

J. W. METZ.  
Brick-Machines.

No. 135,353.

Patented Jan. 28, 1873.

FIG. 1.

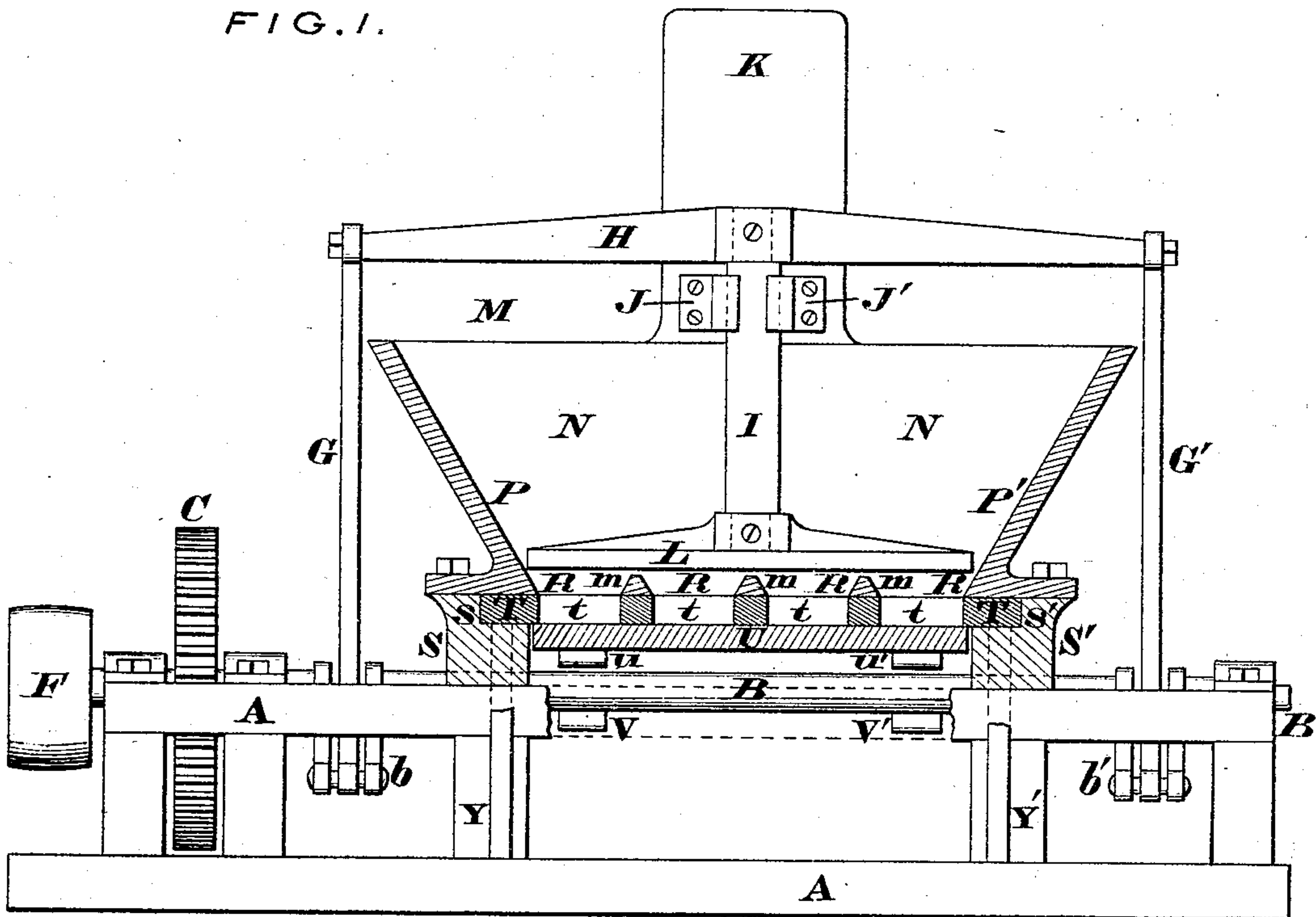


FIG. 3.

