F. R. STEHM.

ARTIFICIAL STONE MACHINE.

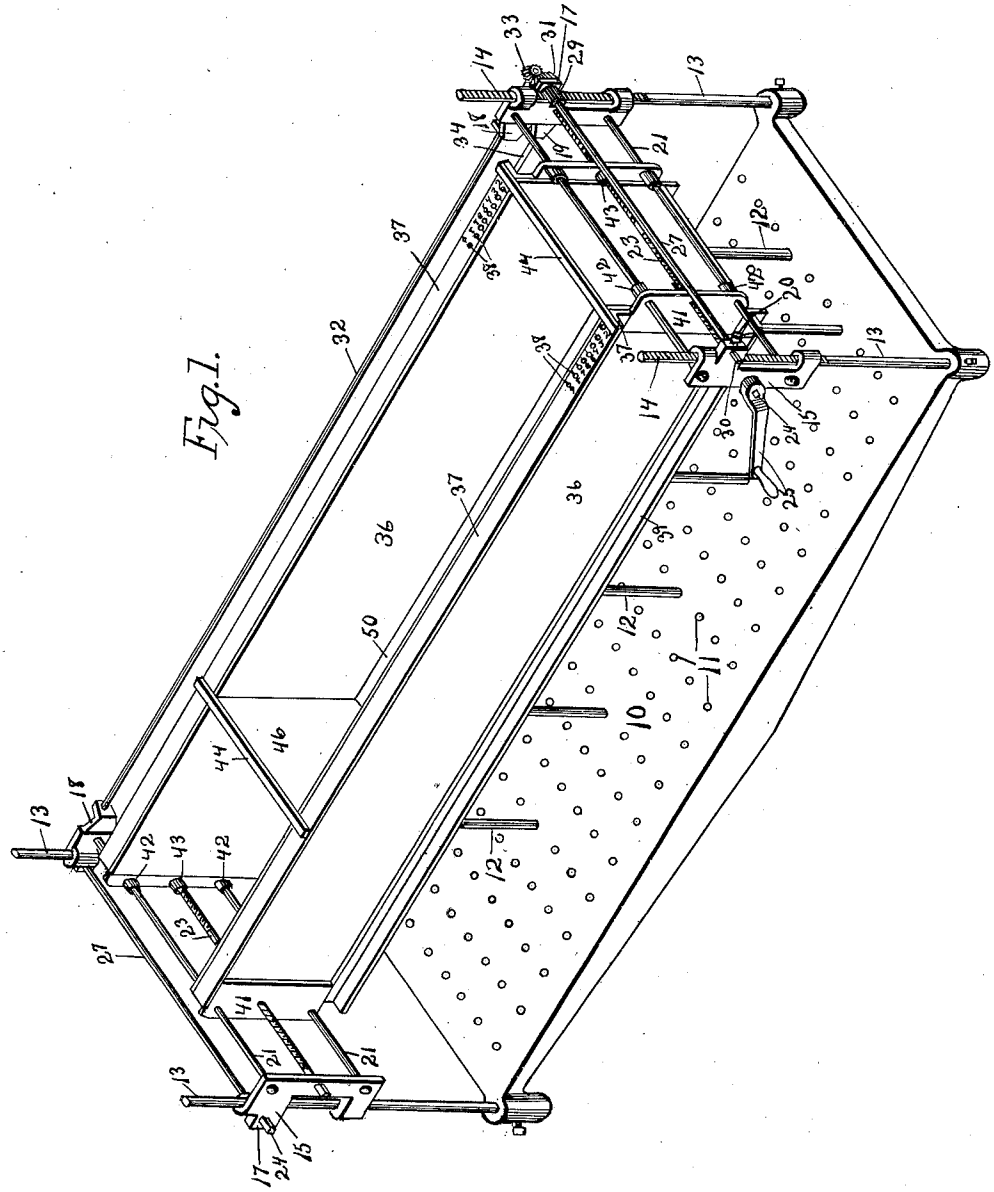
APPLICATION FILED JUNE 24, 1905.

1,100,452.

Patented June 16, 1914.

3 SHEETS—SHEET 1.

Fig. 1.



