

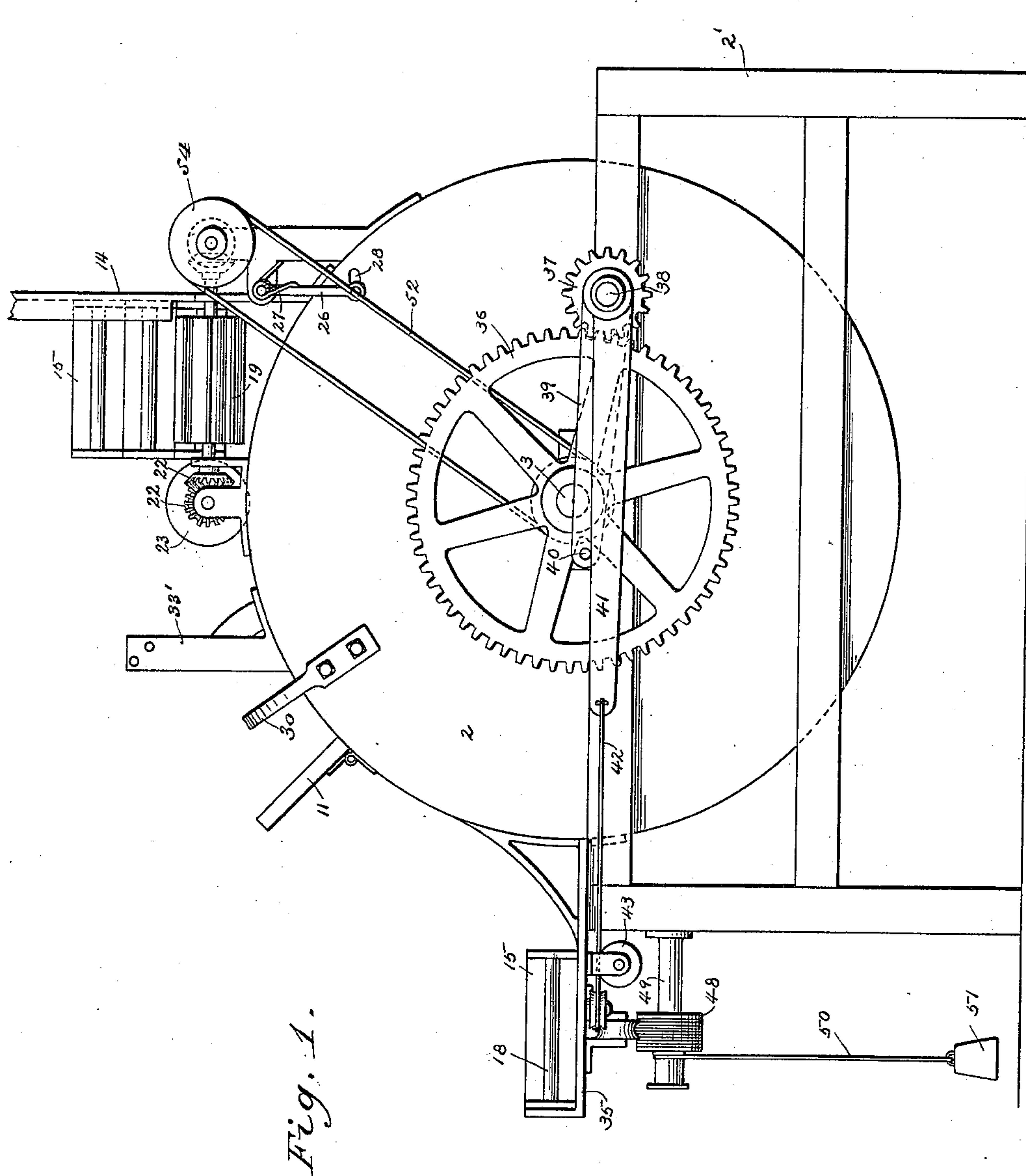
(No Model.)

4 Sheets—Sheet 1.

D. H. CLOSE.
BRICK MOLD SANDING MACHINE.

No. 426,775.

Patented Apr. 29, 1890.



(No Model.)