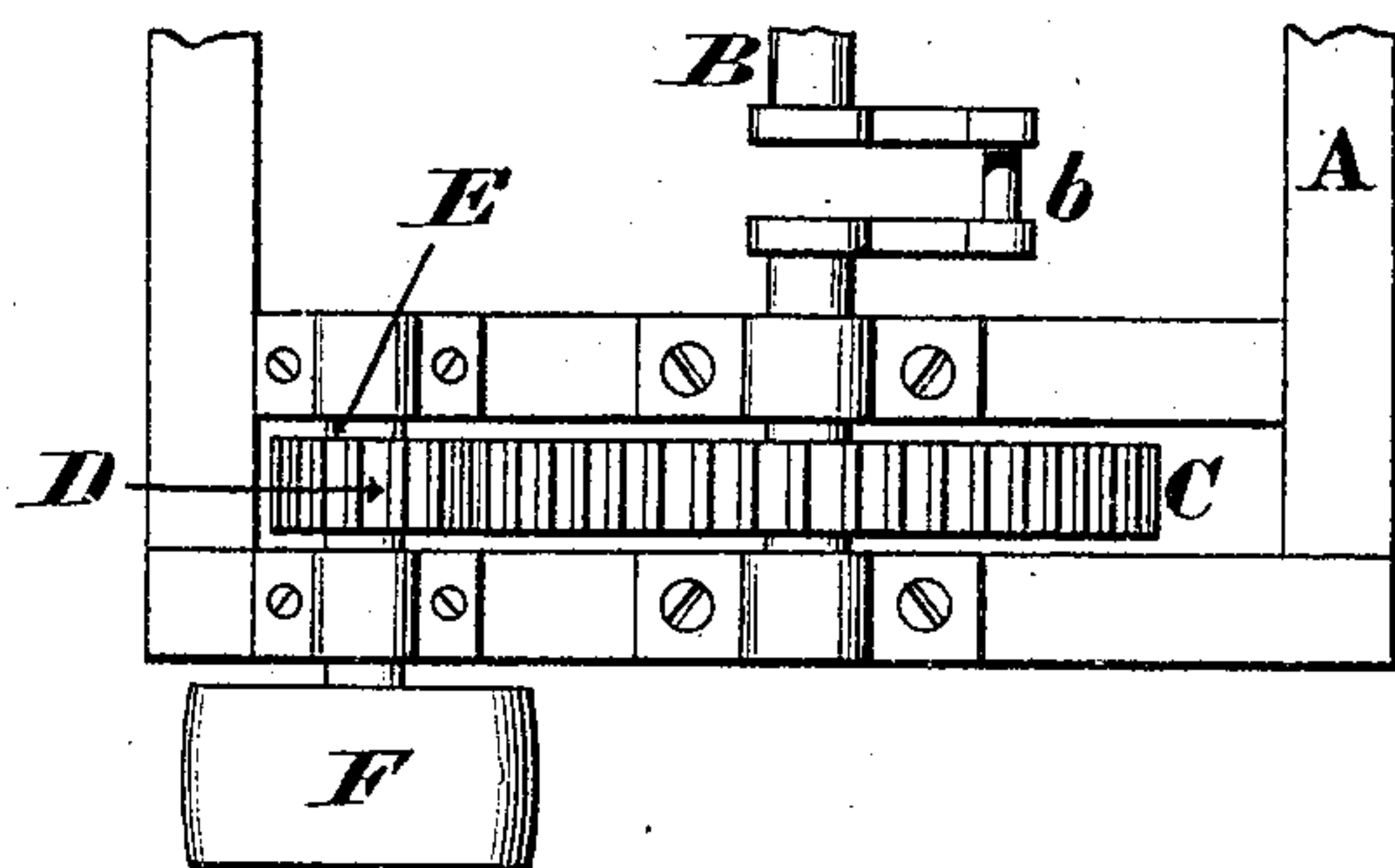
