

J. Cooke.
Brick Mach.

N^o 92,169.

Patented Jul. 6, 1869.

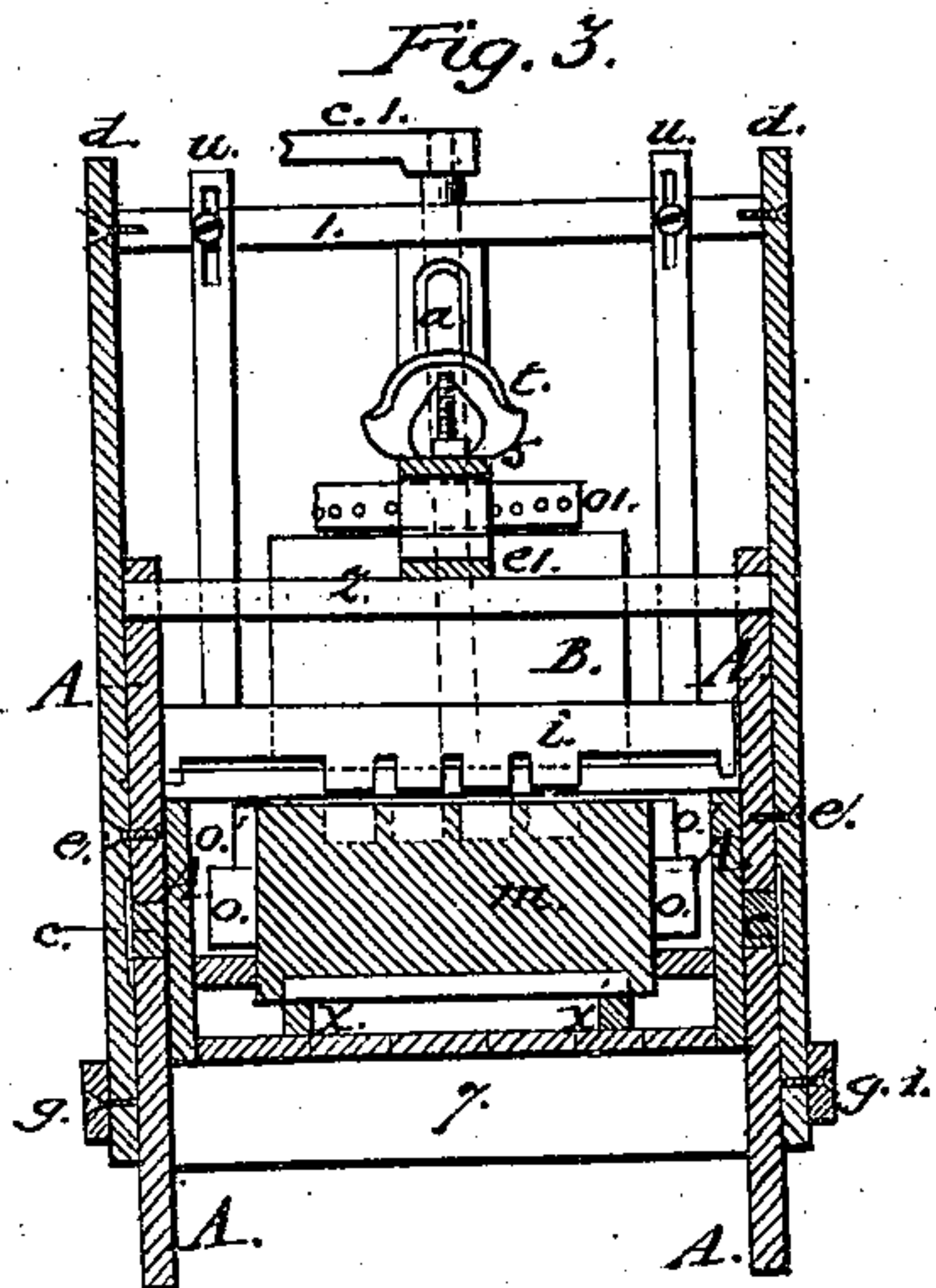
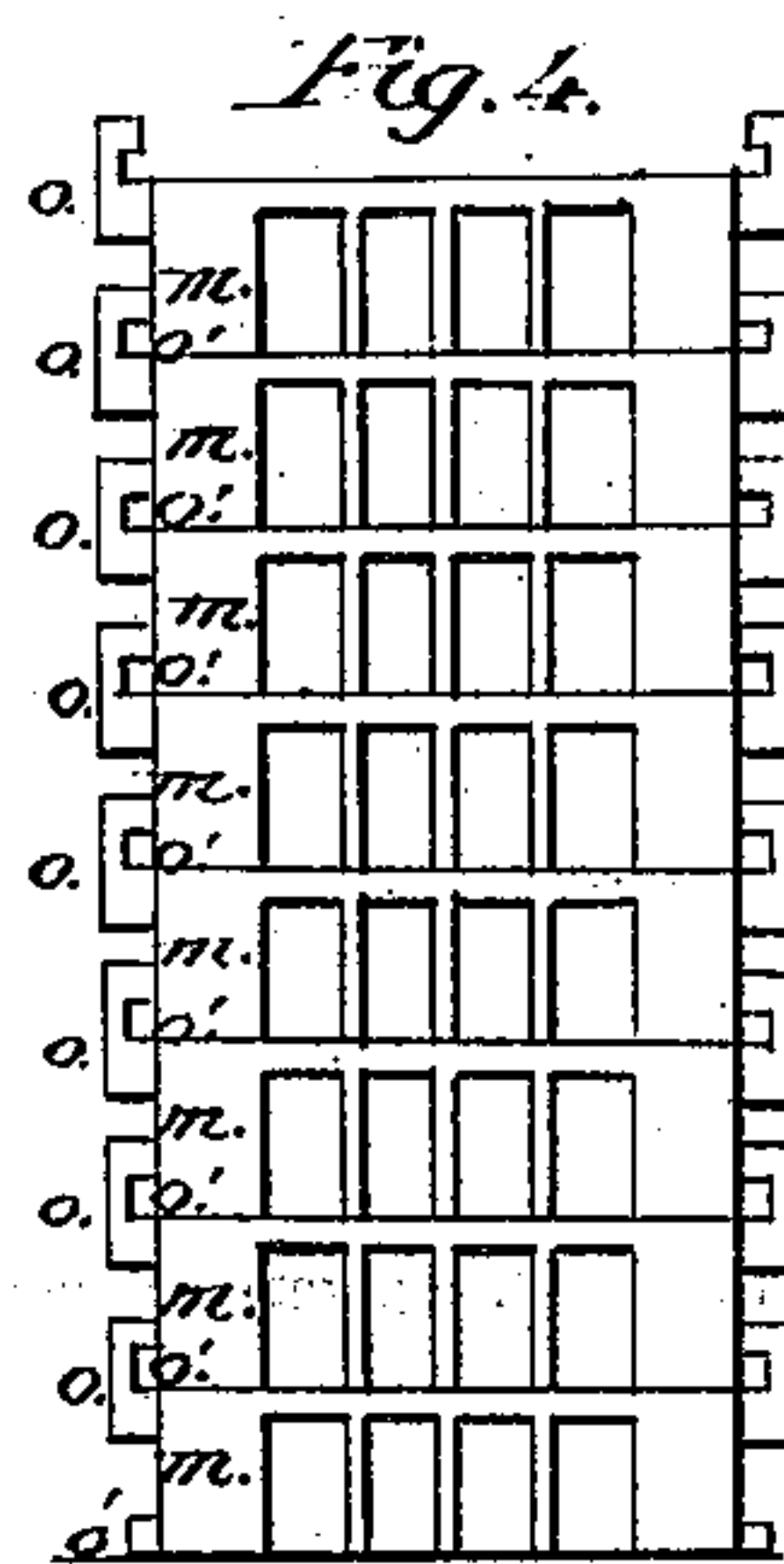
