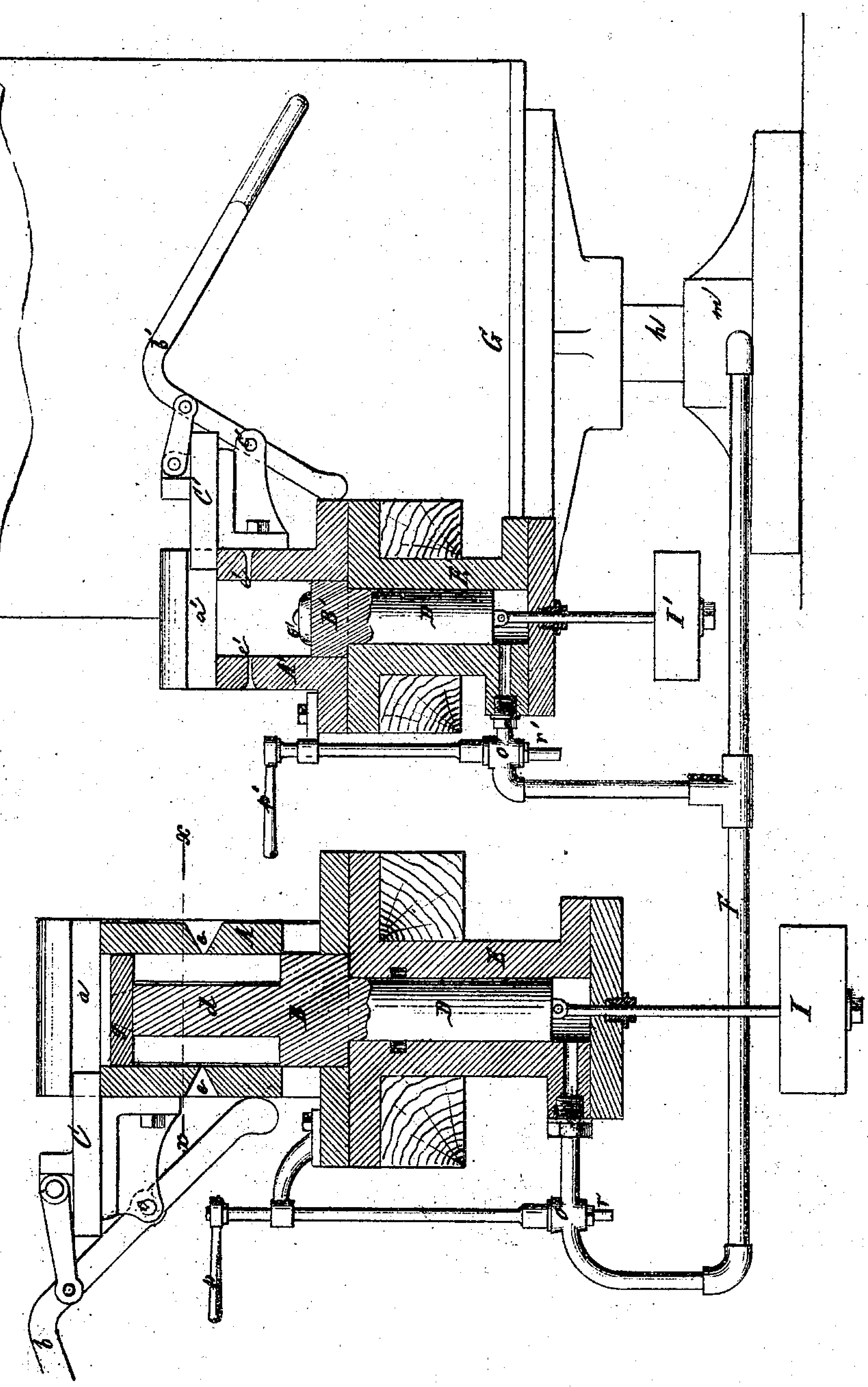
W. Hutchinson, 3. Sheets, Sheet. 1.

Brick Mach.

No. 113,300. Patented Apr. 4. 1871.

Fig. 1.



Witnesses:
E. F. Kastenhuber
C. Wahlers

Inventor
Wm Hutchinson
per
Van Santvoord & Hauff
attys

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

3 Sheets, Sheet 2.

W. Hutchinson,

Brick Mach.

No. 113,300. Patented Apr. 4. 1871.