4 Sheets—Sheet 2.

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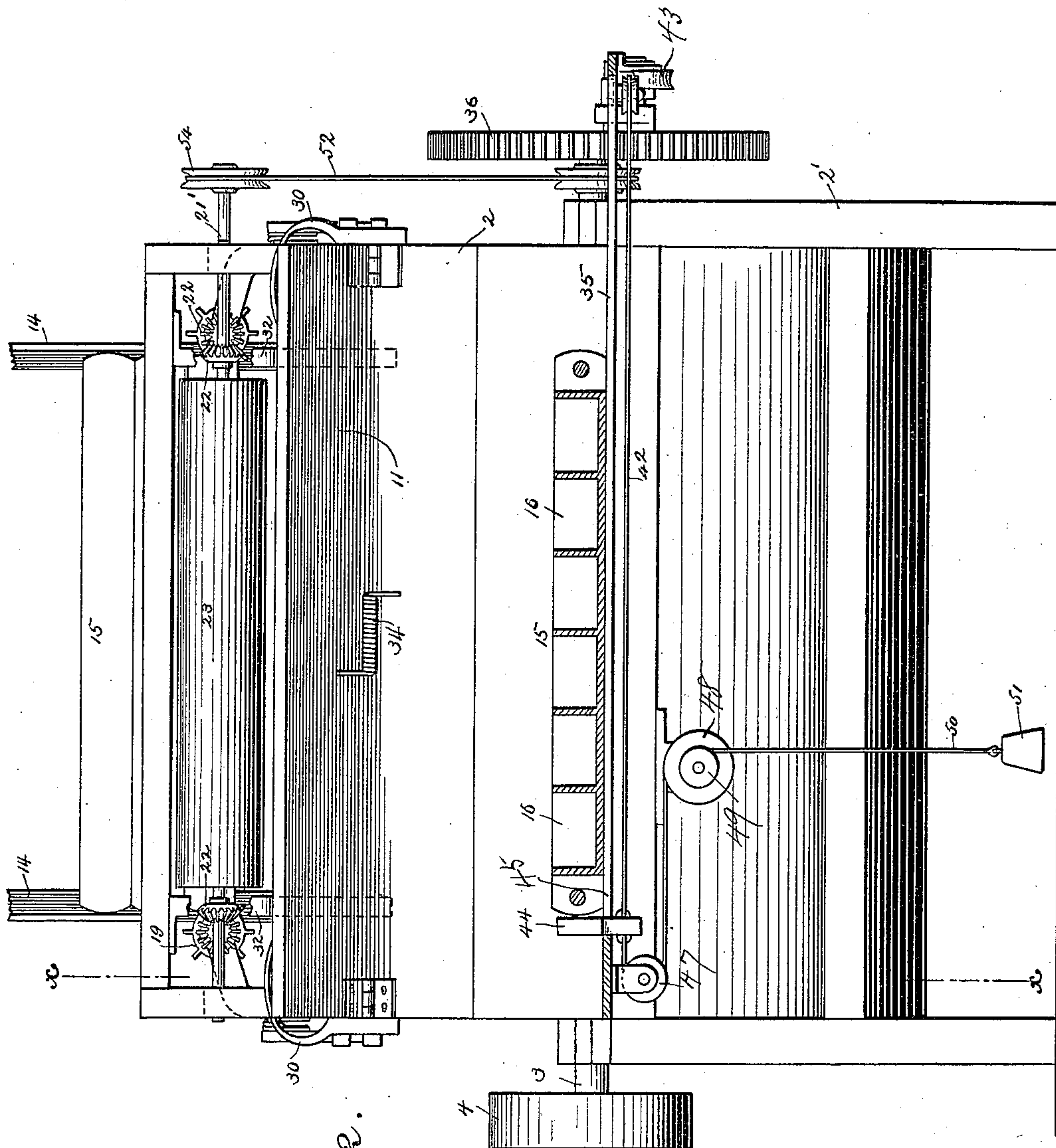


Fig. 2.

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(No Model.)

