

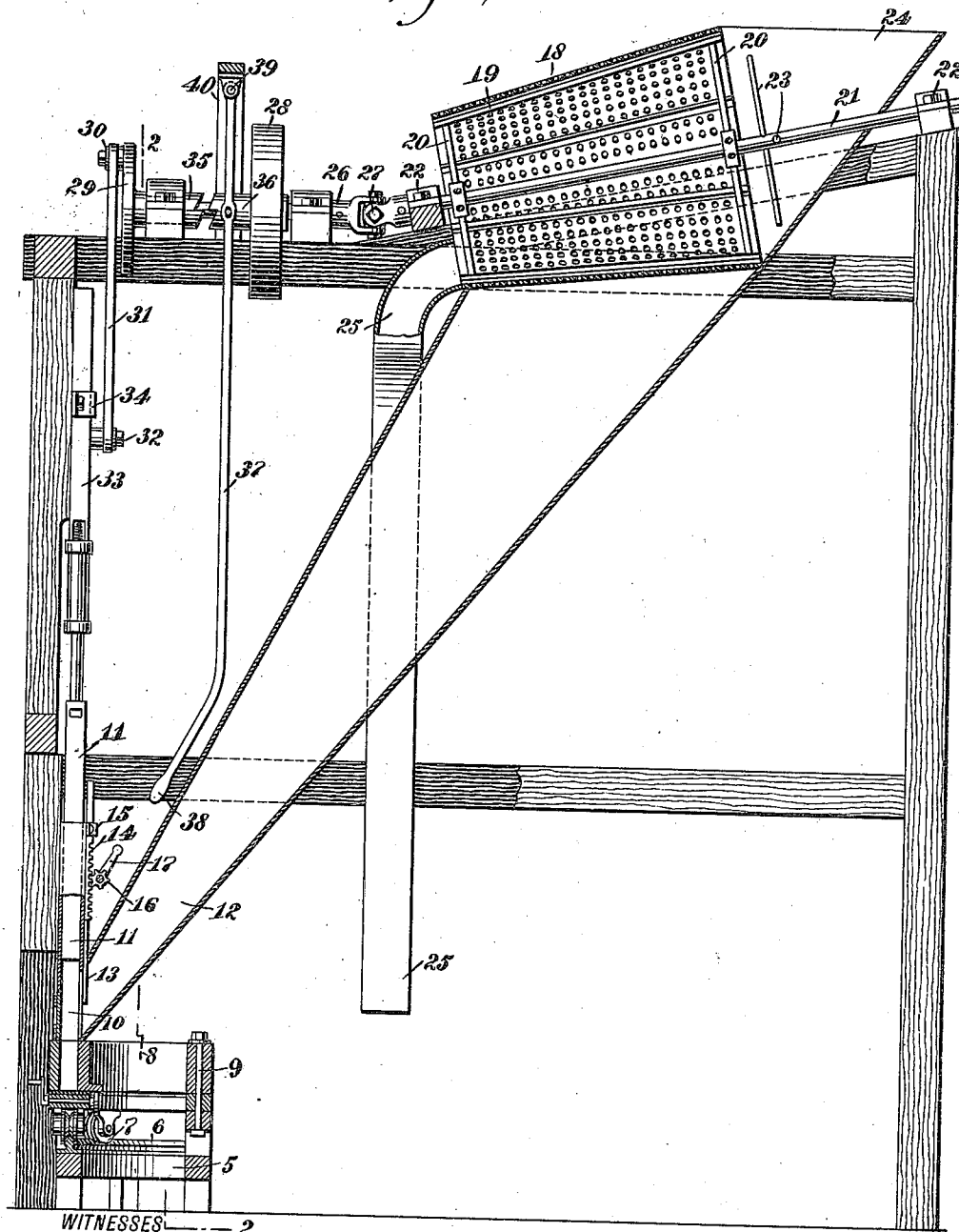
F. H. HUBER.
CEMENT BLOCK MACHINE.
APPLICATION FILED MAY 29, 1909.

964,257.

Patented July 12, 1910.

