Aug. 23, 1927. 1,639,855

W. H. McCLELLAND

HOPPER LATCH

Filed June 2, 1926 2 Sheets-Sheet 1

Fig. 1.

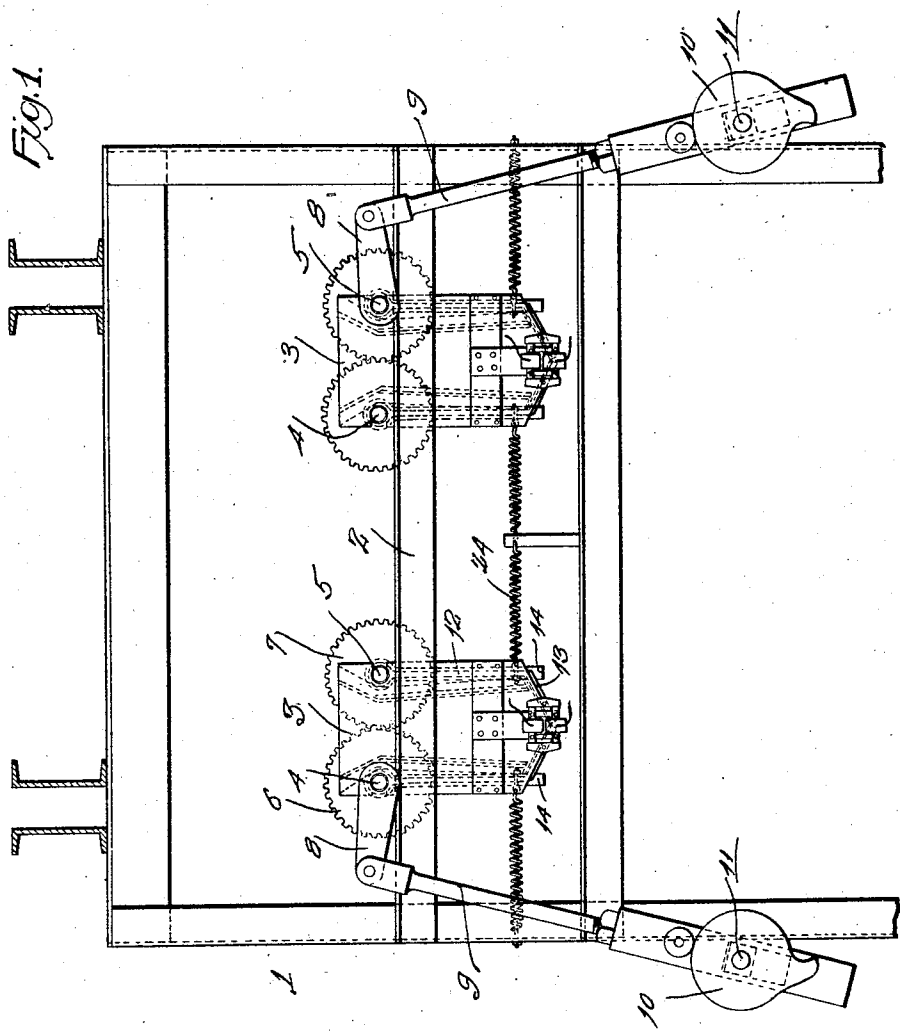
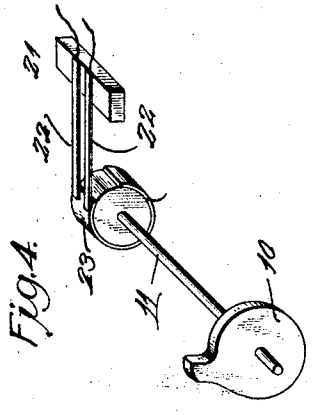


Fig. 4.