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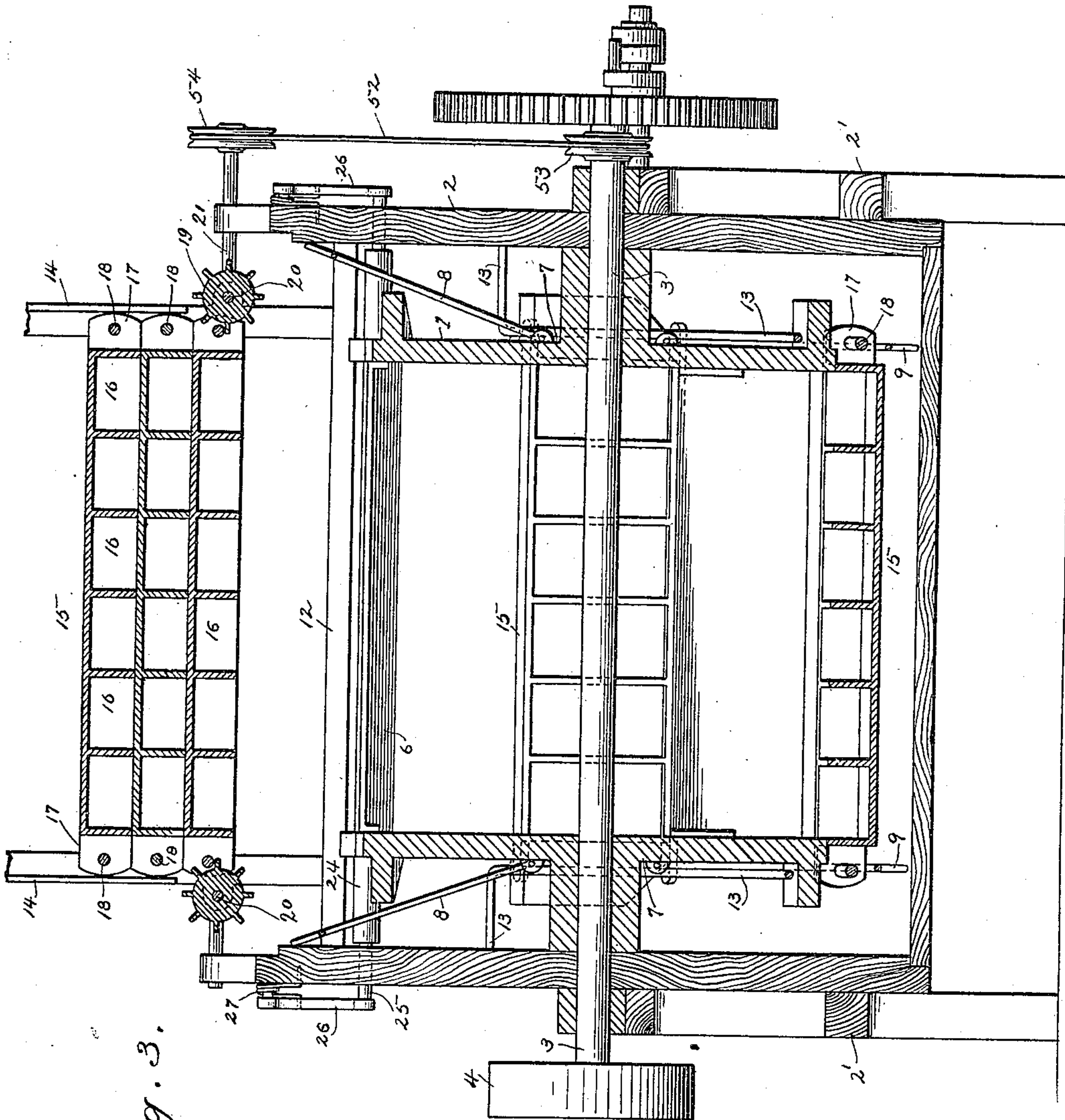


Fig. 3.