Fig: 3.

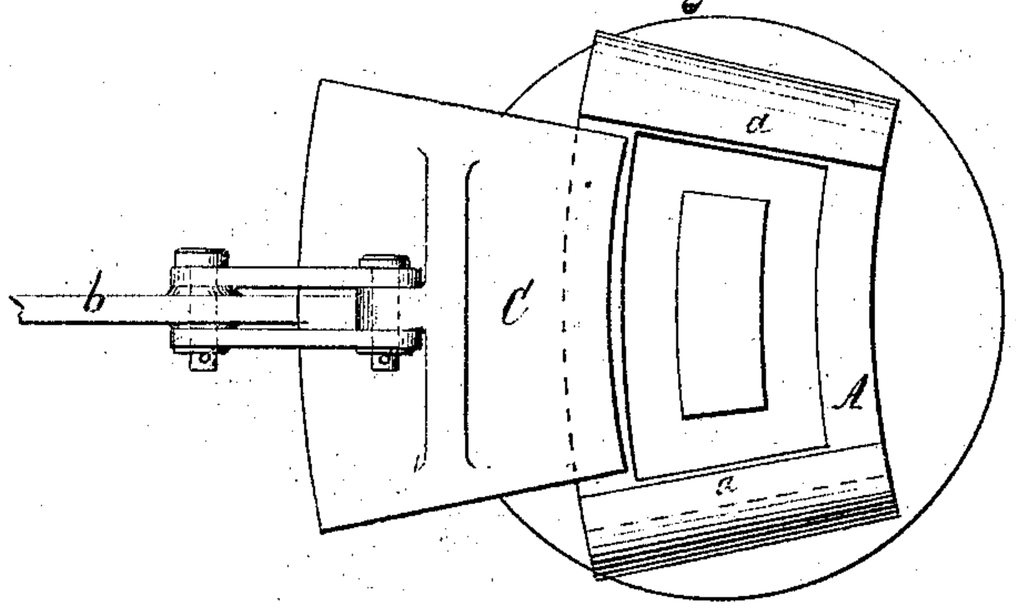


Fig: 5.

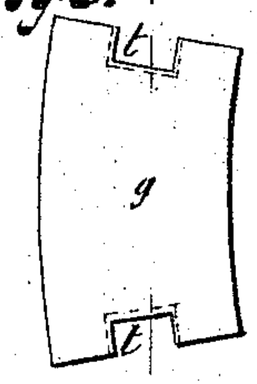


Fig 6

Fig: 4.

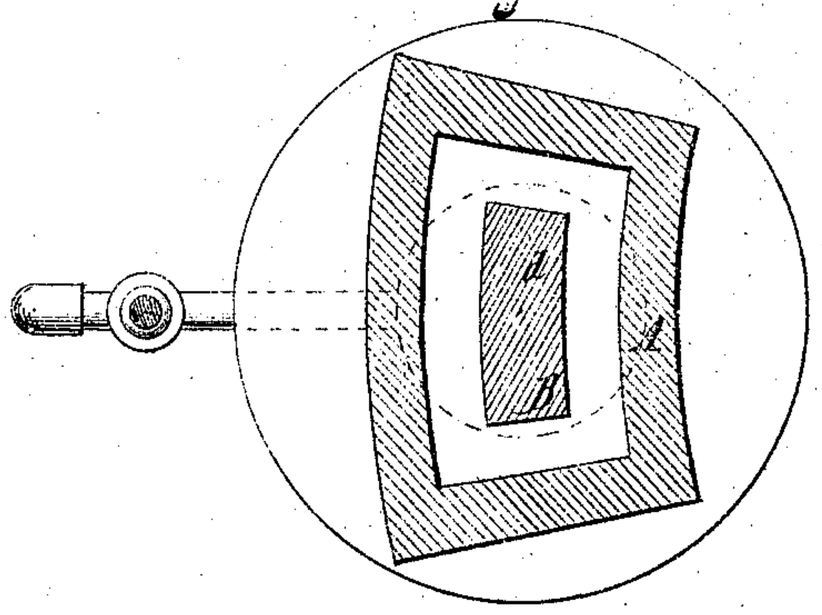


Fig: 7.

