

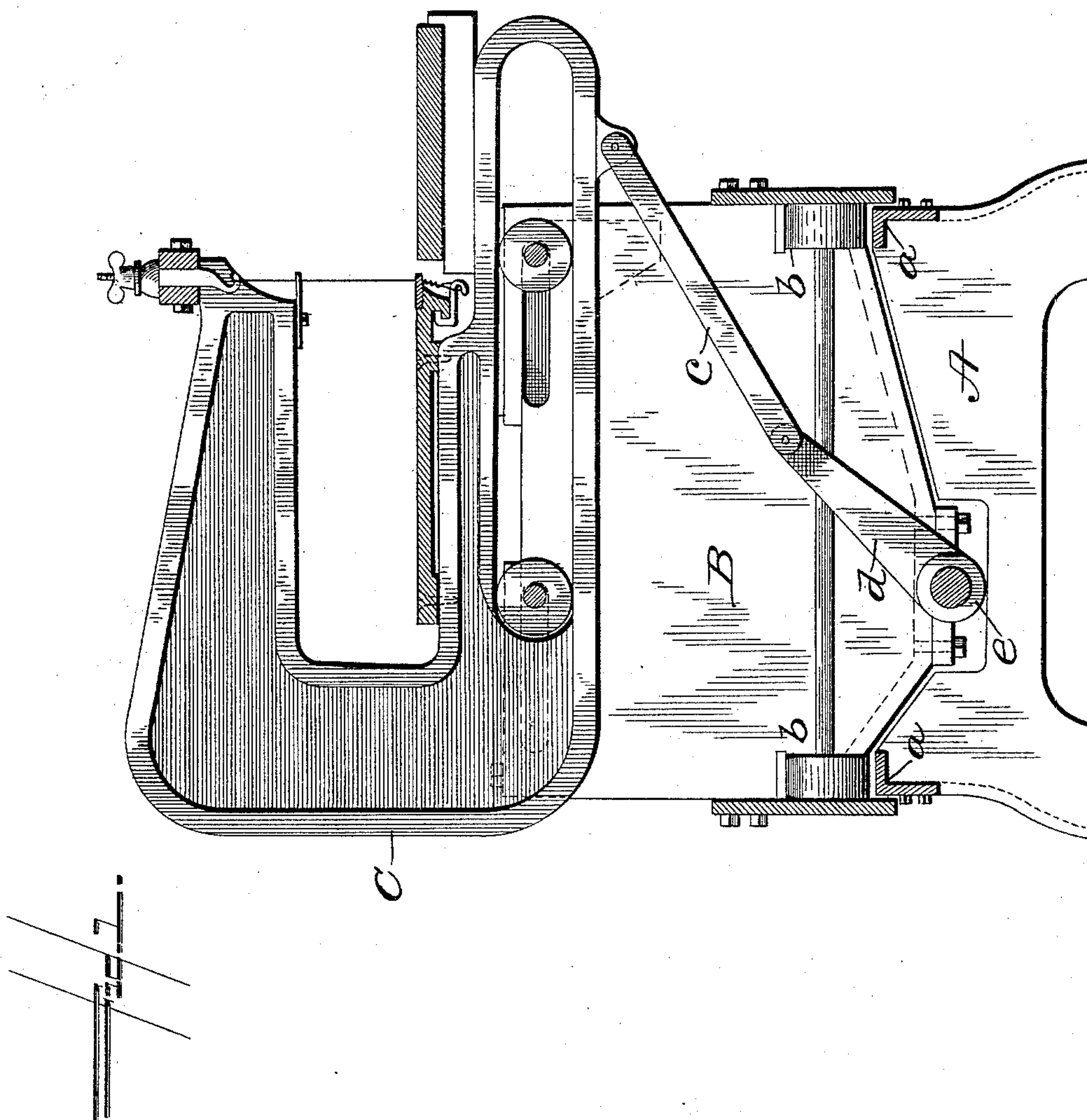
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5 Sheets—Sheet 1.

J. THOMPSON.
BRICK AND TILE CUTTING TABLE.

No. 453,054.

Patented May 26, 1891.



WITNESSES
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Wm H. Bates.