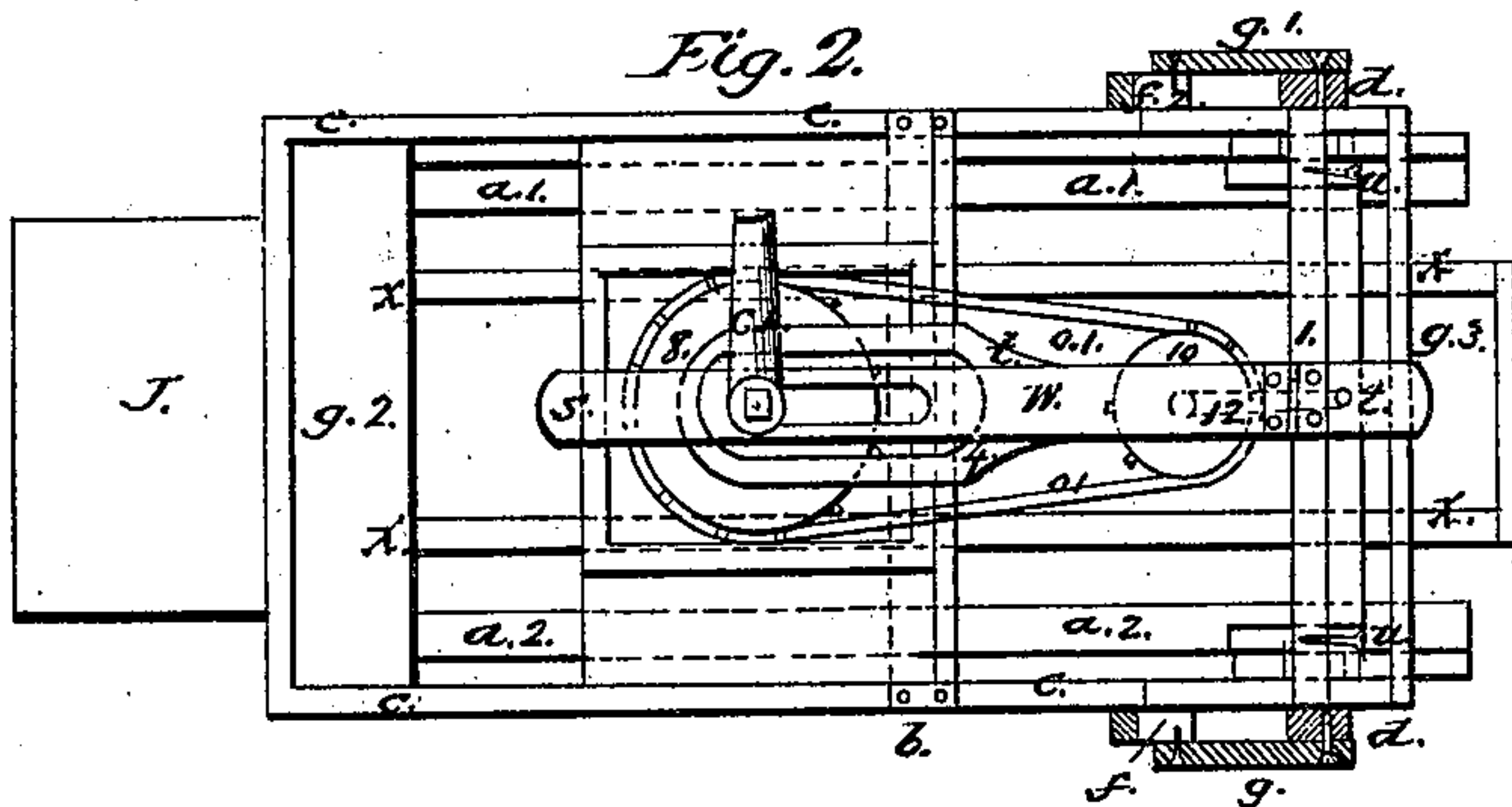
