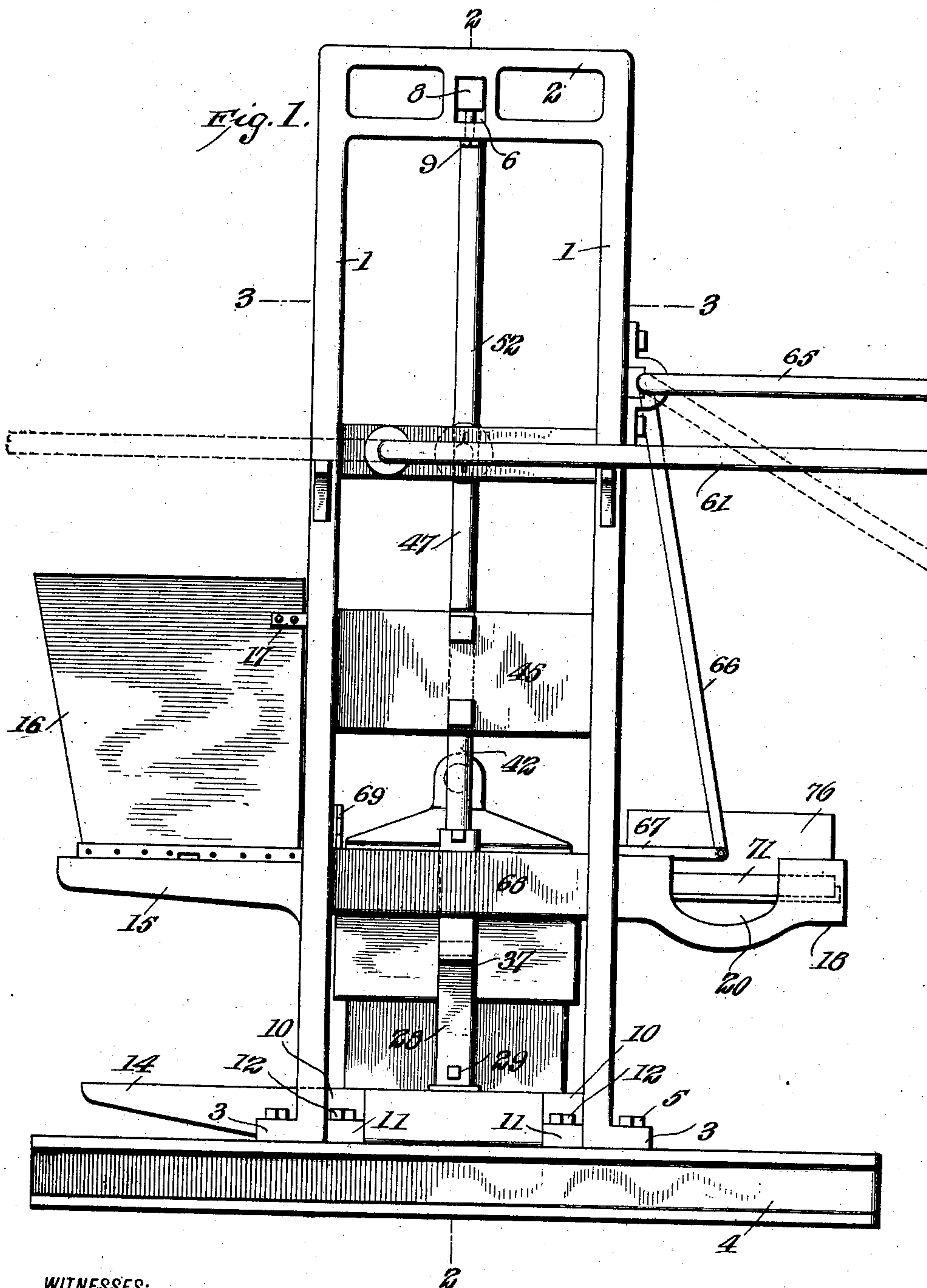


994,560.

A. S. BACON.
BRICK MACHINE.
APPLICATION FILED FEB. 15, 1910.

Patented June 6, 1911.

