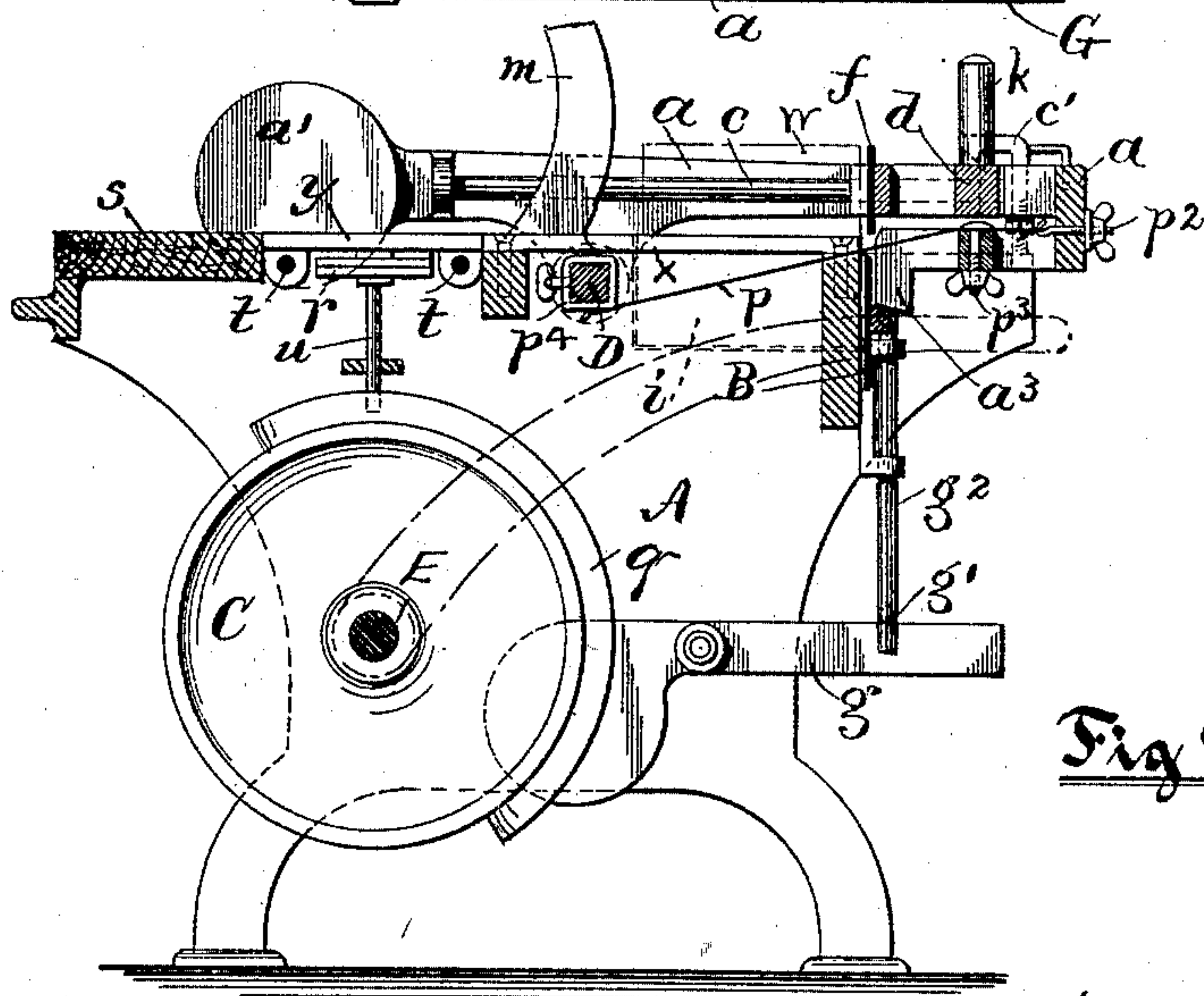
