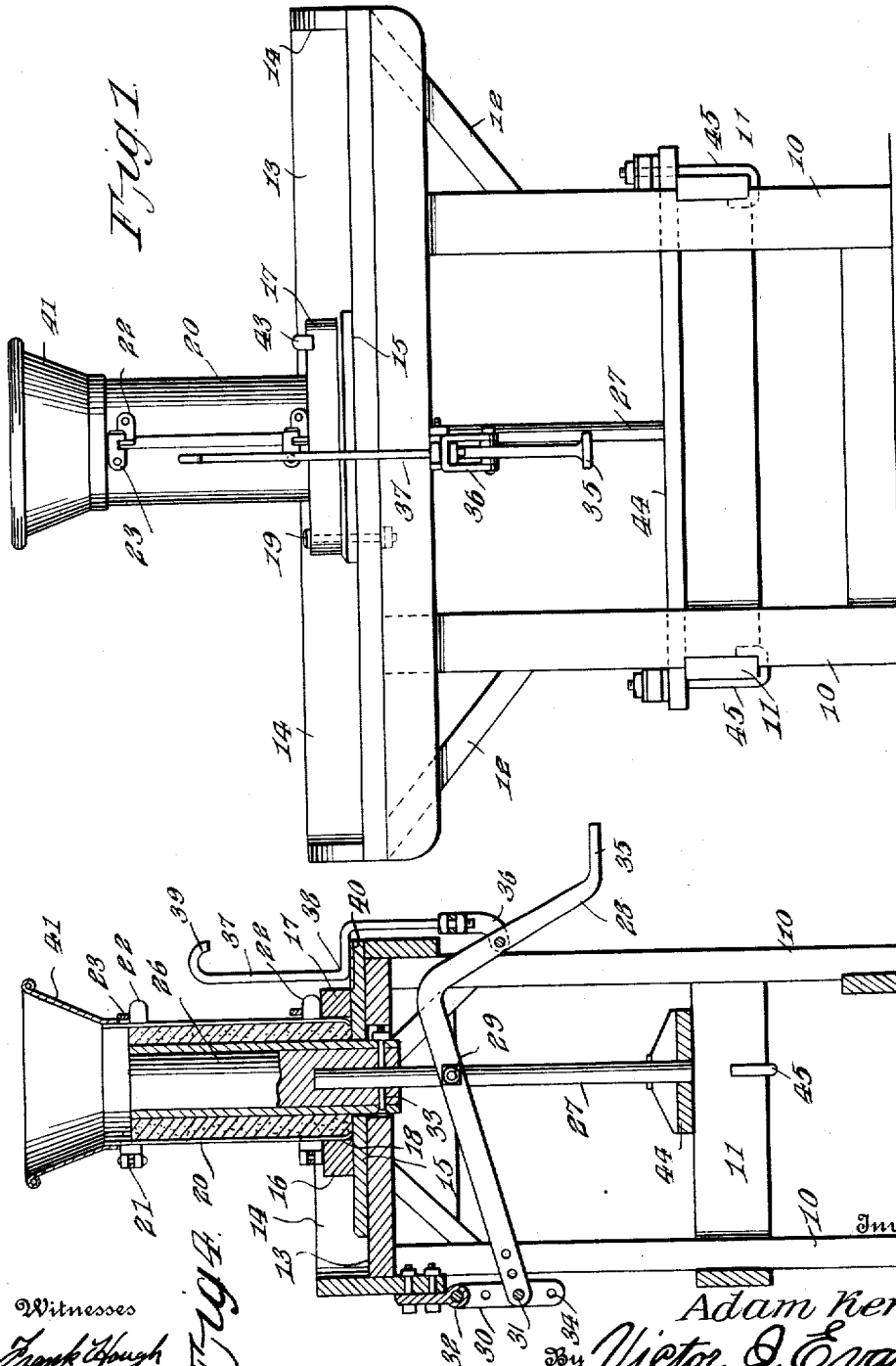


A. KERN.
TILE MOLDING MACHINE.
APPLICATION FILED MAR. 15, 1911.

1,023,656.