5 SHEETS—SHEET 1.



WITNESSES:
C. M. Callaghan
C. E. Tanner

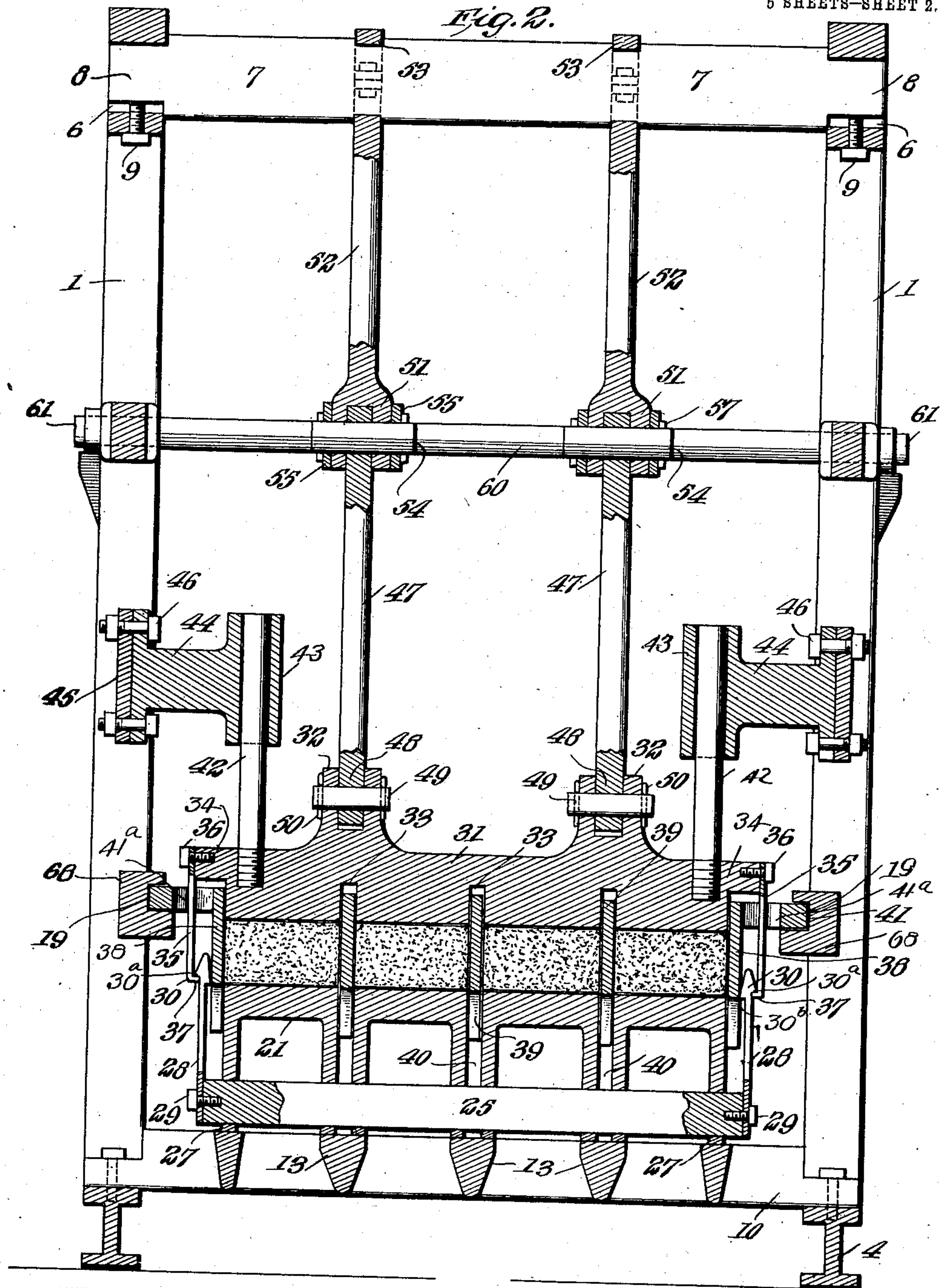
INVENTOR
ARTHUR S. BACON
BY *Wm. H. Co.*
ATTORNEYS

994,560.