3 SHEETS—SHEET 1.

Fig. 1,



WITNESSES — 2

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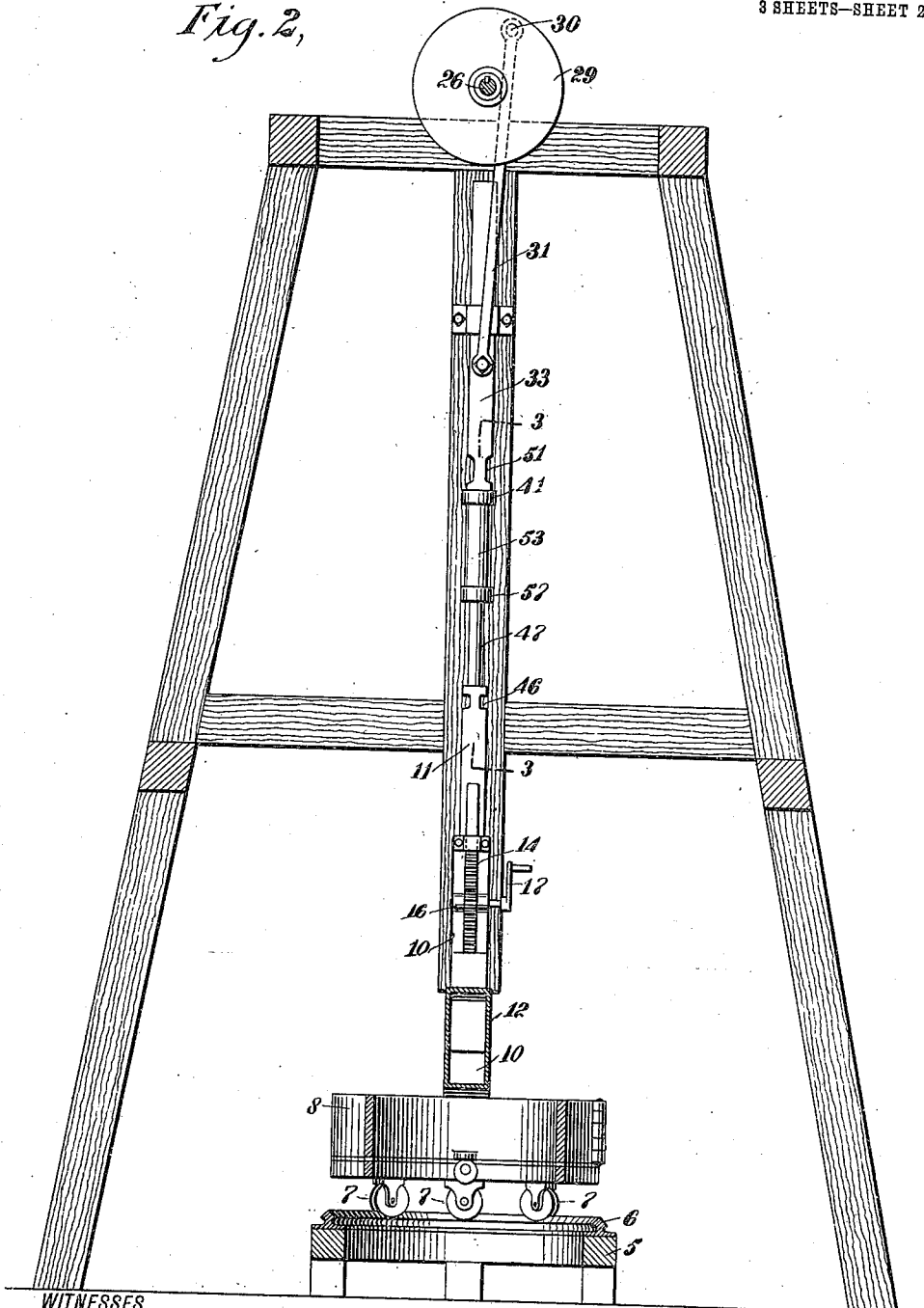
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3 SHEETS—SHEET 2.

Fig. 2,



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3 SHEETS—SHEET 3.