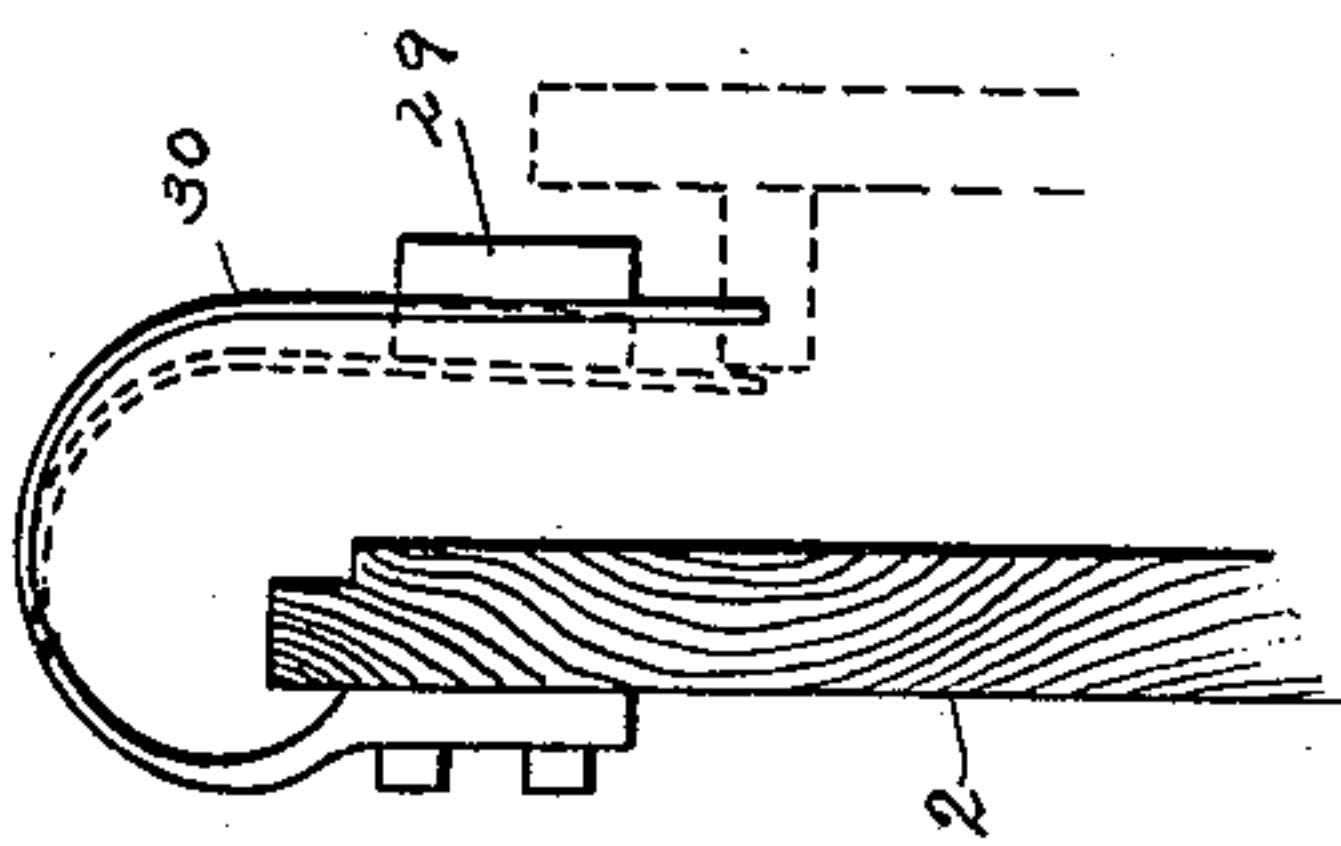


Fig. 4.

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(No Model.)

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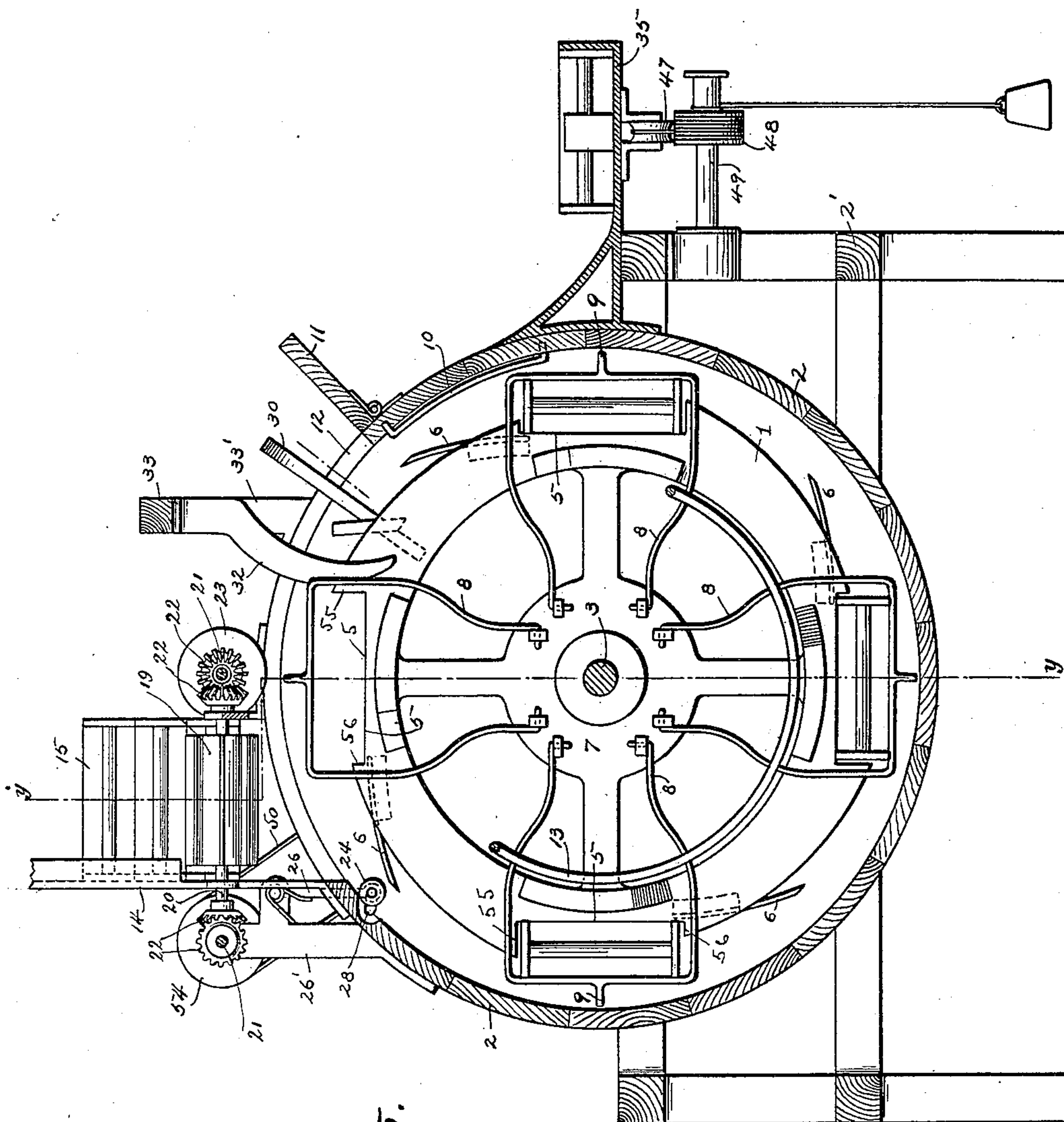