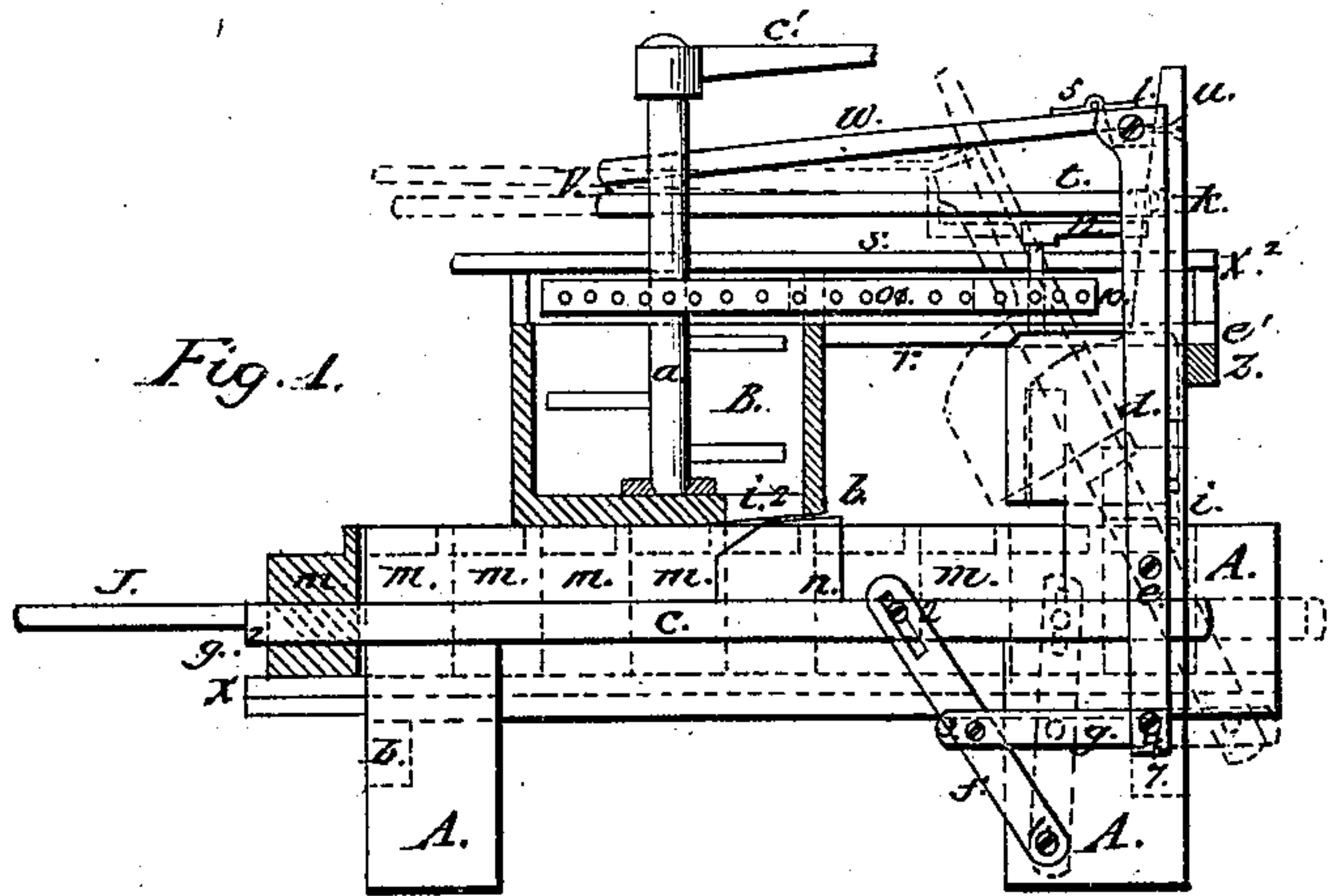
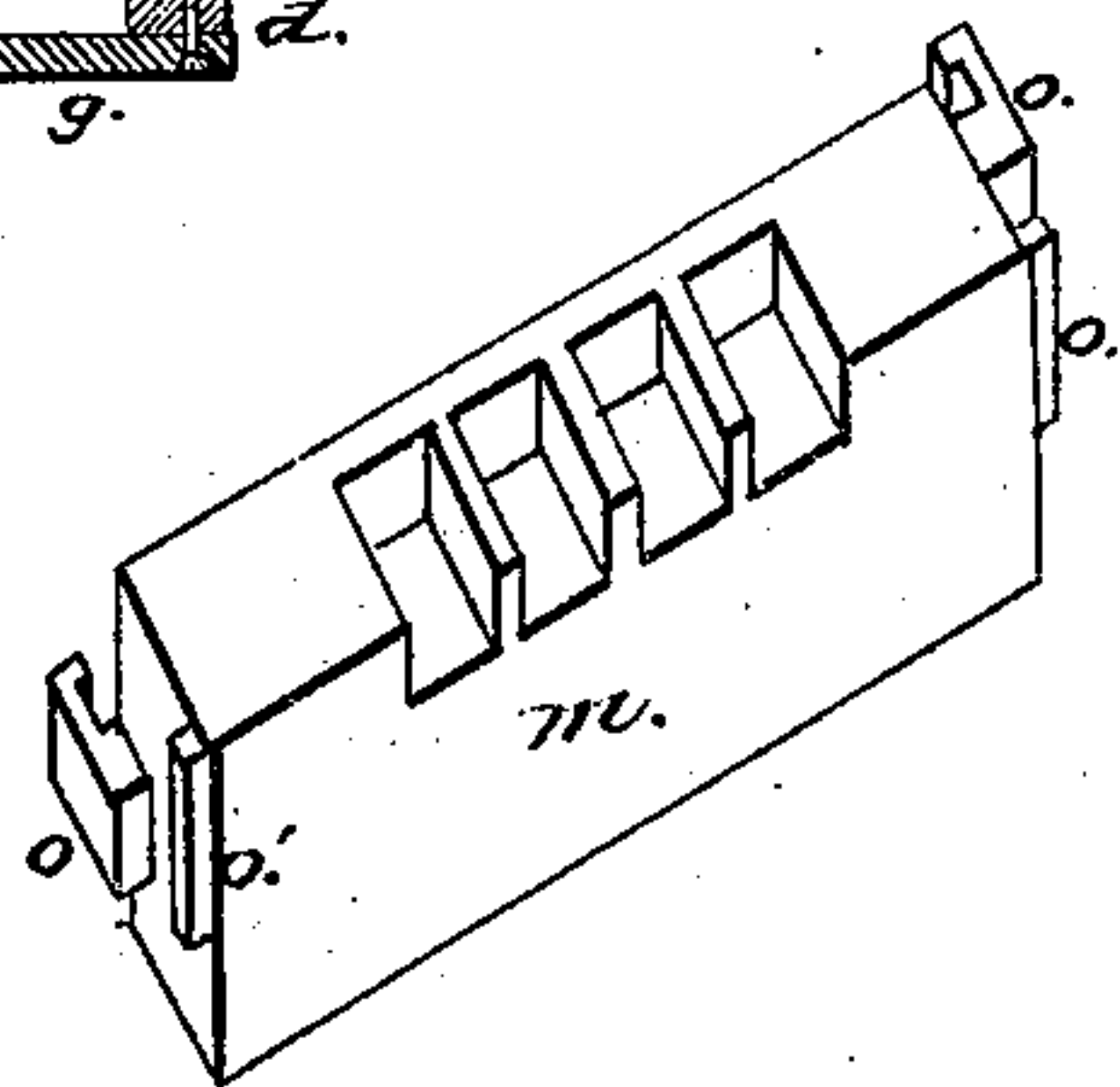


