

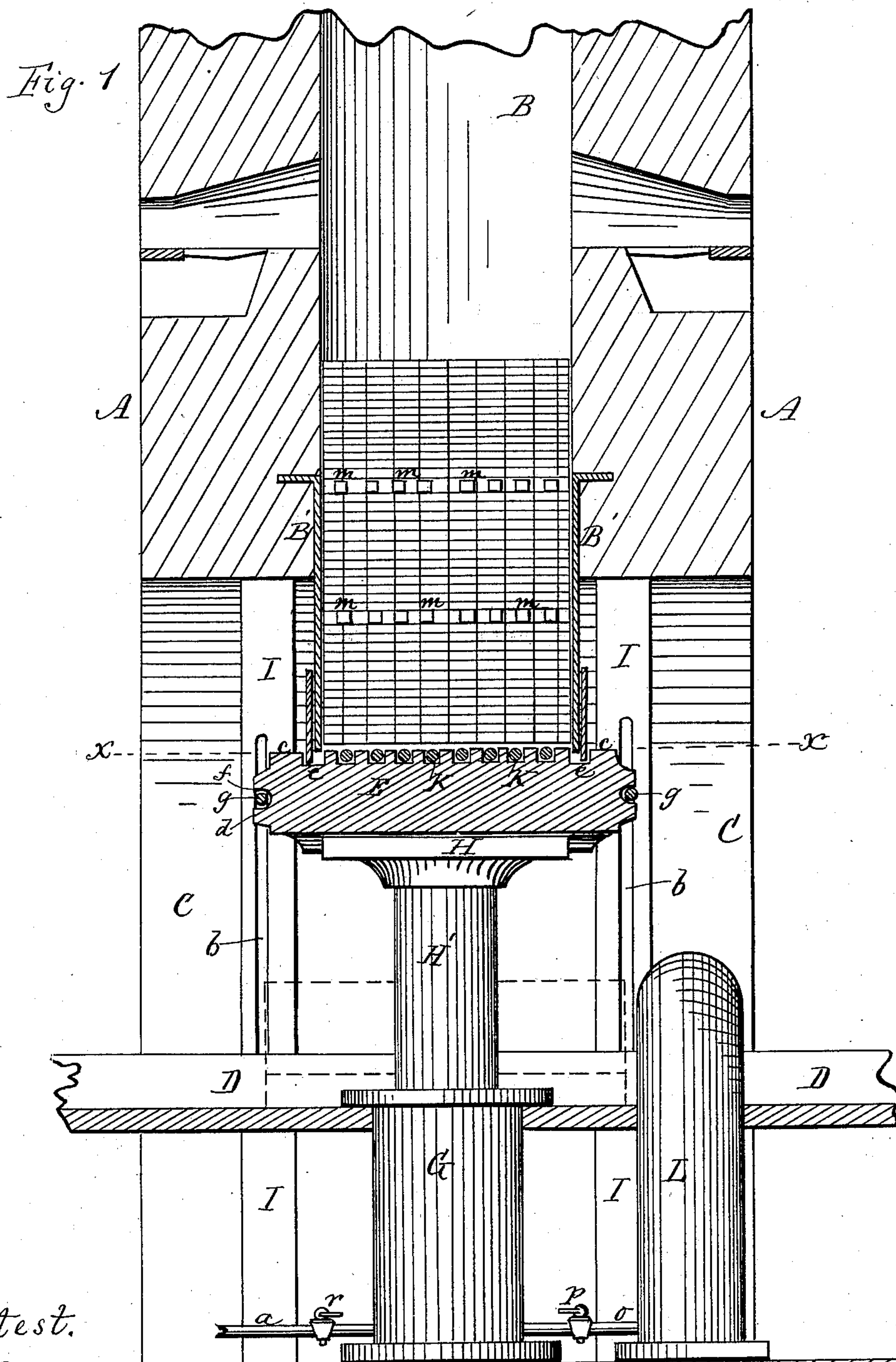
(No Model.)

3 Sheets—Sheet 1.

C. D. PAGE.  
BRICK KILN.

No. 286,728.

Patented Oct. 16, 1883.