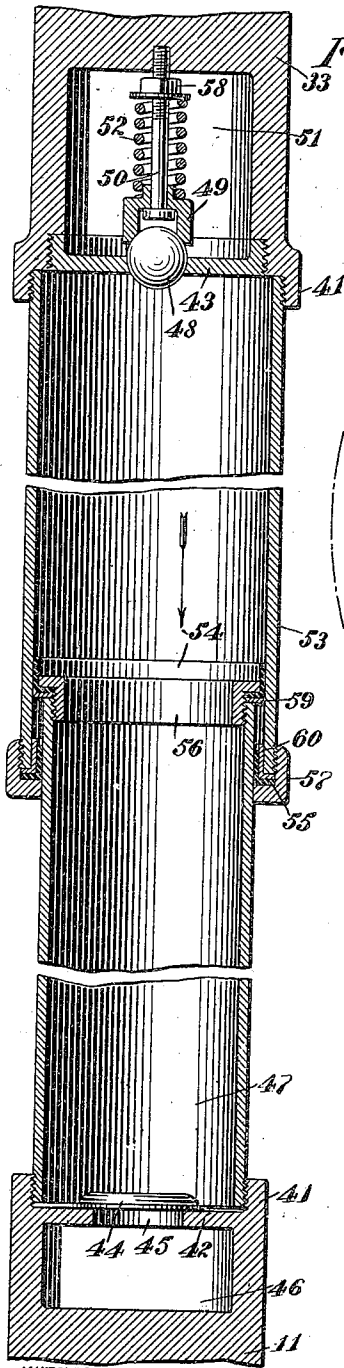


Fig. 3.

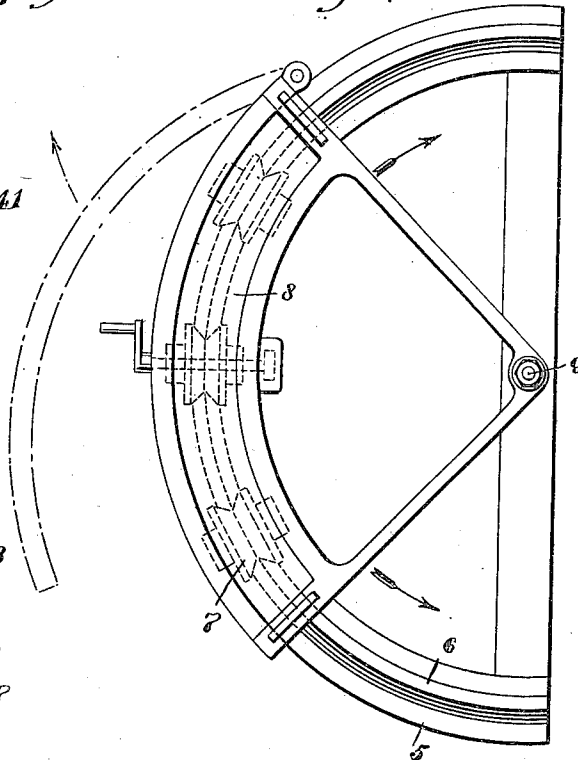


Fig. 4.

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UNITED STATES PATENT OFFICE.

FRANK H. HUBER, OF GLIDDEN, WISCONSIN.

CEMENT-BLOCK MACHINE.

964,257.

Specification of Letters Patent.

Patented July 12, 1910.

Application filed May 29, 1909. Serial No. 499,121.

To all whom it may concern:

Be it known that I, FRANK H. HUBER, a citizen of the United States, and a resident of Glidden, in the county of Ashland and State of Wisconsin, have invented a certain new and useful Cement-Block Machine, of which the following is a full, clear, and exact description.

The principal objects which the present invention has in view are: to provide a mechanism for constructing cement blocks, partly automatic, rapid in its operation, and under manual control; to provide a pressure mechanism for tamping the material as molded, regulated to a predetermined pressure; to provide a manually controlled feed for the plastic material being used; and to simplify the construction and arrangement of the various elements entering into and forming part of this invention.

One embodiment of the invention is disclosed in the structure illustrated in the accompanying drawings, wherein like characters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation, partly in section, of a machine constructed in accordance with the present invention; Fig. 2 is a vertical cross section of the same, taken on the line 2—2 in Fig. 1; Fig. 3 is a longitudinal vertical section, taken on the line 3—3 in Fig. 2, of the equalizing member of the tamper pressure mechanism; and Fig. 4 is a plan view of a mold used in connection with the present invention.

Any form of mold may be used in conjunction with this machine; that shown in the drawings is a form preferred by me and forms the subject of a separate application for Letters Patent of the United States, filed by me under even date herewith.