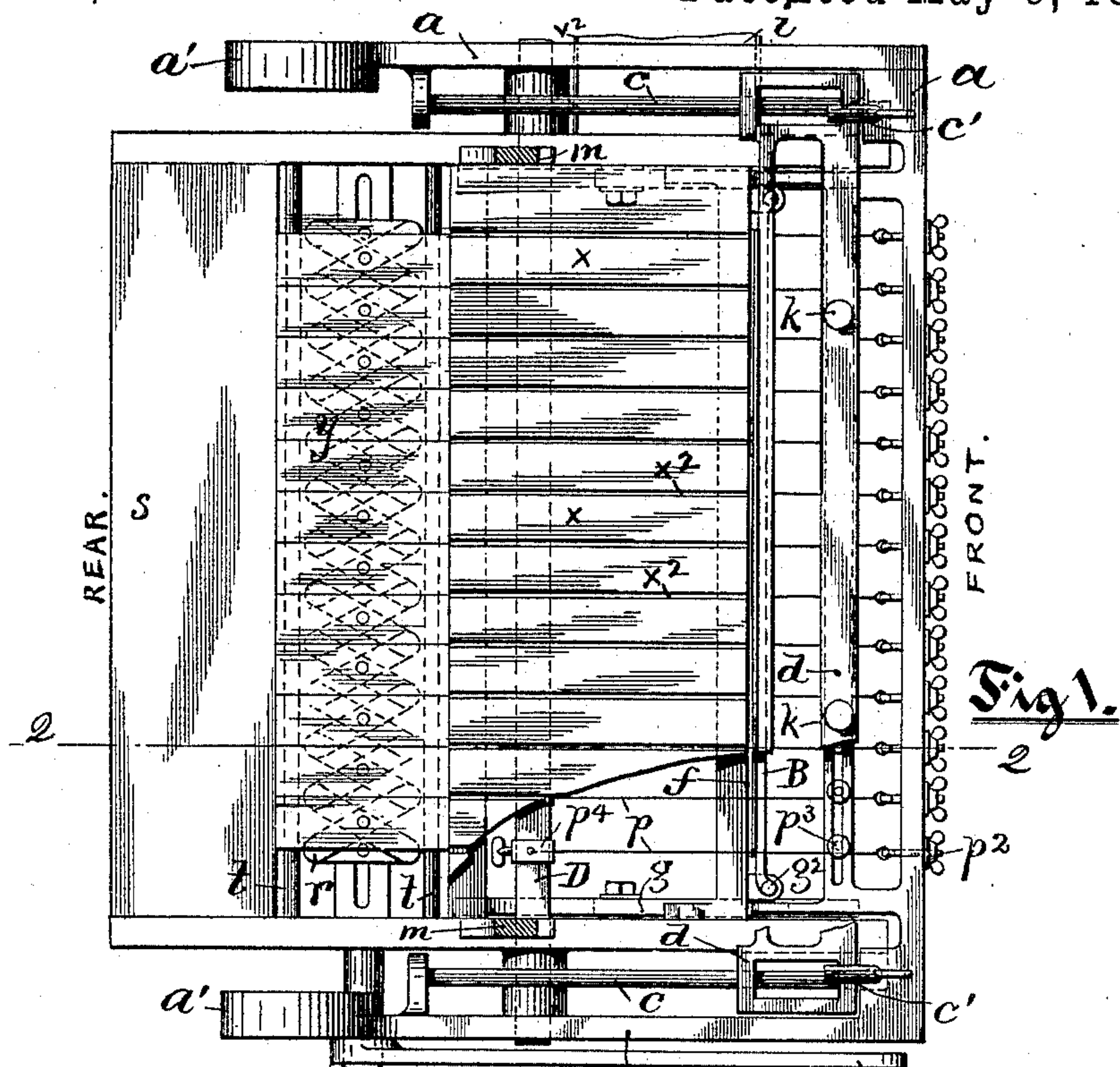