Fig. 5.



Witnesses:

W. P. Patton.

W. S. Miller

Inventor:

Jacob Cooke.

United States Patent Office.

JACOB COOKE, OF MUNCY, PENNSYLVANIA.

Letters Patent No. 92,169, dated July 6, 1869.

BRICK-MACHINE.

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, JACOB COOKE, of the town of Muncy, county of Lycoming, and State of Pennsylvania, have invented certain new and useful Improvements in "Brick-Making Machines;" and I do hereby declare the following to be a full, clear, and exact description of the same, and its manner of operation, reference being had to the accompanying drawings, and the letters of reference marked thereon.

In all the figures, like letters or figures designate like parts.

In the drawings—

Figure 1 represents a side elevation of the machine.

Figure 2 is a plan or top view of the machine.

Figure 3 is a front elevation.

Figures 4 and 5 are views of the moulds, showing their manner of construction and connection together.

In all the figures in which it occurs, A represents the frame of the machine. It is intended to be made of wood of a suitable quality, and is so proportioned as to have the proper stability and strength.

Strictly speaking, the letter A indicates the sides of the frame-work.

They are connected together by the cross-pieces 6 7, that are rigidly attached to the sides A, at the points indicated in fig. 1.

Upon these cross-connecting pieces 6 7, a suitable bed or floor is affixed.

Upon this bed the rails or supporting-strips *x x* are laid, and firmly attached thereto. Said strips are laid parallel to each other, as well as to the sides of the frame.

Upon these rails the moulds *m m m*, &c., rest when they are in position in the machine.

Said moulds are constructed of wood, or other suitable material, and are given the form substantially as shown in fig. 5.