Fig. 5.

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UNITED STATES PATENT OFFICE.

DANIEL H. CLOSE, OF NEW YORK, N. Y.

BRICK-MOLD-SANDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 426,775, dated April 29, 1890.

Application filed November 15, 1889. Serial No. 330,395. (No model.)

To all whom it may concern:

Be it known that I, DANIEL H. CLOSE, of the city, county, and State of New York, have invented an Improvement in Brick-Mold-Sanding Machines, of which the following is a specification.

This invention relates to machines for sanding brick-molds and automatically delivering them to the brick-press, and has special reference to that class of brick-mold-sanding machines in which a rotary frame or cylinder is employed which is located in the sand box or casing, and is provided with automatically-retaining devices for holding the brick-molds on the cylinder while they are being sanded, and which are automatically released from the brick-molds as they arrive at the point of delivery from the cylinder.

The invention has for its object to improve the various parts of a machine of the character above mentioned—as, for example, in general, first, to properly guide and deliver the brick-molds to the cylinder; second, to provide retaining devices which will hold and automatically release the brick-molds in the most effective manner; third, to provide effective means for removing the surplus of sand from each mold as it is about to be delivered from the wheel or cylinder; fourth, to provide an effective mechanism for delivering each brick-mold to the brick-press after it has left the cylinder or wheel.

The invention consists in a brick-mold-sanding machine, and in details thereof, constructed and arranged as hereinafter described and claimed.

Referring to the accompanying drawings, in which similar figures refer to similar parts of the machine, Figure 1 is an end view of a brick-mold-sanding machine constructed in accordance with this invention, the brick-mold chute for feeding the brick-molds onto the machine being shown as partly broken away. Fig. 2 is a side view of the invention and regular parts with a portion of the machine at which is located the delivery-table, and also showing the brick-mold in longitudinal section in position to be delivered to the press. Fig. 3 is a vertical transverse section of the invention on the line *y y*, Fig. 5, looking at the side of the machine in front of the

delivery-chute with a number of brick-molds in longitudinal section located therein. Fig. 4 is an enlarged detail view showing a portion of the means for releasing the mold from the surplus of sand; and Fig. 5, a vertical cross-section of the invention, taken on the line *x x* of Fig. 2.

In constructing a brick-mold-sanding machine according to this invention I mount a suitable wheel within a sand box or casing mounted in a suitable frame 2'. The wheel 1 is mounted on a shaft 3, extending through the sand box or casing 2 of the frame 2' and provided with a suitable band-wheel 4 at one end, to be connected with any suitable driving-power.

A. The brick-molds are of such a length in relation to the width of the periphery of the wheel that the ends of the molds will project laterally from the wheel. The periphery of the wheel 1 is formed with transverse sockets or seats 5, in which the brick-molds rest as the wheel revolves and the molds are sanded.