Patented Apr. 16, 1912.

3 SHEETS-SHEET 1.



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3 SHEETS-SHEET 2.

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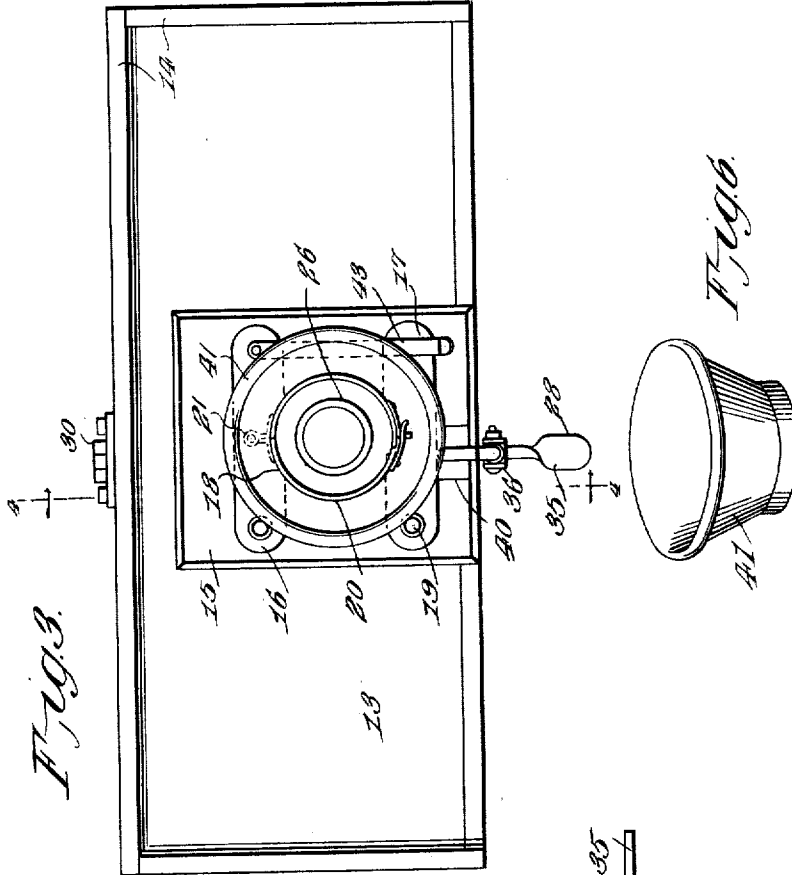


Fig. 3.

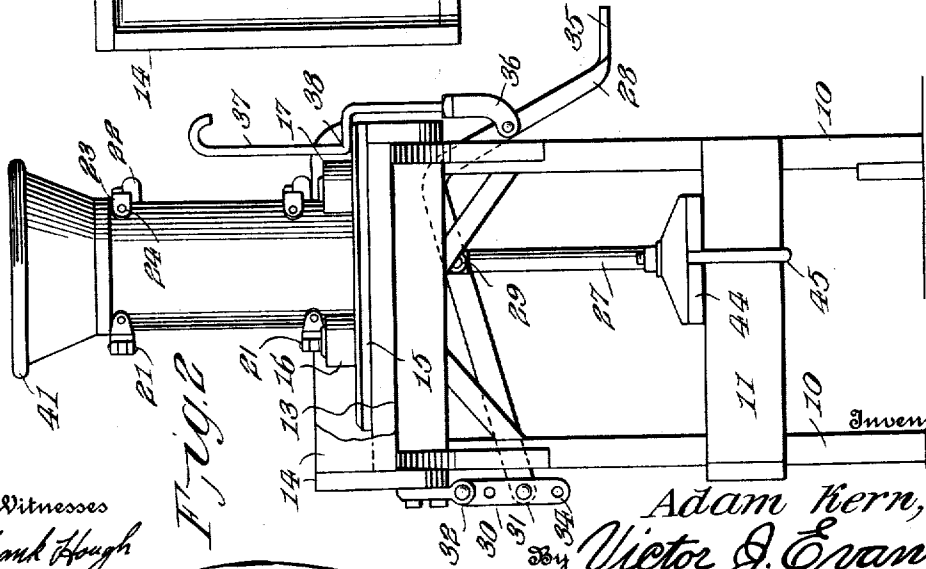


Fig. 2.

