

(No Model.)

4 Sheets—Sheet 1.

J. A. FREY & J. THOMPSON.
RE-PRESSING BRICK MACHINE.

No. 472,618.

Patented Apr. 12, 1892.

Fig. 1.

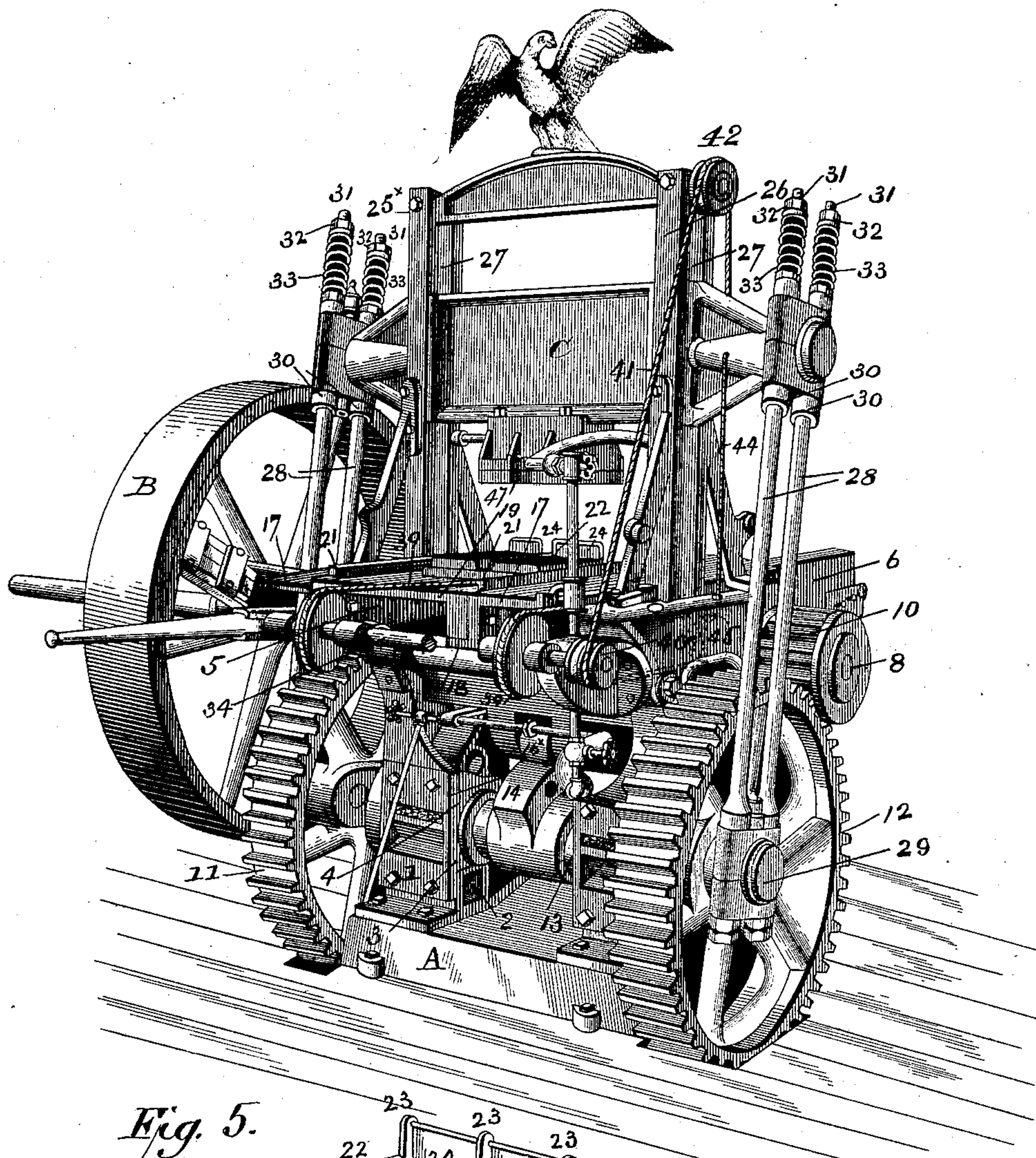
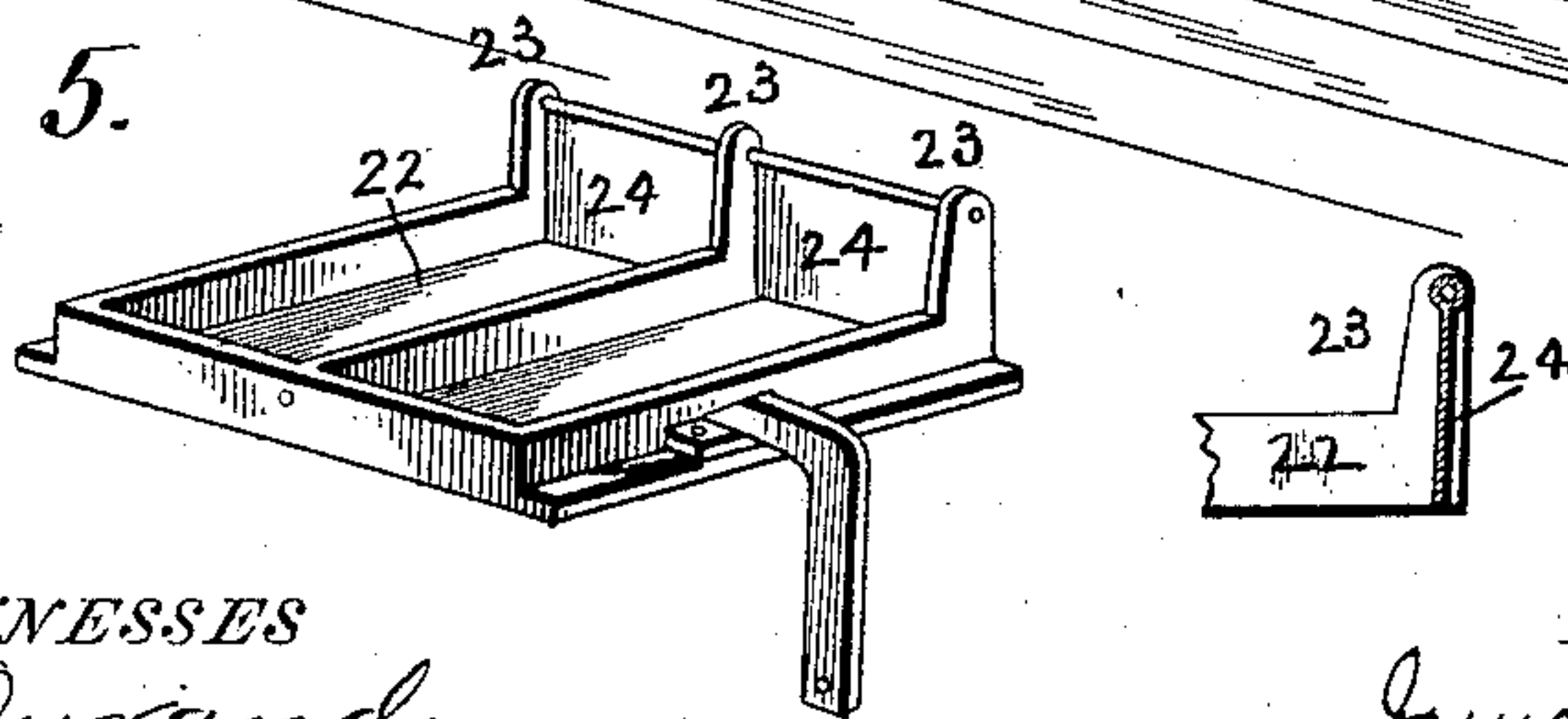


