G. M. GRISWOLD.

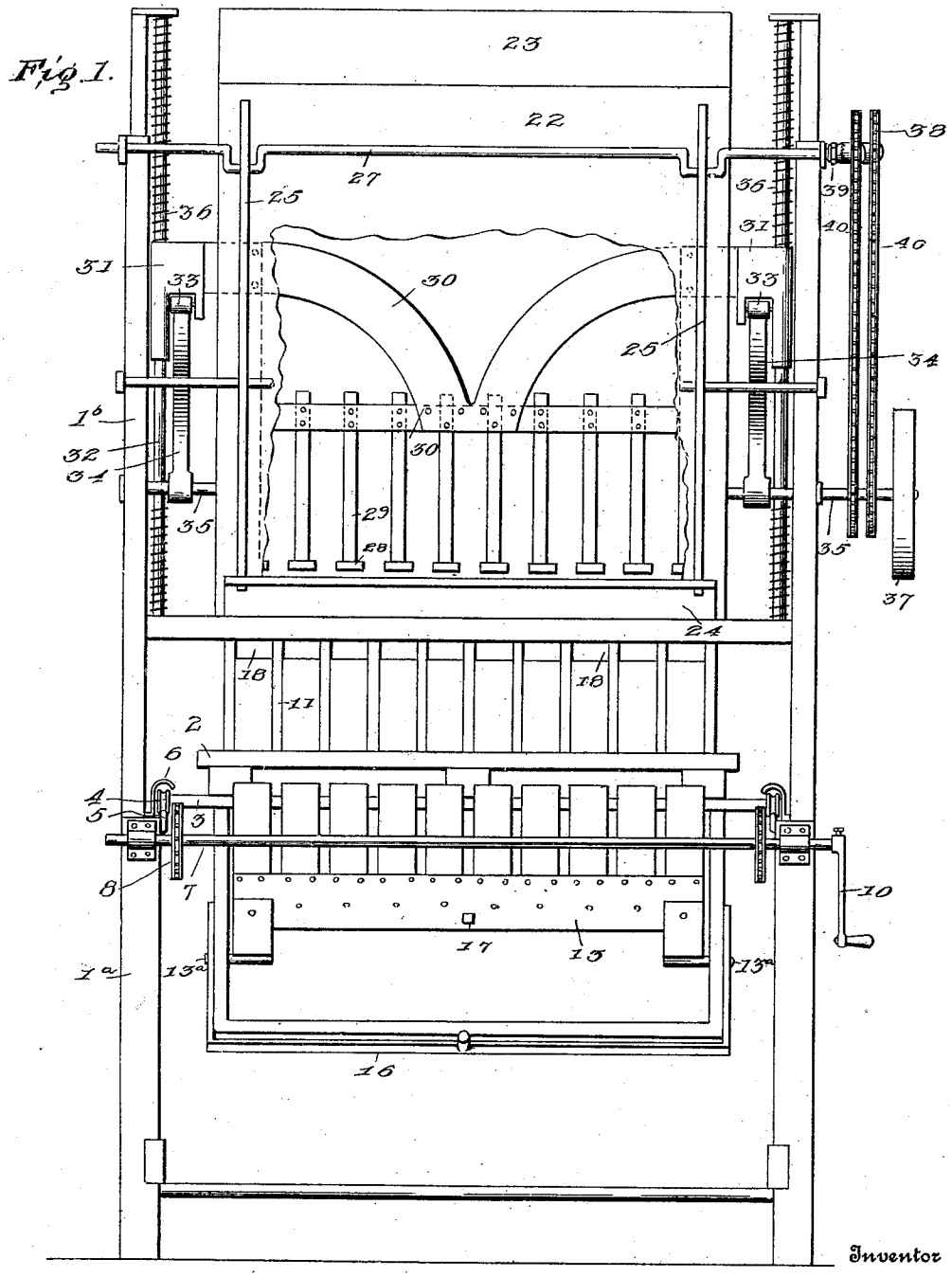
BRICK MACHINE.

