

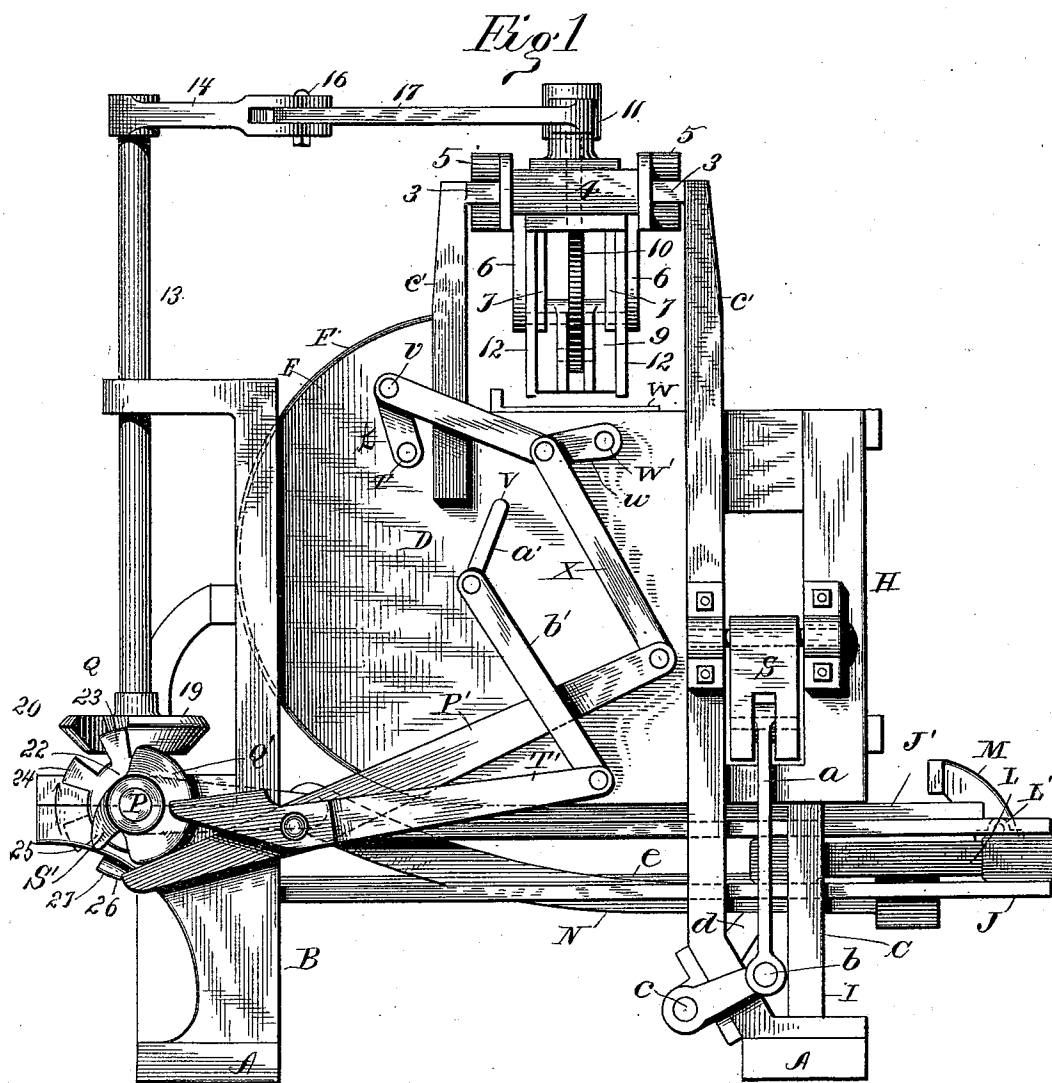
(No Model.)

6 Sheets—Sheet 1.

W. LAMB.
BRICK MOLD SANDING MACHINE.

No. 493,098.

Patented Mar. 7, 1893.



William Lamb,
By Inventor:

W. J. Fitzgerald &
Attorneys.

Witnesses
C. C. Burdine
Thomas C. Turpin

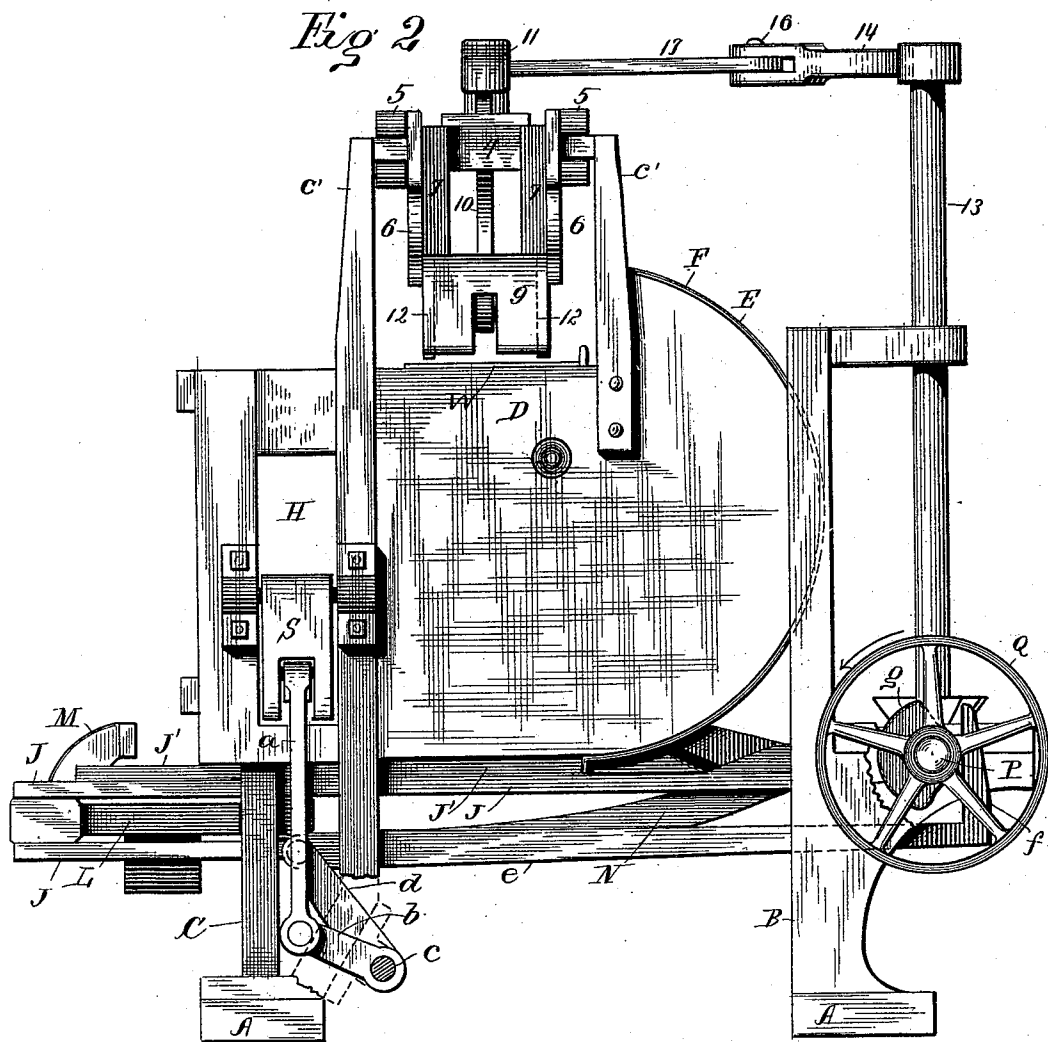
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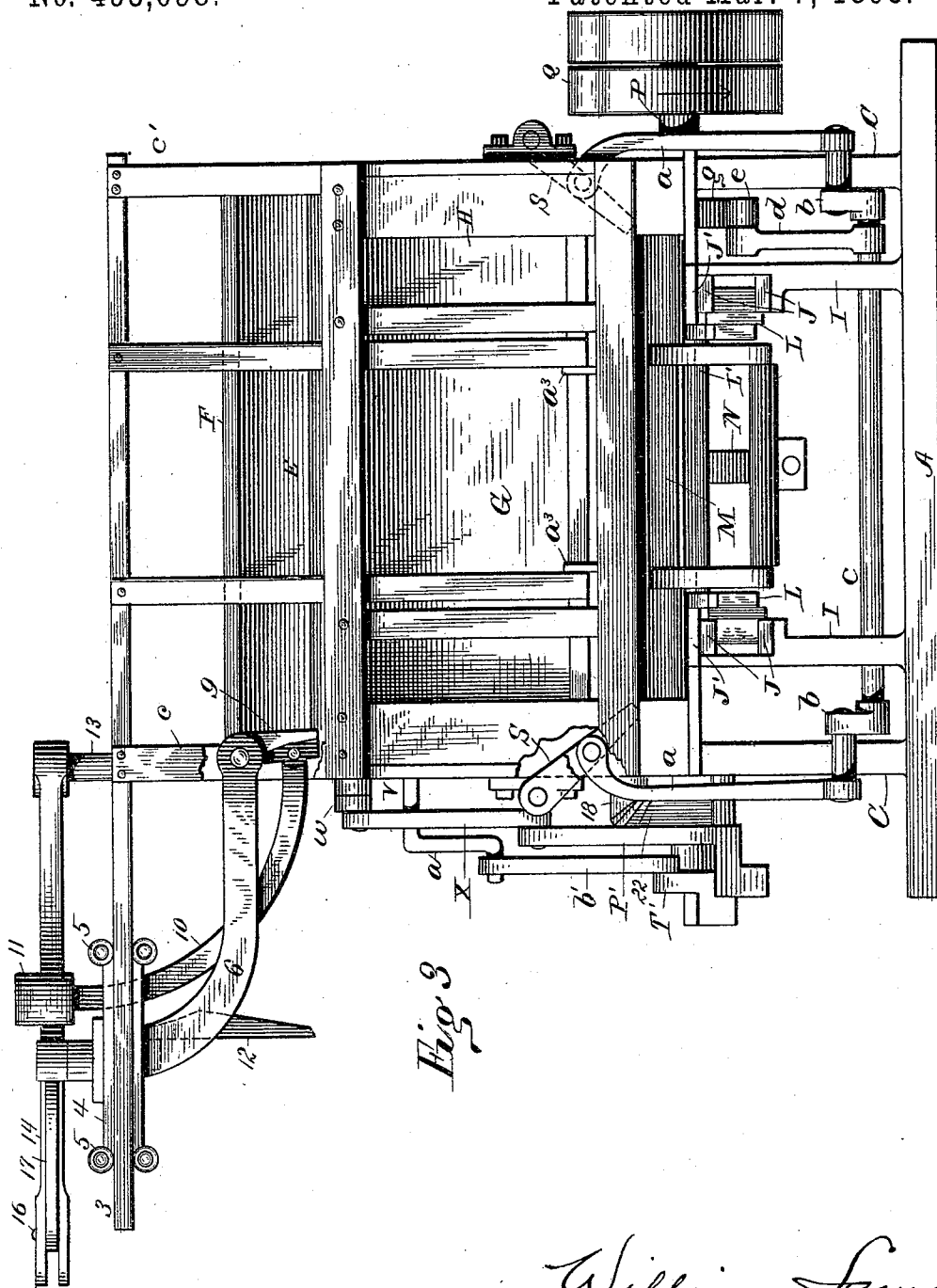