3 Sheets—Sheet 1.

No. 496,983.

Patented May 9, 1893.



Witnesses.

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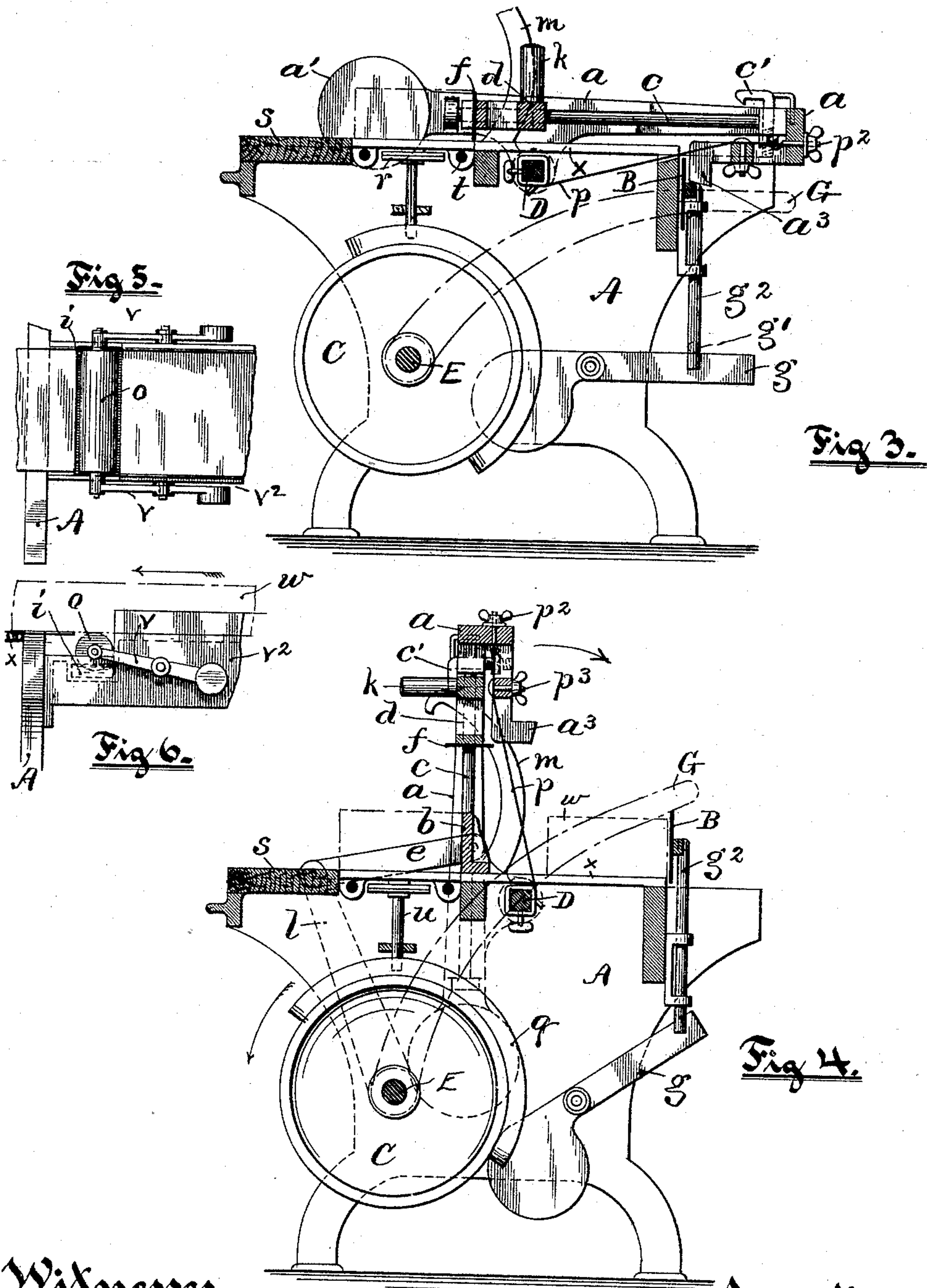
(No Model.)

3 Sheets—Sheet 2.

J. A. SNELL.
BRICK CUTTING MACHINE.

No. 496,983.

Patented May 9, 1893.



Witnesses.