APPLICATION FILED APR. 24, 1908.

928,913. Patented July 20, 1909.

3 SHEETS—SHEET 1.

Fig. 1.



Witnesses

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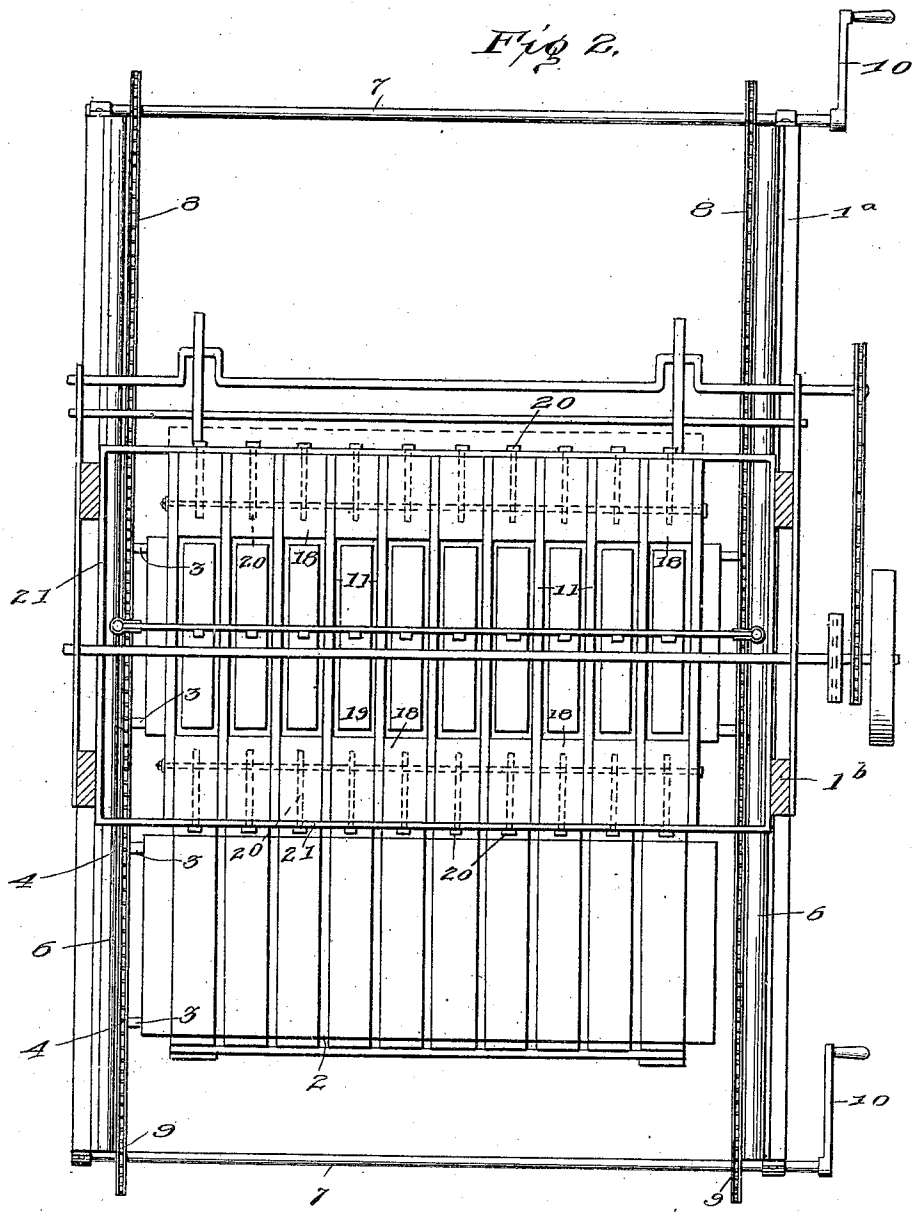
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3 SHEETS—SHEET 2.

Fig. 2.