As will be observed, the clay-receiving cavities for the formation or shaping of the brick, are made in the upper side of the mould. Said cavities are herein shown as numbering four, though any convenient number may be used. They are made parallel to each other, a proper space intervening between them, thus leaving dividing-walls standing to separate them, as shown in figs. 4 and 5.

An essential feature of these moulds is, that the cavities before mentioned are made open at one end, as shown in fig. 5. The object of this method of construction is to enable or facilitate the extraction of the bricks from the moulds after they are formed.

Upon the ends of the moulds, grooved pieces, *o o o o*, &c., are rigidly attached, as shown in figs. 4 and 5.

Immediately in the rear of said pieces, the strips *o' o' o' o'*, &c., are fastened. These strips *o' o' o' o'*, &c., are intended to enter the grooves in the pieces *o o o o*, &c., as shown in fig. 4, and thus hold the series of

moulds in firm and close connection with each other. The strips *o' o' o'*, &c., should be of such relative width and thickness as to permit their easy insertion into, and withdrawal from the locking-pieces *o o o o*, &c.

When the series of moulds is connected as just described, the back part of each mould closes up the openings left at the ends of the brick-forming recesses in the one immediately in front of it, so that the connection of at least two sets of moulds is required to fit the recesses for the moulding-operation.

Upon the frame A, at a point indicated in fig. 1, the pug-mill or tempering-tub B is placed.

It consists mainly of a square vessel or receiver, that is provided with an upright shaft, *a*.

Said shaft is furnished with radiating arms, set in a spiral manner, said arms being intended to work the clay, and properly prepare it for the manufacture of bricks.

The tendency of the arms operating is to force the tempered clay down through the opening *i 2*, fig. 1, into the cavities in the moulds *m m m*, &c., as they are brought successively beneath said opening; a proper height intervening between the strips *x x* and the lower side of the tempering-tub, to allow of the easy passage of the moulds, when necessary.

The shaft *a* is further provided with an arm or lever, *c 1*, to which the power is applied that drives the machine.

As will be noticed, the upright shaft *a* rests in a properly-shaped step or foot-piece, which is fastened to the bottom of the tempering-tub B.

Near the top of the tempering-tub A, to the side upon which the opening *i 2* is nearest, a brace, *r*, is attached by one of its ends. The other end rests upon, and is supported by a cross-piece, *z*, which is fastened by its ends to the upper part of the frame A, as seen at *c 1*, figs. 1 and 3.

Upon the top of the tempering-tub B, another timber brace is placed, as seen at *s*, fig. 1.

This brace has a position immediately above, and in a line with the piece *r*, and is supported at its outer end, *x 2*, upon said piece *r*, as seen in fig. 1.

The adjacent sides of the pieces *s* and *r* are parallel to each other, a proper distance intervening between them.

Upon each side of the frame A, at the front end, the upright levers *d d* are attached, so as to secure them in position, and also allow a proper degree of oscillation upon the retaining-bolts or screws *e e*. (See figs. 1 and 3.)

The upper ends of the levers *d d* are connected by the cross-piece *l*. (See figs. 1 and 3.)

About the centre of the piece *l*, the upper half *w* of the jointed lever *w t* is fastened by a hinge, 5, figs. 1 and 2. Said lever is slotted, so as to surround the

shaft *a*, and permit said shaft to work freely without coming in contact with said lever *w t*, as seen in fig. 2.

Upon the upright shaft *a*, at a point directly above the upper edge of the tempering-tub B, a proper-sized pulley or band-wheel, 8, is firmly fastened. The position given said wheel brings it immediately beneath the piece *s*.

Upon the piece *r*, between it and the piece *s*, another band-wheel, 10, is placed. It is intended to be made of the same width of face as the wheel 8, but of one-third its diameter.

Each of these wheels has studs or pins inserted in its face at regular intervals, as shown in figs. 1 and 2.

These pins are intended to enter holes made in the driving-belt *o 1*, that is placed upon the two wheels; thus preventing any possibility of said belt slipping while the machine is in operation.

The smaller wheel, 10, is retained in position by a shaft, that passes through both the pieces *s* and *r* and the centre of said wheel.

The upper end of said shaft is provided with a crank, 12, figs. 1 and 2.

This crank has a pin at its outer end that connects to the end *k* of the lower part *t* of the jointed lever *w t*; said lever having its two portions connected by a swivel-joint attachment at V. (See fig. 1.)