Fig. 3

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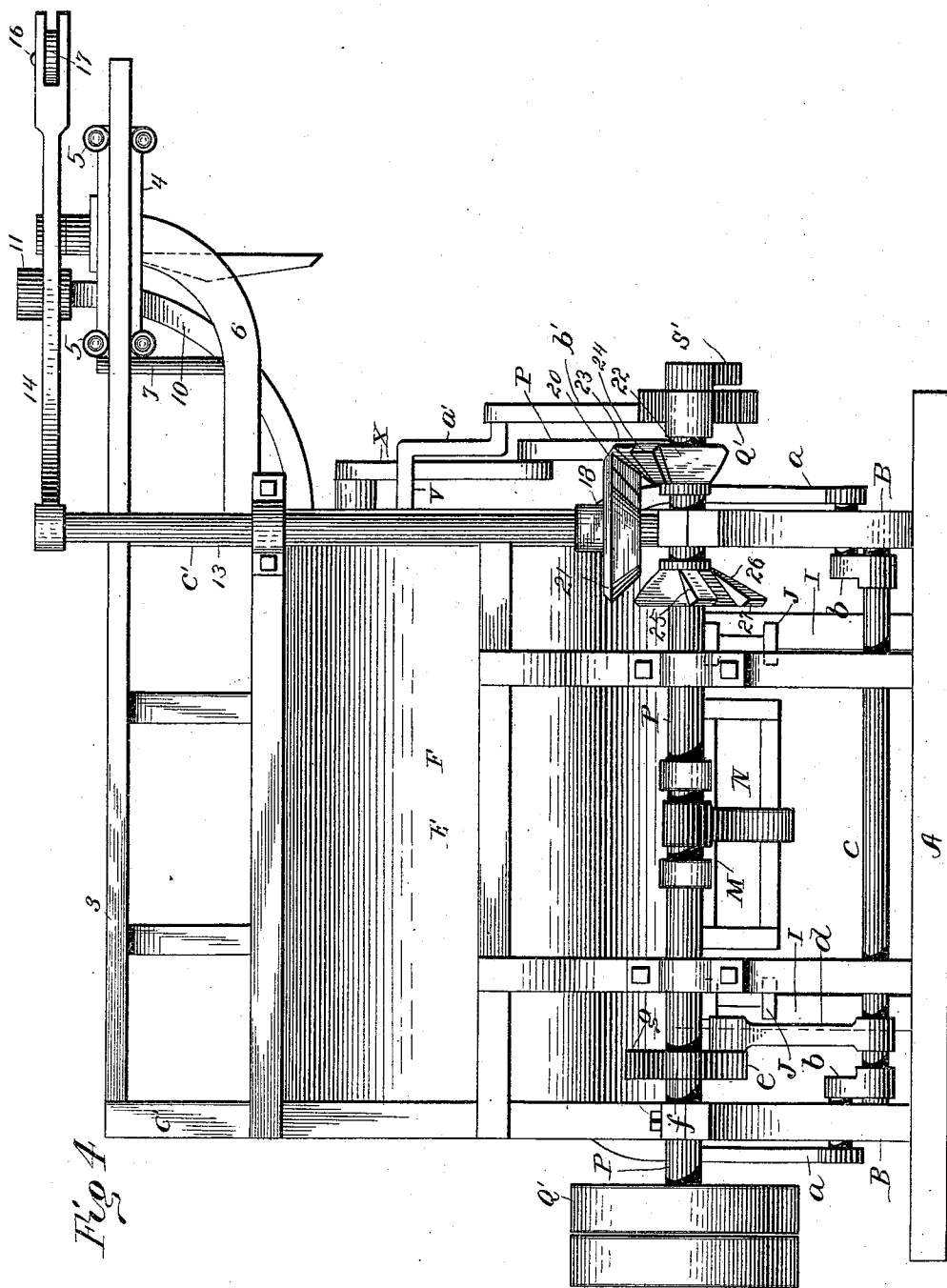


