

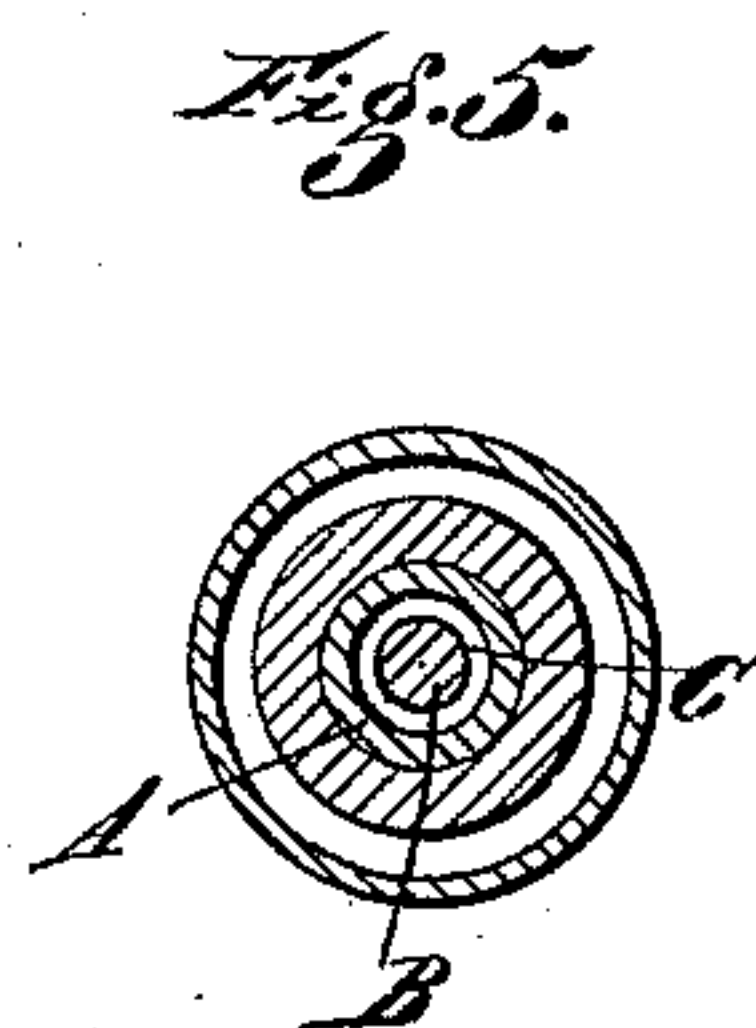
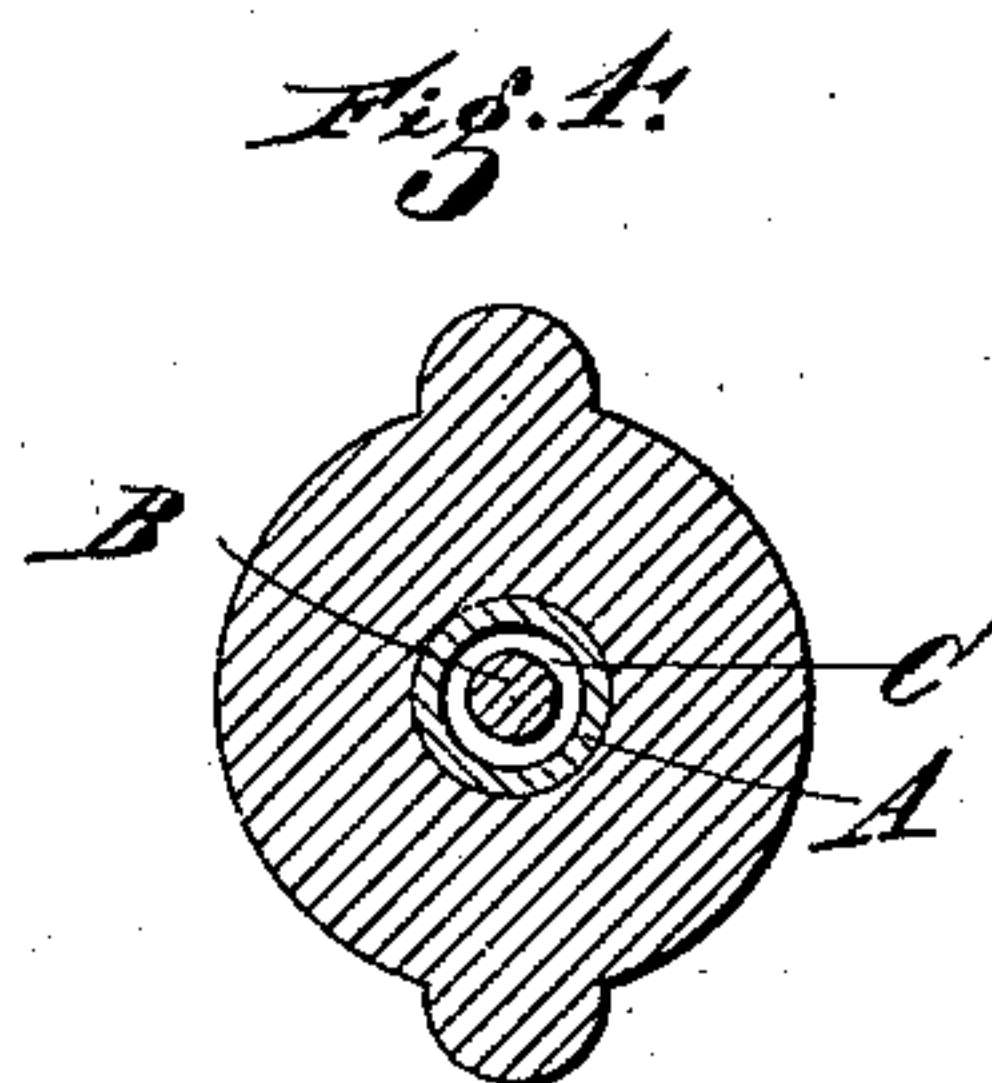
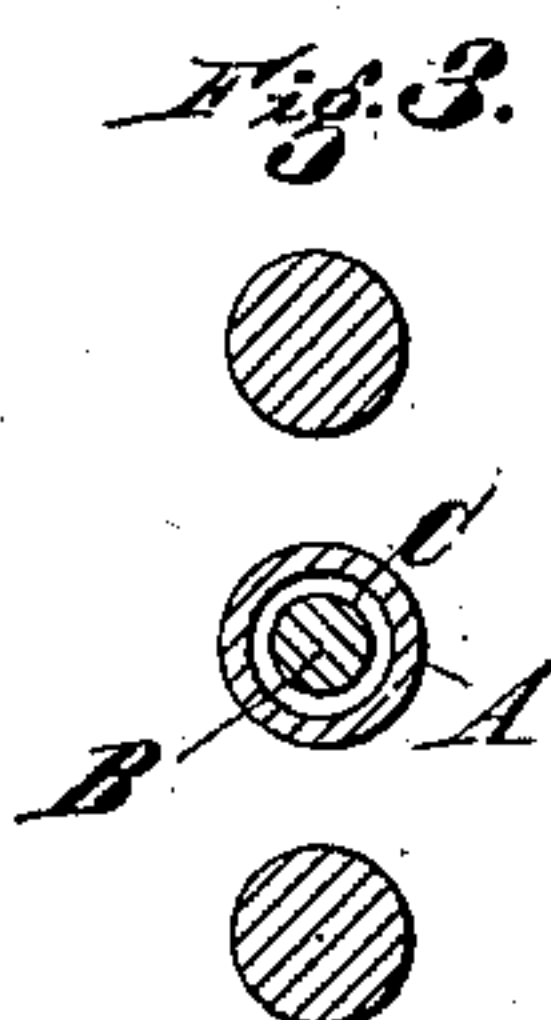