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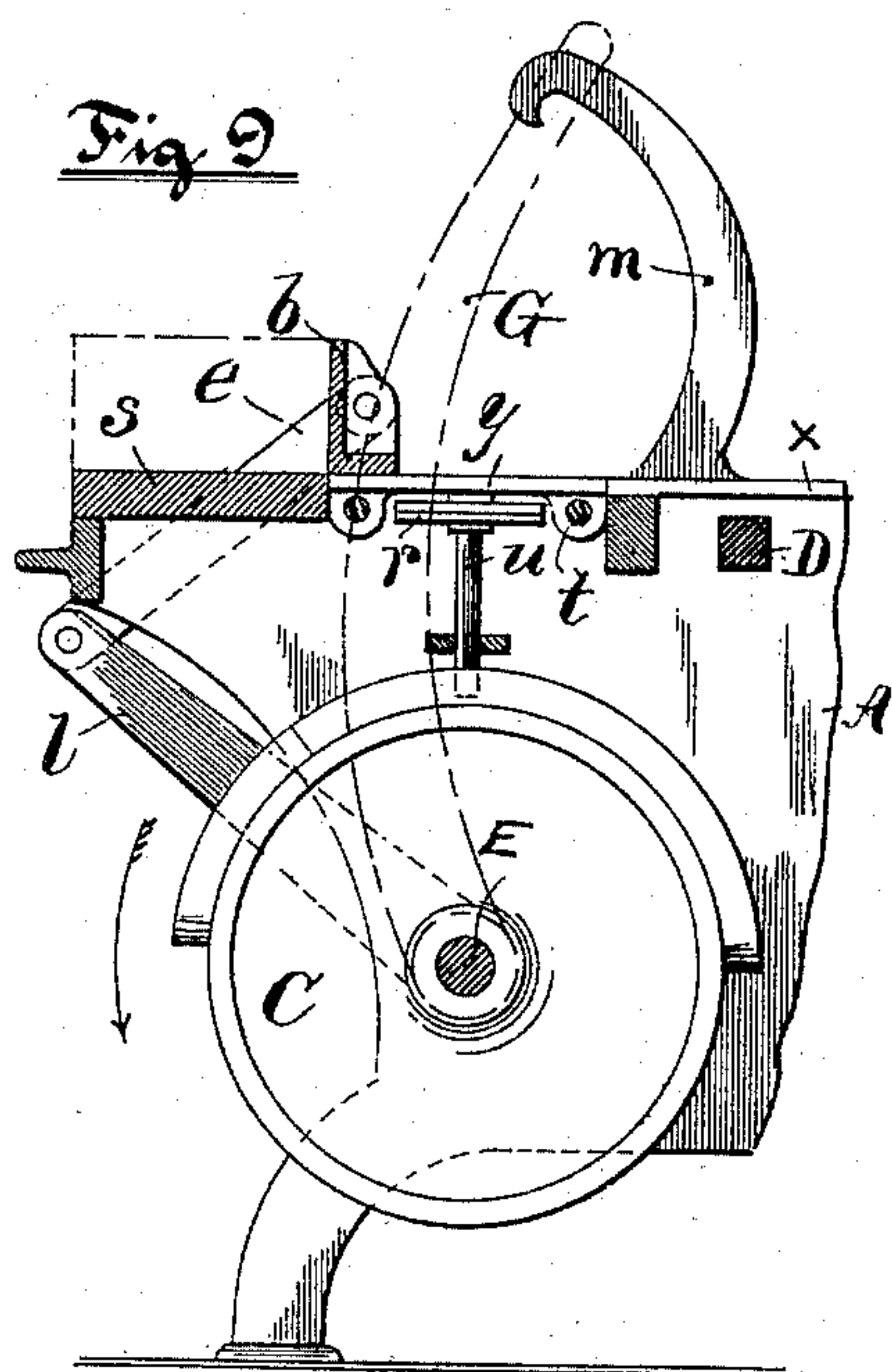
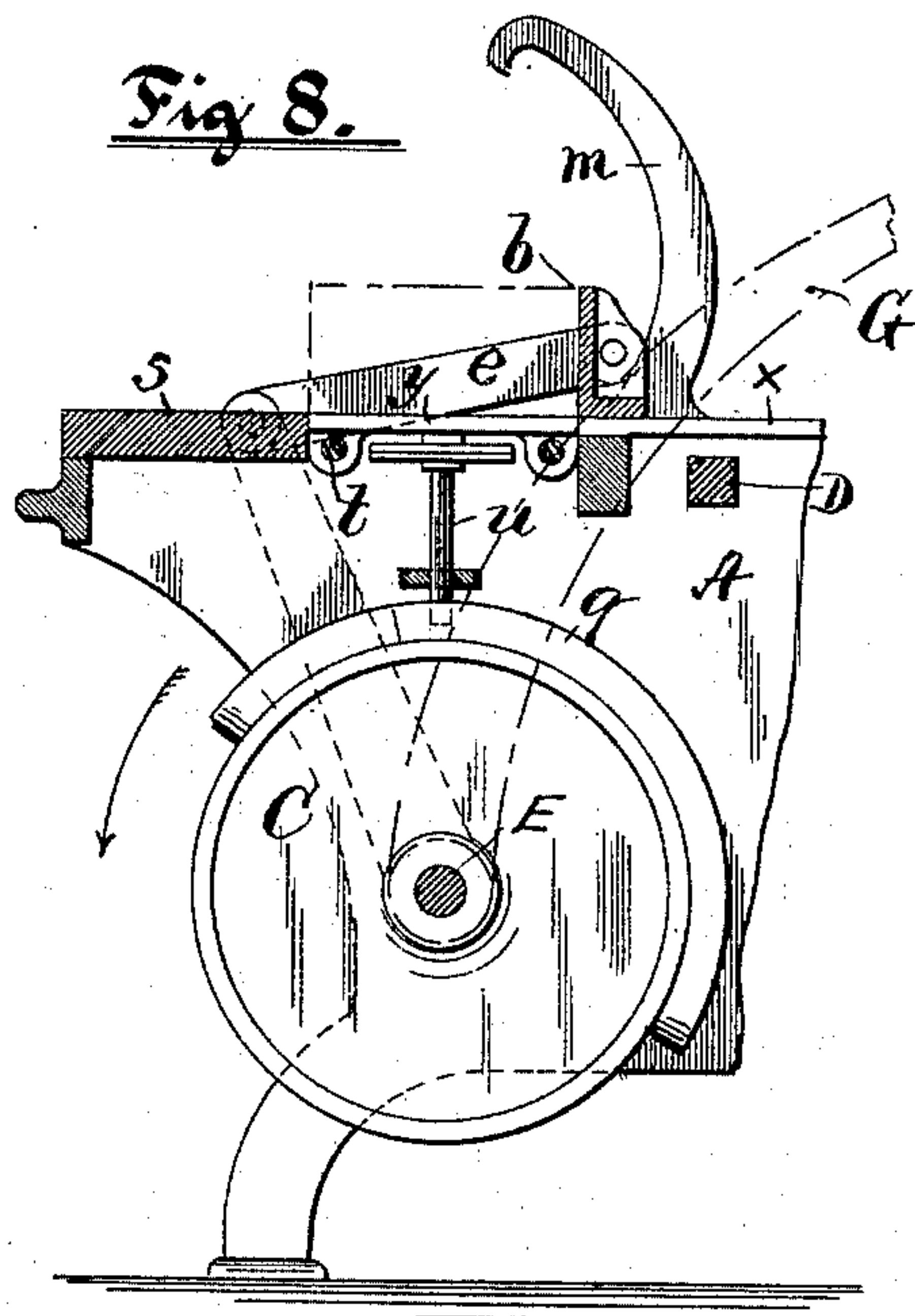