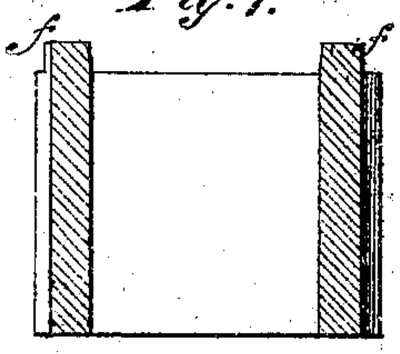


Fig: 8.

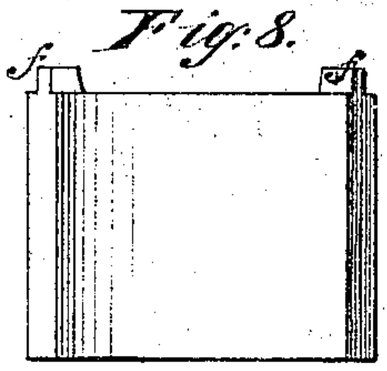
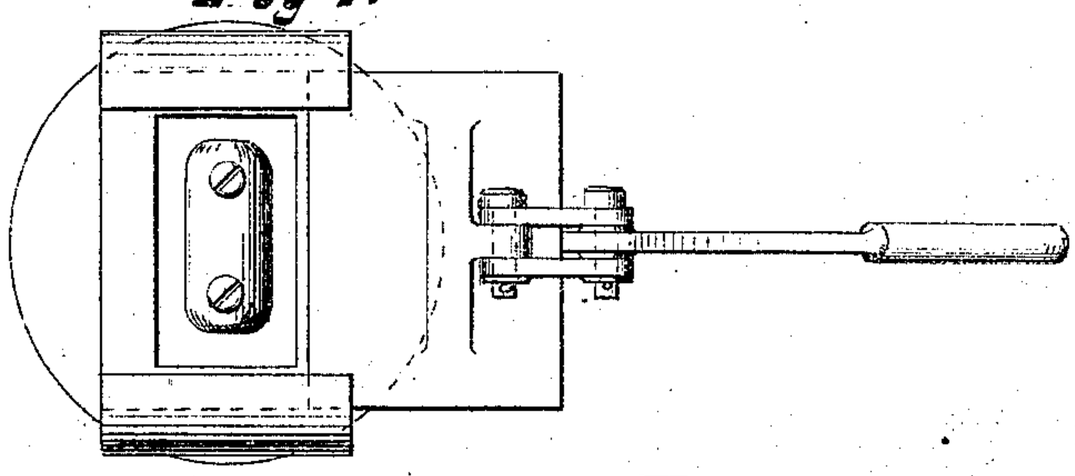


Fig: 9.



Witnesses.

E. F. Kastenhuber

C. Wahlers

Inventor:

Wm Hutchinson

per

Van Santvoord & Hauff

Attys

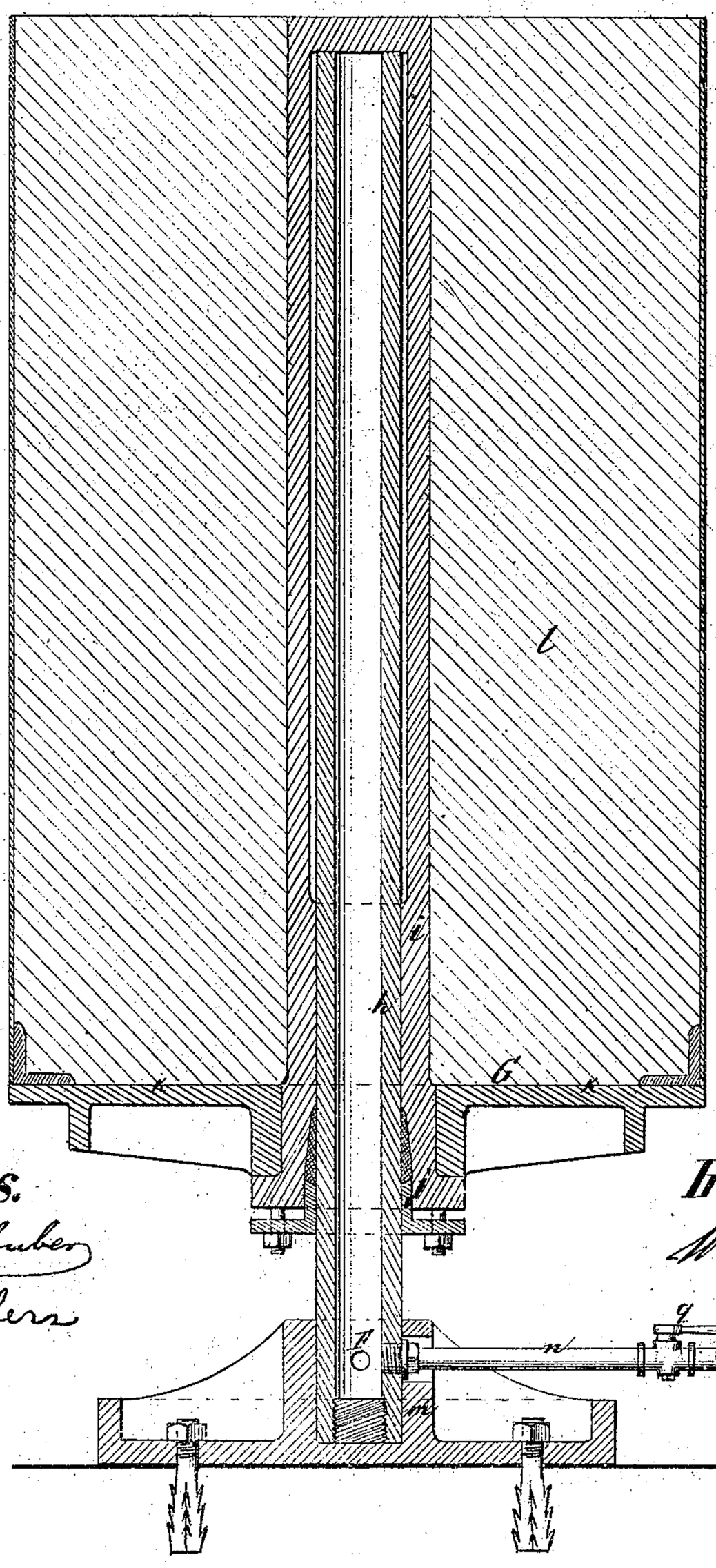
W. Hutchinson,

3. Sheets Sheet 3.

Brick Mach.

No. 113,300. Patented Jan. 3. 1871.

Fig: 2.



Witnesses.

E. F. Kastenhuber

C. Wahlers

Inventor.

Wm. Hutchinson

per

Van Santvoord & Baugh

Attys

United States Patent Office.

WILLIAM HUTCHINSON, OF SALFORD, GREAT BRITAIN.

Letters Patent No. 113,300, dated April 4, 1871.

IMPROVEMENT IN BRICK AND TILE-MACHINES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, WILLIAM HUTCHINSON, of Salford, in the county of Lancaster, Great Britain, have invented a new and useful Improvement in Apparatus for Making Bricks, &c.; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification, in which drawing—

Figure 1 represents a longitudinal section of this invention.

Figure 2 is a detached section of the accumulator.

Figure 3 is a plan or top view of the press for making hollow tiles.

Figure 4 is a transverse section of the same, the line *x x*, fig. 1, indicating the plane of section.

Figure 5 is a detached plan of the top plate used in making hollow tiles with projections.

Figure 6 is a transverse section of the same.

Figure 7 is a section of the tile with projections.

Figure 8 is a side view of the same.

Figure 9 is a plan or top view of the press for making solid brick, with depressions in one of their sides.

Similar letters indicate corresponding parts.

This invention relates to an apparatus for making bricks, tiles, and other articles of a similar nature, which consists essentially of a mold corresponding in form to the articles to be produced, and which is provided with a sliding top and with a follower, so that clay introduced in said mold can be readily compressed between the top slide and the follower, and then, by withdrawing said top slide, the brick or other articles can be readily raised and removed from the mold.

Suitable escape-valves or openings in the sides of the mold allow the surplus clay to pass off, and the articles produced are uniform in density and in weight.

Suitable top plates are provided, to be introduced into the mold for the purpose of modifying the shape of the article to be produced, in a simple manner and without changing the mold.

With the mold is combined a plunger, receiving its motion from a hydraulic accumulator in such a manner that the clay in the mold is always subjected to a uniform pressure, and the labor required for operating the press is materially simplified.

In the drawing—

The letter A designates a mold, (see figs. 1, 3, and 4,) which is intended to make hollow tile of the form shown in figs. 7 and 8.