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3 SHEETS—SHEET 3.

Fig. 7.

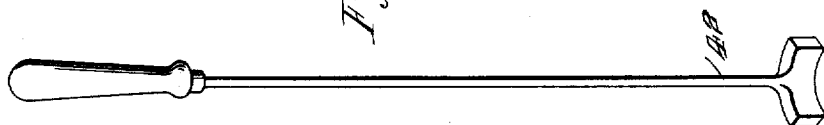
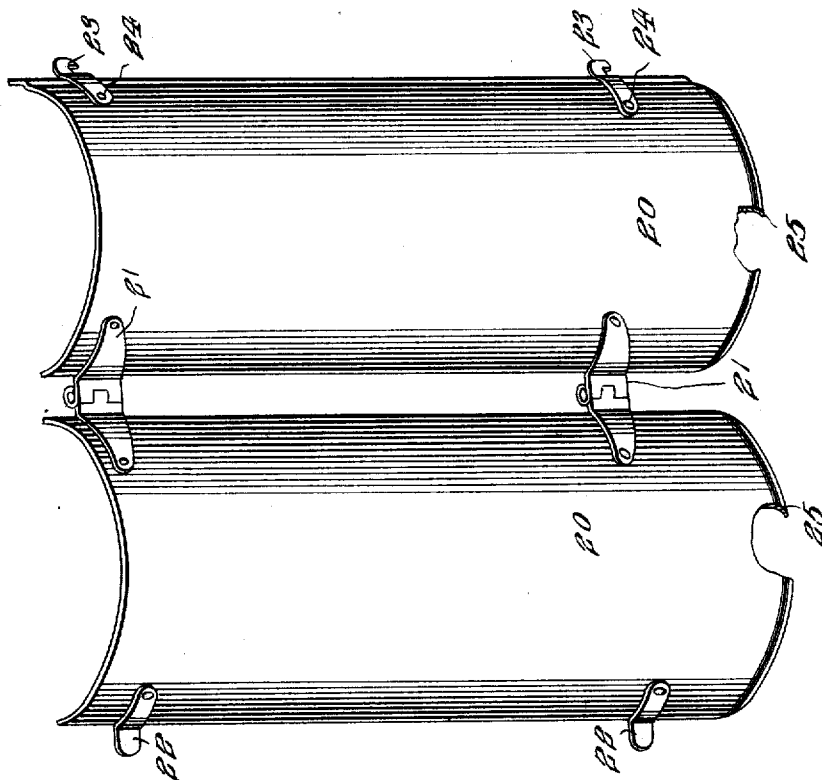


Fig. 5.



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UNITED STATES PATENT OFFICE.

ADAM KERN, OF FRANKENMUTH, MICHIGAN.

TILE-MOLDING MACHINE.

1,023,656.

Specification of Letters Patent.

Patented Apr. 16, 1912.

Application filed March 15, 1911. Serial No. 614,649.

To all whom it may concern:

Be it known that I, ADAM KERN, a citizen of the United States, residing at Frankenmuth, in the county of Saginaw and State of Michigan, have invented new and useful Improvements in Tile-Molding Machines, of which the following is a specification.

The invention relates to molding machines, and more particularly to the class of cement drain tile making machines.

The primary object of the invention is the provision of a machine of this character in which drain tiles may be formed from plastic or cementitious material in a convenient and quick manner, the tile when formed being readily accessible, so that it can be removed from the machine before the same becomes hardened, thus enabling a large quantity of said tiles to be made on the successive operation of the machine.

Another object of the invention is the provision of a machine in which the forming flask and the core may be readily and easily removed, so that varying sizes thereof may be substituted to enable the making of different sized drain tiles from plastic material.