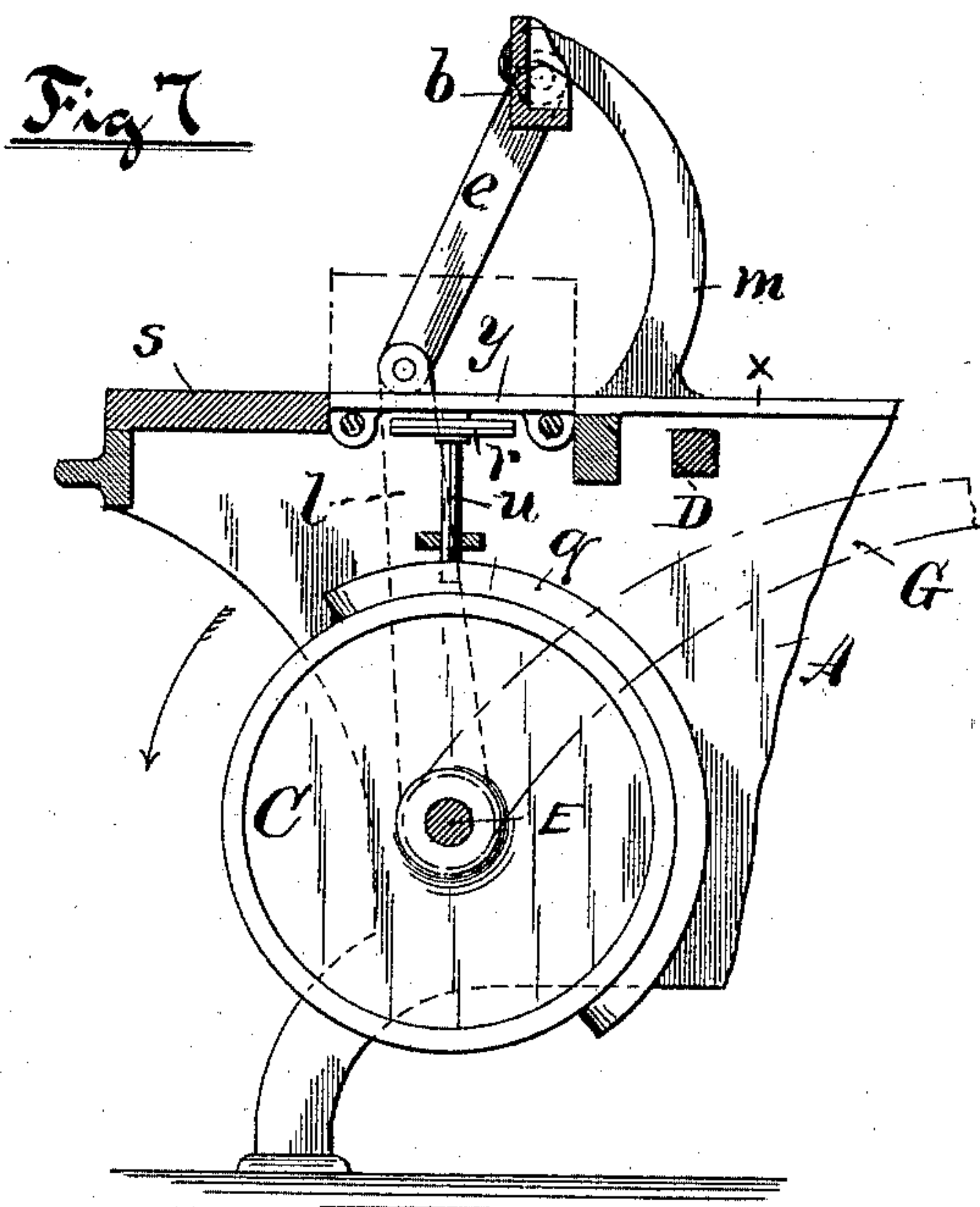
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3 Sheets—Sheet 3.