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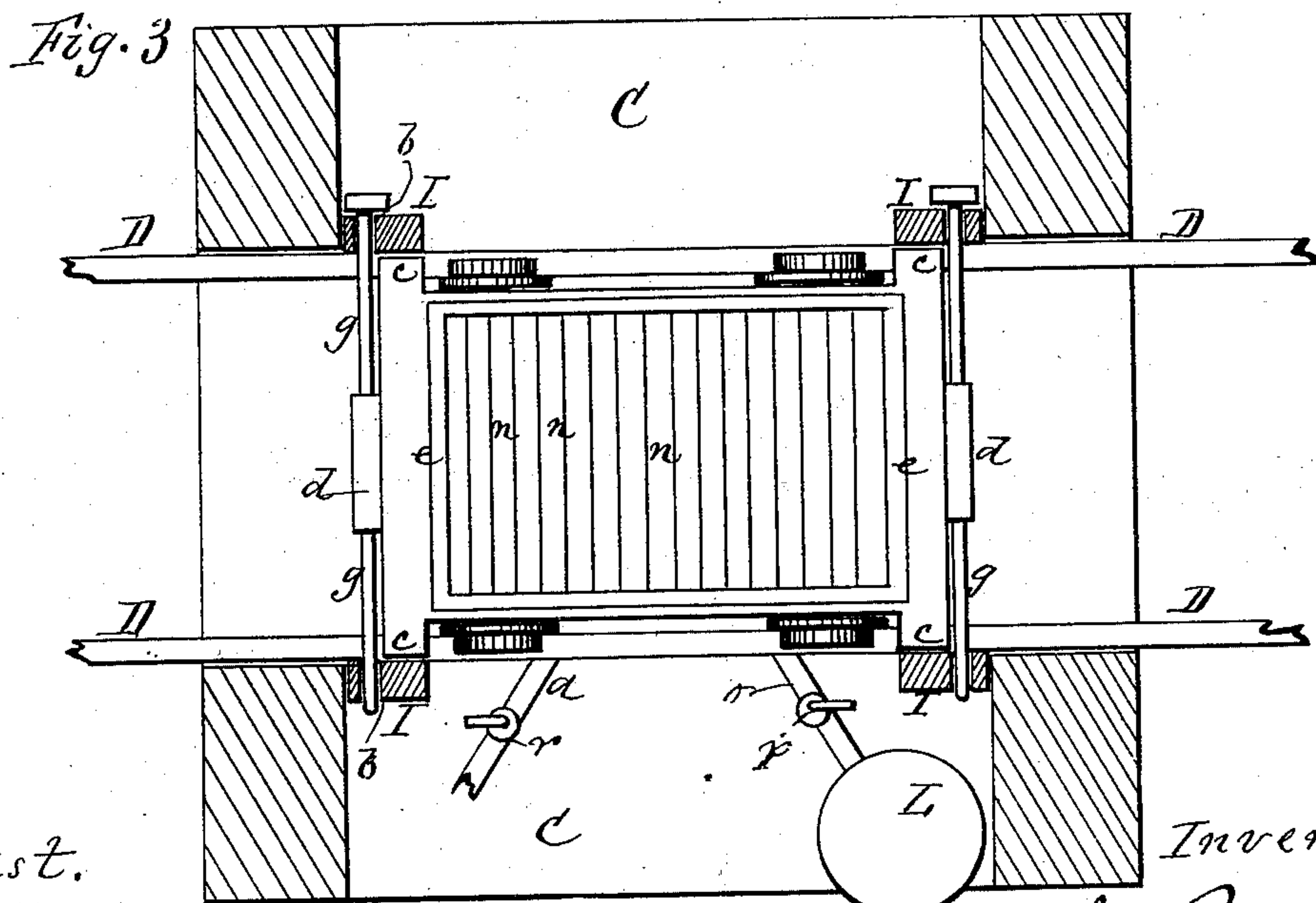
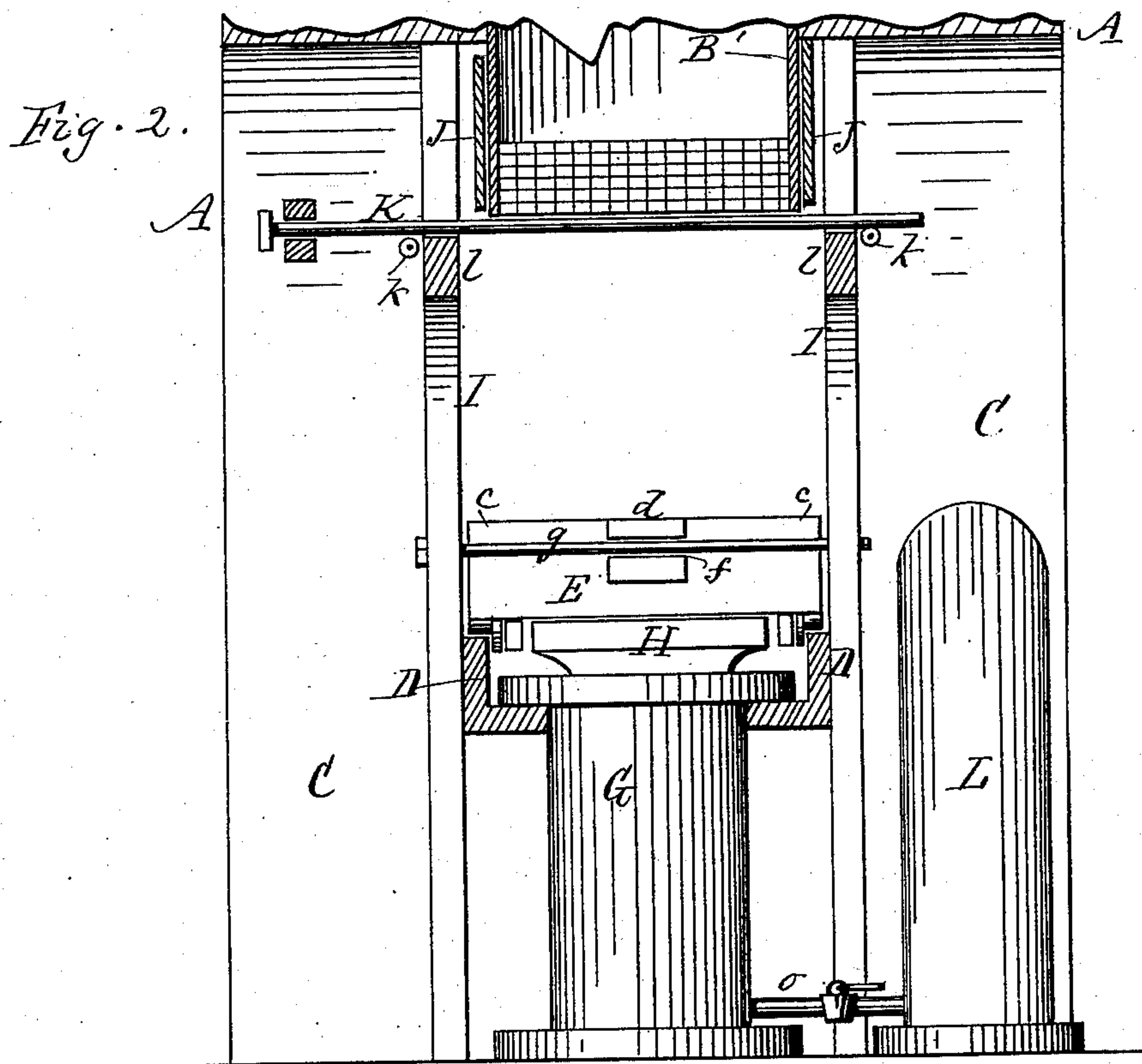