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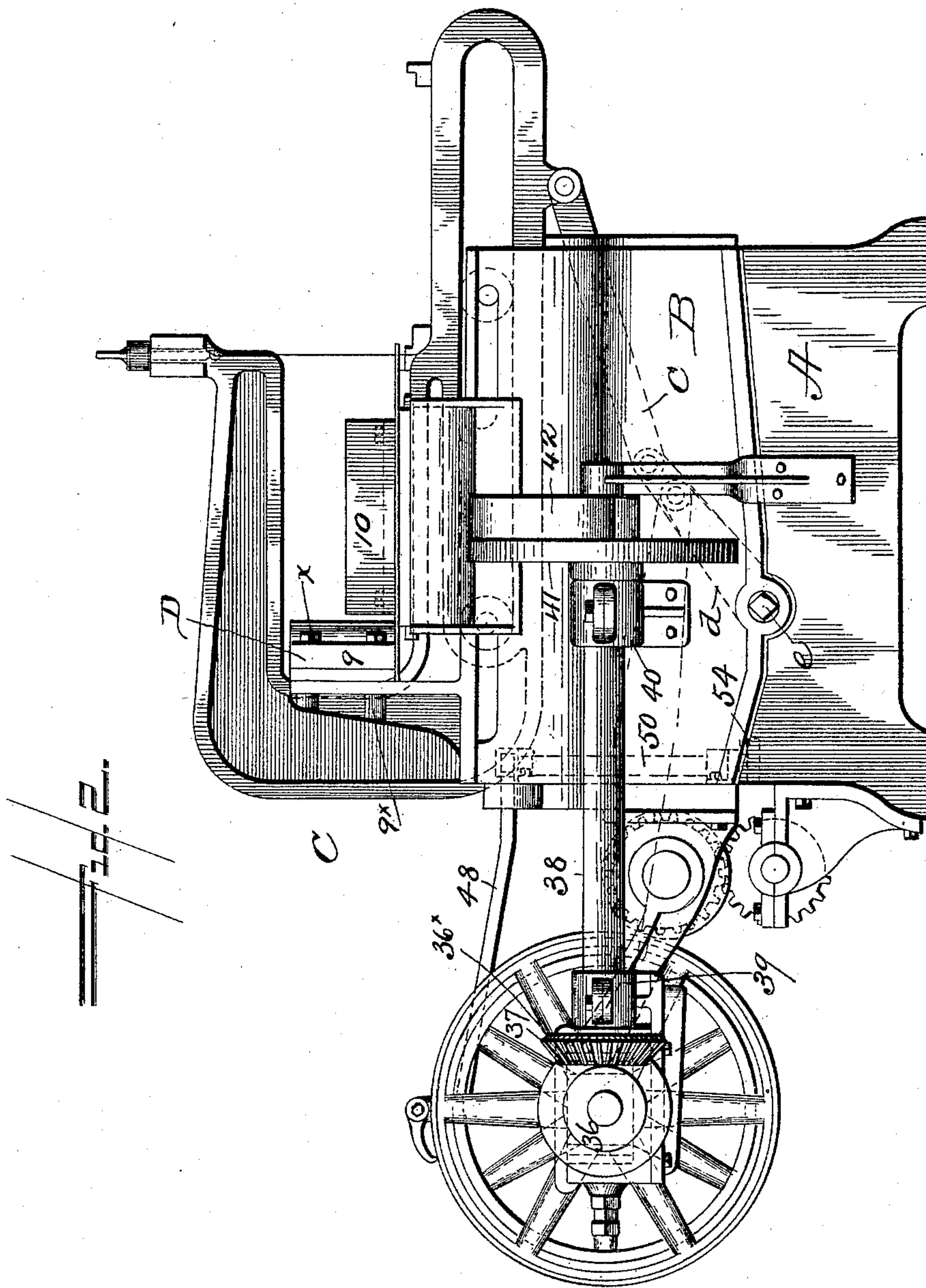
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5 Sheets—Sheet 2.

J. THOMPSON.
BRICK AND TILE CUTTING TABLE.

No. 453,054.