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UNITED STATES PATENT OFFICE.

JACOB A. SNELL, OF BARRINGTON, RHODE ISLAND.

BRICK-CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 496,983, dated May 9, 1893.

Application filed February 4, 1893. Serial No. 460,996. (No model.)

To all whom it may concern:

Be it known that I, JACOB A. SNELL, a citizen of the United States, residing at Barrington, in the county of Bristol and State of Rhode Island, have invented certain new and useful Improvements in Brick-Cutting Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

In a pending application for patent, filed by me in the United States Patent Office, Serial No. 434,708, I have described and claimed a brick-cutting machine embodying certain novel features; said machine being adapted to simultaneously cut a length of suitably prepared and molded clay into a series of brick-blanks, as distinguished from machines arranged to intermittently cut the blanks one by one, or singly.

My present invention also relates to brick-cutting machines; it being an improvement on the machine first referred to above, and it consists essentially in the combination with a stationary bed and a vertically movable guard-plate, of an axially movable cutter-carrying frame, a follower mounted in said frame, an expansible table adapted to receive the blanks through the medium of said follower, and a mechanically operating pusher-bar arranged to discharge the blanks from said table onto a removably mounted drying board, all as will be hereinafter set forth and claimed.

In the accompanying three sheets of drawings, illustrating my invention, Figure 1 is a plan view, some of the parts being omitted and a portion of the bed broken away. Fig. 2 is a transverse sectional view, taken on line 2—2 of Fig. 1, showing the relation of the cutters, &c., at the instant of severing the clay into blanks. Fig. 3 is a similar view, showing the blanks in position upon the expansible table. Fig. 4 is the same, showing the cutters, &c., returned to the normal position and the pusher-bar dropped to engage the blanks. Fig. 5 is a plan view of a device for oiling the column of clay before the latter passes on to the bed. Fig. 6 is a side eleva-

tion of the same. Fig. 7 is a partial transverse sectional view, showing the normal position of the pusher, corresponding with Fig. 2. Fig. 8 is the same after the pusher has been dropped into position, corresponding to Fig. 4, and Fig. 9 is the same, showing the pusher in its extreme rearward position. In the three last named figures the cutter-carrying frame, &c., are omitted.