A. S. BACON.
BRICK MACHINE.
APPLICATION FILED FEB. 15, 1910.

Patented June 6, 1911.

5 SHEETS—SHEET 2.



WITNESSES:
C. M. Callaghan
C. E. Francis

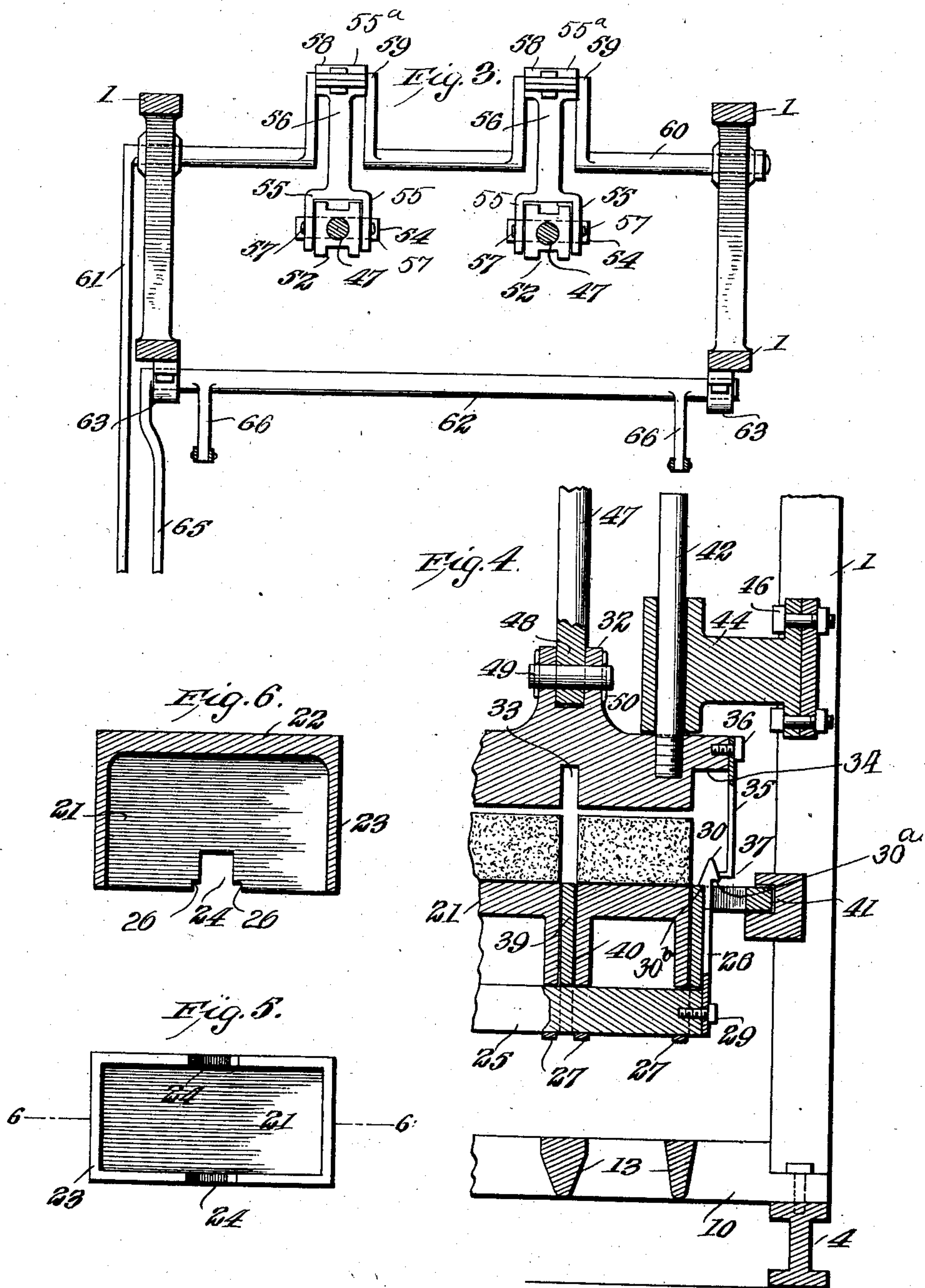
INVENTOR
ARTHUR S. BACON
BY *Mumford Co.*
ATTORNEYS

994,560.