Fig 4

Witnesses

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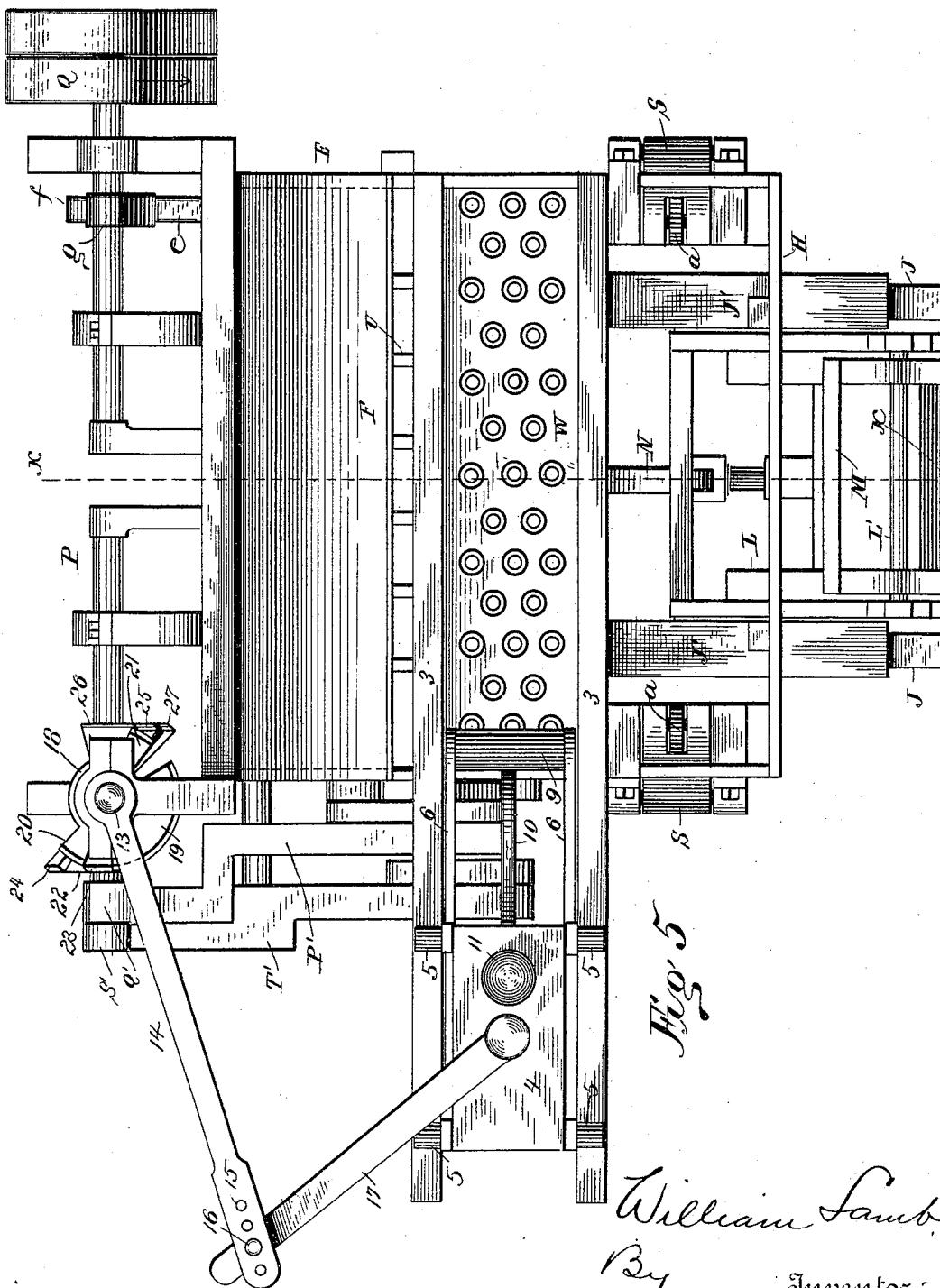
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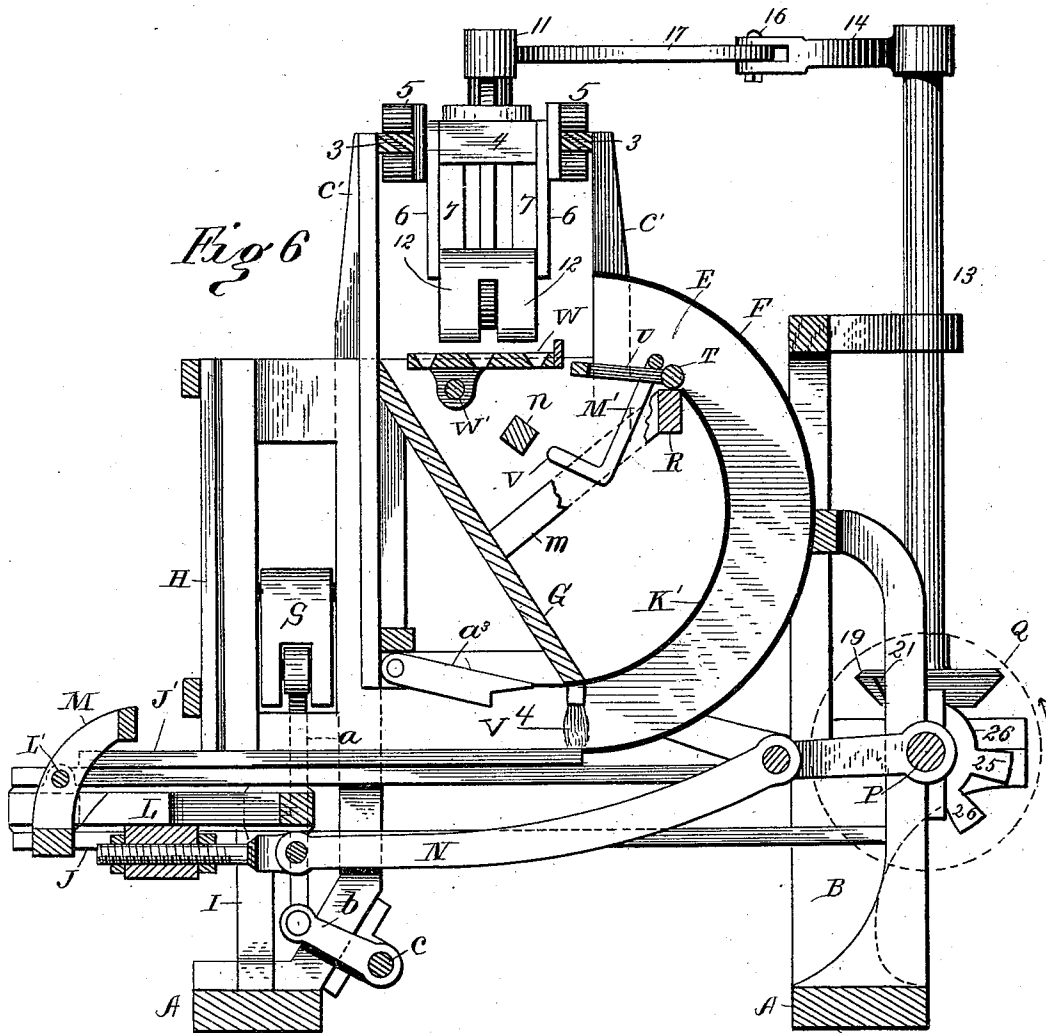
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UNITED STATES PATENT OFFICE.