The devices forming the invention about to be described reside mainly in the mechanisms for cutting the clay into blanks and forcing them from the cutting-bed onto a separating table. Said mechanisms comprising a self-rising guard-plate adapted to prevent the blanks from moving while being cut and a movable cutting-frame carrying a follower arranged to discharge the blanks onto the separating table.

In the drawings A indicates the two end frames of the machine, the same being secured together by suitable ties, &c., in any well known manner.

I would state that the column of suitably molded and tempered clay is fed to the front side and longitudinally of the machine, say from the right end, onto the stationary bed x , the latter consisting of a series of plates separated from each other to form openings x^2 into which the cutting-wires p are adapted to enter, see Figs. 1 and 2. Contiguous to the rear ends of said plates or bed is mounted a separating table y , consisting of a series of slats united by a lazy-tongs connection r , adapted to be actuated by a cam-wheel C secured to the shaft E, substantially as set forth in my other application, before referred to. To the rear of said table y the frame is arranged to receive a drying board s onto which the blanks are finally deposited, prior to being removed from the machine. The upper faces of the bed, table and board s lie in the same plane, being flush with each other.

The frame a , carrying the cutting-wires p , is secured to a square shaft D journaled below the top of the bed, in the end frames A. The cutter-frame is partly counter-balanced by weights a' , adapted to maintain it in the vertical, or normal, position, Fig. 4. The top or front side of the frame a consists of a tie uniting the two ends. In this tie are mounted clamping screws p^3 and take-up or tension

screws p^2 arranged to secure the cutters p in place. The opposite ends of the cutters are made fast to collars p^4 , adjustably secured to the shaft D. Each arm of the cutter-frame is provided with a guide-rod c on which is mounted a sliding-bar d carrying the follower f . This bar, &c., is adapted to be held in its normal position by means of swivel catches c' attached to the ends of the tie-portion of the cutter-frame, as clearly shown in Figs. 1, 2, &c. Upon releasing the bar d from the catches it may readily be pushed rearwardly to its limit through the medium of handles k ; the position then being substantially as indicated in Fig. 3.

At the front side and longitudinally of the machine, contiguous to the edge of the bed x , is mounted a thin guard-plate or fender B, the same being secured to vertically guided end rods g^2 . The lower ends of these rods are as drawn provided each with a stop-pin or guide roll g' in sliding contact with an arm of a counterweighted pivotally mounted lever g ; the arrangement being such that the action of the weight serves to keep the guard-plate in the elevated or normal position shown in Fig. 4.

The operation of forming the blanks is as follows: A length of prepared clay w is first fed or placed upon the bed x in any well known manner and practically in contact with the fender B, as shown in Fig. 4. Now, upon swinging the cutter-frame, &c., in the arrow direction, or downwardly, the cutters p are forced through the clay and into the spaces x^2 of the bed. During the said movement of the frame end lugs a^3 of the latter engage the plate B and force it downwardly below the bed's surface in advance of the cutters, the relation of the parts then being substantially as indicated in Fig. 2. If it were not for the plate B the shearing action of the cutters would operate to distort and displace the clay by forcing it toward the front of the machine. The shearing effect is due to the fact that the cutters are mounted at an angle to the frame a , the arrangement being such that the tendency of the cutters to displace the clay has practically ceased when they approach closely to the plate B, at which point the moving frame causes the lugs a^3 to engage the plate and depress it in advance of the cutters. I would add that practically the upper or forward portion of the frame a , &c., overbalances the weights a' , plate B and levers g when in the position shown in Fig. 2, although other means may be employed for the purpose. After the clay w has thus been simultaneously divided into a series of brick-blanks the operator next seizes the handles k of the follower-frame d and pushes it rearwardly (first detaching it from the catches c') to its limit, thereby sliding the blanks endwise from the bed onto the separating table y . Figs. 3 and 7 show the corresponding relation of the parts. The follower is next returned and secured in place and the

cutter-frame, &c., elevated to the normal position; the guard-plate B at the same time automatically rising to its limit through the medium of the weighted levers g ; Fig. 4 shows said parts in the normal position.