Upon the front side of bar *l* the two uprights *u u* are attached at their upper ends by a bolt in each, that thus secures them in position. (See fig. 3.)

These uprights are fastened at their lower ends to the piece *i*. (See fig. 3.)

Said piece *i* has plungers or presser-feet attached to its lower face. These correspond in number and position to the cavities in the moulds, so that when a mould is brought properly beneath the piece *i*, while the machine is operating, the presser-blocks will be immediately above the cavities. And as the jointed lever *w t* receives motion from the crank 12, it is evident that the levers *d d* will be vibrated a proper distance back and forth, and thus cause the presser-blocks on *i* to rise and fall, or be forced down upon the filled mould that is beneath them.

Upon each side of the machine, at a proper point, indicated in fig. 1, the rails *c c* are placed.

They are connected at the rear end by the cross-piece *g 2*. (See fig. 2.) They rest upon the upper ends of the legs of the frame A.

At a point, 2, (see fig. 1,) upon each side of the machine, the levers *f f 1* are fastened to the rails *c c*. Said fastening or attachment is so made as to permit a limited movement of the levers *f f 1* up and down in slots made in their ends, through which the retaining-bolts or screws pass.

The other ends of levers *f f 1* are pivoted to the sides of the frame A, (see fig. 1,) at 1.

The lower ends of upright levers *d d* are pivot-fastened or jointed to the ends of the connecting-links *g g 1*; the other ends of said links being attached in like manner to the levers *f f 1*, at points about midway between their ends, as seen in fig. 1, at 3.

Upon the rails *c c*, at a point shown in fig. 1, the blocks *n n* are placed and fastened thereto, so as to slide freely back and forth with said rails.

Said blocks are made of a proper height to receive upon their tops the ends of the scraper *b*. Said scraper is intended to strike off the superfluous clay (during the process of moulding) from the top of the mould as it assumes its position in front of it.

Having given a full description of the construction of the device, its manner of operation is as follows:

The moulds *m m m*, &c., are placed (one at a time) upon the guide-strips or rails *x x*, immediately in front of the cross-bar *g 1*. Upon communicating motion to the machine, before clay is placed in the tempering-tub B, the action of the levers *d d* causes the sliding rails *c c* to move forward a proper distance at each stroke of the crank 12. Upon each return-stroke another mould is placed in connection with the preceding one, by simply sliding the hooks *o o*, &c., down over the flanges *o' o'* on the mould in front. This action connects the moulds firmly together. By continuing the operation, the moulds are brought successively beneath the opening *i 2* in the bottom of the tempering-tub B; and as the clay is tempered in said tub, and forced down into the cavities in the moulds, the scraper or strike-off *b* clears the top face of each mould as it advances from beneath the tempering-tub, after it has been filled therefrom. When the first-filled mould is brought, by the action of the machine, beneath the presser-blocks on the beam *i*, the down-stroke of said blocks will cause them to press with a sufficient degree of force upon the clay in said mould to perfectly consolidate the moulded bricks. The next rise of the plungers or pressers releases the mould, and the action of the machine carries it forward so that it can be disconnected from the one in its rear, and taken out of the machine and emptied. A sufficient number of moulds being provided, the operation of making the bricks can be continued at pleasure.

The position assumed by the working-parts of the machine, when the side-bars *c c* have been moved their full throw forward, is shown in fig. 1, by the red lines. This operation, as has been shown, carries the train of moulds forward a proper distance. The return back of the bars *c c*, permits the coupling on of another empty mould, as will be seen upon inspection of fig. 1.

As I design to apply for a patent for another improvement in brick-machines, in which several of the characteristic features of the present application are made use of, for the purpose of distinction I designate this application as "Division 1."

Having given a full, clear, and exact description of my invention, and its manner of operation,

What I claim as new of my invention, and desire to secure by Letters Patent of the United States, is—

The combination and arrangement, in the peculiar manner herein shown, of the pug-mill B, moulds *m m m*, and strike-off knife *b*, when said knife *b* is supported upon and operated by the rails *c c*, that communicate motion to the moulds *m m m m*, for the purpose herein described.

JACOB COOKE. [L. S.]

Witnesses:

JNO. W. REISSEL,
J. M. M. GERNERD.