WILLIAM LAMB, OF ABERDEEN, SOUTH DAKOTA.

BRICK-MOLD-SANDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 493,098, dated March 7, 1893.

Application filed April 22, 1892. Serial No. 430,243. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM LAMB, a citizen of the United States, residing at Aberdeen, in the county of Brown and State of South Dakota, have invented certain new and useful Improvements in Sanding-Machines for Brick-Molds; 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.

My invention has relation to improvements in machines for sanding the molds of brick machines, and it has for one of its objects to provide an automatic, self-feeding, mold-sanding machine.

Another object of the invention is to provide a mold-sanding machine operating in conjunction with a brick machine, adapted to automatically feed the sanded molds to the said brick machine.

Another object of the invention is to provide a device for automatically feeding the sanded molds to the brick-machine, embodying such a construction that should a mold become "stuck" in the brick machine (as is often the case) it will ride over the mold which it is pushing, and upon its rearward stroke will throw said mold out of the sanding machine.

Another object of the invention is to provide a mold-sanding machine of such construction that the molds will be relieved of superfluous sand before being fed to the brick-machine.

Other objects and advantages will be fully understood from the following description and claims when taken in conjunction with the accompanying drawings, in which:

Figure 1 is an elevation of one side of my improved machine. Fig. 2 is a similar view of the opposite side thereof. Fig. 3 is a front, end elevation. Fig. 4 is a rear, end elevation. Fig. 5 is a top plan view, and: Fig. 6 is a longitudinal, central section taken in the plane indicated by the line $x-x$ on Fig. 5.

In the said drawings, similar letters and figures designate corresponding parts throughout the several views, referring to which:

A, indicates the base of my improved machine, which is preferably of a general rectangular form, as shown.

Rising from the rear corners of the base A, are the standards, B, which serve in conjunction with the short, forward standards C, to support the side walls D, of the sanding chamber E. The rear concave wall F, of the sanding chamber, which is preferably attached to the rear, curved edges of the side walls D, as illustrated, is preferably formed from boiler-steel, or the like, so as to enable it to withstand the friction of the molds presently to be described.

Suitably connected to the side walls D, of the machine and extending transverse thereof, is a deflector wall G, which is pitched slightly rearwardly and downwardly, as shown, and is designed, in practice, to lead the superfluous sand dumped from the molds back into the sanding chamber upon the molds therein.

Formed at the forward end of the machine and preferably extending the full width thereof, as better shown in Fig. 3 of the drawings, is the stacking frame H, in which the molds to be fed to the machine are placed one upon the other.

Suitably mounted upon sub-standards, as I, and extending the full length of the machine and beneath the sanding chamber E, are the ways or tracks J, in which travel the slide-blocks K, of the reciprocating carrier-frame L, which is preferably of a rectangular form, as shown.

Loosely mounted upon a shaft L', carried by the carrier-frame L, is the mold-engaging trigger M, which is also preferably of a rectangular form and has its forward end weighted so that it will resume its normal position when it reaches the end of its forward stroke, as will be hereinafter more fully described. The carrier-frame L, is reciprocated longitudinally through the medium of a pitman N, by a transverse crank, drive shaft P, which is journaled in suitable bearings at the rear end of the machine, and is provided with a drive wheel Q, which is preferably fixed on said shaft through the medium of a suitable clutch, whereby it will be seen that the machine may be readily stopped when desirable.