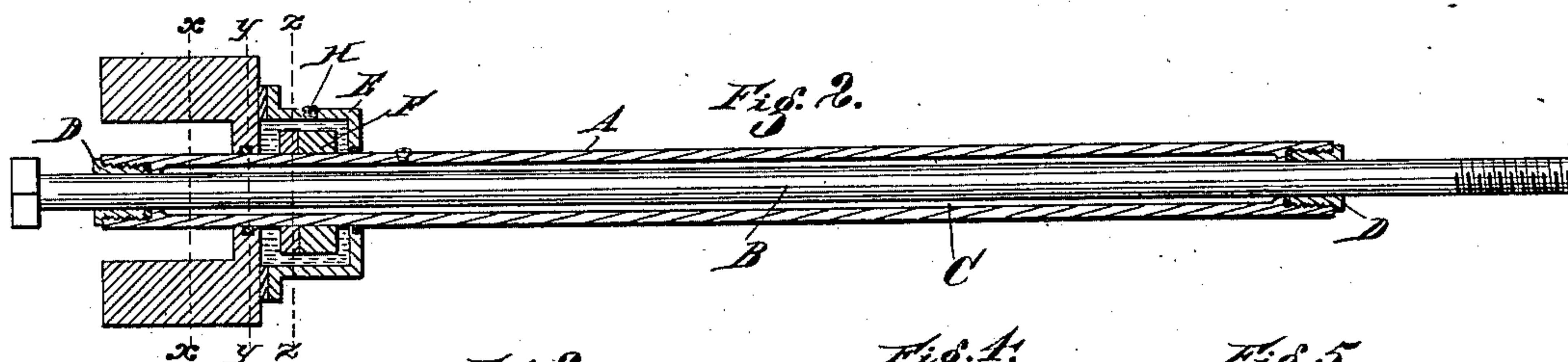
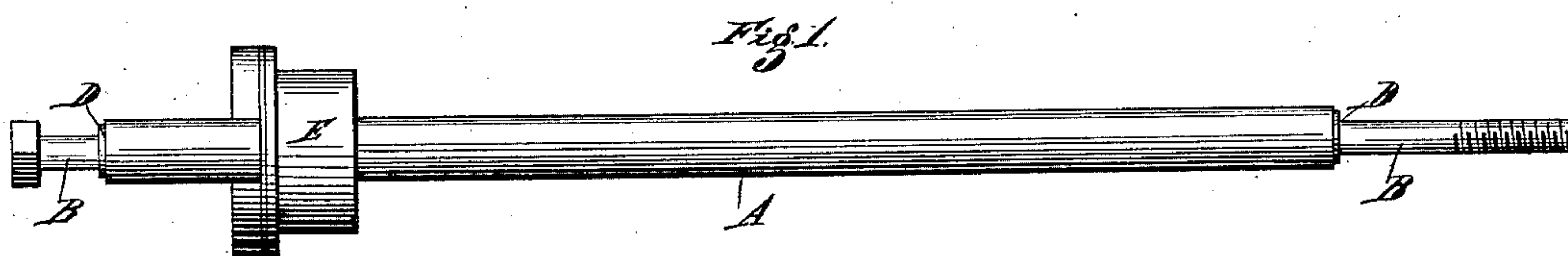
(No Model.)