Fig. 5.



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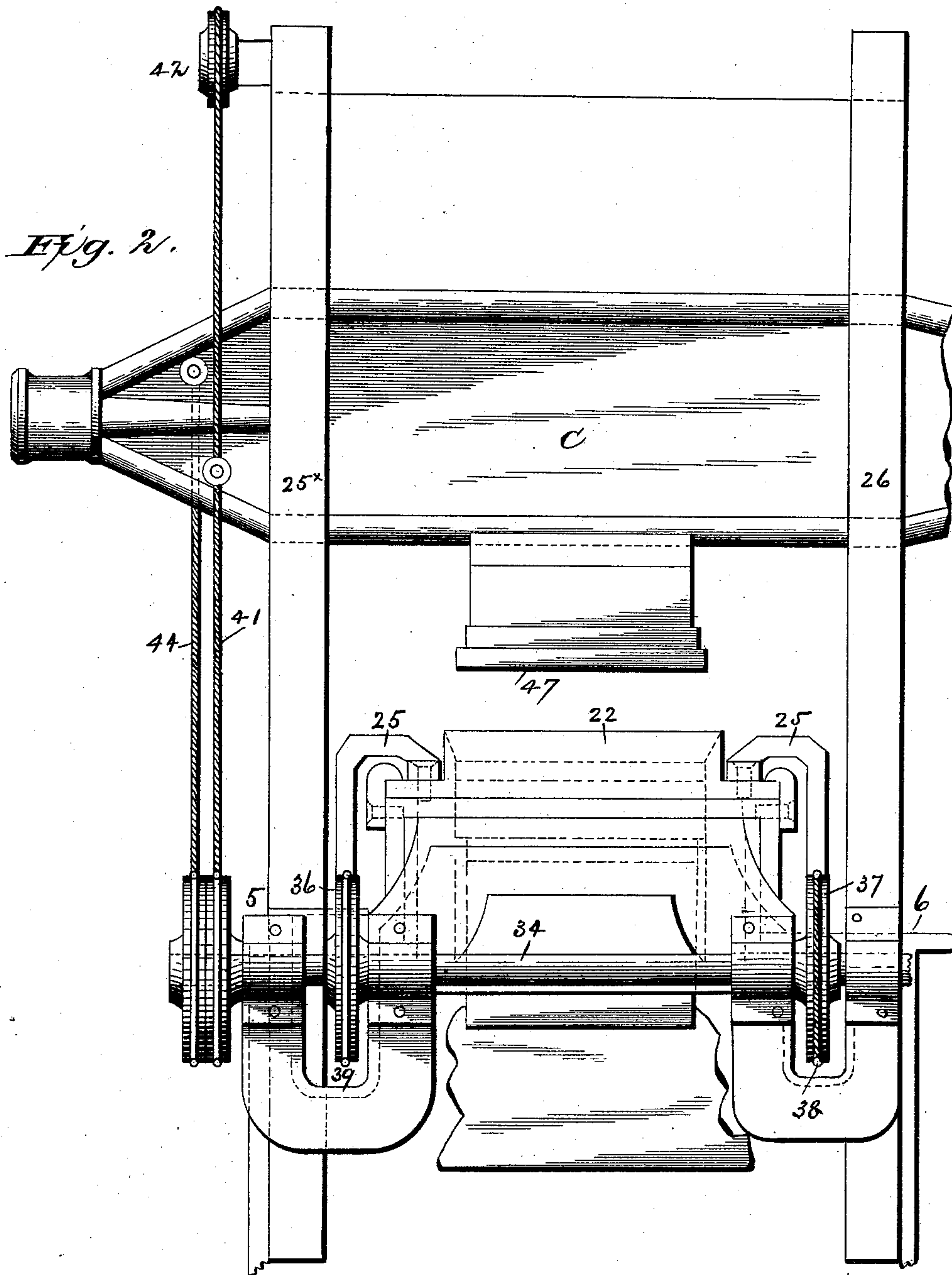
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