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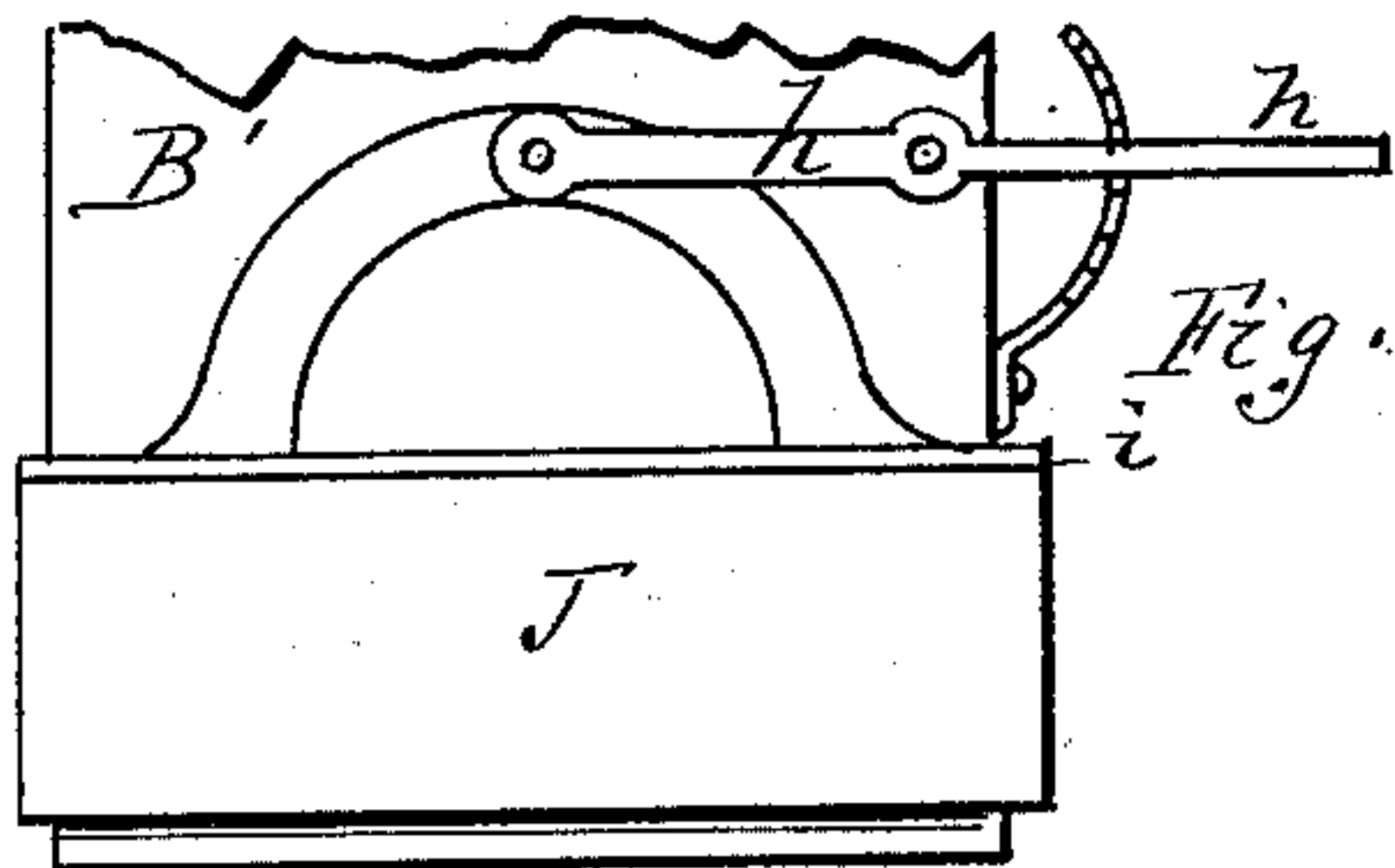