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3 SHEETS—SHEET 3.

Fig. 2.

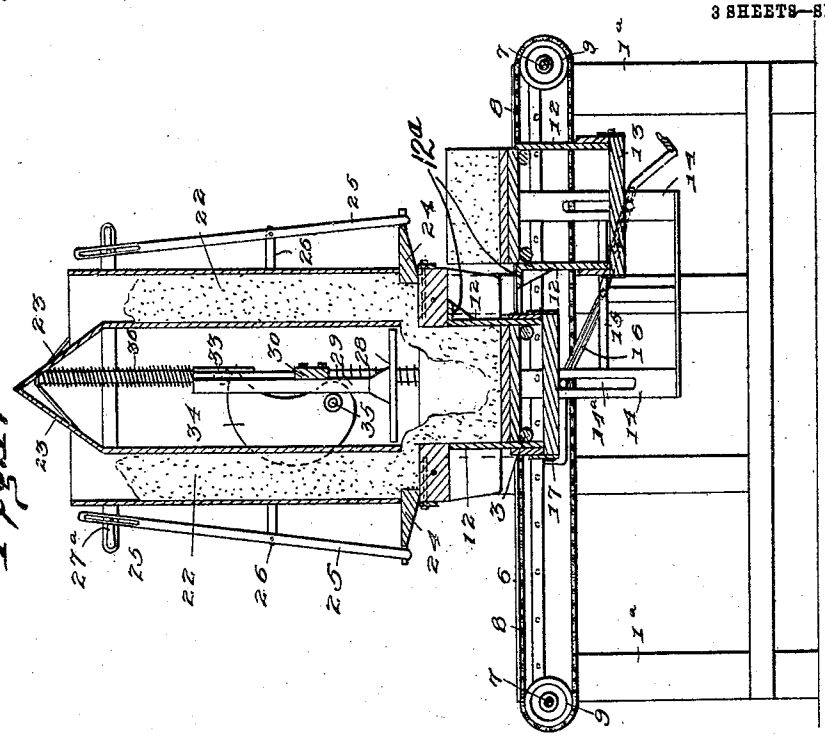
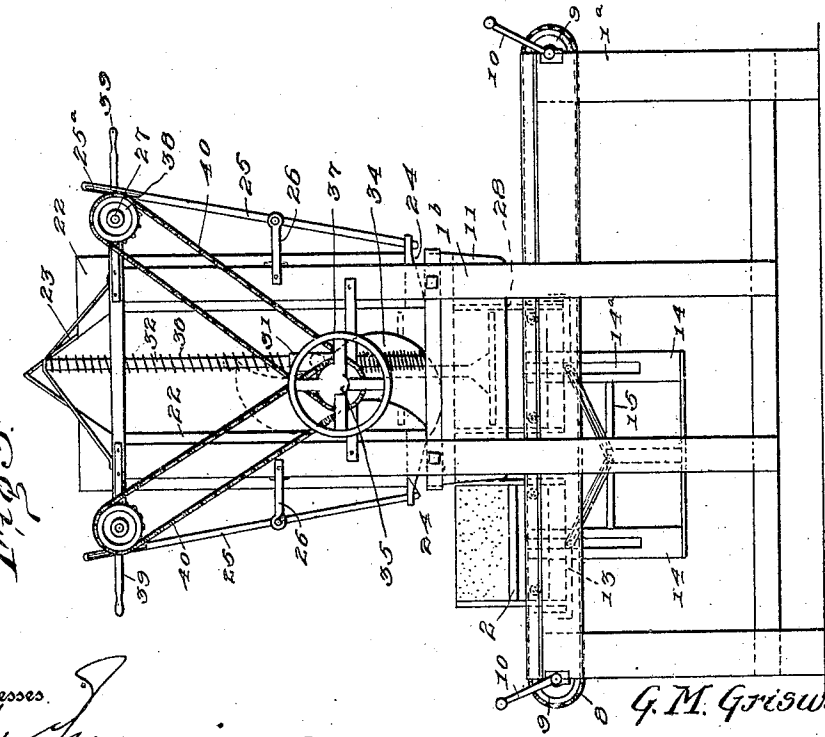


Fig. 3.