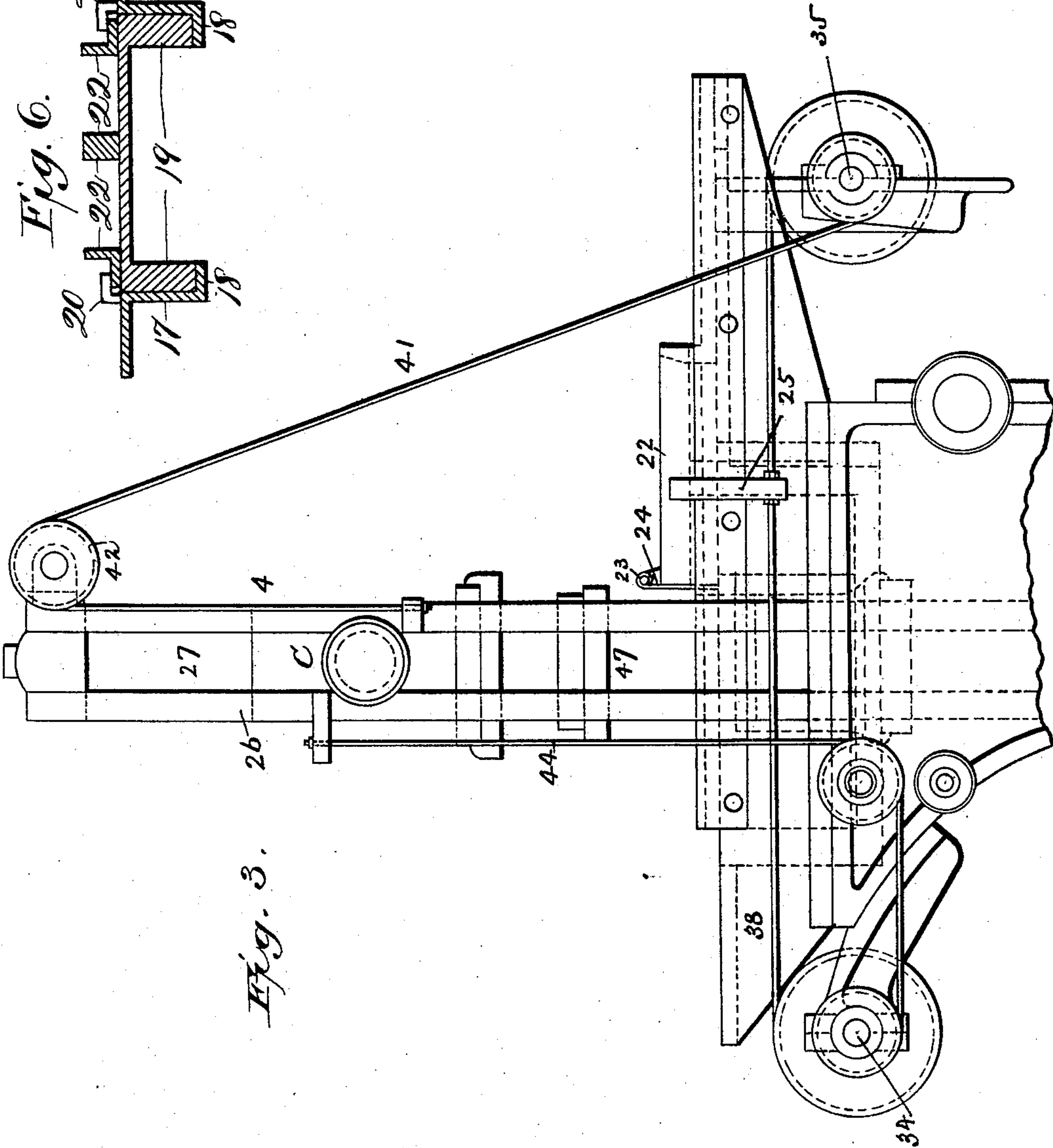
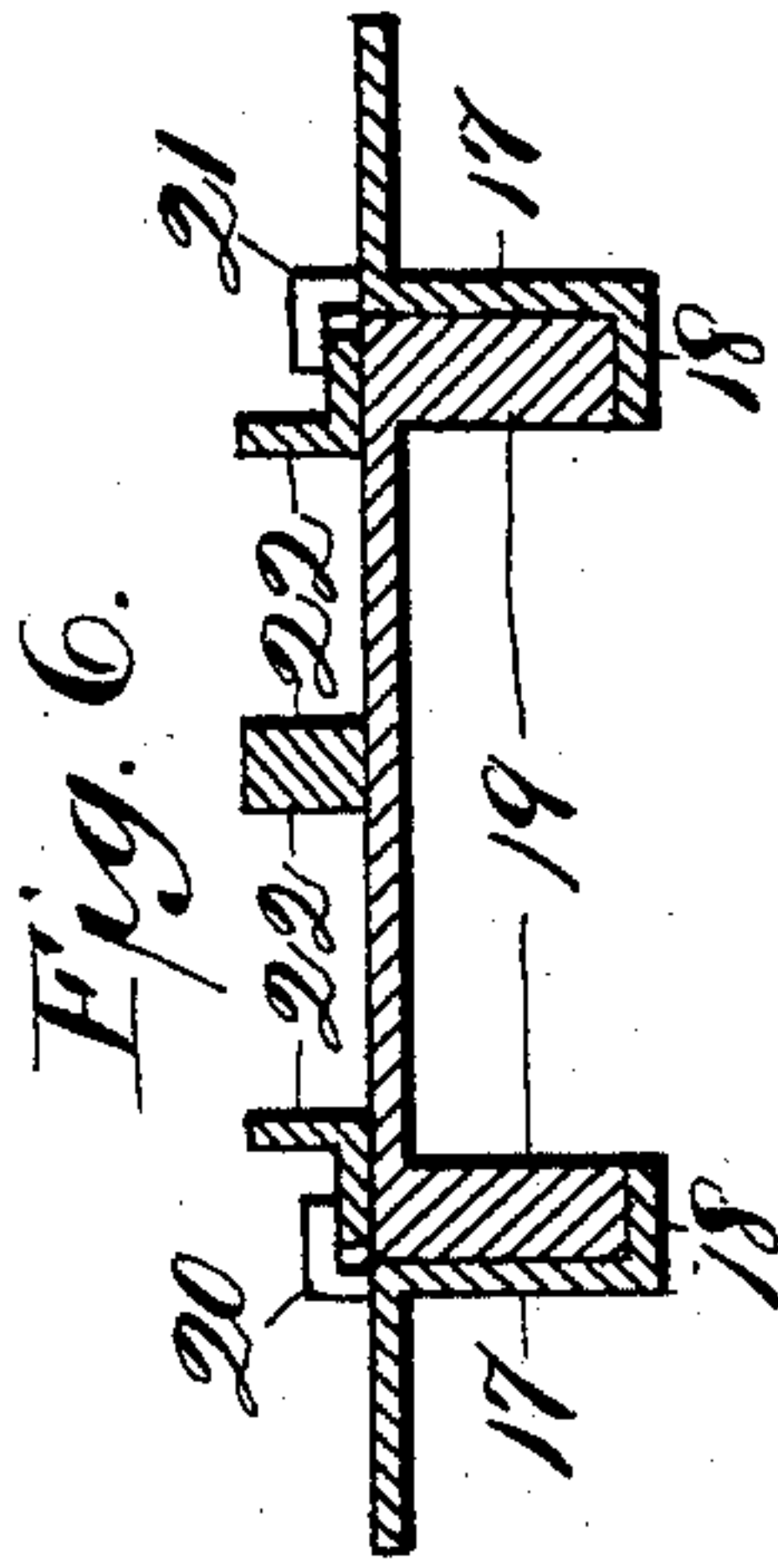
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