Witnesses.
A. E. Woody.
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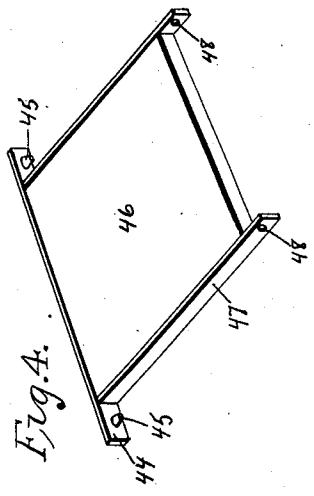


Fig. 4.

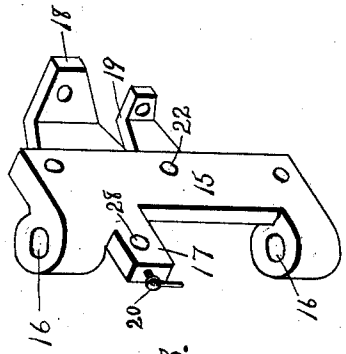


Fig. 3.

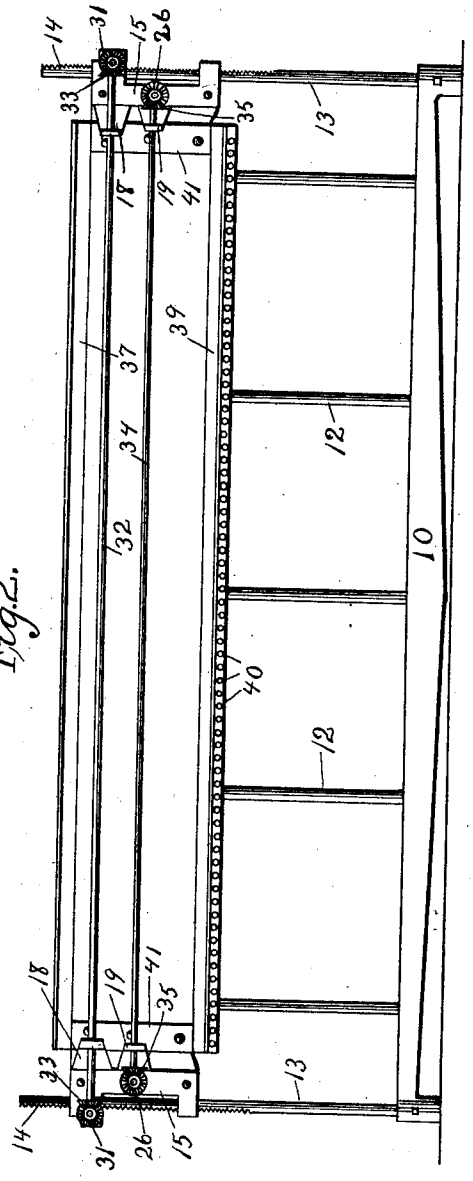


Fig. 2.

Witnesses:
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3 SHEETS—SHEET 3.

Fig. 6.

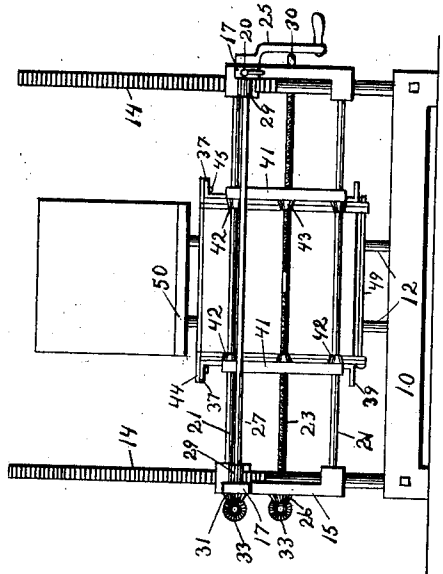


Fig. 7.

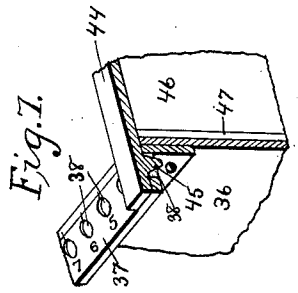
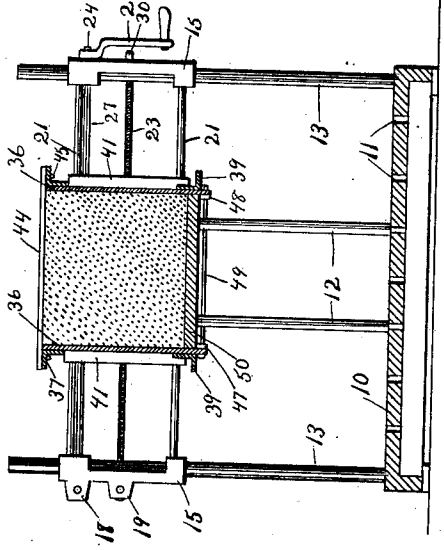


Fig. 5.