Witnesses.

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UNITED STATES PATENT OFFICE.

GEORGE M. GRISWOLD, OF KINGMAN, KANSAS.

BRICK-MACHINE.

No. 928,913. Specification of Letters Patent. Patented July 20, 1909.

Application filed April 24, 1908. Serial No. 429,073.

To all whom it may concern:

Be it known that I, GEORGE M. GRISWOLD, citizen of the United States, residing at Kingman, in the county of Kingman and State of Kansas, have invented certain new and useful Improvements in Brick-Machines, of which the following is a specification.

The present invention relates to an improved machine for forming bricks from concrete or other plastic material, and the object of the invention is the provision of a novel machine of this character which is so constructed as to be continuous in its operation, one set of bricks being in the process of formation while those previously formed are being removed from the machine.

The invention further contemplates a novel means for automatically feeding the concrete or other plastic material to the molds, and tamping it in position therein.

A still further object of the invention is the provision of a novel form of mold which admits of the finished bricks being readily removed from the machine without injury.

With these and other objects in view that will more fully appear as the description proceeds, the invention consists in certain constructions and arrangements of the parts that I shall hereinafter fully describe and then point out the novel features thereof in the appended claims.

For a full understanding of the invention and the merits thereof, and to acquire a knowledge of the details of construction, and the means for effecting the result, reference is to be had to the following description and accompanying drawings, in which:

Figure 1 is a side elevation of a brick machine embodying the invention; Fig. 2 is a horizontal sectional view of the same, the hoppers being removed; Fig. 3 is an end view of the machine, the tamping plates being in a lowered position; and, Fig. 4 is a transverse sectional view with the tamping plates in an elevated position.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

The supporting frame of the machine comprises a lower portion 1^a having a pallet 2 mounted thereon to move horizontally, and an upper portion 1^b carrying a feeding and tamping mechanism, the pallet 2 being provided with two sets of molds adapted to be moved alternately into coöperative relation with the feeding and tamping mechanism.

Specifically describing the pallet 2, it will be observed that it is mounted upon a series of cross bars 3, provided at their extremities with the grooved rollers 4 adapted to travel upon the horizontal tracks 5. For the purpose of preventing the concrete or other plastic material from dropping upon the tracks 5, and interfering with the free movement of the pallet, hoods 6 are utilized, which project over the tracks and rollers. A transverse shaft 7 is journaled at each end of the lower portion 1^a of the supporting framework, and endless chains 8 pass around sprocket wheels 9 upon the said shafts and are connected to the pallet 2. It will thus be obvious that by turning the shafts 7, the pallet 2 can be caused to travel back and forth upon the tracks 5, and for this purpose, each of the shafts 7 is provided with a crank handle 10.

As previously mentioned, the pallet 2 carries two sets of molds adapted to move alternately into coöperative relation with the feeding and tamping mechanism, and the sides of these molds are in the nature of vertical plates 11 carried by the supporting framework of the machine, and having a spaced and parallel relation to each other, the distance between the various plates corresponding to the thickness of the bricks to be molded, and the plates having the same general direction as the movement of the pallet. The end pieces 12 of the molds, are carried by the pallet, and are mounted to move vertically, so as to be lowered below the pallet when it is desired to remove the finished bricks therefrom. In the present instance, the end pieces 12 of each set of molds, are secured to a member 13 which is disposed under the pallet, and is mounted to move vertically between guide members 14 pendent from the pallet. For this purpose, the guide members are formed with the slots 14^a, loosely receiving pins 13^a projecting from the ends of the members 13. The guides 14 upon each side of the pallet, are connected by a cross bar 15, and pivotally mounted upon an intermediate portion of this cross bar, are the locking levers 16, adapted to hold the members 13 in an elevated position with the ends 12 of the mold projecting above the pallet. The locking levers 16 are shown as having an approximately U formation, the two arms of each