Upon a bed 5 is mounted a suitable track 6 upon which are mounted the wheels 7 of a truck or frame carrying the mold 8. In the drawings the track bed and track are shown as curved to operate the truck about a central bolt 9. This construction may be substituted by a straight track bed and track if desired, and if the mold be rectilinear in shape. Whatever the form of the mold it is introduced directly below a guide 10, which is vertically disposed to form a guide for the reciprocation of a tamper ram 11. Into the guide 10, and at the lower end thereof, a chute 12 delivers its contents. The opening from the chute 12 into the guide 10

is controlled by a vertically operating gate 13, suitably provided with a rack bar 14 mounted thereon, which rack bar is guidably mounted at 15. The rack bar 14 is in toothed engagement with a pinion 16, on the shaft of which is fixedly mounted a crank handle 17. The arrangement of the crank handle 17, the pinion 16, and the rack bar 14, is such, that by the turning of the handle 17 the gate 13 is raised and lowered, closing wholly or partly the opening of the chute 12 into the guide 10.

At the upper end of the chute 12 the same is flared as shown in Fig. 1 of the drawings, and has mounted therein a screen 18. The screen 18 is of any desired construction and arrangement, that shown in the drawings being one in which the outer walls are built of perforated metal supported by rods 19, mounted on suitable spokes 20 at both ends of the screen 18. The hubs carrying the spokes 20 are mounted upon an inclined shaft 21, which is suitably carried in bearings 22 at either end of the said shaft. Above the screen on the inclined shaft are mounted radially extended arms 23, the purpose of which is to stir up and separate the materials which are fed to the screen 18 by being dumped into a hopper 24.

It will be understood that all the material from which the cement blocks are manufactured is poured into the hopper 24, and mixed in the screen 18, and passed to the chute 12, and thence, when permitted by the gate 13, into the mold 8. The screen 18 separates out the material too large to pass the mesh thereof, and empties the said material into a chute 25 which conveys the same away to a convenient dump. There is thus insured an admittance to the mold of only that class and character of material of which it is designed the block shall be formed.

The screen 18 is rotated, the connection between the inclined shaft 21 and a horizontal shaft 26 upon which the driving mechanism is mounted, being made through a knuckle connection 27, the shaft 26 having fixedly mounted thereon a driven pulley 28. By means of this arrangement the screen 18 is continuously rotated upon its axis, which is the shaft 21.

The tamper ram 11 is reciprocated within the guide 10 to extend into the mold 8 when the same is in line to close the opening of the chute 12, said ram being raised and lowered by a face disk 29, which is mounted

loosely upon the shaft 26. The face disk 29 has extended therefrom a wrist pin 30, to which is pivotally connected a connecting rod 31, which is similarly connected to a pin 32 mounted upon and extended from the side of the guide bar 33. The guide bar 33 is guidably mounted in a bracketed slot member 34. As the disk 29 is rotated, there is imparted through the rod 31 a reciprocating motion on the part of the bar 33. The disk 29 is rotated only when the stationary clutch face 35, which is rigidly engaged with the disk 29, is engaged by a slidable clutch element 36, which, like the usual construction for clutches of this character, is mounted upon the shaft 26, and engaged therewith by a feather or a spline. The movable clutch 36 is moved into engagement with the element 35 by means of a lever 37, the handle 38 of which is extended to the station of the operator of the machine, and within convenient reach of the said operator. The lever 37 is pivotally mounted at 39 in a yoke 40 extended from the top of the framework of the machine. Whenever the operator throws the lever 37 in such manner as to engage the clutch members 35 and 36, a reciprocating action is produced upon the tamper ram 11, which operates to pack firmly any loose material which is delivered into the mold 8.

It is evident that if the mechanism for driving the tamper ram 11, were rigid, the tamper would be subject to breakage, and the top surface only of the block could be properly tamped. It is to accommodate this need that I have introduced the equalizing mechanism shown in detail in Fig. 3 of the drawings. The bar 33 and the ram 11 are each connected with screw threaded extensions 41—41, which are upset above valve seats 42 and 43. In the drawings, the valve seat 42 is shown as being formed integrally with the upper end of the ram 11. This may be varied by having the seat inserted by being screwed therein as is shown in the seat 43. The valve 44 in the ram 11 is of the ordinary clapper type. The valve opening 45 leads into a space 46, provided as a passageway for the air entering the tube 47, of the equalizing member. The valve controlling the upper valve seat is a ball 48, held in position by an inverted cup 49, which is guidably mounted upon a bolt 50. The bolt 50 is screwed into a recess provided in the upper end of a space 51, which forms an air passage when the ball 48 is lifted from its seat. The ball 48 is maintained in the closed position by a spring 52 which is mounted as shown in Fig. 3 of the drawings, surrounding the neck of the inverted cup 49 and the bolt 50. Into the two extensions 41—41 are screwed tubes 47 and 53, these tubes being telescopically arranged, and the joint is rendered air

tight by means of packings 54 and 55. The packings are of any suitable and known type, being secured in position by glands 56 and 57, secured to the tubes 47 and 53, respectively, and in a manner substantially as shown in Fig. 3 of the drawings.