Witnesses:
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UNITED STATES PATENT OFFICE.

FRANK R. STEHM, OF DES MOINES, IOWA, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO THE ENAMEL CONCRETE AND MACHINERY COMPANY, OF DES MOINES, IOWA, A CORPORATION OF SOUTH DAKOTA.

ARTIFICIAL-STONE MACHINE.

1,100,452. Specification of Letters Patent. **Patented June 16, 1914.**

Application filed June 24, 1905. Serial No. 266,876.

To all whom it may concern:

Be it known that I, FRANK R. STEHM, a citizen of the United States, residing at Des Moines, in the county of Polk and State of Iowa, have invented a certain new and useful Artificial-Stone Machine, of which the following is a specification.

The object of my invention is to provide a machine of this class of simple, durable and inexpensive construction, especially designed for use in molding artificial stone of different sizes, such for instance as the door and window, sill and cap stones of houses, and to provide a machine of this class which may be readily, quickly and easily adjusted to mold stones of different dimensions and when so adjusted, the sides of the mold will be firmly held so that any desirable number of stones of a given size may be made, and to provide a machine of this class in which all of the sides will be perfectly straight and regular, and further to provide a machine of this class in which the mold may be quickly and easily lowered relative to the stone and the stone supported in position out of the mold and where it may be easily grasped and off-borne.

My invention consists in certain details in the construction, arrangement and combination of the various parts of the device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims and illustrated in the accompanying drawings, in which—

Figure 1 shows a perspective view of the complete machine embodying my invention set in position to receive a cementitious composition for forming a stone. Fig. 2 shows a side elevation of same. Fig. 3 shows an enlarged detail perspective view of one of the brackets in which the operating shafts are mounted. Fig. 4 shows a detail perspective view of one of the end plates of the mold. Fig. 5 shows a central, transverse, sectional view through the complete machine with a finished stone in the mold thereof. Fig. 6 shows an end elevation of the machine with the mold lowered and the finished stone supported upon the supporting legs above the mold and in position to be off-borne, and Fig. 7 shows an enlarged detail, sectional, perspective view illustrating means for connecting the mold ends with the mold sides and for permitting the mold sides to separate sufficiently to permit the sides to break contact with a stone.

Referring to the accompanying drawings, I have used the reference numeral 10 to indicate the base of the machine preferably cast complete in one piece and formed with vertically arranged openings 11 to receive the supporting legs 12, which supporting legs obviously may be placed in any of these openings as may be required to suitably support the bottom board of a mold. In each corner of the base piece is an upright 13 having a rack 14 formed on its outer face near its upper portion. Slidingly mounted upon each of the uprights 13 is a bracket of the kind illustrated in Fig. 3 and comprising a body portion 15, loops 16 at its upper and lower ends to receive the upright 13 and slidingly support the bracket thereon. Each bracket is also formed with an outwardly projecting lug 17. All of the said brackets are alike in respect to the parts above described. In addition to this, two of the brackets at one side of the machine are provided with lugs 18 and 19, for purposes hereinafter made clear, and one of the brackets at the front of the machine is provided with a set screw 20 in the lug 17. The pair of lugs at each end of the machine are connected with each other by means of the rods 21, which firmly hold them in their respective positions. At about the central portion of each bracket 15 is an opening 22. In each pair of brackets, I have mounted a rotatable shaft 23 in said openings 22. On one end of one of these shafts is an angular projection 24 to receive a crank 25 and on the other end is a beveled pinion 26. The end portions of this shaft are provided with screw threads running in opposite directions, for purposes hereinafter made clear. In each pair of brackets, I have also mounted a rotatable shaft 27 in the openings 28 of the lugs 17. On each end of each of these rods is a pinion 29 in mesh with the racks 14 of the uprights 13 and on one end of said shaft is a squared projection 30 to receive the crank 25 and on the other end is a beveled pinion 31. I have provided for locking the shaft 27 against rotation by means of the said set screw 20 seated in the lug 17 to engage the shaft 27 within said lug. By this