B. To permit the molds to drop surely and easily into the sockets 5 the periphery of the wheel is cut away at an incline extending from the forward side of the sockets 5, as at 5'. By means of this construction the molds are positively taken up by the wheel and the molds sanded inside and out. In front or forward of these sockets 5 are located suitable metallic strips 6, which project at a proper angle from the periphery of the wheel and are adapted to stir up the sand in the casing, so as to permit the wheel to move freely through the sand.

In order to hold the brick-molds in place in the sockets 5 during the revolution of the wheel 1, I hinge to the hub 7 of the wheel 1 in any suitable manner mold-retaining devices 8, for retaining the brick-molds on the wheel, which preferably consist of rods bent into U shape and having a central projection 9 to ride over the guide-rods 10, located on the interior of casing 2 and adjacent to the delivery-shelf 11, which extends at an angle from the exterior of the casing 2 adjacent to an opening 12 in the latter.

The brick-mold-retaining devices 8 normally extend outward at an incline, resting at their outer end against the inner wall of the casing

2, and are moved against the side of the wheel on either side of the recess 5 by means of a curved guide-rod 13, located on each end of the casing 2 adjacent to the lower portion 5 of the casing 2.

It will be understood that the brick-mold-retaining devices 8 are located on each side of the wheel, there being one at each end of each socket 5, whereby the ends of each brick-mold are held in the socket 5. The opening 12, heretofore referred to, extends over the top of the casing 2, and at the side of the opening 12 opposite to that at which the delivery-shelf is located is located and arranged a brick-mold chute for feeding the brick-molds to the wheel 1. The feed-chute for the brick-molds, as here shown, consists of a pair of angular strips 14, in which rest the ends of the brick-molds 15, lying on top of one another. As here shown, the brick-molds 15 are constructed with a number of cells 16 and have flanges 17 at the end, with rods or handles 18. The brick-molds rest in the angular strips 14 on top of one another, as shown in Fig. 3, the lowest brick-mold being held up and supporting the others by means of its handles 18, resting on one of the teeth of a pair of spur-wheels 19, located on shafts 20, extending past the angular strips 14, and gearing, by means of beveled gear-wheels 22, with shafts 21 and 21', mounted on the casing 2. It will be seen that by means of this construction as the spur-wheels 19 are rotated the lowest brick-mold will be delivered on the wheel 1, and the brick-molds delivered onto the wheel one at a time as each lowest brick-mold is released from the spur-wheels 19. To steadily deliver the molds onto the wheel 1, and at the same time keep them in place as they are delivered, there is mounted on the shaft 21' a roller 23, which bears against the lower end of the column of brick-molds and feeds the lowest mold onto the wheel 1. To keep each mold in place on the wheel as it is delivered thereon, a yielding stop is employed, consisting, preferably, of a friction-roller 24, located just below the opening 12, extending across the periphery of the wheel, and mounted on a cross-bar 25 at the lower end of the swinging arms 26, hinged to a frame 26', and acted upon by springs 27. The lower ends of the arms 26 are guided in their swinging movements by means of the ends of the cross-bar 25, being located in slots 28 in the sides of the casing 2. The springs 27 act on the arms 26 to hold them forward, and at the same time there-with the roller 24.

When the brick-mold is delivered from the feed-chute onto the periphery of the rotating wheel 1, it rests thereon and is carried forward thereby against the friction-roller 24, and held thereby until a brick-mold socket 5 is brought beneath the brick-mold, when the latter drops into the socket 5, and, being held thereby, is carried past the roller 24, pushing it back out of the way. The roller 24 is

thrown into normal position again by the springs 27, to hold the next brick-mold delivered from the feed-chute after the brick-mold already mentioned has passed the roller 24.

By means of the roller 24 and its parts it will be seen that a yielding stop is provided forward of the lower end of the feed-chute, whereby the molds are stopped from being carried forward by the mold-supporting wheel after a mold has been dropped thereon until a mold-socket on the mold-supporting wheel is brought beneath the mold retained by the yielding stop.

In the operation of this machine the sand being placed in the bottom of the sand-box or casing 2, and the brick-molds being successively delivered, as heretofore described, onto the periphery of the wheel 1 and caught up by the sockets 5 as the wheel rotates, the ends of the retaining devices are engaged by and carried over the curved rods 13, and the molds are carried through the sand disturbed by the scoops 6. As each brick-mold is carried past the bottom of the casing 2 and arrives adjacent to the guide-rods 10, located at either side of the wheel 1, the retaining devices 8 move past the segmental guides 13, and their central projection 9 arrives at and rides over the guide-rods 10, and the retaining devices 8 are moved backward to normal position out of engagement with the ends of the brick-molds now brought adjacent to the delivery-shelf 11.