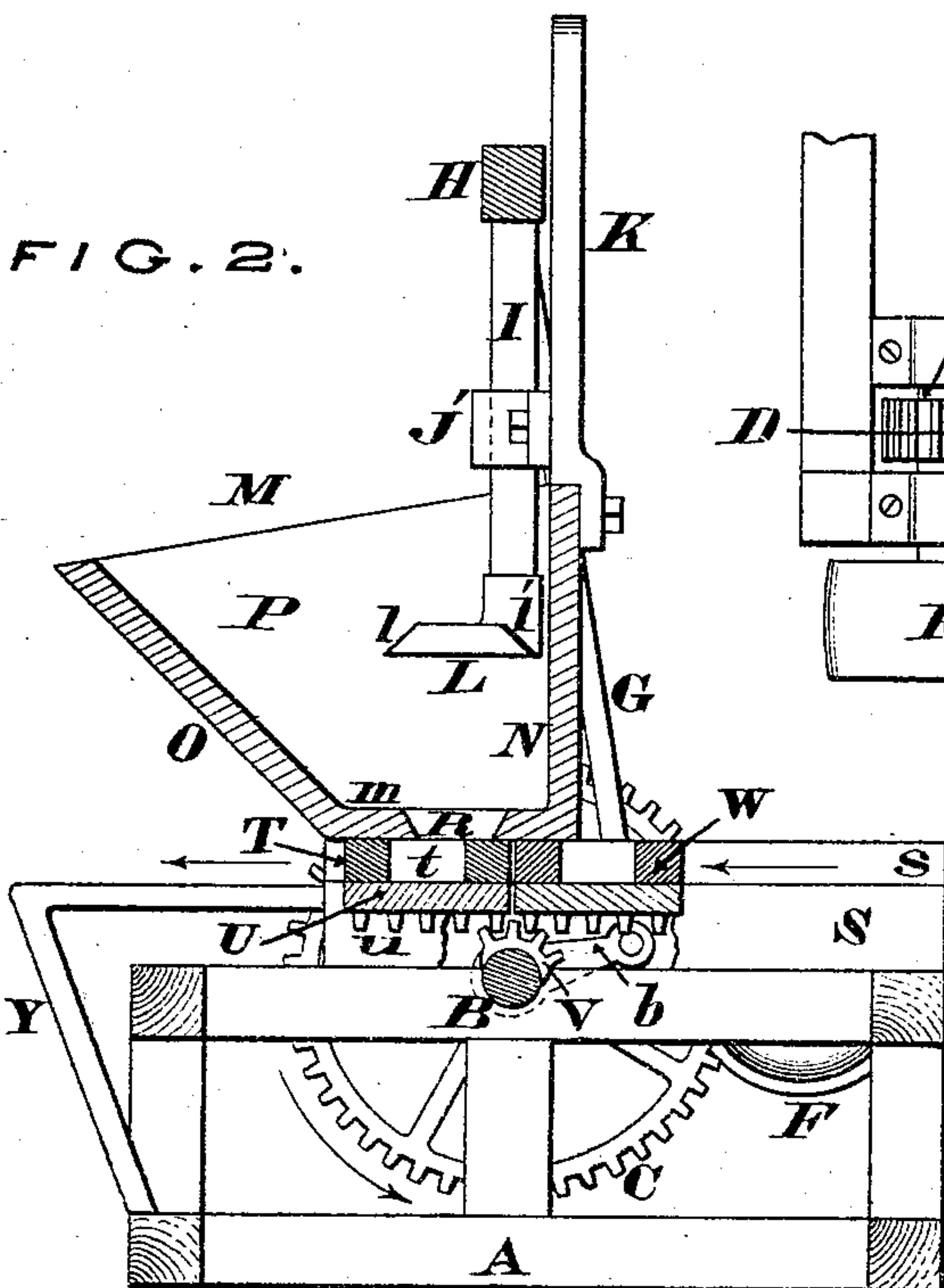