Fig. 4.

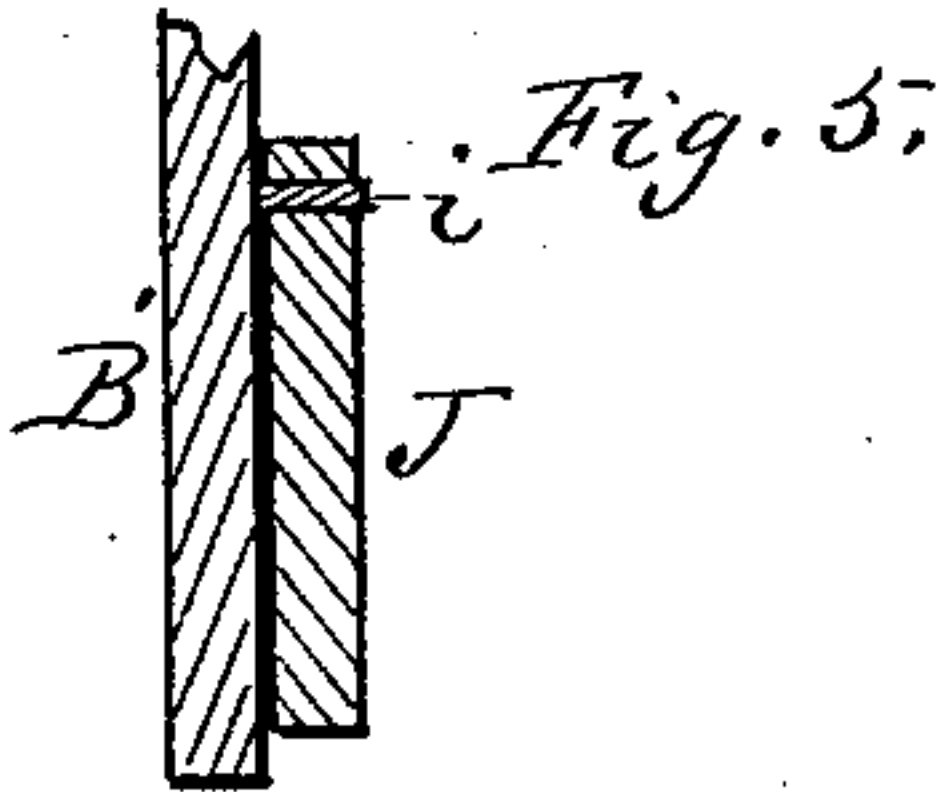


Fig. 5.