A further object of the invention is the provision of a machine in which the material supporting deck thereof is arranged to enable the feeding of the material into the forming flask from either side of the machine, thus permitting a maximum number of tiles to be made while this machine is in operation.

A still further object of the invention is the provision of a machine which is simple of construction, thoroughly reliable and efficient in operation, and inexpensive in manufacture.

With these and other objects in view, the invention consists of the construction, combination and arrangement of parts, as will be hereinafter more fully described, illustrated in the accompanying drawings, and pointed out in the claims hereunto appended.

In the drawings: Figure 1 is a front elevation of a machine constructed in accordance with the invention. Fig. 2 is a side view thereof. Fig. 3 is a top plan view. Fig. 4 is a sectional view on the line 4—4 of Fig. 3. Fig. 5 is a perspective view of the forming flask shown in open position. Fig. 6 is a perspective view of the funnel member. Fig. 7 is a perspective view of the tool used with the invention.

Similar reference characters indicate corresponding parts throughout the several views of the drawings.

Referring to the drawings by numerals, the machine comprises a base frame, including vertical supporting legs 10, the same being connected together at opposite sides of the machine by means of cross rails 11, while at the front and back of the machine are secured to the legs brace beams 12, the frame being adapted to support a deck or work-table 13 which may be of any desirable length and width, and is secured to the legs 10 in any suitable manner. At the ends and rear edges of the table or deck are secured vertical walls 14, the deck or table 13 being adapted to receive plastic material to be used in forming the tiles by the machine, in a manner as will be hereinafter more fully described.

Mounted upon the deck or table 13 is a molding apparatus, comprising a base block 15, the latter being superimposed centrally upon the said deck 13, and is removably secured thereto in any suitable manner. Thus it will be seen that the block may be detached at will. Carried by the base block 15 is a clamping device, comprising a stationary jaw 16 and a movable jaw 17, both being constructed from strips, the same being formed with diametrically opposed semi-circular recesses 18 in the inner edge thereof. The stationary jaw 16 is suitably secured to the base block 15, while the movable jaw 17 is connected thereto by means of a bolt 19, whereby the said movable jaw may be swung toward and away from the stationary jaw for the clamping and unclamping of the molding flask, as will be hereinafter more fully described.

The molding flask comprises a split tubular body, including separable sections 20, the same being connected together by means of strap hinges 21, whereby they may be swung to open or closed position. Secured near the front edge of one section 20 of the tubular body are keepers 22, while connected with the front edge of the other section 20 of said body are swinging hasps or catches 23, the same being connected to said sections by means of pivots 24. Thus, when the sections are closed, the catches 23 will engage the keepers 22, thereby locking the said sections in closed position for the molding of plastic material introduced into the flask. One end of the tubular body is

formed with an inturned edge which is presented by means of instruck flanges 25 formed on the sections 20 of the said body, the flanges 25 being adapted to prevent the cement material from sticking to the base block 15 when packed within the flask.

The flask is removably held in the clamping device and is adapted to be seated in the recesses 18 formed in the jaws, so as to rest upon the base block 15 and rise perpendicularly with respect to the plane of the table or deck. It is of course, to be understood that the flask may be of the desired size and length, according to the size of drain tile to be molded.

Working centrally within the flask is a core 26, the latter being movable through a suitable central opening formed in the base block 15 and the deck 13, so as to advance within the said flask and retract from the same. This core 26 is detachably connected at its lower end to a plunger rod 27 which is connected to a foot actuated lever or treadle 28, by means of a pivot 29, the treadle 28 being connected at its rear end to a swinging link 30 by means of a pivot 31, the link being connected to the rear wall 14 of the table or deck 13 by means of a hinge 32, so that when the treadle or lever 28 is moved in one direction, the core 26 will be advanced into the molding flask mounted upon the deck or table of the machine, and upon moving the treadle or lever 28, the core will be retracted from the said flask. The core 26 is detachably connected to the plunger rod 27 by means of a removable bolt member 33, so that different sized cores may be connected with the plunger, according to the required size of the tile to be made by the machine. The foot treadle or lever 28 is adjustably connected to the link 30 by means of the pivot 31, so as to vary the throw of the said treadle or lever as may be required, the pivot 31 being adapted for engagement in any one of a series of openings 34 provided in the said link 30. The treadle or foot lever 28, at its forward end, is bent to provide a tread extension 35 to be engaged by the foot of an operator of the machine, so that the core 26 may be lowered from within the body of plastic material fed into the flask by merely pressing downwardly upon the said tread extension 35 of the treadle 28.