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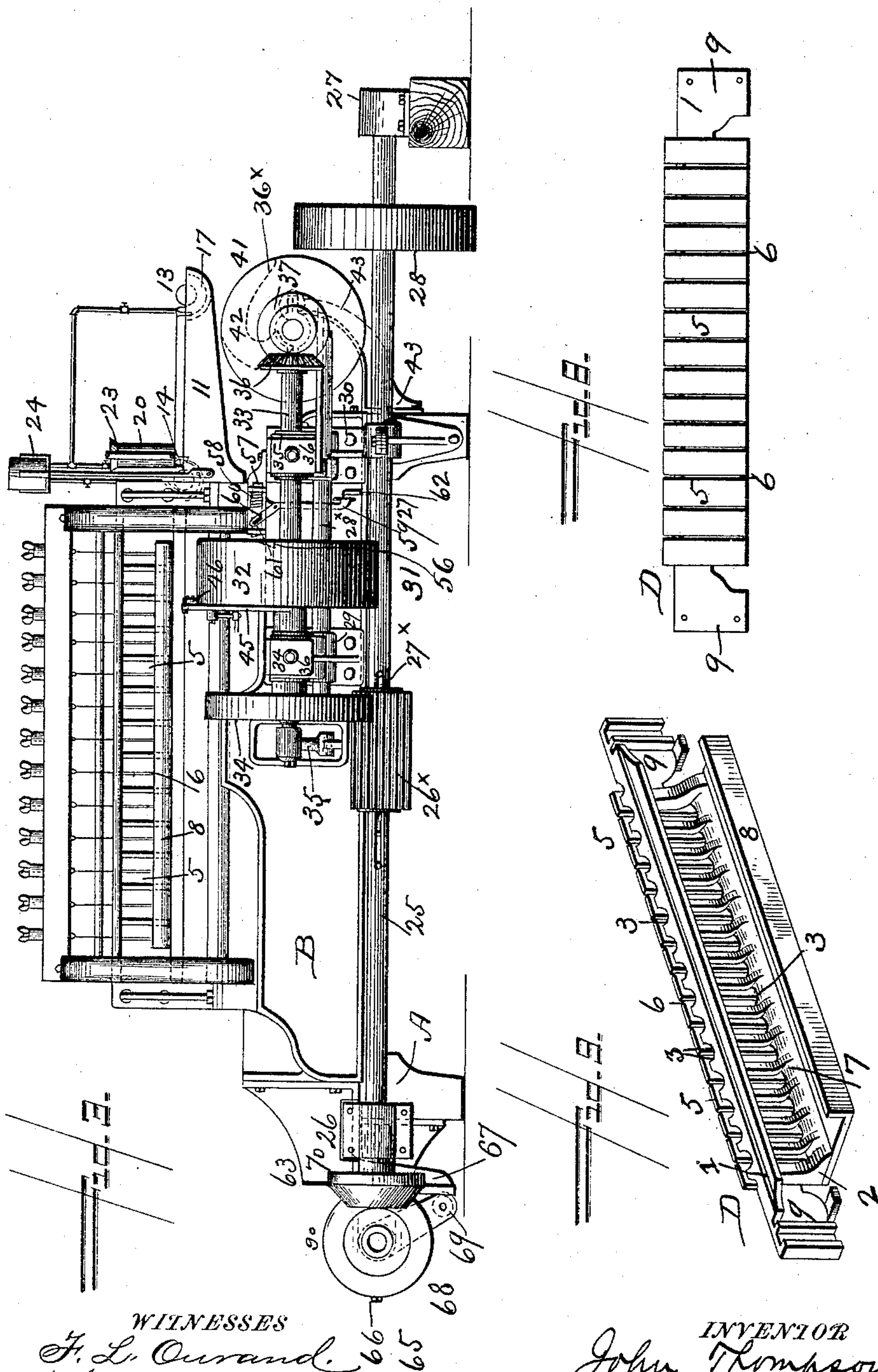
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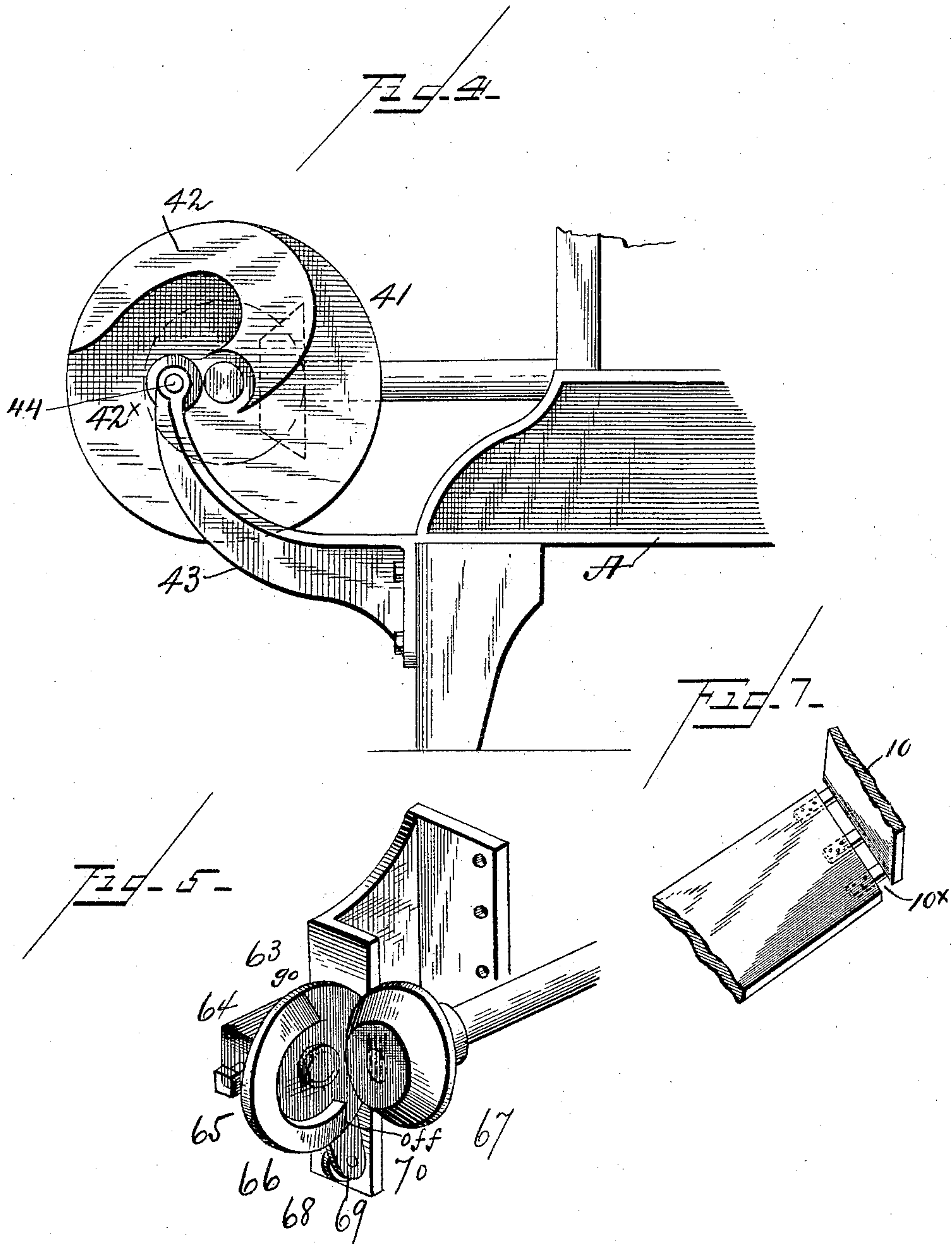