In this mold is fitted a follower, B, and its top is provided with a slide, C, which moves in and out in suitable guide-grooves, *a*, motion being imparted to it by a hand-lever, *b*, which has its fulcrum on a pivot, *c*, secured in a bracket attached to the outside of the mold, as shown in fig. 1.

Said hand-lever is made in the form of a bell-crank, and its lower arm forms a stop to prevent the slide being thrown out of its guide-ways.

From the upper surface of the follower rises a rib, *d*, which forms the core for the hollow tile.

In the sides of the mold are valves or apertures, *e*, for the escape of the surplus clay.

When the top slide C is thrown back and the follower is clear down, the mold is packed with clay; then the top slide is closed, and, by causing the follower to rise, the clay is compressed.

If the tile is to be made with projections, *f*, figs. 7 and 8, a plate, *g*, is placed on the top of the clay in the mold before the top slide is closed, said plate being provided with recesses, *t*, in its edges, (see fig. 5,) to allow the clay to pass clear up to the top slide C, thereby forming the projections on the tiles.

By means of such movable plates the form of the tiles can be modified in various ways without changing the form of the molds.

From the bottom surface of the follower B extends a plunger, D, into a cylinder or barrel, E, which connects, by means of a pipe, F, with the accumulator G, as shown in fig. 1, a section of the accumulator being shown in fig. 2.

Said accumulator consists of a tube, *h*, which is open at the top, and turned off perfectly true and cylindrical, and which fits into a barrel, *i*, that is closed at the top, the joint between said barrel and the tube being rendered tight by a stuffing-box, *j*, so constructed that the barrel can be moved up and down on the tube without allowing the escape of water through the joint between them.

To the bottom part of the barrel *i* is secured a flange or platform, *k*, which may be of circular, polygonal, or any desired form or shape, and which supports a heavy weight, *l*.

The tube *h* is firmly secured at its bottom end in a socket, *m*, which is bolted down to a suitable foundation, and from said bottom end extend two pipes, F and *n*, the pipe F leading to the barrel E of the press, and the pipe *n* leading to a hydraulic pump.

In the pipe F is a stop-cock, *o*, which is operated by a handle, *p*; and, if this stop-cock is closed and the pump is set in motion, the weight *l* of the accumulator is gradually raised.

When the weight has been raised to the desired height the connection between the pump and the tube *h* is stopped by a stop-cock, *q*, and whenever it is desired to raise the follower B of the mold

the stop-cock *o* is opened, and, as the weight *l* sinks down, the follower rises.

The stop-cock *o* is a three-way cock, so that, when the same is turned to the position where it shuts off the communication between the accumulator and the press, the water from the press-barrel E is free to discharge through the nozzle *r*, (see fig. 1.)

When the stop-cock *o* is turned in this last-named position the follower B is carried down to its original position by a weight, I, attached to the plunger D.

The amount of pressure exerted by the follower is thus made dependent upon the weight *l* of the accumulator, and consequently all the bricks or tiles will be subjected to a uniform pressure, which is a great desideratum in order to produce articles of uniform quality.

The motion of the follower B is very trifling, and consequently a large number of tiles or bricks can be pressed before the weight of the accumulator has run down.

After a brick or tile has been pressed the top slide C is thrown open and the follower B is raised by means of a treadle, (not shown,) or by any other suitable mechanism, so as to force the tile or brick out of the mold; or, if desired, water pressure may be used for this purpose.

In practice the accumulator G is made to connect with two or more presses, and in fig. 1 I have shown a second press, consisting of a mold, A′, with a follower, B′, which receives motion by the plunger D′, in the manner previously described.

The mold A′ is of the form shown in fig. 9; or it may be of any desirable form or shape.

The plunger B′ is provided with a projection, *o′*, to make a corresponding depression in the tile. This projection also serves to facilitate the discharge of the surplus clay through the valves or openings *e′*, since it has a tendency to spread the clay in a lateral direction. If desired, both presses can be operated simultaneously; but in this case the weight of the accumulator will run down sooner than it does if only one press is worked.

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

The loose top plate *g*, in combination with the mold A, top slide C, and follower B, as set forth.

Witness my hand to this specification of my improved machinery for making bricks, &c., this 23d day of June, 1870.

WM. HUTCHINSON.

Witnesses:

C. H. BRANSCOMB,

JNO. HUGAR CLEGG.