J. S. SMITH.

TILE MACHINE.

No. 308,710.

Patented Dec. 2, 1884.



WITNESSES

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JOHN S. SMITH, OF JACKSON, MICHIGAN, ASSIGNOR OF ONE-HALF TO
THEODORE G. BENNETT, OF SAME PLACE.

TILE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 308,710, dated December 2, 1884.

Application filed June 21, 1884. (No model.)

To all whom it may concern:

Be it known that I, JOHN S. SMITH, of Jackson, in the county of Jackson and State of Michigan, have invented a new and useful Improvement in Tile-Machines, of which the following is a specification.

My invention relates to the shaft which carries the spiral flanges to force the clay out from the bottom of the pug-mill into the die, and the object of my invention is to provide for the use of a hollow shaft through which a rod may pass for sustaining the conical core which forms the interior of the pipe formed by forcing the clay by the action of the spiral flanges through the die and around the central core. It is preferable that this core should be stationary. It has sometimes been attached to a pin projecting from the end of the pressure-shaft. As the pin rotated inside the core it was difficult to lubricate it, and also to prevent the clay from being forced into the space between the core and the pin, where it would be packed, so causing the core to revolve with the shaft, adding greatly to the friction. In some cases the shaft was made hollow, and an iron rod carrying the core on its end was run through the length of the hollow shaft. But here, also, the clay would be forced into the space between the shaft and the rod, adding very greatly to the frictional resistance. My present improvement is intended to obviate this difficulty, and also to provide a bearing to sustain the back-thrust of the shaft occasioned by the resistance of the clay to the action of the spiral flanges, and to lubricate the same.

In the annexed drawings, making part of this specification, Figure 1 is a side elevation of the shaft. Fig. 2 is a longitudinal section. Fig. 3 is a section on the line *xx*, Fig. 2. Fig. 4 is a section on the line *yy*. Fig. 5 is a section on the line *zz*.

The same letters are employed in all the figures in the designation of identical parts.

A is the tubular shaft carrying the spiral flanges which press the clay through the die. As the flanges, core, and die are in common use

they are not shown. Through the center of this shaft is passed an iron rod, B, which is intended to carry the conical core in the die. The diameters of the chamber within the shaft and the rod B are such that a space is left between the shell and the rod to form an oil-chamber, C. The ends of the tubular shaft are closed by the packing D D', which may be confined by caps over the ends of the shaft through which the rod passes. This packing is intended to confine the oil in the chamber, and prevent any clay from being forced into the space between the rod and the shaft. As the clay is stiff it requires considerable force applied by the spiral flange to force it through the die, and this resistance causes a corresponding longitudinal thrust of the shaft in the opposite direction. To sustain this I fasten to the driving-hub of the shaft a box, E, which incloses the shaft, and should also have a packing-ring in which the shaft can be confined to prevent the escape of oil. Within this box or case E, I place a collar, F, which is keyed to the shaft and sustains the longitudinal thrust of the flanged shaft A.

G is an oil-cup, which may be used for filling the chamber C, and then closed so as to keep the chamber full of oil. H is a similar cup for filling and confining the oil in the box E.

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

1. In combination with the tubular shaft A and rod B, forming an oil-chamber, C, packing D D', for confining the oil within the chamber, substantially as set forth.

2. In combination with the shaft A, and washer F, for sustaining the thrust of the shaft longitudinally, an oil-chamber formed by the closely-fitting case E, inclosing the shaft, substantially as set forth.

As witness my hand in the presence of two attesting witnesses, the 16th day of June, 1884.
JOHN S. SMITH.

In presence of—

CHARLES LINDEMER,
ELI A. CLEMENT.