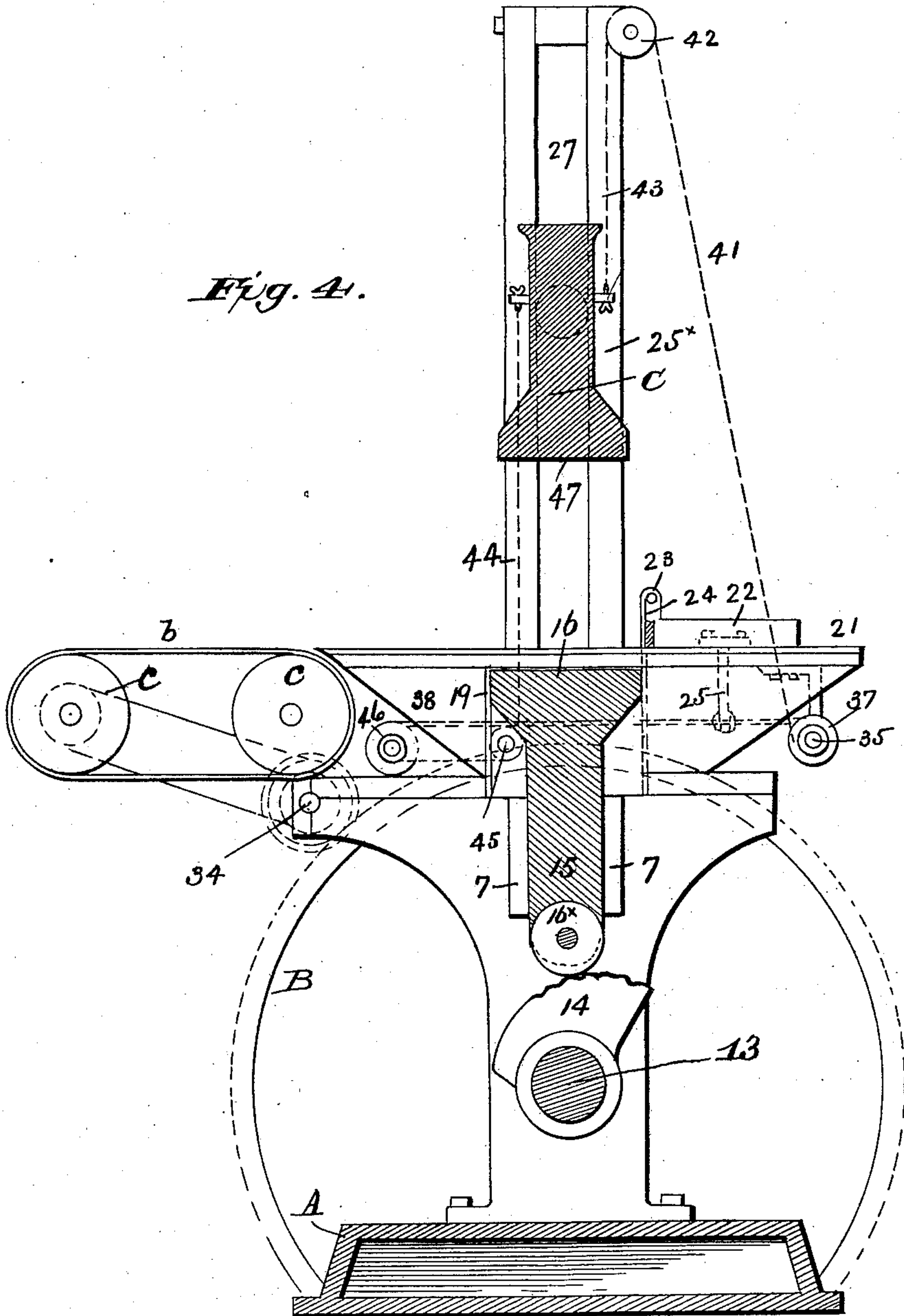
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RE-PRESSING BRICK MACHINE.