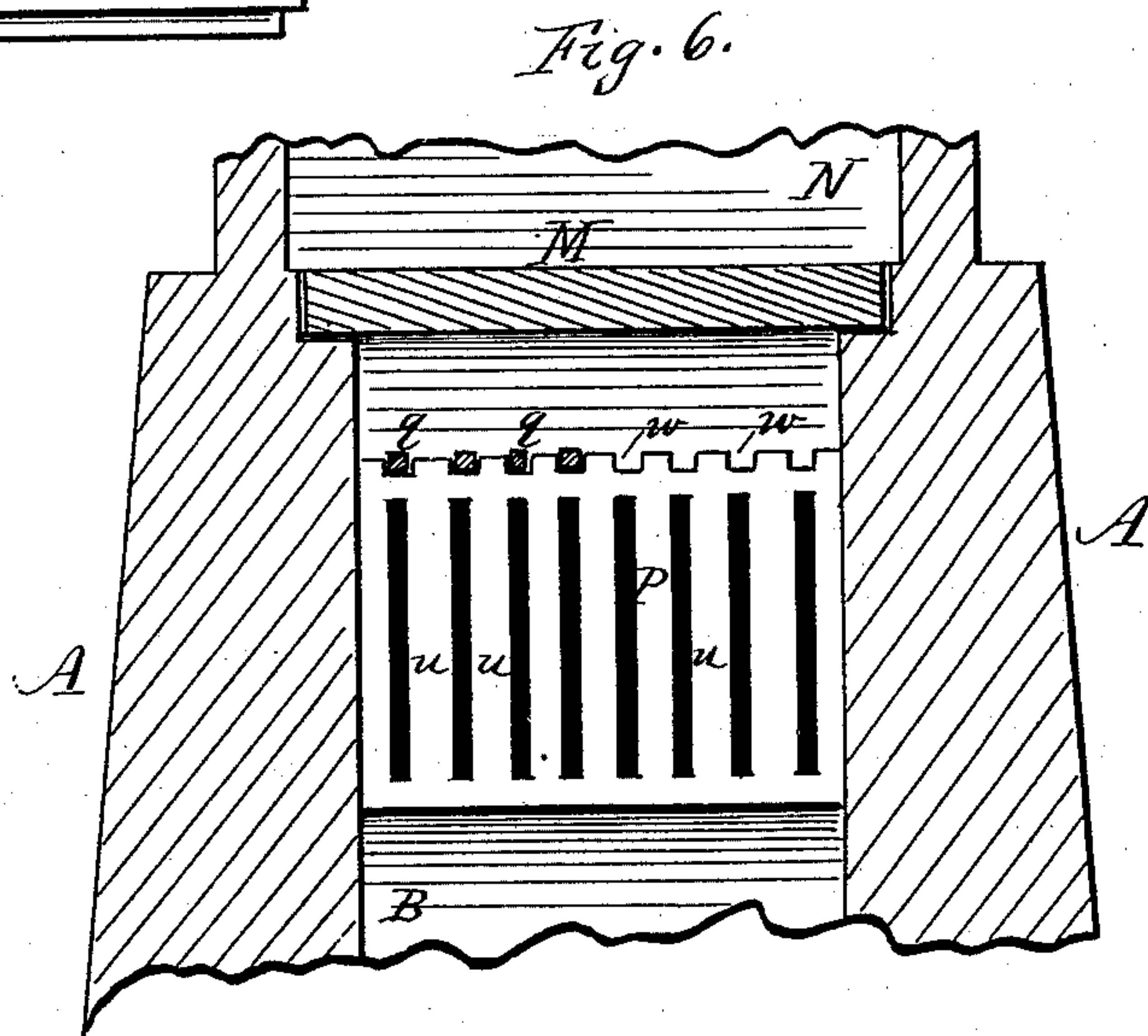


Fig. 6.