Pivoted to the foot treadle or lever 28 rearwardly of the tread extension 35 is a yoke 36, in which is adjustably engaged a locking member, comprising a rod 37 bent to form a nose 38 and a handle 39, the nose 38 being adapted for engagement with a bearing plate 40 fixed to the upper face of the base block 15 at the front edge thereof and medially of the same. When this locking element has its nose 38 engaged in a manner as hereinbefore stated, the core 26

may be sustained in raised position and advanced within the flask, so that plastic material may be packed between it and the tubiform body of the flask for the forming of a drain tile.

Detachably connected with the upper end of the flask is a funnel 41, the same serving as a hopper for directing the plastic material fed therinto to the flask. As previously stated, the plastic material is first placed upon the deck or table 15 of the machine, and thereafter, the same is scooped up by a shovel or scoop and introduced through the funnel 41 into the tubular body of the flask about the core 26, which latter is locked in its raised position, so as to project centrally within the flask.

In Fig. 6 of the drawings, there is shown a tool 42, the latter being used by an operator for tapping the plastic material between the flask and the core of the molding apparatus, so as to densify the plastic material within the flask about the core 26 for the proper formation of the drain tile.

The stationary jaw 16 of the clamping element has connected thereto a latch 43 which is adapted to lock the movable jaw 17 in position for securely clamping the flask upon the base block 15 while the tile is being molded therein. On releasing the latch 43 from the movable jaw 17 of the clamping element, the said jaw 17 may be swung to a position for freeing the flask, whereupon the latter may be removed from the base block 15, and thereafter, the catches 23 upon one section 20 of the flask will be disengaged from the keepers 22 on the other section 20 of the same, thus allowing the sections to be opened for the removal of the previously formed tile from the said flask. It is of course understood that prior to the removal of the flask from the base block 15 and the opening of the same, the core 26 has been lowered by an operator pressing downwardly upon the tread extension 35 of the treadle or lever 28, after the locking element has been disengaged for its release, thereby retracting the core from within the flask. Also, it is to be understood that prior to the opening of the flask, the funnel 41 is detached therefrom.

Extending transversely across the base frame of the machine is a guide bar 44, the same being arranged in the path of movement of the plunger 27 and is provided with a suitable guide opening for receiving the latter, the bar being detachably connected to the cross rails 11 of the frame by means of hook-like bolt members 45 engaged with the said bar and rails, the said hook-like bolt members 45 being adapted to securely fasten the bar within the frame and prevent any possible displacement thereof.

What is claimed is:

1. A machine of the class described com-

prising a supporting frame, a deck on the frame, a base block superimposed upon the deck, a molding flask having an inturned flange formed on one end to prevent the
5 plastic material from sticking to the base block, a clamping device on the block for holding the said flask, a core normally elevated in the flask, means for lowering the same, and a funnel-shaped member telescop-
10 ing upon the upper end of the flask.

2. A machine of the class described, comprising a supporting frame, a deck on the frame, a molding flask mounted on the deck, a core normally elevated in the flask, a
15 lever hinged to the frame and pivoted to the

core, the free end of said lever being down turned and extended outwardly to form a foot tread, a locking member pivoted to the lever rearwardly of the foot tread, said locking member comprising a rod bent to form a
20 nose and a handle, the nose being adapted to engage the deck for holding the core in elevated position.

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

ADAM KERN.

Witnesses:

HENRY C. REICHLE,
HENRY PALMREUTER.

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