of the locking levers having a sliding connection with the pins 13[a] of the corresponding member 13, while the cross bar is adapted to be secured to the outer edge of the said member 13, by means of a catch 17. It will thus be obvious that when the locking lever 16 is swung upwardly and caused to engage the catch 17, the member 13 will be elevated, and the ends 12 of the molds held in an operative position. However, when the catch 17 is released, the member 13 will drop to the limit of its downward movement, and the ends 12 will be lowered below the pallet, so as to leave the finished bricks unobstructed and in such a position that they can be readily removed from the machine without injury.

The plates 11 constituting the sides of the molds, have the blocks 18 interposed between the upper portions thereof at their opposite ends, the upper surfaces of the blocks being flush with the upper edges of the plates, and the space between the plates being unobstructed between the ends thereof. Longitudinal bolts 19 pass through the blocks 18 and plates 11, and serve to secure the said members together, and a transverse bolt 20 connects each of the blocks 18 to the side of a rectangular frame 21, the ends of the said frame being bolted or otherwise rigidly secured to the upper portion 1[b] of the framework of the machine.

A hopper 22 is mounted upon each side of the upper portion 1[b] of the supporting framework of the machine, the said hoppers being adapted to discharge upon the respective rows of blocks 18, and having their upper ends flared inwardly and connected by an arch member 23. This arch member comprises a pair of inclined surfaces, so that the concrete or other plastic material dropped upon the same, will be divided into two streams which are guided into the respective hoppers. A slide 24 is mounted to reciprocate horizontally under the discharge end of each of the hoppers 22, and the said slides, when moved inwardly, serve to close the discharge openings of the hoppers, and also serve to force the concrete dropped upon the blocks 18 inwardly so that it will fall into the molds. The outer edge of each of the slides 24 is loosely connected to one end of a pair of levers 25, said levers being pivotally mounted at an intermediate point upon brackets 26, while their opposite ends are slotted at 25[a] and loosely receive crank portions 27[a] of a shaft 27 journaled upon the upper portion of the machine. It will thus be obvious that as the shaft 27 is rotated, the slide 24 will be reciprocated back and forth under the discharge end of the hopper, the material within the hopper being dropped upon the blocks 18, when the slide is moved outwardly, and being forced inwardly so as to fall into the molds when the slide is moved inwardly.

A tamping plate 28 is provided for each of the molds, and these tamping plates are carried by stems 29 which are secured to a vertically reciprocating frame 30. The opposite ends of this frame 30 are provided with sockets 31, loosely receiving vertical guide rods 32 upon the supporting frame of the machine, and also with rollers 33 designed to engage cam members 34 upon the main shaft 35 which is journaled between opposite sides of the upper portion 1[b] of the supporting framework. Surrounding the guide rods 32 and bearing against the sockets 31, are the coil springs 36 which normally tend to force the frame 30 downward. It will thus be apparent that as the main shaft 35 revolves, the cam members 34 will engage the rollers 33 and elevate the frame 30 against the action of the springs 36, and that as soon as the cam members pass under the rollers 33, the frame will be released and forced downwardly by the springs 36, in such a manner as to actuate the tamping members 28.

A drive wheel 37 is applied to the main shaft 35, and means is provided for transmitting motion from the main shaft to the shafts 27 which control the slides 24. A sprocket wheel 38 is loose upon each of the said shafts 27, and is adapted to be locked with the shaft by means of a suitable clutch mechanism controlled by a hand lever 39. A chain 40 passes around each of the sprocket wheels 38 and a corresponding sprocket wheel upon the drive shaft 35, so that when the sprocket wheels 38 are locked with the shafts 27, motion will be transmitted to the latter members from the main shaft, and concrete fed to the molds from the hoppers. However, it will be obvious that should it be found desirable, the sprocket wheels 38 may be released by suitably manipulating the hand levers 39, and the flow of concrete to the molds thereby shut off.