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UNITED STATES PATENT OFFICE.

JAMES ARTHUR FREY AND JOHN THOMPSON, OF BUCYRUS, OHIO, ASSIGNOR
TO THE FREY-SCHECKLER COMPANY, OF SAME PLACE.

RE-PRESSING BRICK-MACHINE.

SPECIFICATION forming part of Letters Patent No. 472,618, dated April 12, 1892.

Application filed November 29, 1890. Serial No. 373,020. (No model.)

To all whom it may concern:

Be it known that we, JAMES ARTHUR FREY and JOHN THOMPSON, citizens of the United States of America, residing at Bucyrus, in the county of Crawford and State of Ohio, have jointly invented certain new and useful Improvements in Machines for Re-Pressing Bricks, of which the following is a specification.

Our invention relates to "machines for re-pressing bricks," whereby the molded forms made by the brick-machine are subjected to a second compression to expel the moisture, increase their solidity, and improve their appearance, and the object is to improve the existing condition of the art.

We have properly illustrated our invention in the accompanying drawings, wherein—

Figure 1 is a perspective of the machine. Fig. 2 is an end view of the upper part of the machine, showing the re-press frame and the cross-head with the upper portion of the plunger-head. Fig. 3 is a side view of the upper portion of the machine. Fig. 4 is a vertical section of the machine, taken through the plungers. Fig. 5 is a detail of the brick-feeding frames or boxes. Fig. 6 is a transverse section taken through the bed of the machine, showing the frame of the re-pressing boxes, the supports thereof, and the feed-box.

A designates a bed-plate on which the supporting-frame and standards of the machine are arranged and secured. This bed-plate may be fastened in place by any proper means, it being represented in the drawings as bolted to a floor-foundation. On the bed-plate are secured the box-supports 1, formed with an angular box-seat 2, on which a chamber 3 of the journal-boxes 4 is arranged, the boxes being fastened to the supports by bolts, as shown in Fig. 1. The side supports 5 6 of the frame are formed with recesses to take the bearing-boxes. In the side supports are vertical ways 7 to take the ends of the bottom plunger and guide it in its reciprocations.

