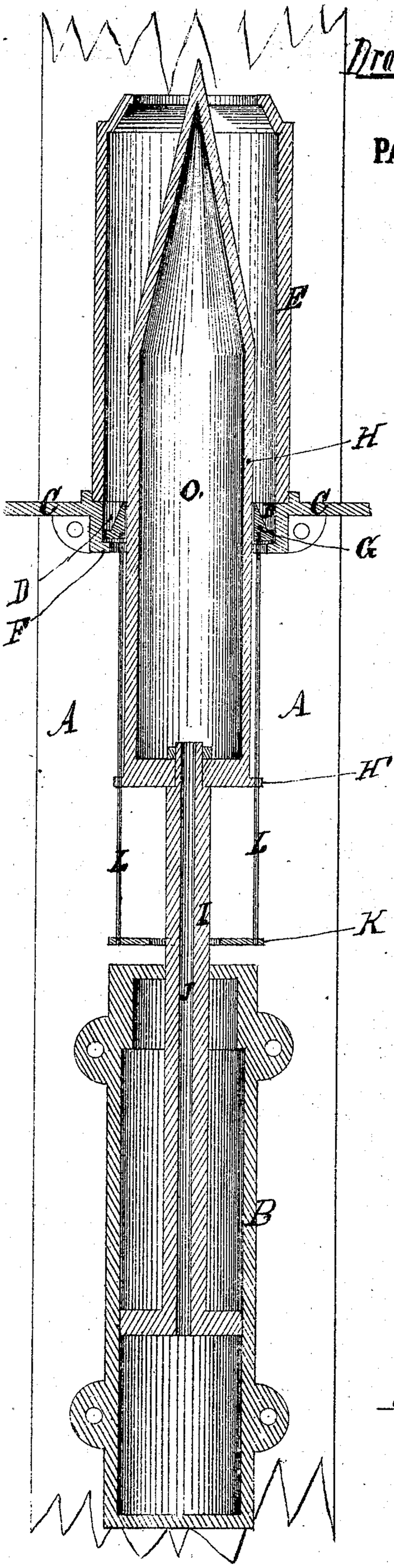
*Hiram Bissell's*

# *Drain Tile Machine*

116668

PATENTED JUL 4 1871




*Witnesses.*

*E. M. Bissell*

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# UNITED STATES PATENT OFFICE.

HIRAM BISSELL, OF HARTFORD, CONNECTICUT.

## IMPROVEMENT IN DRAIN-TILE MACHINES.

Specification forming part of Letters Patent No. 116,668, dated July 4, 1871.

*To all whom it may concern:*

Be it known that I, HIRAM BISSELL, of the city and county of Hartford, and State of Connecticut, have invented certain new and useful Improvements in Drain-Tile Machines; and to enable others skilled in the art to make and use the same I will proceed to describe, referring to the drawing, in which the same letters indicate like parts.

The nature of this invention consists in arranging and securing a water or steam-cylinder, with a depressed chambered table-bed, firmly upon a timber or column for holding tile-molds firmly in position and in line with said steam-cylinder, the piston-rod of which is made hollow, the outer end of which is connected to a hollow plunger that works through, and is guided by and actuates a former and presser-collar located in a flanged recess or depression in the table-bed directly under the tile-matrix, so that, when the cement is packed into the mold in the common way, by imparting motion to the plunger through the medium of the water or steam-cylinder the cement will be firmly compressed into the mold, except a short distance from the bottom of the mold, which portion is completed by the continued action of the plunger in forcing the guide and former-collar along with it, thereby compressing the lower portion of the cement into or within the dimensions of the mold, and, at the same time, heat or steam is allowed to enter the chamber of the plunger through the piston-rod, thereby partially heating the inner surface of the cementing tile, and thereby providing for the more ready removal of the tile from the matrix.

In the accompanying drawing, Figure 1 is a front sectional elevation.

A represents a wood or metal column, supported in a convenient position for use. B is a water or steam-cylinder, constructed and operated, automatically or by hand, in the common way, and is formed on or firmly secured to the post A. C is a table-bed formed on or firmly secured to the post A the proper height from the floor to render it convenient for the workmen. This table, preferably, should be made of metal. It is provided with a chambered depression, D, of about the same diameter as the inside diameter of the matrix E. This chambered depression is also provided with a flange-seat, F. Into this chambered depression is fitted a plunger guide-joint former, G, which serves the purpose of guiding the plunger, and to form and compress the lower end of the tile within the dimensions of the matrix E. H is the plunger, one end being formed cone-shaped, the other end being connected to the piston-rod I of the steam-cylinder B. This plunger is made hollow, having a chamber, O, into which steam or heat is admitted through the orifice J in the piston-rod I, the object of which is to partially set the cement while the plunger is pressing it into the mold. This mold or matrix is made and secured upon the table-bed in the common way. The space between the matrix and plunger, shown by dotted lines, represents the thickness of the cement through the body of the tile. H′ is a collar formed on the end of the plunger, the office of which is to lift the guide and former G and compress the cement firmly within the longitudinal dimensions of the matrix. K is a disk arranged on the piston-rod, and connected to the former G by rods L, the object of which (if it shall be found necessary) is to bring the former G back to its resting-place upon the flange F by the action of the flange-head of the plunger, just as it is being fully withdrawn from the tile just formed in the matrix.

I believe I have thus shown the nature and construction of this invention so as to enable others skilled in the art to make and use the same therefrom.

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

1. In combination with a water or steam-cylinder, B, the hollow piston I and hollow plunger O, constructed and arranged substantially as and for the purposes set forth.

2. The former-collar G, constructed substantially as described, and arranged to operate in combination with the table C having a chambered recess, D, plunger O, and matrix E, and with or without the disk K and rods L, substantially as and for the purpose set forth.

HIRAM BISSELL.

Witnesses:
E. W. BLISS,
JEREMY W. BLISS.