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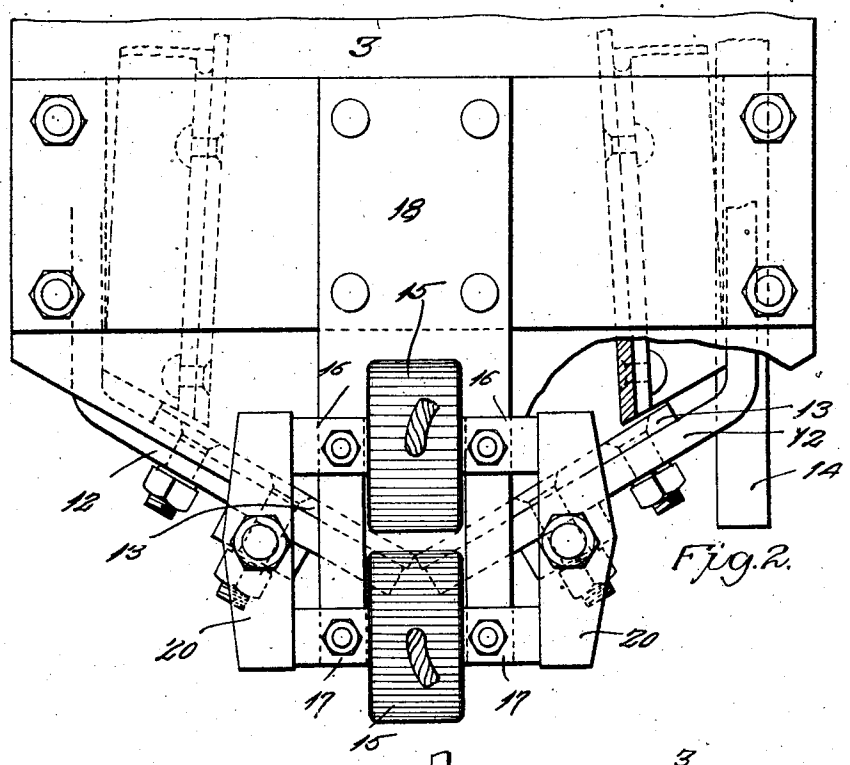
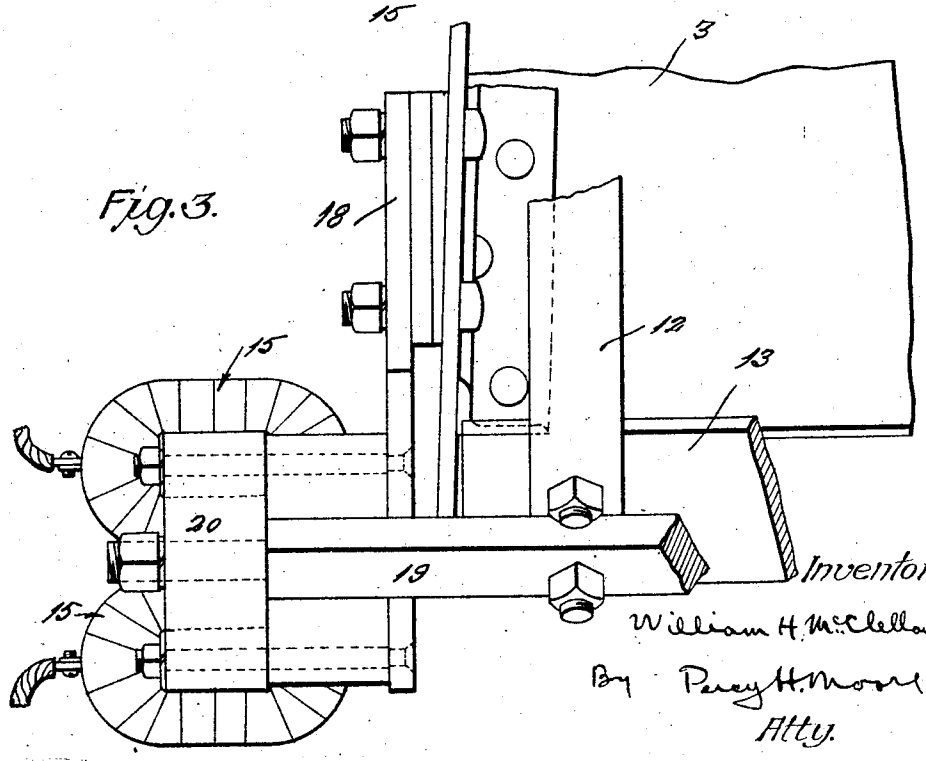


Fig. 2.

Fig. 3.



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UNITED STATES PATENT OFFICE.

WILLIAM H. McCLELLAND, OF HUNTINGDON, PENNSYLVANIA, ASSIGNOR TO DAVIS BRICK MACHINERY COMPANY, OF MOUNT UNION, PENNSYLVANIA.

HOPPER LATCH.

Application filed June 2, 1926. Serial No. 113,280.

My invention relates to improvements in brick making machines and is more particularly directed to means employed therein for depositing green mud, from which the brick is formed, into molds as they are moved toward the baking furnace, or to their discharge positions. The subject matter of this application is directed to means for holding movable doors of the hopper in a closed position, the hopper being broadly claimed in my co-pending application filed June 2, 1926 and bearing Serial No. 113,279.

It is the object of the present invention to provide means for holding the movable doors of a hopper in a closed position against the pressure exerted thereupon by the contents of the hopper.

A further object of my invention is to provide a hopper having a movable bottom composed of two parts, each of which carries an element cooperating with a common element for holding the bottom in a closed position.