A. S. BACON.
BRICK MACHINE.
APPLICATION FILED FEB. 15, 1910.

Patented June 6, 1911.

5 SHEETS—SHEET 3.



WITNESSES:
E. M. Callaghan
C. E. Spanier

INVENTOR
ARTHUR S. BACON
BY *Munn & Co.*
ATTORNEYS

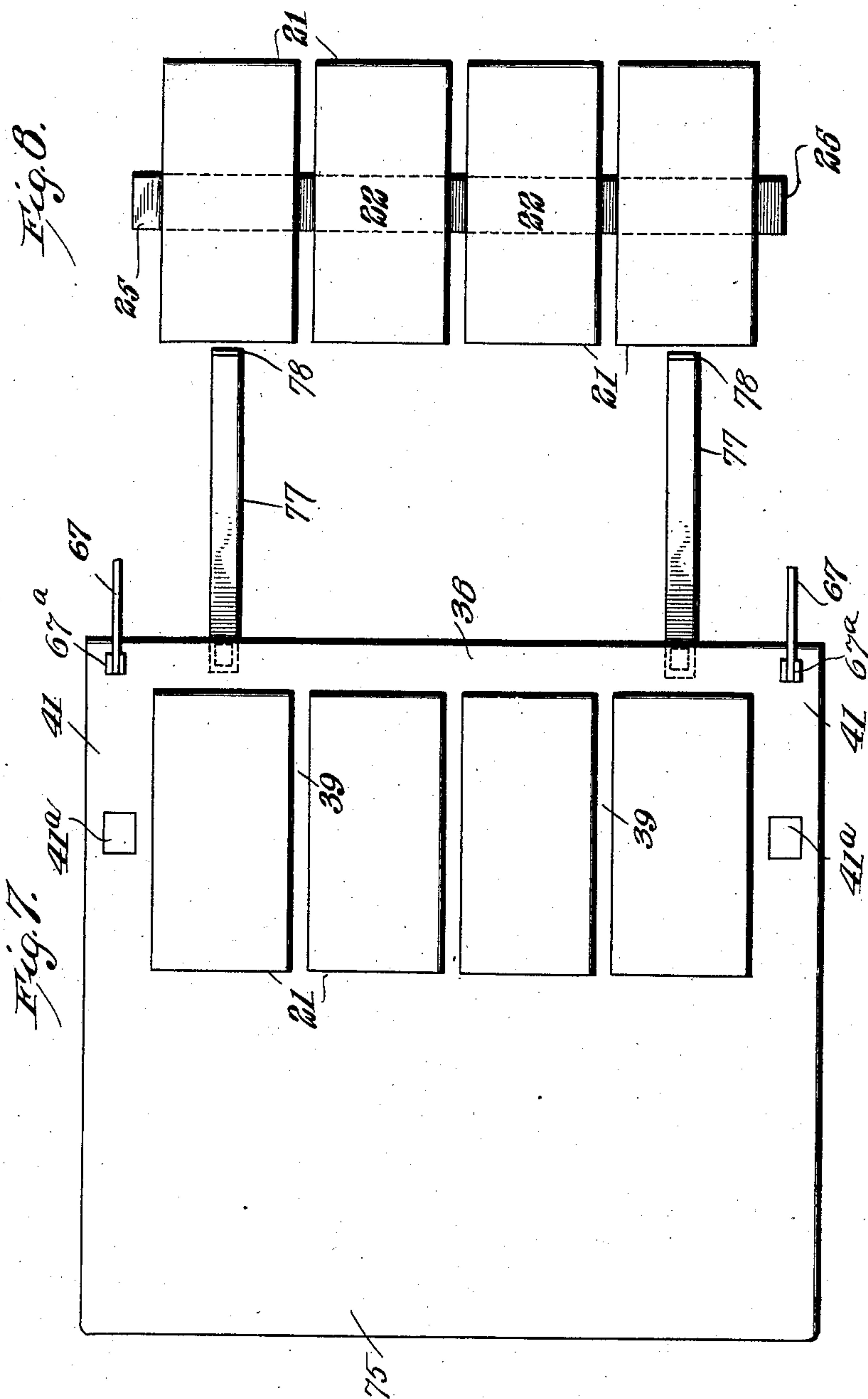
994,560.