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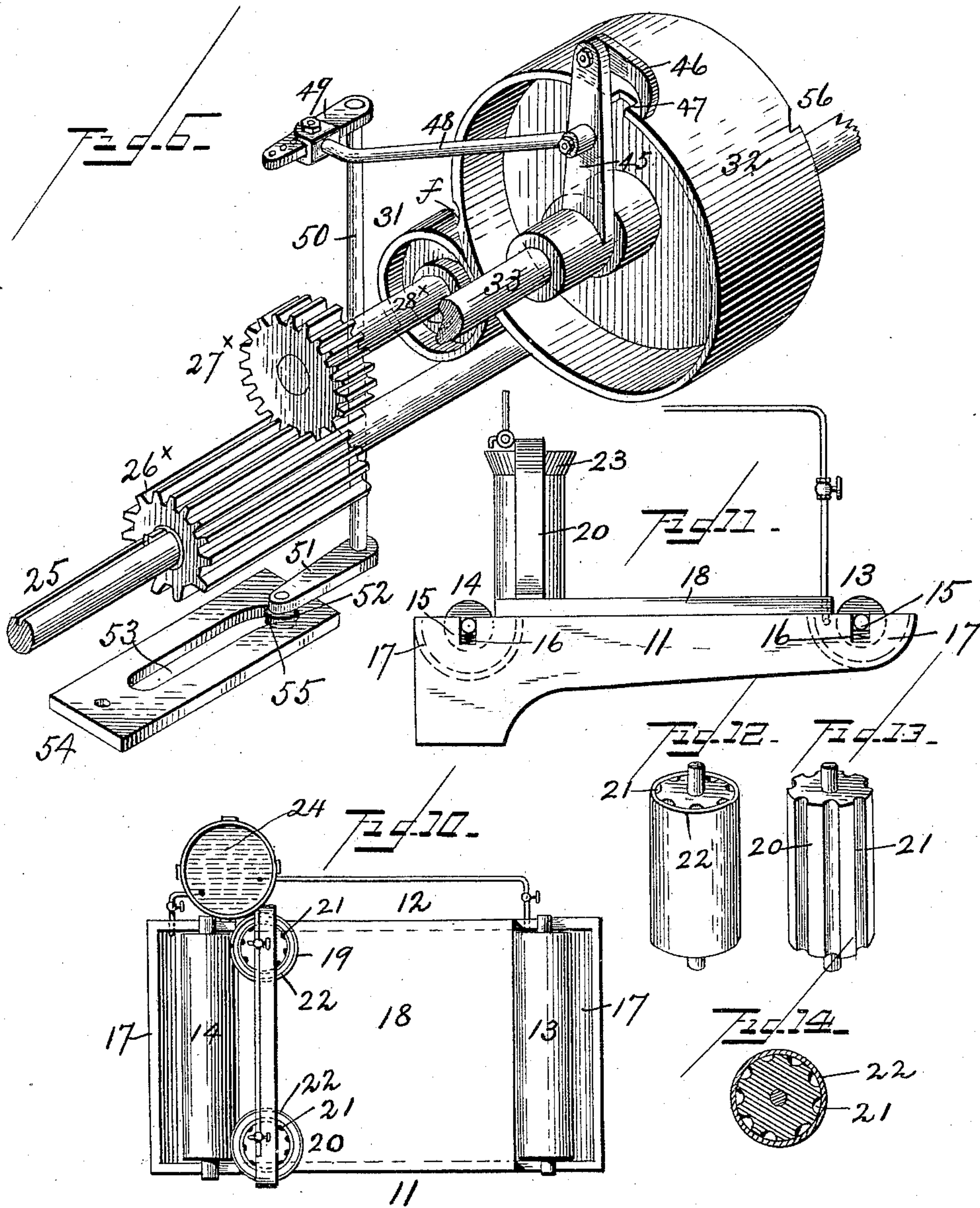
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5 Sheets—Sheet 5.