Suitably mounted upon the upper ways or tracks J, are slide bars J', which extend to the lower edge of the rear, concave wall of the sanding chamber and serve to support the molds which are fed continuously to said

chamber and conduct the same to the way formed between the curved, strips K', and the rear, concave wall F, which curved strips are connected at their lower ends to the inner sides of the side walls D, and are connected at their upper ends to a transverse, vertically-disposed wall R, which is designed and adapted for a purpose presently understood.

Pivottally connected at their front ends to suitable parts of the main frame and extending rearwardly adjacent to the lower edge of the transverse concave wall F, are gravitating keeper arms a^3 , which are notched or shouldered at or adjacent to their forward ends and are designed to engage the molds and prevent a rearward movement thereof.

From the foregoing description it will be readily perceived that at each rearward stroke of the carrier-frame L, the trigger M, will engage the lower mold in the stacking frame, H, and will carry said mold such a distance upon the slide bars J', that its forward, transverse edge will rest at the lower transverse edge of the concave wall F. Thus it will be perceived that inasmuch as the molds are fed continuously one will push the other, until the line of molds extends from the stacking frame H, to the wall R, in the sanding chamber, as better illustrated in Fig. 6 of the drawings.

Journaled or pivoted at a suitable elevation in the ends of the stacking frame H, are feeding wings S, which are designed and adapted to support the tier of molds in the stacking frame H, and automatically feed one at a time upon the slide bars J', ready to be engaged and moved by the carrier-frame upon its rearward stroke.

Loosely connected to the feeding wings S, at an intermediate point in the length thereof, are pitmen a , which are pivottally connected at their lower ends to the end crank-branches b , of a transverse rock-shaft c , which is journaled in suitable bearings, as illustrated. This transverse rock-shaft c , is provided at an intermediate point in its length with a crank branch d , to which is pivottally connected one end of a rearwardly extending slide bar e , which is provided at its rear end with an angular branch f , as better shown in Figs. 2 and 4, of the drawings.

Fixedly mounted upon the drive shaft is a cam g , which is designed and adapted to engage the angular branch f , of the slide bar e , and draw said bar rearwardly, rock the shaft c , and throw the feeding wings S, into engagement with one of the molds in the stacking frame. The cam g , is so situated upon the drive shaft P, with respect to the crank branch thereof, that it will engage the branch f , of the slide bar e , upon the commencement of the rearward stroke of the carrier-frame L, so that the wings S, will support all of the molds except the lower one, and will be disengaged from said branch f , during the forward stroke of said carrier-frame, whereby

the wings S, by reason of their weight, will fall into a perpendicular position and will allow one mold to fall upon the slide bars J', ready to be engaged by the trigger M, of the carrier-frame L, upon the next rearward stroke of said frame L.

Carried by a rock-shaft T, journaled in the side walls D, immediately above the cross-bar R, is an open-work swinging leaf U, which is designed to receive the molds from the ways formed by the concave wall F, and the curvilinear strips K', and swing downwardly toward the front of the machine for a purpose presently set forth.

Journaled in the side walls D, at about the proportional distance illustrated, in advance and beneath the horizontal plane of the rock shaft T, is a rock-shaft V, which is bent inwardly and upwardly between the walls D, as illustrated to form a bail M', the transverse branch of which lies against the rock-shaft T, when the leaf U, is at rest, but swings upwardly and forwardly after the leaf U, has swung downwardly and forwardly, and serves to swing the mold from the said leaf U, to another open-work, swinging leaf W, carried by a rock-shaft W', which is journaled in the side walls D, as illustrated. This leaf W, which is provided with a ledge upon its rear edge normally rests in a horizontal-oblique position, as illustrated, ready to receive a mold from the leaf U, but after the mold is in position upon said leaf W, it is moved into a horizontal position through the medium of mechanism and for a purpose presently to be described. As better illustrated in Fig. 6 of the drawings, the downward movements of both leaves U, and W, are limited; the leaf U, by a longitudinal bar m , and the leaf W, by a transverse bar n .

The shafts T, and W', are respectively provided with crank arms or branches t , and w , the ends of which are connected by a link v , as illustrated, by reason of which it will be perceived that the said shafts will be simultaneously rocked in opposite directions.

Fulcrumed at an intermediate point in its length to one of the standards B, or other part of the main frame of my improved machine, is a lever P', which has its forward end connected by a link X, with the end of the crank arm or branch w , of the rock shaft W', as shown. The rear end of this lever P', is designed and adapted to be engaged and depressed by a curvilinear cam Q', upon the drive shaft P, whereby it will be perceived that the leaves U, and W, will be raised.