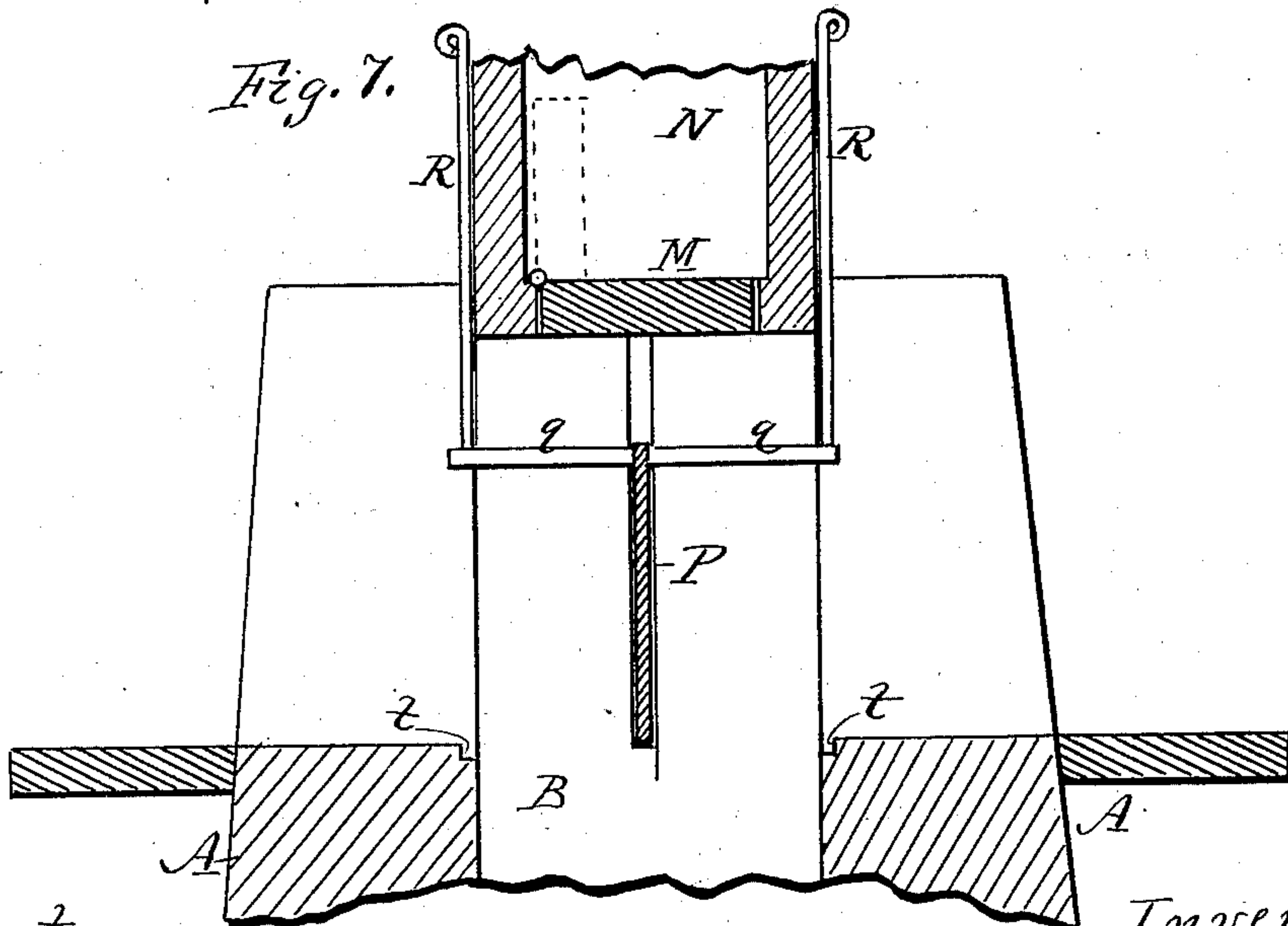


Fig. 7.