J. THOMPSON.
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No. 453,054.

Patented May 26, 1891.



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UNITED STATES PATENT OFFICE.

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BRICK AND TILE CUTTING TABLE.

SPECIFICATION forming part of Letters Patent No. 453,054, dated May 26, 1891.

Application filed January 16, 1891. Serial No. 377,997. (No model.)

To all whom it may concern:

Be it known that I, JOHN THOMPSON, a citizen of the United States of America, residing at Bucyrus, in the county of Crawford, in the State of Ohio, have invented certain new and useful Improvements in Brick and Tile Cutting Tables, of which the following is a specification.

My invention has relation to brick and tile cutting tables of that class wherein an integral column of clay is moved onto a platen from the clay-mill and then subjected to a cutting mechanism moved transversely across the column and severing it into determined lengths or forms, which are, on the withdrawal of the platen from under the column, in turn left on a brick-board or detachable carrying-platen to be removed from the cutting-table; and the object is to provide improved mechanism for moving the table and cutting mechanism in succession or synchronously, to attain the purpose of cutting the column of clay into forms, and to dispose of them ready to be removed from the table. Except as the table in its general constructions may form essentials in combination with my specified and detailed improvement, it forms no part of my invention. I therefore herein deem it not essential or requisite to specially describe the well-known elements of the several main portions comprising the table-frame and cutting mechanism, but will proceed to specify them generally, and then point out and distinguish the parts and combinations constituting my invention.

I have fully and clearly illustrated my invention in the accompanying drawings, wherein—

Figure 1 is a vertical transverse section of a cutting-table to which my invention may be applied. Fig. 2 is an end view of a table having my improvements connected thereto. Fig. 3 is a side view of the table. Fig. 4 is a detail of the mechanism for pushing the table longitudinally in the direction of the moving column of clay. Fig. 5 is a detail of the mechanism for returning the table to its normal position longitudinally. Fig. 6 is a view of the trip mechanism for moving the cutting-frame across the machine. Fig. 7 is a detail of the platen with end abutting plate. Fig.

8 is a detail of the improved wire-cleaning rack, taken from the front. Fig. 9 is a perspective of the wire-cleaning rack, taken from the rear. Fig. 10 is a plan view of the lubricating-rollers and frame. Fig. 11 is a side view of the same. Fig. 12 is a detail of the vertically-arranged lubricating-roller. Fig. 13 is a view of the same with the covering removed, showing the grooves therein. Fig. 14 is a transverse section of the roller covered.

Referring now to Fig. 1 of the drawings, it will be perceived that the basic or primary elements of the general construction consist of a stationary base-frame having ways on its upper side edges, a second frame mounted thereon and having a limited horizontal movement on wheels running on the ways of the base-frame, and a transversely-movable cutting-frame actuated by a jointed lever, all as will be readily discerned. As heretofore stated, these parts are not my invention, and are well known in various constructions, arrangements, and aggroupments in the art.

The base-frame is designated by A, the rails on its side top edges by *a*, the longitudinally-movable frame by B, its wheels by *b*, and the cutting-frame by C.

Heretofore the side abutting and guide board or plate consisted of a single plate having vertical wire-slots leading into enlargements at the rear of the slits or slots, through which the wires were moved and the adhering clay wiped off and intended to be discharged through the enlarged places, and at the end of this plate was arranged and secured a rigid end abutting board. My improved side plate constitutes a perfect wire-cleaner, and is designated in the drawings by the letter D. The device (see Fig. 9) consists of upper and lower bars 1 2, having strengthening-ribs formed thereon, substantially as shown. These bars are formed with recesses 3 in their face, and on them are formed or secured vertically-arranged plates 5, arranged with spaces 6 between them, constituting slots through which the wires pass after severing the column of clay. The lower bar 2 at the rear is formed with an inclined surface 7, and at the bottom is secured a trough 8. The wires pass through the spaces between the plates into recesses beyond, and in being with-

drawn are freed or cleaned of the adhering clay, which drops down and either falls down the incline into the trough or, because of the cleaner being open behind, convenient access
 5 may be had to remove any clay which may stick in the cleaner. This construction overcomes the difficulties and annoyances attending other constructions. In those the clay would often stick and pack in the slots, and
 10 to remove it the machine would have to be stopped. The packing also would at times break the wires. The frame of the wire-cleaner is secured to the frame of the machine by bolts x passed through extensions 9
 15 into standards 9^x on the longitudinally-movable frame.

As stated, the end abutting plate was made part of or so secured in its relation to the side abutting plate or wire-cleaner that it was
 20 rigid, and consequently at the meeting angle made a closed corner. When the end abutting plate is made fast to the side abutting plate or wire-cleaner, the cutform at the end next to the end abutting plate, after the wires
 25 have cut the column and the brick-bearer has been drawn under the forms, will be rubbed when the board with the forms is carried back. This usually daubs the abutting surface, especially when the clay is very sticky or when
 30 the surface is not constantly supplied with a lubricating material; also, clay sticks in the closed corner of the plates, often spoiling the end brick and being inconvenient to remove. To overcome these defects, I secure the end
 35 abutting plate 10 to the platen of the machine and arrange it with a space 10^x between the end of the wire-cleaner and the end of the platen, (see Fig. 7,) so that the scrapings may drop down freely. A stationary scraper (not
 40 shown) may be fixed to clean the face of the plate. The platen and the end abutment move together and leave the end bricks on the brick-board to be returned without contact with the abutment.