In order to remove the surplus sand from the mold before delivering the mold from the wheel 1, a projection 29 is mounted at an angle on a spring-arm 30, located on either side of the casing 2 in the path of the wheel 1, so that as a brick-mold is brought adjacent to the delivery-shelf 11 and is carried farther by the wheel it is brought into engagement with the projection 29, and is lifted up at an angle and suddenly dropped back into its socket 5 by means of the projection 29 and spring-arms 30 acted upon by inclined projections 31, located on the wheel 1 adjacent to each end of the sockets 5. The inclined projections 31 move the projections 29 out of engagement with the brick-mold by pressing the spring-arms 30 back out of the path of the wheel 1. After the mold has dropped back into its seat it is engaged by the lower end of cross-arms 32, projecting into the path of the wheel 1 and mounted on a cross-bar 33 of the frame 33'. As the arms 32 engage with the back mold and the wheel continues to rotate, the mold rides up on the arms 32 and drops onto the delivery-shelf 11. The delivery-shelf 11, which is a yielding shelf held in place by a spring 34, yields to the weight of the brick-mold deposited thereon, which overcomes the resistance of the spring 34, and the brick-mold is delivered or dropped onto a shelf or table 35, extended across the end of the casing and mounted on the frame 2'.

In order to transfer a sanded brick-mold to the brick-press from the shelf or table 35, I

have provided the following-described mechanism. Upon the extended end of the shaft 3 of the brick-mold-supporting wheel is mounted a large toothed gear-wheel 36, which meshes with a small toothed gear-wheel 37, mounted on a shaft 38, projecting from the frame 2'. The small toothed gear-wheel 37 is provided with a rigid arm 39, having at its outer end a laterally-extended pin 40, which bears against and is adapted to ride over the upper edge of the arm 41, extending parallel with the arm 39, and loosely mounted on the shaft 38. Connected with the outer end of the arm 41 is a cord 42, which extends over pulleys 43, depending from the shelf or table 35, the cord 42 being connected at its other end with a pusher 44, movable in a longitudinal slot 45, which passes over a pulley 47, depending from the shelf 35, and wound at its other end on a drum 48, mounted on a shaft 49, supported on the frame 2'. Wound upon the shaft 49 is a cord 50, carrying at its end a suspended weight 51. By means of the mechanism just described as the large toothed wheel 36 operates the small toothed wheel 37 the latter is rotated, carrying with it the rigid arm 39, which by means of the pin 40 pressing on the arm 41 moves the latter downward and draws on the cords 42 and 50, thereby pulling the pusher 44 forward in the table 35 and winding up the cord 50, and drawing up the weight 51. As the arm 41 is swung about the shaft 38 by means of the arm 39 and is brought above a horizontal plane on the opposite side of the shaft 38 from its normal position, the weight 51 acts to pull the arm 41 back to normal position and returns the pusher 44 to its normal position. The diameters of the wheels 36 and 37 are so proportioned that as a sanded mold is delivered on the table 35 the pusher 44 will be caused to be drawn forward to deliver the sanded mold to the brick-machine, and thereupon will be automatically carried back to its normal position by the action of the weight 51.

In order to operate the spur-wheels 19, and also at the same time to operate them in unison with the delivery of the sanded molds from the shelf 35, the shaft 21 is connected by any suitable gearing mechanism with the shaft 3, and, as here shown, by means of an endless belt 52, extended over a grooved pulley 53 on the shaft 3, and a grooved pulley 54 on the shaft 21.

The sockets 5 in the periphery of the wheel 1, heretofore referred to, are preferably formed with a rear side 55 of a greater height than the forward side 56, whereby as each socket is brought adjacent to a mold resting on the periphery of the wheel and bearing against the yielding stop-roller 24, the mold, being pushed into the socket thereby, will be firmly held by the rear side 55 and prevented from being pushed out of the socket as the mold pushes back the stop-roller 24. Another advantage, also, of the high rear side 55 is that

upon each mold being lifted at its forward end to shake off the surplus sand the mold will be retained in its socket and have a bearing to rest on while being tilted from off the machine.

This invention possesses several advantages among which may be enumerated, first, that the molds are regularly and steadily delivered to the mold-supporting wheel; second, that the molds are securely held in their sockets during the sanding operation; third, that the molds are effectively sanded inside and out; fourth, that each sanded mold is properly cleaned of surplus sand; fifth, that each sanded mold is readily and easily delivered from the mold-wheel to the delivery-shelf; sixth, that the sanded molds are regularly and in order delivered to the brick-machine as the molds are fed to the mold-supporting wheel.