As better illustrated in Fig. 1 of the drawings, the rock shaft V, is provided upon one end with a crank arm or branch a' , to which is connected one end of a link b' . The opposite end of this link b' , is connected to the forward end of a lever T', which is preferably fulcrumed at the same point as the lever P', and is designed and adapted to be engaged by a cam S', which is so fixed upon the drive shaft P, that it will engage the rear end of

said lever T', immediately after the lever P', is disengaged from the curvilinear cam, Q'. As soon as the lever P', is disengaged from the cam Q', the leaves U, and W, by reason of gravity, will assume and rest in opposite oblique planes, when the cam S', upon the drive shaft P, will engage and depress the rear end of the lever T', and, through the medium of the mechanism described, will rock the shaft V, and raise the bail M', which, swinging forwardly, will lift the mold from the leaf U, and deposit the same upon the leaf W, when the cam Q', will engage the rear end of the lever P', and will raise the leaf W, together with the leaf U, into horizontal positions.

Rising from the side walls D, on opposite sides of the leaf W, are standards c', upon which are mounted the transversely extending tracks 3, which preferably extend laterally from one side of the machine, as illustrated.

4, indicates a carriage body which is designed and adapted to travel on the tracks 3, and is provided on opposite sides with friction rollers 5, which bear upon the upper and lower sides of said tracks and render the movement of the carriage easier. This carriage body 4, is provided with two downwardly and forwardly extending curvilinear arms 6, which are braced at an intermediate point in their length by the hangers 7, and are designed to support the mold pushing shoe 9, which is pivotally connected to and depends from the same.

Pivotally connected to the mold pushing shoe 9, and extending rearwardly and upwardly therefrom is a curvilinear bar 10, which takes through a vertically disposed slot in the carriage body 4, and is provided at its upper end with a weight 11, as shown. This weight 11, is, in practice, of such a size that it will hold the shoe 9, in a perpendicular position and in engagement with the end of a mold and will render said shoe sufficiently rigid to push the mold so long as no obstruction is offered to the same. However, if an obstruction is offered to the mold pushed by the shoe 9, such as the preceding mold becoming "stuck" in the brick machine, the said shoe 9, will swing rearwardly and ride over the mold it has been pushing.

Pivotally connected to and extending above and below the curvilinear arms 6, adjacent to the rear ends thereof, are gravitating fingers 12, which will ride over an obstructed mold upon the forward movement of the carriage, but will engage said mold upon the rearward movement of said carriage and throw the same off the opposite side of the machine. Thus it will be readily perceived that though the operation of the machine is continuous, it will be prevented from choking or otherwise damaging the brick machine in conjunction with which it operates.

Fixedly connected to the upper end of a vertical shaft 13, which is journaled in suitable bearings and preferably rests in the same vertical plane as the drive shaft P, is an

arm 14, which has its free end furcated and provided with a series of vertically-disposed apertures 15, to receive a pin 16, which serves to connect one end of the arm 14, and one end of a link 17, which is pivotally connected at its opposite end to the carriage body 4, as illustrated. By the provision of the series of apertures 15, in the furcated end of the arm 14, it will be readily perceived that the link 17, may be connected to said arm at various points so as to increase or diminish the length of travel of the carriage 4.

Fixed upon the vertical shaft 13, above the drive shaft P, is a horizontal, mutilated gear-wheel 18, which, when the carriage 4, is at rest, is designed to rest in the position illustrated in Fig. 5, of the drawings. This gear-wheel 18, which is preferably beveled on its underside as shown, is provided with a large or wide tooth 19, which is arranged between a smaller rear tooth 20, and a smaller forward tooth 21, which are arranged at about the proportional distance illustrated, apart.

22, indicates a mutilated gear which is mounted upon the drive shaft P, and is provided with two teeth 23, 24, which are preferably arranged the proportional distance, illustrated, apart. This gear wheel 22, is so fixed upon the shaft P, with respect to the cam Q', that its forward tooth 23, will engage the rear side of the tooth 19, of the gear wheel 18, at the same time or immediately after the said cam Q', engages the rear end of the lever P', whereby it will be perceived that the leaf W, will be in its horizontal position with a mold, when the carriage 4, commences to move across the machine. The carriage 4, is moved entirely across the machine in one direction by the teeth 23, and 24, of the gear wheel 22, engaging the teeth 19, and 20, of the gear wheel 18; and the said carriage 4, is moved entirely across the machine in the opposite direction by the short tooth 25, of the gear wheel 26, engaging the forward edge of the tooth 19, of the wheel 18, and the tooth 27, of said wheel 26, engaging the tooth 21, of said wheel 18. The wheel 26, is so fixed on the drive shaft P, with respect to the wheel 22, and the teeth of the wheel 18, that it will not engage the said wheel 18, until the carriage 4, has arrived at the forward end of its stroke or movement.

Suitably mounted at the forward edge of the concave-wall F, of the sanding chamber, are the brushes V⁴, which are preferably of the proportional width and length illustrated and are designed in practice to prevent the sand from escaping from the sanding chamber at the ends of the train of molds.