Still another object of my invention is to provide electrically operated means for holding the movable bottom of a hopper in a closed position, said means being operated by certain moving parts of the machine proper.

With the above and other objects in view, the nature of which will be more fully understood from the description hereinafter, my invention consists in the novel construction and arrangement of parts which will be more fully hereinafter set forth and defined in the claims.

In the accompanying drawings,

Figure 1 is a side elevation of a part of a brick making machine, the same having mounted thereupon hoppers provided with movable bottoms and which are held closed by certain electrically operated elements.

Figure 2 is an enlarged detail view illustrating a portion of a hopper bottom with the means for holding the bottom in a closed position.

Figure 3 is an enlarged detail view showing a side elevation of Figure 2, and

Figure 4 is a perspective view showing in detail the electrically operated means for controlling the latch mechanism.

Referring to the accompanying drawings in detail, wherein like reference characters denote the corresponding parts throughout the several views, the numeral 1 indicates, in general, the frame of a brick making machine, the same having mounted therein my improved hoppers and the operating means therefor, all of which are more specifically set forth in my copending application hereinabove mentioned.

Briefly summarizing the structure of the hopper and its operating element, the frame 1 has secured thereto a plurality of horizontally disposed side bars 2, to which is connected the side walls of a material receiving hopper 3. Mounted for oscillation in suitable bearings carried by the side bars 2, and upon each side of the hopper are shafts 4 and 5, each of which is provided with intermeshing gears 6 and 7 secured upon one end. Secured to the other end of the shaft 4 is an arm 8, the free end of which has connected thereto a pitman 9 which is moved up and down by a rotating cam 10 secured to a driven shaft, 11.

The shafts 4 and 5 have loosely mounted thereon arms 12, the free ends of which are bent under the bottom of the hopper 3 and have secured thereto plates 13 which form the bottom of the hopper 3. Fixed to the shafts 4 and 5 are arms 14 which are adapted to engage the rear edges of the plates 13 and swing them to a closing position during the oscillation of the shafts 4 and 5. When the plates 13 are moved to approximately their closed position, the latch mechanism which is considered the salient point of this invention, then operates and holds the two plates in such a position that the passage of material through the hopper 3 is prevented.

As disclosed in Figures 2 and 3, the latch mechanism includes a suitable solenoid 15 having pole pieces 16 and 17. This solenoid is connected to the end plate of the hopper by a bracket 18. Fixed to the under portion of the movable bottoms 13, of the hopper 3, are longitudinally extending bars 19, the free ends of which have pivotally mounted thereon, at its intermediate portion, armatures 20 which are adapted to engage the pole pieces 16 and 17. The solenoid 15 is connected to a suitable source of electrical supply, not disclosed, which includes a switching element 21, the same being composed of a pair of spaced fingers 22 which

are bridged by a rotating contact plate 23 secured to the shaft 11 upon which the cam 10 is mounted.

Having thus fully described my invention, it will be apparent that upon rotation of the cam, the arms 14 will be moved to a position which will permit the plates 13 to swing outwardly from under the bottom of the hopper 3 by the action thereupon of springs 24 upon the opening of the electrical circuit, at which time the material contained within the hopper will be permitted to pass freely therefrom and drop within suitable molds carried upon a conveyor. Furthermore, it will be noticed that the magnets control the movement of operation of the bottom, that is, they insure the movement of the bottom sections together. Upon a continued rotation of the cam 10 the arms 14 will move backwardly thus engaging the rear edges of the plates 13 moving them to a closing position and at which time the electrical circuit including the solenoid 15 will be completed and by reason of the armatures 20 engaging the pole pieces thereof, the plates 13 will be held in a closed position. During the operation of the mechanism herein described it will be of course assumed that the arms 14 engage the plates 13 only for the purpose of moving them to a closing position and after the same has been accomplished, the arms 14 are then inactive until the next closing operation of the hopper occurs.

From the foregoing, it is thought that the construction, operation and many advantages of the herein described invention will be apparent to those skilled in the art, without further description, and it will be understood that various changes in the size, shape, proportion and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

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

1. A hopper of the class described having a bottom composed of two sections adapted to move one away from the other, means for moving said sections to a closing position, a magnet supported by said hopper and adapted to be engaged by armatures carried by each of said sections, and means controlled by the first said means for energizing said magnet to hold the sections in a closed position.

2. A hopper of the class described having a bottom composed of two sections, means for moving the bottom to a closed position, a magnet fixed with respect to said hopper and adapted to be engaged by armatures carried by each of said bottom sections, and said magnet adapted to be energized upon the operation of the first said means.

In testimony whereof I affix my signature.

WILLIAM H. McCLELLAND.