While I have described a specific form of supporting and delivering mechanism in connection with the feed-chute, I do not intend to limit myself thereto, as any other suitable form of mechanism may be employed in connection with the shaft of the mold-supporting wheel. I also do not desire to limit myself to the specific construction set forth of the yielding stop for holding a delivered mold on the wheel before it is moved into the socket, as the specific construction may be varied without departing from the essential feature of the stop. I also do not desire to limit myself to the exact construction set forth of the yielding catches for tilting the sanded molds, as they may be varied in construction without departing from the essential feature thereof. It is obvious, also, that any other suitable form of mechanism may be employed in connection with the large and small toothed gear-wheels for automatically delivering the sanded molds to the brick-press and returning them automatically to normal position.

Having described my invention, what I claim, and desire to secure protection for by Letters Patent of the United States, is as follows:

1. The combination, with a feed-chute of a brick-mold-sanding machine having a rotary mold-supporting wheel, of a rotary mold-support arranged to engage and entirely support the lowest mold in the feed-chute independently of the rotary mold-supporting wheel and release the mold and drop it onto the mold-supporting wheel, substantially as shown and described.

2. A brick-mold-sanding wheel formed on its periphery with mold-sockets having their rear sides higher than the forward side and strips located in front of the mold-sockets and projecting at an angle to the periphery of the wheel, substantially as shown and described.

3. The combination, with a sand-box and wheel of a brick-mold-sanding machine formed with open-ended mold-sockets on its periphery, and U-shaped brick-mold retainers

hinged to the hub of the wheel and adapted to swing over the ends of the sockets, of curved guide-rods secured to the ends of the casing adjacent to its bottom and guide-rods secured to the inner periphery of the said box adjacent to its brick-mold-delivery opening, substantially as shown and described.

4. The combination, with the sand-box of a brick-mold-sanding machine having spring-actuated lifters for tilting and dropping the brick-molds in their sockets as they are brought to the delivery-opening of the casing, of a mold-supporting wheel having projections adjacent to the ends of the mold-sockets for releasing the spring-actuated lifters from a mold, substantially as shown and described.

5. In a brick-mold-sanding machine, the combination, with a mold-supporting wheel, of a sand-box having a yielding stop depending across the periphery of the wheel and forward of the delivery end of the feed-chute, substantially as shown and described.

6. In a brick-mold-sanding machine, the combination, with a mold-supporting wheel, of a sand-box having a yielding depending stop adjacent to the periphery of the wheel and forward of the delivery end of the feed-chute, substantially as shown and described.

7. In a brick-mold-sanding machine, the combination, with the mold-supporting wheel having a large toothed gear-wheel, of a shelf on which the sanded molds are delivered, a pusher movable along the shelf, a shaft having a winding-cord and suspended weight, a small toothed gear-wheel meshing with the larger toothed gear-wheel and having a rigid arm with a laterally-extending pin at its outer end, an arm loosely mounted on the shaft of the small toothed gear-wheel and extending parallel with the rigid arm and beneath the laterally-extending pin thereon, and a cord

connecting the loosely-mounted arm with the shaft on which the cord and weight are mounted, substantially as shown and described.

8. In a brick-mold-sanding machine, a rotary mold-supporting wheel and a feed-chute, in combination with a rotary mold-support arranged to engage and entirely support the lowest mold in the feed-chute independently of the mold-supporting wheel and release the mold and drop it onto the wheel, a guide and friction-roller extending across the lower end of the feed-chute, and mechanism for operating the guide and friction-roller and connected with the mold-supporting wheel, substantially as shown and described.

9. In a brick-mold-sanding machine, a feed-chute, in combination with a rotary mold-support arranged to engage and support the lowest mold in the feed-chute, and release the mold and drop it onto the wheel, and a guide and friction-roller operated by mechanism connected with the wheel and extending across the lower end of the chute, substantially as shown and described.

10. In a brick-mold-sanding machine, the combination, with a brick-mold-supporting wheel, of a feed-chute, a rotary mold-support arranged to engage and entirely support the lowest mold in the feed chute independently of the mold-supporting wheel, and release the mold and drop it onto the wheel, and an intermediate mechanism connecting the rotary mold supporting and feeding mechanism with the wheel-shaft, substantially as shown and described.

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

DANIEL H. CLOSE.

Witnesses:

ALLAN McCULLOH,
EDWARD W. CADY.