In operation, the molds are stacked or piled one upon the other in the stacking frame H, when the brick machine and the sanding machine are set in motion at a corresponding speed. The rotation of the drive shaft in the direction of the arrow, through the medium of the crank and pitman, drags the carrier-frame forwardly, when the trigger M, of said

carrier-frame will engage and carry the lower mold to the lower transverse edge of the wall F. At the beginning of the rearward movement of the carrier-frame L, the cam g, on the drive shaft P, engages the branch f, of the slide bar e, and through the medium of the same and the rock-shaft c, causes the wings S, to engage the second lower mold and support the molds until said carriage frame has passed the stacking frame. Simultaneously with or immediately after the carrier-frame L, begins its rearward movement the carriage 4, through the mechanism described, is caused to move in the direction of the arrow x; and as will be readily perceived the said carriage 4, will move or travel forwardly and rearwardly during the rearward movement of the carrier-frame L. By having the leaves U, and W, of open-work, it will be readily perceived that all superfluous sand in the molds will be allowed, through the medium of the deflector wall G, to return to the sanding chamber.

Although I have specifically described the construction and relative arrangement of the several elements of my improved machine, yet I do not desire to be confined to the same, as such changes or modifications may be made as fairly fall within the scope of my invention.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a mold sanding machine, substantially as described, the combination with the sanding chamber having the concave wall, and a suitable means for feeding molds continuously to the lower edge of said wall; of the swinging leaves U, and W, carried by rock shafts journaled in the side walls of the sanding chamber; the bail M', journaled in the side walls of the sanding chamber between the shafts of the leaves U, and W, the drive shaft, mechanism intermediate the drive shaft and the shafts of the leaves U, and W, adapted to swing said leaves simultaneously, mechanism intermediate the drive shaft and the shaft of the bail M', adapted to swing said bail alternately with respect to the leaves U, and W, and a suitable means for removing a mold from the leaf W, when the same has assumed a horizontal position; substantially as and for the purpose set forth.

2. In a mold sanding machine, substantially as described, the combination with a sanding chamber, the swinging leaves U, and W, journaled in the side walls of said chamber, a suitable means for feeding the sanded molds to the leaf U, and a suitable means for actuating the leaves U, and W; of the swinging bail journaled in the side walls of the sanding chamber intermediate the leaves U, and W, and a suitable means for actuating said bail alternately with respect to the leaves U, and W; substantially as and for the purpose set forth.

3. In a mold sanding machine, the combination with the sanding chamber, the stacking

frame, with molds arranged therein one upon the other, and having the feeding wings pivoted at a suitable elevation in its ends, of the carrier frame, the tracks arranged below said sanding chamber with sliding blocks thereon, the mold engaging trigger pivotally mounted in the carrier frame, and having its lower end weighted, and suitable means for reciprocating the carrier frame, substantially as and for the purposes specified.

4. In a mold sanding machine, substantially as described, the combination with the sanding chamber, the stacking frame, the slide bars or tracks extending from the sanding chamber beneath the stacking frame, and the carrier-frame mounted on the slide bars or tracks and having a trigger adapted to engage the lower mold in the stacking frame; of the feed wings pivotally mounted in the ends of the stacking frame, the drive shaft, mechanism intermediate the drive shaft and the carrier-frame adapted to reciprocate the latter, and mechanism intermediate the drive shaft and the feeding wings adapted to swing said wings inwardly during the rearward stroke of the carrier-frame, and allow said wings to assume a perpendicular position during the forward stroke of said frame; substantially as and for the purpose set forth.

5. In a mold sanding machine, substantially as described, the combination with the sanding chamber, the stacking frame and the slide bars or tracks extending from the sanding chamber beneath the stacking frame; of the carrier-frame mounted on the slide bars or tracks and carrying a trigger adapted to engage the molds in the stacking frame, a suitable means for reciprocating the carrier frame, and the rearwardly-extending, gravitating keeper arms a⁸, adapted to engage the molds and prevent a backward movement thereof; all substantially as specified.

6. The combination with the main frame, the transverse concave wall F, and the stacking chamber, of the gravitating keeper arms pivotally connected at their front ends to the main frame and extending forwardly of the wall F, said arms being notched or shouldered at or adjacent to their forward ends thereby engaging the molds and preventing a rearward movement thereof, substantially as specified.

7. In a mold sanding machine, the combination with a sanding chamber, and a suitable means for supporting the molds after the same have been sanded; of the carriage body 4, mounted on tracks above the sanding chamber, and having a vertically-disposed, longitudinal slot, the arms 6, connected to and extending forwardly from said body, the shoe pivotally mounted in said arms, the arm connected to the shoe and taking through the slot in the carriage body, a weight mounted upon the upper end of said arm, and a suitable means for reciprocating the carriage; substantially as and for the purpose set forth.

8. In a mold sanding machine, the combination with a sanding chamber, and a suitable means for supporting the molds after the same have been sanded; of the carriage body 4, mounted on tracks above the sanding chamber, and having a vertically-disposed, longitudinal slot, the arms 6, connected to and extending forwardly from said body, the shoe pivotally mounted in said arms, the arm connected to the shoe and taking through the slot in the carriage body, a weight mounted upon the upper end of said arm, the gravitating fingers 12, pivotally connected to the arms 6, and extending above and below the same, a suitable means for limiting the rearward movement of the upper ends of said

fingers, and a suitable means for reciprocating the carriage; substantially as specified.

9. In a mold sanding machine, substantially as described, the combination with the sanding chamber having the concave wall F; of the brushes V⁴, mounted at the forward edge of the concave wall adjacent to the side walls of the chamber; substantially as and for the purpose specified.

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

WILLIAM LAMB.

Witnesses:

C. W. HERMANCE,
JOHN ACKLEY.