arrangement, I have provided means for moving the pair of brackets up and down on the uprights 13, if desired, by means of the crank 25 and I have provided for locking said brackets in position by means of the set screw 20. It is desirable that the pair of brackets at each end of the machine move up at the same time and it is also desirable, as will hereinafter appear, that the shafts 23 at each end of the machine be rotated in unison. To provide for this, I have rotatably mounted a shaft 32 in the lugs 18 and on its ends I have mounted the beveled pinions 33 to mesh with the beveled pinions 31 and I have also provided a rotatable shaft 34 mounted in the lugs 19 and provided with beveled pinions 35 in mesh with the beveled pinions 26. In this way the same motion that is imparted to the shafts 21 and 23 at one end of the machine is transmitted to the corresponding shafts at the other end of the machine and the up and down movement of the brackets at each end will be exactly the same.

There are two mold sides, each of which comprises a flat plate 36 reinforced and strengthened at its top by an angle bar 37, one side of which is flush with the top of the part 36 and is provided with a row of perforations 38, the centers of said perforations spaced apart at equi-distant points and said perforations provided with indicating numbers, said indicating numbers on one of the rails 37 corresponding exactly with those of the opposite rail 37. As clearly shown in Fig. 7, these openings are slightly oval, their longer axes being arranged transversely of the mold sides, for purposes hereinafter made clear. Near the bottom of the part 36 is another angle bar 39 to reinforce and strengthen said part and the portion of the part 36 below the angle bar 39 is provided with a row of perforations 40 spaced apart the same distance as the perforations 38. At each end of the part 36 is an extension 41 provided with inwardly projecting sleeves 42 at its top and bottom to receive the rods 21 and the central portion of the extension 41 is provided with an extension 43 internally screw threaded to receive the screw threaded portion of the shaft 23. By this arrangement, it is obvious that a rotation of the shaft 23 will move the sides of the mold either to or from each other, each being moved the same distance.

The mold ends, as clearly illustrated in Fig. 4, each comprise a top bar 44 having downwardly projecting rounded lugs 45 at its end portions designed to enter the openings 38. The sides of the lugs engage the sides of said openings but a slight longitudinal movement of the lugs in the openings is permitted. Its body portion 46 is smooth and flat and at the side edges of said body portion are the downwardly projecting bars 47 provided with perforations 48 at their lower ends below their body portions. In use two ends 46 are placed between the sides of the mold and the projections 45 are made to enter perforations 38 in the rails 37, then a rod 49 is passed through two of the openings 40 and also through the openings 48, thus firmly securing said end portions in position. The mold bottom comprises a rectangular plate 50 of the size and shape that it is intended to make one face of the stone to be molded.

In practical operation, I first provide a bottom plate 50 of the length and width that it is desired to make one face of stone to be molded. I then place a number of the standards 12 in position on the base 10 and place the said bottom plate on top of said standards. I then provide mold end pieces 46 of the same width that it is desired to make the stone to be molded. I then place these mold ends between the mold sides and by manipulating the shaft 23, I move the mold sides to position where their inner faces will engage the said mold ends. One of the mold ends being at one end of the mold sides and the other one in the openings 38 bearing the indicating numeral which corresponds to the longitudinal dimension of the stone to be formed. I then place a rod 49 through the corresponding openings 40 at the bottom of the sides and through the openings 48 at the bottom of the ends to firmly hold them in position. I then fill the mold cavity flush with the top of the sides with a cementitious substance which is then permitted to harden or set sufficiently to retain its shape. I then rotate the rods 23 a slight distance sufficient only to withdraw the sides of the mold from the stone. In this connection it is to be understood that the pins 45 fit in the openings 38 in such a manner that a slight outward movement of the sides may be permitted, but no longitudinal movements of the ends will be permitted relative to the sides. This slight movement is sufficient to break the connection between the stone and the sides and the ends may be readily loosened from the stone by tapping them with a hammer, if necessary. I then loosen the set screw 20 and rotate the shaft 27 until the mold is in position below the bottom plate 50, as shown in Fig. 6. Then the operator may, by grasping the bottom plate off-bear the stone and quickly and easily set the machine to repeat the operation. By the use of a machine of this kind, stones of different sizes and shapes, as may be required for commercial purposes, may be made quickly and easily and yet the sides and ends of the stones thus made will be perfectly parallel and even. In use, I preferably provide a number of bottom plates 50 of the sizes corresponding to one face of the stones that are ordinarily

used for commercial purposes and I also provide a number of end mold pieces of different widths of the sizes that are commonly required for commercial purposes. With these at hand, the mold may be very easily and quickly set to position adjusted to a bottom plate and end plates of the desired sizes and then the vertical dimension of the stone may be made of any desired thickness by moving the entire mold up and down on its supports until the top of the bottom plate is at the required distance from the top of the mold sides and when this is done, the mold is in position to receive a composition for forming a stone.