B designates the driving-pulley, mounted on a shaft 8, carrying pinions 10 on opposite sides of the machine, one only of said pinions being shown, which mesh with large gear-wheels 11 12 on a shaft 13, journaled in the

boxes 4. On the shaft 13 is a cam 14, which lifts the bottom plunger 15. The bottom plunger consists of a strong piece of metal having its ends arranged in the ways 7 and is formed with a plunger-head 16, fitting the re-pressing box or chamber, as shown in Fig. 4 of the drawings. In the middle of the under face of the plunger is journaled a roller 16^x, running with its face resting on the surface of the cam 14. On the side supports are secured angular plates 17, having inwardly-directed horizontal flanges 18, forming supports on which the re-pressing boxes 19 are secured. On the angular plates 17 are secured or formed guide-pieces 20 21, in which the flanges on the reciprocating feed-box and remover engage. The feed-box 22 consists of a strong angular frame having generally two brick chambers or boxes and provided at one end with vertical posts or studs 23, between which is hung a swinging plate or door 24, serving as means whereby when the forms are moved over the compression-box in the brick-receivers the receivers may move in the return direction by the opening of the doors and the form be left in position for compression by the descending upper plunger. It sometimes happens that a form will stick in projecting position above the compression-box, and in such position it would seriously interfere with the practical and certain operation of the machine; but by having the doors on the boxes they permit the unobstructed return of the receivers over such obstruction and leave the block or form in place for the action of the descending plunger. It will also be perceived that the door hangs vertical, resting in the open end of the feed-box, which on its return after having again been supplied with forms or blocks, the blocks moved upward and out of the compression-box will be abutted by the outer face of the door and pushed forward onto the carrying-belt *b*. It will also be perceived that by the intervention of the smooth metal surface between the molds or blocks in the receiver and the ejected compressed blocks the regularity, smooth finish, and angularity of the blocks are insured. This feed-box, with a hinged and yielding end piece, constitutes an important element in the present

invention, and we have so made claim thereto, as will be particularly perceived by reference to that part of the specification.

To the sides of the feed-boxes are attached means for pulling the box in either direction. In this instance we have secured vertical arms 25 on the side of the feed-box with their lower portions extending below the bottom, and to these arms the ends of cables which reciprocate the feed-box are connected. In the side pieces of the frame are secured standards 25^x 26, arranged with a space between them, constituting ways 27, in which the cross-head carrying the upper plunger is guided.

C designates a strong cross-head disposed in the ways of the standards and having its ends extended and formed with journals carrying the boxes of pitmen 28, the lower ends of which are secured in a box on a wrist-pin 29 on the gear-wheels 11 and 12. The pitman-rods are provided with a fixed collar 30 at their upper portions, which form supports for the cross-head in its upper movements, and the ends of the pitman-rods are extended above their box connections, as at 31, and provided with nuts 32 and springs 33, which serve as cushions to take the jar from the plunger and make the pressure more gradual and yielding.

On the front and rear of the frame are mounted shafts 34 35, carrying sheaves 36 37, having one end of the cables 38 39 connected thereto, the other ends of the cable being adjustably connected to the arms of the feed-boxes, substantially as shown in the drawings. On the end of the shaft 34 is a small sheave 40, to which one end of a cable 41 is attached, the other end of the cable being carried over an idler-sheave 42, journaled at the top of the standards and the end fastened to a stud 43 on the cross-head. At some point on the cross-head is fastened one end of another cable 44, carried down and under an idler-sheave 45 on the frame and thence to a sheave 46 on the shaft 35, to which the end is anchored. It will now be perceived that the reciprocations of the cross-head through the agencies of the sheaves affect the reciprocations of the brick-feed boxes. On the cross-head are the upper plungers or compression-plates 47, which fit in the feed-boxes and apply pressure to the blocks from that direction. While we have illustrated a mechanism adapted to compress two forms at one time, it is apparent that a similar construction and mode of operation may be applied to a machine intended to compress a single form or brick. At the rear of the machine are mounted rollers *c*, carrying a belt or apron *d*, which receives the re-pressed forms as they are pushed thereon by the feed-boxes, and from whence the forms are removed to the depository. The table may be of any suitable construction.