45 My invention also relates to and includes improvements of the roller-conveying table projecting from the clay-machine end of the table to receive and sustain and assist the progression of the moving column as it is carried from the clay-mill to the cutting-table.
 50 This part of my invention I will now proceed to describe. Projected from the frame of the machine are two substantial arms 11 12, Figs. 3 and 11, in which are mounted two rollers 13 14, arranged at the respective ends of the
 55 arms, substantially as shown. The rollers are journaled in boxes 15, yieldingly supported on springs 16, just strong enough to hold the rollers in contact with the column of clay, but
 60 not with such pressure as to make the clay adhere to them. The rollers run in troughs 17, supplied with a lubricating material. Between the rollers on the arms is secured a plate 18, of polished metal or wood, the surface of
 65 which is placed flush above the rollers, so that it sustains the column of clay. The roller 13 supplies the lubrication for the plate 18, and

the roller 14 supplies the lubrication for the platen of the cutting-table.

To guide the bar of clay and at the same
 70 time lubricate the sides, vertically-arranged rollers 19 20 are journaled and yieldingly supported on each arm of the frame at the inner end next to the platen of the cutting-table. These rollers 19 20 are formed with small
 75 grooves or cutters 21, running their length, and are provided with a covering 22, of felt or other fabric which will let oil or liquid percolate through it. On the top of each roller is a cup or reservoir 23, which supplies the
 80 lubricator to the grooves. By this side lubrication the column is supplied with the requisite material and prevented from sticking to the plates of the wire-cleaner or abutment. A supply-reservoir 24, Fig. 3, is arranged on
 85 the longitudinally-moving table, having pipes with regulating-cocks to furnish the lubricating material to the several rollers and troughs, substantially as shown in the drawings.

Another element or ingredient of my present invention is to provide mechanism for
 90 imparting the requisite and essential movements to the longitudinally-moving table and to the cutting mechanism, and these mechanisms I now proceed to specify. The three primary elements of the table consist of a stationary frame A, having side rails a , the longitudinally-movable frame B, having a similar reciprocation on the frame A by the rollers b , which carry it, and the transversely-reciprocating wire-cutting frame C. It is the
 95 purpose to give these elements B and C the proper movement at the proper time, and these are accomplished by the mechanism I have aggrouped and constructed in new and
 100 useful relation. As premised, the frame B rests and moves on rollers b , and the wire-cutting frame trails on rollers in the wire-carrying frame and is actuated by linked or jointed arms c d , the latter of which are fast
 110 to a shaft e , mounted on the frame of the longitudinally-movable portion. On the frame A, which is stationary and forms the foundation for the other frames, a shaft 25 is journaled in boxes 26 27, Fig. 3, and on the shaft
 115 is mounted a pulley 28 as a means for connecting the shaft to a suitable power. On the shaft 25 is keyed a long pinion 26^x, made of the full length of the endwise reciprocations of the frame B, so that a spur-wheel 27^x,
 120 Fig. 6, will mesh into it during the movements while the frame B is being operated and while motion is communicated to the cutting-frame C transversely across the frame B. The spur-wheel 27^x is made fast to the shaft 28^x, journaled in bearing-boxes 29 30, secured to the
 125 movable frame B, Fig. 3.

On the shaft 28^x is keyed a friction-pulley 31, made of paper, vulcanized fiber, or other suitable material. This friction-pulley 31
 130 bears against the face of a friction-wheel 32, made fast to a shaft 33, journaled in adjustable bearing-boxes 34 35, the adjustable function being made by set-screws 36 let in the

shell of the boxes and bearing with their ends on the boxes, the boxes being mounted in brackets 37, Fig. 2, fixed on the movable frame B. The shaft 33 has a crank-wheel 34 made fast thereon on the end, to which is connected a pitman 35, the outer end of which is connected to a link of the wire frame C, and by this connection pulls the wire frame transversely across the moving column of clay by means of the jointed arms *c d* and shaft *e*. On the other end of the shaft 33 is mounted a bevel cog-wheel 36, which meshes in a bevel-gear 36*, Fig. 2, keyed on a shaft 38, journaled in bracket-boxes 39 40, bolted to the movable frame B. On the end of shaft 38 is fastened the cam 41, having an eccentric 42 on its face. The grade of this cam or eccentric is equal to the distance required to push the movable frame B away from the end of the moving column of clay, so that the wires will clear the end of the column while the frame is moved back after making a cut. The cam 41 in the course of its revolution engages an anti-friction roller 42* (see Fig. 4) on a standard 43, made fast to the stationary frame A. The roller 42* is journaled on a pin 44 let through the standard. Friction-pulley 32, Fig. 6, has a small portion of its face cut away at the point designated at *f*, at which point or part the driving friction-pulley 31 has no bearing on it, the object being to make a "rest-point" until the renewal of motion is required, as hereinafter specified. The friction-pulley 32 is designed to make but one revolution after being brought into requisition and stops at each turn when the cut-away portion reaches the other contacting pulley. After the pulley 32 reaches its point of rest it must at the proper time be turned past the cut-away part and its friction-surface again brought in contact with the other friction-pulley, and to accomplish this an arm 45 is hung on shaft 33 adjacent to the wheel 32 and arranged to swing concentric with the rim of the wheel. On the end of the arm 45 is pivoted a hook 46, which engages a notch 47 cut into the rim of the wheel, wherein the hook automatically drops at the proper time to be in position to move the wheel forward on the shaft 33 until the friction-surfaces contact and then move together. This movement takes place when the table begins to move outward by means of a connecting-rod 48, pivotally connected to the arm 49, projected from an upright shaft 50, mounted in bearings on the inside of the moving frame B, as shown by dotted lines in Fig. 2. On the lower end of the shaft 50 is fixed another arm 51, Fig. 6, similar in form to arm 49, having an anti-friction roller 52 on the end, which engages in a slot 53, formed in a plate 54, bolted to the stationary frame A. The slot 53 is made straight for a portion of the way, substantially as shown, terminating in a curved portion 55, so that as soon as the table B begins to move the roller 52 travels outward in the slot and pulls the connecting-