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# UNITED STATES PATENT OFFICE.

CLARK D. PAGE, OF ROCHESTER, NEW YORK.

## BRICK-KILN.

SPECIFICATION forming part of Letters Patent No. 286,728, dated October 16, 1883.

Application filed September 4, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, CLARK D. PAGE, of Rochester, Monroe county, New York, have invented certain new and useful Improvements in Brick-Kilns; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a longitudinal vertical section of the lower portion of the kiln. Fig. 2 is a similar view, but at right angles to Fig. 1. Fig. 3 is a cross-section in line *x x* of Fig. 1. Fig. 4 is an elevation of the sliding follower on the lower end of the mouth of the kiln. Fig. 5 is a cross-section on an enlarged scale of one side of the same. Fig. 6 is a longitudinal section through the top of the kiln. Fig. 7 is a similar view at right angles to Fig. 6.

My improvement relates to perpetual kilns, in which the green bricks are inserted at the top of the kiln and drawn at the bottom, being burned during the passage.

It also relates to kilns in which a car is raised by a hydrostatic press to receive the load, and is then lowered upon a track and run off, while the stack of bricks is held in the kiln by bars run through holes in the stack formed in the act of packing.

The invention consists in the combination and arrangement of parts hereinafter more fully described and definitely claimed.

In the drawings, A shows an upright brick-kiln, in which is located a single cupola, B, extending from top to bottom.

C is an archway or opening in the bottom of the kiln, and B' is a metallic casing at the bottom of the cupola, having the opening of the same size as the cupola, and forming a continuation of the same a given length.

D is a track in the archway and some distance below the casing, on which rests and rolls a car, E, which receives the load of burned bricks, and which serves to run them off from the kiln.

G is a hydrostatic press, consisting of a cylinder, into which water is forced under pressure through a pipe, *a*, from a pump. (Not shown in the drawings.)

H is a follower, which rests under the car, having a piston, H', which rests in the cylinder, and is forced up by the pressure when

applied in the cylinder. When it is so forced up it raises the car up in contact with the casing B'.

I I I I are four standards at the side of the track, provided with longitudinal slots *b b*. These standards form guides to the car in its vertical movement, as follows: The ends *c c* of the car fit closely inside the standards when the car is centered, and when the car is raised or lowered by the press, as described, these ends, by sliding against the standards, prevent any lateral displacement of the car. On the ends of the car are lugs *d d*, provided with open slots *f f*.

*g g* are pins or rods, which are passed through the slots *b b* of the standards I I and through the open slots *f f* of the car, and by this means the car is locked against any longitudinal movement. The slots *b b* allow the pins to rise and fall. Therefore the car can be raised and lowered; but it is held stationary, so that when raised it fits accurately to the end of the casing, and when lowered the truck-wheels fit accurately on the track.

J is a hollow band, fitting closely outside the lower end of the casing B', but having a free movement up and down, and forming a follower. Its lower edge strikes into a groove, *e*, in the top of the car when the car is raised, and the groove is filled with sand, which forms a packing, to prevent entrance of air. The follower is raised at any time by means of levers *h h*, Fig. 4, or by any other suitable means. The follower is also preferably provided with a rubber or other packing, *i*, at its top, so that while the follower may be somewhat loose on the casing the packing will make it tight and prevent the entrance of air.