The mode of operation is as follows: Rotary motion being imparted to the driving-shaft, the two pinions 8 and 9 impart motion in an opposite direction and of a proportionate slower rate to the two spur-wheels 10 11

on shaft 13, carrying cam 14 and pitman 28, which reciprocally actuate cross-head C and move the upper plungers accurately in the press-box. Cam 14 moves the bottom plunger-frame 15 up in the press-box. The cam 14 is formed on its upper surface so as to shove the lower plunger and press-plate up even with the press-box and table and to hold it there long enough until the bricks are deposited thereon by the sliding arrangement, the action of which is explained more fully hereinafter. As soon as the bricks are fairly on the lower press-plates the cam allows them to recede and take the bricks along into the press-boxes, when the upper plunger comes down onto it, so actuated at the proper moment by the pitman and cross-head. While the pressure is to be put on from above, the cam 14 from below commences to act upward again against the brick, so that a very heavy pressure is obtained. A slight wavy formation at the ascending point of the cam allows a succession of slightly-intermitting pressures to be given, which helps to expel the air from the clay and improve the quality of the work. After the maximum of the pressure has been obtained, which is at the point where the two pitmen 28 stand vertical, the revolutions of the wheels 10 draw the cross-head, with the compression-plate 47 thereon, out of the press-box and make it ascend far enough in height so that time and space enough are obtained for the feeding apparatus to act before it again descends. Cam 14 in the meantime revolves synchronously with its inclined face under the anti-friction roller, and lifting or shoving the press-plate or plunger upward and the bricks with it even with the top of the platform upon which the feeding device slides. This explains the whole process of receiving, compressing, and ejecting the bricks from the press-box ready for the feeding device, whose action we now will describe. The top of the platform or table being even with that of the press-boxes, it enables the feed-boxes to be pulled back and forth the proper distance to receive the blocks of clay at one end, then travel forward and in its progression drop the brick into the compression-boxes or mold-boxes, and at the same time push the re-pressed brick forward by means of the hanging doors or plates 24, which hang down vertically against the frame of the feed-boxes until they reach the traveling belt, which carries them away from the machine and may be of any length. The movement is obtained by the cables or chains, as shown in the drawings. One cable is attached to the cross-head and runs over the idler on top, then onto a sheave on shaft, and under the platform, which has two sheaves in such position that the two cables fastened thereon and on the two arms of the sliding frame will pull the feed-boxes outward. It will be seen that a downward movement of the cross-head will pull the feed-box toward the extremity where the feeding is done. The other cable on the

opposite side, acting in a similar manner, pulls the feed-box in the opposite direction. By means of the different-sized sheaves longer or shorter movements can be obtained to suit the length of the blocks. When the thickness of the bricks or blocks is not essential, volute springs may be used on top of pitman 28, which admit, by the adjusting-nuts on top, of receiving any desired pressure. Where a uniform and positive thickness of the brick is desired, the springs are brought down solid and vent-holes are put in the press-plates to let the superfluous clay escape, should blocks of too large size be introduced. Steam is admitted to heat the press boxes and plates where the clay is of such a nature as to stick while being repressed, heat acting very beneficially at times on such clays. We have illustrated these steam-pipes in Fig. 1 of the drawings.

Having thus described our invention, what we claim is—

1. In a re-press brick-machine, the combination, with a top reciprocating plunger-bar, a table having a compression-chamber therein,

and a reciprocating feed-box on the table, of shafts at the respective ends of the table, carrying sheaves, cables connecting the sheaves and the feed-box, sheaves on the ends of said shafts, and cables connecting said latter sheaves to the plunger-bar, substantially as and for the purpose specified.

2. In a re-press brick-machine, the combination, with a table formed with a brick-compression chamber and a vertically-reciprocating bar carrying the top plunger, of a reciprocating feed-box and sheaves and cables connecting the feed-box and plunger-bar, whereby the feed-box is reciprocated by the reciprocations of the plunger-bar, substantially as specified.

In testimony whereof we have hereunto set our hands in the presence of two attesting witnesses.

JAMES ARTHUR FREY.
JOHN THOMPSON.

Attest:

W. S. HIGHT,
J. S. THOMPSON.