rod 48, with hook 46, fast in the notch in the wheel 32, turning the friction-wheel far enough to make the frictional contact with the other friction-wheel. The straight portion of the slot retains the roller 52 in position until the return movement with its curve starts it for the next cut. It is necessary that friction-wheel 32 be held in its position of rest until the time for another action or rotation is requisite, and to accomplish this a locking means is provided, so that no jar or blow can start it prematurely. For this purpose a notch 56 (see Fig. 3) is formed in the side of the wheel 32, in which the nose of a latch 57 engages. This latch is held in engagement with the notch by means of a spring 58, and the release effected by means of a trip-rod 59, pivotally mounted on the frame. The trip-rod 59 has a slot 60, in which a pin 61 on the latch engages to pull the latch back. The trip-rod strikes on a stop-piece 62 on the stationary frame A at the proper time, which is just before the action of the hook on the other side of the wheel 32 is turned to pull it past the resting-point at which it stands.

To move the table B back to normal position after the cut is completed, on the stationary frame A is mounted a bracket 63, bolted to the end and provided with a long adjustable box 64, in which is journaled a shaft 65, carrying a mutilated bevel friction-pulley 66. This mutilated bevel-pulley 66 bears with the raised portion or surface against a bevel friction-pulley 67 on the driving-shaft. At the side of friction-pulley 66 on the shaft 65 is an arm 68, directed downward and inward, and on the end of the arm 68 is an anti-friction roller 69, which at the proper time comes in contact with a vertically-arranged bar 70, secured to the face of the movable frame. After the table has done its work and is yet moving outward the vertical bar 70 on the end of the movable frame bears against the roller 69 on the arm 68, resulting in turning the shaft 65 and friction-wheel 66 until the bevel part is brought in engagement with the bevel-wheel 67, the point of engagement being indicated by "Go." The wheels then rotate with their bevel surfaces in contact until the end of the bevel on the wheel 66 is reached, the point being indicated by "Off." During this movement the arm 68 is also revolved and brought with its roller against the upper end of the vertical bar on the movable frame and pushes the frame B back toward the clay-machine until in proper position to receive the moving column of clay, when the action or operation of the mechanism is repeated.

The operation may be fully ascertained from the description given of the mechanism; but I here briefly recapitulate the mode of operation: The driving-shaft is suitably connected to a source of power. The bar of clay issues from the die, passing over the lubricating-rollers and platen onto the platen of the cutting-frame, and so moves until it

reaches the end abutting plate or board on the platen, when the movable frame commences to move outward. In due time the hook on the mutilated friction-pulley is brought into action and turns the pulley into engagement with the other driving friction-pulley-operating mechanism of the wire frame, drawing the wires through the clay and severing it into forms, drawing the brick-board under the forms, and then returning the wire frame to its normal position. This is accomplished by one revolution of the pulley 32, which having turned to its point of rest, the latch on the opposite side of it snaps into the notch and holds the pulley in position. On return of the table the arm on the latch encounters the trip on the stationary frame and is withdrawn, leaving the pulley free to be turned by the engagement of the hook. The endwise return movement has already been specified, as has the roller movement.

Having thus properly specified my inventions, so as to distinguish them from other inventions in the art, I claim as my invention as follows:

1. The combination, with the cutting-wires of a brick and tile table, of a wire-cleaning device consisting of an upper horizontally-arranged bar, and a lower horizontally-arranged bar having an inclined back face, and vertically-arranged face-plates having wire-slots between them, and recesses behind the wire-slots, substantially as and for the purpose specified.

2. The combination, with the cutting-wires of a brick and tile table, of a wire-cleaning device consisting of upper and lower horizontally-arranged bars provided with vertically-arranged face-plates having wire-slots between them and recesses behind the wire-slots, and a trough secured to the lower bar of the wire-cleaning device, substantially as and for the purpose specified.