FIG. 2.



John W. Metz  
By Knight Bros.  
Att'ys.

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William W. Davis.



# UNITED STATES PATENT OFFICE.

JOHN W. METZ, OF STOUT'S POST-OFFICE, OHIO.

## IMPROVEMENT IN BRICK-MACHINES.

Specification forming part of Letters Patent No. 135,353, dated January 28, 1873.

*To all whom it may concern:*

Be it known that I, JOHN W. METZ, of Stout's Post-Office, Adams county, Ohio, have invented certain Improvements in Brick-Machines, of which the following is a specification:

### *Nature and Objects of the Invention.*

This invention relates to that class of machines which are employed for working untempered clay. The primary object of the invention is the production of a low, compact, and effective machine. The invention consists in the peculiar construction and arrangement of the essential parts of the apparatus, as hereinafter set forth.

### *Description of the Accompanying Drawing.*

Figure 1 is a side elevation of my improved brick-machine, the hopper and its accessories being shown in section, and the plungers represented as having reached the extreme limit of its downward or effective stroke. Fig. 2 is a transverse section through the machine, the plunger being shown as partially elevated, the mold being conducted away from under the hopper. Fig. 3 is a plan of the driving-gearing.

A represents the main frame of the machine, having journaled longitudinally within it the driving-shaft B, one end of which carries a spur-wheel, C, that gears with a pinion, D, on counter-shaft E, the latter being driven by a belt that passes around the pulley F. The driving-shaft B is provided with two cranks, *b b'*, to which are coupled the lower ends of connecting-rods or pitmen G G', whose upper ends are attached to a stout beam, H, that is located in the same vertical plane as the driving-shaft. Rigidly attached to this beam, and projecting downwardly from the same, is a rod, I, which is confined to a vertical path by the guides J J', the latter being secured to a standard, K, that is fixed to the front side of hopper M. The lower end of the rod I carries a plunger, L, which is flat on its bottom and top, but its edges are chamfered off, as at *l l'*, so as to afford but little resistance to the clay when said plunger is elevated. This plunger has a vertical reciprocation within the hopper M, whose front side, N, is perpendicular, while its rear, O, and ends P P' converge to-

ward the bottom of said hopper. Extending athwart from the front of the rear side of the hopper are bridges or gratings *m*, whose transverse section is of the roof shape shown in Fig. 1, and said bridges are located between the converging openings R in the bottom of the hopper. The hopper is supported upon beams S S', which are arranged transversely of the main frame, and said beams are furnished with horizontal guides or tracks *ss'* for the support of the molds, which are constructed as follows: T is a plate, whose thickness corresponds with that of a brick, and said plate has rectangular receptacles *t* formed within it, which receptacles constitute the molds proper of the machine. Secured to the under side of said plate is another one, U, whose upper surface forms the bottom of the molds, and this plate has cast upon its lower side two racks, *u u'*, which are adapted to engage with the teeth or segment-wheels V V' that project from the driving-shaft B. A number of these molds is provided, of which an extra one is seen at W in Fig. 2. As previously stated, these teeth do not extend completely around the driving-shaft, but are arranged so as to leave the molds at rest a sufficient length of time to insure their being filled and to remove them from under the hopper at the very moment when there is the least amount of pressure upon said molds; or, in other words, when the plunger ascends. Y Y' are off-bearing bars or arms, which serve to support the molds after they have been expelled from under the hopper M.

### *Operation.*

My brick-machine is operated in the following manner: The mold T is shoved in upon the ways *s s'* until its receptacles *t* are directly under the openings R in the bottom of the hopper, the plunger L having previously been elevated to the extreme limit of its upward stroke. In this position of the parts the shaft B is rotated so far that its teeth V V' just clear the racks *u u'*, and the hopper M is then filled with clay. The inward inclination of the ends and rear side of the hopper causes the clay to fall readily to the bottom of said hopper and enter the receptacles *t* through the openings R. After the hopper has been filled the shaft



B is caused to rotate in the direction indicated by the arrow in Fig. 2, and this rotation causes a corresponding descent of the plunger L, thereby compressing the clay and packing it into the molds *t*, which compression continues to a greater or less extent during the downward stroke of the plunger. The roof shape of the bridges *m* enables the clay to be separated so as to pass readily into the several molds. The continued rotation of shaft B causes the plunger L to ascend, and after it has been elevated a sufficient distance its teeth V V' are engaged with the racks *u u'*, and the result is that the filled mold is ejected from under the hopper in the direction indicated by the arrows. While the filled mold T is being expelled from the machine the attendant shoves in an empty one, W, with sufficient force to maintain the two in contact with one another, so as to prevent the escape of clay from the hopper. The filled mold, after being thus expelled, is taken charge of by an attendant, who empties it and then returns it to a position where it will be convenient to

the feeder. During the ascent of the plunger its chamfered edges *l l'* deflect the clay to either side and prevent it being thrown outside of the hopper.

The molds may be arranged either transversely or longitudinally of the hopper, as may be found most convenient or effective.

*Claim.*

The following is claimed as new—namely:

The combination in a brick-machine of the low horizontal driving-shaft B *b b'*, segment-wheels V V', pitmen G G', and cross-head H, with the hopper M *m'*, vertical plunger L I, traversing-molds T *t U u u'*, and mold-guides S *s S' s'* above the driving-shaft, all constructed, arranged, and operating substantially as herein described and set forth.

In testimony of which invention I hereunto set my hand.

JOHN W. METZ.

Attest:

SAMUEL N. LOY,  
SAMUEL B. STEWART.