K K are a series of supporting-rods, which can be run in over rollers *k k* and supporting-bars *l l*, and rest just below the end of the casing B'. When the green bricks are placed on the top of the cupola, they are laid up in charges, with passages *m m* between. Each of the charges amounts to a single load on the car. The car is first moved up under great pressure, and raises the whole stack of bricks in the cupola. The bars K K are then run through the holes in the stack under the casing. The car is then lowered with its load and run off, and the bars support the stack in



the cupola. The top of the car is provided with projecting ribs *n n*, with open slots between, so that when the car is raised the bars can be run between the ribs. During the process of firing, and in the intervals between the removal of the charges, the empty car is raised up to the end of the casing and stands there, to shut off the ingress of air to the cupola. In such case the supporting-bars are withdrawn and the follower *J* is let down into the sand-groove, to form a packing. This follower is of much importance, as it packs at all times, even if the car should not come up fully to the casing, or if it should sag, which is sometimes the case. It obviates making holes in the lower end of the casing to receive the rods, which would otherwise be necessary.

*L* is a cylinder, which I denominate the "accumulator." It is in the nature of an air-chamber, being fully inclosed, and it is connected with the cylinder *G* by a pipe, *o*, in which is a cut-off, *p*. A cut-off, *r*, is also used in the pipe *a*. When the car is loaded, and is to be lowered, the cock *p* is opened and the water in the cylinder *G* will be forced back through pipe *o* into the cylinder *L*, and will compress the air. The cock is then closed, holding the pressure. The loaded car is then run off, and an empty one supplied in its place. The cock is then opened, and the pressure from cylinder *L* will be sufficient to raise the car in place, after which a limited quantity only is necessary to be pumped in to raise the bricks in the cupola. This saves a large amount of labor. The cylinder may be provided with a small escape cock, to let off over-charge at any time.

*M* is a valve or cover at the top of the stack, and hinged to turn upward inside of the chimney *N*, by which the draft can be shut off at any time.

*P* is a thin metallic dividing-plate, which rests in a groove centrally in the top of the kiln, where the green bricks are inserted. On each side of this plate are the openings for the insertion of the bricks, and these openings may be covered at any time by slides *R R*, which slide down into grooves *t t*. During the process of burning, the slides are closed and the valve is opened. The top of the dividing-plate is provided with open notches *ww*, Fig. 6, at the same distance apart as the passages are to be formed in the bricks, for the insertion of the supporting-rods, before described. The dividing-plate is also provided with vertical slots *uu*, so that the operators can see through to keep the layers of brick even. The cupola in this kiln is made in a single opening or passage, and not in two, as in other kilns, and in such case the bricks have to be inserted on opposite sides, as, owing to the width of the cupola and the great heat, it cannot be reached across from one side. The dividing-plate is

necessary to gage the distance the bricks are inserted from opposite sides, and to keep them even. They are placed in layers, and the slots enable the workmen to see through and keep the layers at the same height. When the layers pass below the plate, they unite in one column.

*q q* are bars, which, when the charge of green brick is built up to the proper height to form the holes for the supporting-bars, are placed in the notches *ww* in the top of the dividing-plate and project crosswise of the same, extending across the cupola, as shown in Fig. 7. The layers of brick are then laid around and above these bars, and they are then withdrawn, forming the passages aforesaid. The bars form simply guides for the laying of the bricks, and are essential to lay them straight.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a brick-kiln, the combination, with the car, of vertical standards, forming guides to the car in its vertical movement, and pins passing through guide-slots in the standards, said pins locking the car against end movement, as set forth.

2. In a brick-kiln, the combination, with the car, capable of a vertical movement to adjust it to the casing, of a band, constituting a follower, resting on the casing, and serving to be closed down upon the top of the car and pack the same when raised, as set forth.

3. In a brick-kiln, the combination, with the main cylinder, by which the power is applied, and with a piston resting therein, of a supplementary cylinder, forming an air-chamber, connected with the main cylinder by a pipe provided with a cut-off, serving to accumulate power by the pressure of the load on the car in falling to raise the empty car again by its reaction, as set forth.

4. In a brick-kiln having a single cupola, the dividing-plate at the top of the cupola for gaging the bricks as they are inserted from opposite sides, as set forth.

5. The dividing-plate provided with notches at its top for the insertion of the guide-bars *q q*, as set forth.

6. The dividing-plate provided with vertical slots *uu*, as and for the purpose specified.

7. The combination, with the dividing-plate, provided with notches in its upper edge, of cross-bars placed in said notches, and serving as guides in forming the passages between the charges of bricks, as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

CLARK D. PAGE.

Witnesses:

R. F. OSGOOD,  
P. A. COSTICH.