3. In a brick and tile cutting table, the combination, with the platen of the table, of an end abutting plate secured to the end of the platen to move therewith, substantially as specified.

4. In a brick and tile cutting table, the combination, with the platen of the table, of an end abutting plate secured to the end of the platen to move therewith and arranged to leave a space between its lower edge and the end of the platen, substantially as described.

5. In a brick and tile cutting table, the combination, with a reciprocating wire frame, of a wire-cleaning device rigidly secured against motion in relation to the wire frame, and a platen provided with an end abutting plate adapted to move past the end of the wire-cleaning device as the platen is withdrawn from under the column of clay, substantially as described.

6. The combination, with a brick and tile cutting table, of supports projected from the end of the table, lubricator-troughs supported between the supports at the ends thereof,

spring-supported rollers arranged in the troughs with their lower parts to run therein, and a platen between the rollers, substantially as and for the purpose specified.

7. The combination, with a brick and tile cutting table, of horizontally-arranged supports projected from the end of the table, lubricating-troughs at the respective ends of the supports, rollers yieldingly journaled on the supports to run with their lower portion in the troughs, a platen between the rollers arranged with its face flush above the rollers, and vertically-arranged guide and lubricating rollers at the end of the supports next to the table, substantially as and for the purpose specified.

8. The combination, with a brick and tile carrying table, of vertically-arranged lubricating and guide rollers placed on opposite sides at the end of the table next to the cutting-table, substantially as described.

9. The lubricating-rollers herein described, consisting of a roller having longitudinally-arranged grooves in its face, a textile covering secured over the roller, and a reservoir mounted on the end of the roller having communication with the grooves, as specified.

10. The combination of the driving-shaft mounted on bearings on the stationary frame and having a bevel friction-wheel on its end, a mutilated friction-pulley on the end of the said frame, and an arm on the shaft of the mutilated friction-pulley, having a roller on the end to bear on the end of the moving frame, substantially as and for the purpose specified.

11. The combination of the driving-shaft journaled on the stationary frame and having the long spur-wheel 26, the shaft 28^x, journaled on the endwise-movable frame, the shaft 33, journaled on the movable frame and provided with a bevel-gear on the end thereof, gears operatively connecting said shafts, a shaft 38, journaled in brackets on the moving frame and provided with a bevel-gear to engage the bevel-gear on shaft 33, a cam-wheel on the shaft 38, and a standard 43 on the stationary frame, having roller 42 to engage the said cam, whereby the moving frame is moved endwise in one direction, substantially as described.

12. The combination, with a rotatable shaft journaled on the moving frame and means for rotating the said shaft, of a bevel-gear on the end of the shaft, a shaft mounted at the end of the moving frame, having a bevel-gearing to mesh with first gearing of the first-named shaft, a cam-wheel on the said shaft, and a bearing-standard on the stationary frame, against which the cam bears to push the table in one direction, all substantially as specified.

13. The combination of the driving-shaft mounted on the stationary frame and provided with the elongated gear-wheels, the shaft 28^x, journaled to the moving frame and having a gear to mesh with the elongated gear of the

driving-shaft, a friction-pulley on the shaft 28^x, a shaft 33, journaled on the moving frame, a crank on said shaft 33, connected to the wire frames, a mutilated friction-pulley 32 on the shaft 33, and means, substantially as specified, for rotating the mutilated friction-pulley beyond the mutilated portion, as specified.

14. In a brick and tile cutting table, the combination, with the endwise-movable frame, a cutting-frame moving transversely across the endwise-movable frame, and a stationary supporting-frame, of a driving-shaft on the stationary frame, a shaft on the movable frame, gears connecting the shafts, a friction-wheel on the said shaft on the movable frame, a second shaft on the movable frame, a crank to reciprocate the wire frame, a friction-wheel having a cut-away portion in its surface and a notch in its face and bearing with the remainder of its face on the other friction-wheel, an arm mounted on the shaft of the friction-wheel having the cut-away part, a hook on the said arm, a connecting-rod attached to the arm, a vertical shaft having an arm attached to the inner end of the connecting-rod, and an arm at its lower end provided with an anti-friction roller, and a plate formed with a slot to be engaged by the roller, substantially as and for the purpose specified.

15. In a brick and tile machine of the character described, as a means for throwing or moving the reciprocating mechanism into operation, the friction-pulley 32, having a cut-away portion in its face and a notch in the edge of its run, an arm on the shaft of the pulley provided with a hook to engage the notch, a connecting-rod on the arm, a vertically-arranged shaft having an arm on its upper end and connected to the connecting-rod and an arm at its lower end provided with a roller, and a plate provided with a curved slot to be engaged by the roller.

16. In a brick and tile cutting table, the mutilated friction-pulley 32, having a notch in its edge, a reciprocating arm on the shaft of the pulley, a hook pivoted on the end of the arm to engage the notch in the pulley, and means, substantially as described, for moving the arm and hook and drawing the pulley over the mutilation.

In witness whereof I have hereto set my hand in the presence of two attesting witnesses.

JOHN THOMPSON.

Attest:

J. L. LEONARD,
W. S. HIGHT.