When the equalizing mechanism is thus constructed and arranged, the operation is as follows: When in the descent of the ram 11 the bar 33, being forced thereto by the disk 29 and connecting rod 31, reaches a pressure upon the block within the mold sufficient to raise the ball 48 from its seat 43 against the pressure of the spring 52, the ram 11 and bar 33 are forced the one toward the other, the pressure upon the mold remaining constant and at the predetermined weight or force. The force required to thus compress the tubes 47 and 53 together, is varied by means of a nut 58. This variation is produced by screwing the said nut 58 down upon the spring 52 to increase the tension of the same; by reversing the operation the tension of the spring 52 is diminished. Whenever the tubes 42 and 53 have been telescoped and the bar 33 has reached its lowest position and started on its upward move, the valve 48 is immediately seated by the spring 52. The rarefaction which is produced by lifting the tube 53, away from the tube 48, lifts the valve 44 from its seat, permitting air to flow freely into the tubes 47 and 53, allowing the said tubes to separate until a collar 59 under the packing of the one tube strikes upon a collar 60 under the packing of the other tube. From this point the bar 33 in its ascent raises the ram 11. On the descent of the parts, after every rise, they are in position to be collapsed only by overcoming the seating pressure of the spring 52 upon the valve 48. When in the opinion of the operator the feed from the chute 12 is too rapid, by turning the handle 17 he may adjust the gate 13 to regulate, limit or stop the flow of the plastic material passing into the guide 10.

It will be understood that the operation of the screen 18 and the mixing conducted therein is continuous, and the supply of material therefrom to the chute 12 is constant. By limiting the aperture by means of the gate 13 the flow of material is regulated so that the amount delivered during the upward extension of the ram 11 is that which is desired for the packing operation of the ram when the same is depressed. The ram in each of the depressions closes the opening of the chute 12 completely. In the reciprocation of the ram 11 it performs the double function of ramming the material and suspending the delivery thereof by closing the delivery end of the chute 12.

It will be understood that in the operation of this machine, as each mold is filled and rammed, the lever 37 is thrown back to dis-

engage the clutch members 35 and 36, the gate 13 having been closed. This completely arrests the action of the machine except the driving mechanism and the screen 18, these continuing to run as long as the motive power is applied. The mold 8 is then drawn from under the guide 10 and moved to one side to set a succeeding mold taking its place.

By handling a machine of the character described, great speed can be attained in the molding of cement blocks of various shapes and density.

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

1. A cement block machine, comprising a mold bed, a tamper ram vertically mounted above said bed, a guiding chute for said ram, having a gate controlled opening in the side thereof disposed to be closed by said ram in its lowest position, a rotary mixing drum having a selecting screen removing particles too large for the cement, a chute adapted to receive the cement as mixed by said mixing drum to deliver the same to said guiding chute, a continuously operating rotary mechanism for operating the said drum and said ram, a reciprocating mechanism for said ram, interposed between said ram and said rotary mechanism, and a manually controlled device for engaging the said reciprocating mechanism with said rotary mechanism.

2. A cement block machine comprising a mold bed; a mold mounted on said bed; a reciprocating tamper ram vertically mounted in guides above said mold; a mixer mounted above the said mold; a delivery chute extended from said mixer to said mold and embodying a vertical extension adapted to aline with said mold and to act as a guide for said ram, said vertical extension being provided with a side opening adapted to be closed by said ram to arrest the flow from said chute; and means for varying the area of the said opening.

3. A cement block machine comprising a mold bed; a mold mounted on said bed; a reciprocating tamper ram vertically mounted in guides above said mold; a mixer mounted above the said mold; a delivery chute extended from said mixer to said mold and embodying a vertical extension adapted to aline with said mold and to act as a guide for said ram, said vertical extension being provided with a side opening adapted to be closed by said ram to arrest the flow from said chute; and a manually controlled gate arranged to vary the area of the said opening.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FRANK H. HUBER.

Witnesses:

JOSEPH MOHR,
HARRY C. BEAL.