In the operation of the machine, the pallet 2 is moved to throw one set of the molds between the plates 11, and in coöperative relation with the feeding and tamping mechanism, the end pieces 12 of the said molds being held in an operative position by swinging the corresponding locking lever 16 upwardly into engagement with the catch 17. As the main shaft 35 rotates, the tamping members 28 are successively elevated and then forced downwardly within the molds, and when these tamping members are raised, the slides 24 force concrete into the molds. In this manner the blocks or bricks are built within the molds, and when they have reached the proper height, the pallet 2 is moved to bring the opposite set of molds into operative position. However, as those bricks which have just been formed are moved from the tamping and feeding devices, the blocks 18 remove all surplus material from the top thereof, and impart a smooth, even surface to the top. In this connection attention is directed

to the fact that the inner end 12 of each mold is formed at its upper end with a shelf 12^a, the two shelves 12^a upon adjacent molds being adapted to fit closely together when the ends are elevated so that the surplus material removed from the top of one mold by the blocks 18 will be directed into the opposite mold. After the molds, which have thus been filled, are moved outwardly and the opposite set of molds drawn under the feeding and tamping mechanism, the locking lever 16 is released and the ends 12 of the molds thereby lowered under the pallet. The finished bricks are then totally unobstructed, and can be readily removed from the pallet without danger of injury. This operation may be repeated indefinitely, and a continuous supply of bricks produced by the machine, one set of molds being filled while the bricks are being removed from the opposite set.

Having thus described the invention, what I claim is:

1. In a machine of the character described, the combination of a pallet, guides carried by the pallet, members slidably mounted upon the guides, ends carried by the said members for two sets of molds, the said ends being adapted to be lowered into an inoperative position, a common set of sides for the molds, and means for bringing the sides into coöperative relation with either set of ends.

2. In a machine of the character described, the combination of a pallet, guides pendent from the pallet, members slidably mounted upon the guides, ends carried by the said members for two sets of molds, the said ends being adapted to be lowered below the pallet, locking levers for holding the members in an operative position, a common set of sides for the molds, and means for bringing the sides into coöperative relation with either set of ends.

3. In a machine of the character described, the combination of a supporting frame, a pallet, sides, a block interposed between the sides, ends, a hopper mounted to discharge upon the block, a slide for controlling the feed from the hopper, the slide also serving to move the material from the block into the mold, and a tamping mechanism mounted upon the frame.

4. In a machine of the character described, the combination of a supporting frame, a pallet movably mounted upon the frame, stationary sides carried by the frame, ends upon the pallet for coöperation with the sides to form a mold at one position of the pallet, a block between the sides for coöperation with the ends to remove surplus material from the mold, a hopper mounted to discharge upon the block, a slide for controlling the feed from the hopper and for moving the material from the block into the mold, and a tamping mechanism mounted upon the frame.

5. In a machine of the character described, the combination of a supporting frame, a mold, a pair of hoppers mounted upon the supporting frame, slides mounted to reciprocate across the discharge openings of the hoppers to control the supply of plastic material to the mold, a tamping mechanism mounted between the hoppers, and gearing connecting the tamping mechanism and the slides.

6. In a machine of the character described, the combination of a supporting frame, horizontal tracks for the supporting frame, a pallet mounted to travel upon the horizontal tracks, ends carried by the pallet for two sets of molds, spaced plates carried by the supporting frame and constituting a common set of sides for the molds, means for moving the pallet to throw either set of ends into coöperative relation with the plates, blocks between the plates for removing surplus material from the molds, a pair of hoppers upon the supporting frame, reciprocating slides controlling the feed from the hoppers to the molds, a vertically reciprocating frame mounted between the hoppers, and tamping members carried by the said reciprocating frame.

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

GEORGE M. GRISWOLD. [L. S.]

Witnesses:

ROBERT S. CATES,

C. N. HORWOOD.