Having thus described my invention, what I claim and desire to secure by Letters Patent of the United States, therefore is—

1. In a machine of the class described, the combination of a base having a series of holes in rows, a stationary mold bottom detachably mounted above said base on legs, said legs being movable into different holes of said base to accommodate mold bottoms of different sizes, mold sides arranged in substantially vertical positions and capable of movement toward and from each other into and out of engagement with ends and bottom members of different widths, means for adjusting said sides toward and from each other, and means for simultaneously dropping all of said sides and ends directly in a vertical plane to a position below said stationary mold bottom.

2. In a machine of the class described, the combination of a base, a stationary mold bottom supported above said base on legs, said legs being movable to different points of said base to accommodate mold bottoms of different sizes, mold sides arranged in substantially vertical positions and capable of movement toward and from each other into and out of engagement with the sides of bottom members of different widths, threaded shafts for adjusting said sides toward and from each other, and a rack and pinion at each corner of the structure operatively connected for simultaneously dropping all of said sides and ends directly in a vertical plane to a position below said stationary mold bottom.

3. In a machine of the class described, the combination of an elevated support adjustable to accommodate mold bottoms of different sizes, a stationary mold bottom adjustably mounted on said elevated support, mold sides detachably mounted upon said mold sides, a base, corner posts each provided with an integral rack suitably fixed at each corner of the base, a casting provided with a series of shaft openings and mounted to travel up and down on each of said posts, shafts rotatably mounted in said castings about three sides of said elevated support allowing one side free for the operator to work from, one series of said rotatable shafts operating to raise and lower the sides of the mold, the other series of rotatable shafts operating to move the sides of the mold toward and from each other.

4. In an artificial stone machine, the combination of a stationary bottom, mold sides normally supported in position in engagement with the sides of the bottom, means for jointly raising and lowering the mold sides, and means carried by the raising and lowering device for adjusting the sides toward and from each other, whereby the sides may be so adjusted when they are at any position of elevation, and means for adjustably supporting the bottom in an elevated position whereby it may be grasped and removed with a stone resting thereon, after the sides are lowered.

5. In a machine of the class described, a mold side comprising a flat plate having a row of perforations at its lower edge, an outwardly projecting flange at the top thereof, provided with a row of perforations, and a mold end having lugs thereon designed to enter the row of perforations at the top, said mold end also having an opening therein designed to be brought into alinement with any one of the row of openings in the bottom of the side member, and a bolt designed to be extended through one of the openings in the bottom of the side piece and also through the opening in the bottom of the end piece.

6. In a machine of the class described, the combination of mold sides, outwardly projecting flanges at the top thereof, said flanges being formed with oblong openings, said openings having their major axes at right angles to the sides, mold ends, and round projections on the mold ends to enter said openings to thereby permit the sides to move laterally a slight distance without permitting the mold ends to move longitudinally.

7. In an artificial stone machine, the combination of a stationary bottom, mold sides normally supported in position in engagement with the sides of the bottom, means for jointly raising and lowering the mold sides, and means carried by the raising and lowering device for adjusting the sides toward and from each other, whereby the sides may be so adjusted when they are at any position of elevation.

8. In an artificial stone machine, the combination of mold sides, means for moving them in a horizontal plane to and from each other and means for moving them in a vertical plane, a stationary bottom and mold ends adjustably supported on the sides, the means for supporting said ends being capable of permitting the sides to slide slightly without moving the ends outwardly.

9. In apparatus of the class described, the combination of a base, a platform, legs sup-

porting said platform, said base and platform being provided with means whereby different sized platforms may be substituted one for another, vertically movable sides and ends, said sides and ends being adjustable to embrace said platform, and means extending around three sides of said platform whereby said sides and end may be lowered as one piece.

Des Moines, Iowa, May 20, 1905.

FRANK R. STEHM.

Witnesses:
A. E. WOODY,
JOHN KLOSTWEFK.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."