Although I make no specific claim herewith to mechanisms for discharging the blanks from the table y , the following is a brief description of the device represented and the manner of its operation. After the blanks have been placed upon the table y (as in Fig. 7) the latter is expanded through the medium of the cam C, connection u and lazy-tongs r , by means of the operating lever G; thereby rotating the cam in the arrow-direction to still further separate the blanks. At the same time the said movement of the lever causes the pusher bar, or secondary follower b , to descend from the normal position, shown in Fig. 7, to the bed x to engage the blanks, as in Fig. 8. The bar b extends lengthwise of the machine and is guided at each end by upwardly extending bent arms m secured to the end frames A. Levers l fixed to the cam-shaft and links e connecting said levers with the bar b serve to raise and lower the latter in unison with the movement of the main lever G. The continued movement of the shaft E carries the bar b across the table and carrying with it the series of blanks which are thereby discharged upon the removable board s . Fig. 9 shows the corresponding relation of the parts. A reversal of the shaft's movement returns the bar, &c., to the normal position represented in Fig. 7, to again receive and discharge a series of blanks after they have been formed through the medium of the cutters, &c., first described.

In handling the molded clay while converting it into blanks it is essential that the surfaces of the bed, &c., be lubricated to prevent the clay from sticking. In order to effect such lubrication I provide an end of the machine (say the right) with an oil-well i containing also a vertically movable roll o ; the latter being supported in the ends of the counter-weighted levers v pivoted to the sides of a guide or chute v^2 communicating with the machine, see Figs. 5 and 6. The arrangement being such that as the molded length of clay w passes onto the bed x the surface of the roll o automatically engages the under side of the clay and lubricates it, the moving clay at the same time causing the roll to revolve. When thus lubricated the clay can be moved about more readily and with less liability of sticking.

I claim as my invention—

1. In a brick-cutting machine, the combination with the movable cutting frame, of a fender or guard-plate arranged to be forced below the bed level by the action of the cutter-frame.

2. In a brick-cutting machine, the combination with the cutting frame, of a vertically movable fender, as B, arranged to be depressed by said frame while the cutters are

dividing the clay into brick-blanks, substantially as described.

3. In a brick-cutting machine, an axially movable frame provided with a series of cutters, as *p*; a follower, as *f*, and its holder mounted in said frame at the rear of the cutters and arranged to be moved to and fro independently of the frame's movement, substantially as hereinbefore described and for the purpose set forth.

4. In a brick-cutting machine, the combination with a stationary bed and an automatically operating guard-plate mounted at the front of the same, of an axially movable cutter-carrying frame and a guided follower, as *f*, mounted in said frame adapted to discharge the brick-blanks from the bed while the cutter-frame and guard-plate are in the depressed position, substantially as described.

5. In a brick-cutting machine, a stationary bed provided with recesses adapted to receive the cutters, an axially movable cutter-carrying frame, a guided follower mounted and adapted to slide to and fro in said frame and means for holding the length of molded clay in position while being cut into blanks, in combination with a separating table, a pusher-bar or secondary follower, mechanisms for expanding the table and actuating said pusher-bar and a removable board or carrier adapted to receive the brick-blanks from the table, substantially as hereinbefore described.

6. In a brick-cutting machine, an axially movable cutter-carrying frame having a follower, as *f*, mounted therein, whereby the

brick-blanks may be forced rearwardly from the bed by the device located in the frame itself, substantially as described.

7. In a brick-cutting machine, the combination with the cutting-frame, of an automatic guard arranged to prevent the blanks from accidental displacement while being cut and adapted to be forced below the bed level by the downward movement of the cutting-frame.

8. In a brick-cutting machine, the combination with the bed or framing and a chute or runway leading thereto, of an oil-well located in or contiguous to said chute and a counter-weighted roll mounted in the oil-well, whereby the act of feeding a length of molded clay to the bed, *via* the chute, causes the roll to automatically lubricate the under side of the clay, substantially as described.

9. In a brick-cutting machine, the combination with the movable cutter-frame provided with a series of adjustably mounted cutting-wires and a guided follower, as *f*, adapted to slide the blanks rearwardly, of a separating table arranged to receive said blanks, means for expanding said table, a secondary follower adapted to force the blanks from the table and mechanism for operating the follower, substantially as described.

In testimony whereof I have affixed my signature in presence of two witnesses.

JACOB A. SNELL.

Witnesses:

GEO. H. REMINGTON,
IDA M. WARREN.