if it were operated by a straight up-and-down movement, would be in the path of the lug when the sleeve is lowered toward its lowest position. As constructed, however, when the sleeve has been raised in the first part of the operation to the limit of play of the table, the assistance of the lever G is brought into play by being forced laterally under the lug *k*.

The tapering form of the parts of the mold is considerably exaggerated where illustrated in the drawings. In actual practice it is so

slight as to produce a practically imperceptible effect upon the pipe.

If preferred, instead of raising the jacket and table in the manner described, they could be stationary, and the core arranged to drop for accomplishing my purpose. This is an equivalent of my invention and is within the spirit thereof.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a machine for making cement pipe, the combination of a core tapering in one direction and a jacket surrounding the core and tapering in the opposite direction, substantially as described.

2. In a machine for making cement pipe, the combination of a stationary core tapering in one direction and a movable jacket surrounding the core and tapering in the opposite direction, substantially as described.

3. In a machine for making cement pipe, the combination of a vertically-movable table provided with an opening, a stationary vertical core tapering toward its upper end and extending in line with the center of the opening in the table, and a jacket tapering toward its lower end, secured to the table around the opening therein, and surrounding the core, substantially as described.

4. In a machine for making cement pipe, the combination of a frame, A, carrying a vertically-movable table, B, provided with an opening, a stationary vertical core, D, tapering toward its upper end, surrounded toward its lower end by a sleeve, E, and extending in line with the center of the opening in the table, a jacket, C, tapering toward its lower end, into which the sleeve enters, and secured to the table around the opening therein to surround the core, a ring, I, surrounding the core within the jacket near the base thereof, and means, substantially as described, for raising the sleeve and ring within the jacket, substantially as set forth.

5. In a machine for making cement pipe, the combination of a frame, A, carrying a vertically-movable table, B, provided with an opening, a stationary vertical core, D, tapering toward its upper end, surrounded toward its lower end by a sleeve, E, provided with a lug, *k*, and extending in line with the center of the opening in the table, a jacket, C, tapering toward its lower end, into which the sleeve enters, and secured to the table around the opening therein to surround the core, a ring, I, surrounding the core within the jacket near the base thereof, a crank, F<sup>3</sup>, connected with the sleeve to raise it, a weighted lever, G, fulcrumed beyond one of its sides, and a curved guide, H, for the long arm of the lever, substantially as described.

LEO G. HAASE.

In presence of—

J. W. DYRENFORTH,  
GEORGE C. COOK.