A. S. BACON.
BRICK MACHINE.

APPLICATION FILED FEB. 15, 1910.

Patented June 6, 1911.

5 SHEETS—SHEET 4.



WITNESSES:
E. M. Callaghan
C. E. T. minor

INVENTOR
ARTHUR S. BACON
BY *Wm. Co.*
ATTORNEYS

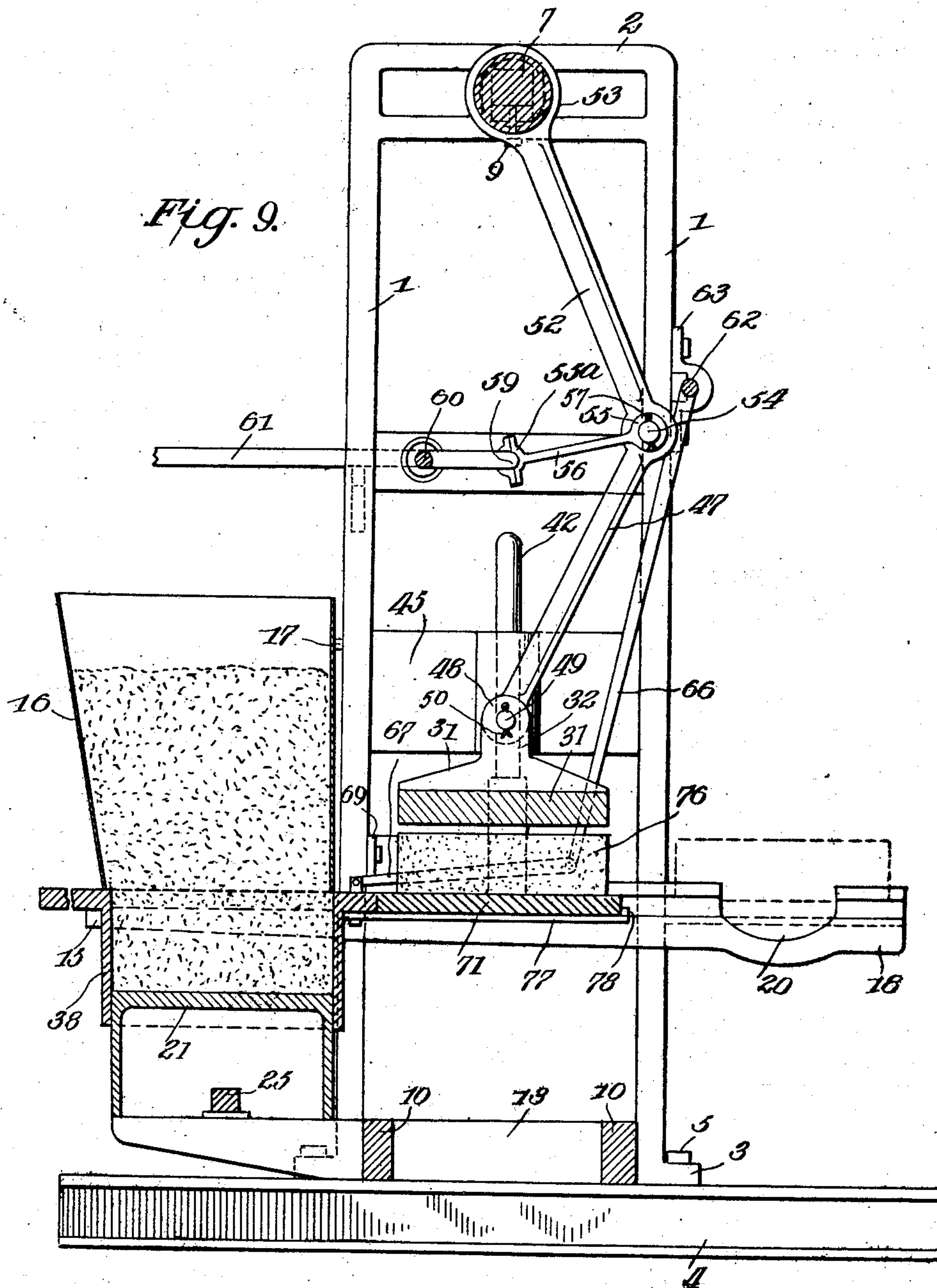
A. S. BACON.
BRICK MACHINE.

APPLICATION FILED FEB. 15, 1910.

994,560,

Patented June 6, 1911.

5 SHEETS—SHEET 5.



WITNESSES:
Samuel E. Wade
C. E. Trimmer

INVENTOR
ARTHUR S. BACON
BY *Munn & Co.*
ATTORNEYS

UNITED STATES PATENT OFFICE.

ARTHUR STANLEY BACON, OF OKLAHOMA, OKLAHOMA.

BRICK-MACHINE.

994,560.

Specification of Letters Patent.

Patented June 6, 1911.

Application filed February 15, 1910. Serial No. 543,983.

To all whom it may concern:

Be it known that I, ARTHUR STANLEY BACON, a citizen of the United States, and resident of Oklahoma city, in the county of Oklahoma and State of Oklahoma, have invented certain new and useful Improvements in Brick-Machines, of which the following is a specification.

My invention is an improvement in brick machines and consists in certain novel constructions and combinations of parts hereinafter described, and claimed.

The object of the invention is to provide a machine of the character specified, especially adapted for the making of cement brick, which will receive the plastic material and press it into shape, and having means for expeditiously removing the pressed brick onto a pallet for removal from the machine.

Referring to the drawings forming a part hereof, Figure 1 is a side view of the improvement, Fig. 2 is a section on the line 2—2 of Fig. 1, Fig. 3 is a section on the line 3—3 of Fig. 1, Fig. 4 is a sectional view of a portion of the mechanism shown in Fig. 2, with the dies open, Fig. 5 is a bottom plan view of a section of the lower die, Fig. 6 is a section on the line 6—6 of Fig. 5. Fig. 7 is a plan view of the apron, Fig. 8 is a similar view of the bottom die, and Fig. 9 is a vertical section at right-angles to Fig. 2.

The embodiment of the invention shown in the drawings consists of a framework composed of uprights 1 arranged in pairs, one pair at each end of the frame, and the members of each pair are connected at their tops by a cross bar 2, and each is provided with a foot 3, bolted to an I-shaped base bar 4 by bolts 5.

The cross bar 2 is provided at its center with a rectangular opening 6, and a top bar 7 is provided with reduced ends 8, which are received in the openings, as shown in Fig. 2. The length of the opening 6 is greater than the depth of the reduced end of the bar, and a set screw 9 is threaded through the cross bar, and engages the lower face of the end of the top bar. The base bars are also connected near each side of the frame by a bottom bar 10 whose reduced ends 11 rest on the base bar, and are secured thereto by cap screws 12. The said bottom bars form part of a grid or grating, being connected at spaced intervals by cross bars 13, which extend beyond the frame at one side as at 14, and form a

slideway for a purpose to be presently described.

Above the extended ends 14 of the cross bars, are arranged horizontal bracket arms 15 extending from the uprights and a hopper 16 is supported on the arms, being secured to the frame by clips 17. Another pair of bracket arms 18 extend from the uprights at the opposite side of the frame, and each arm is provided on its inner face with a rest or guideway 19, and at approximately its center with a recess 20 on its upper face.

A bottom die composed of a plurality of similar sections 21 rests upon the grid or slideway, each section consisting of a substantially box-shaped structure arranged bottom upward, the upper surface 22 being flat and the sides 23 forming a support engaging the grid. At the center of each side wall, each section is also provided with a notch 24, and a bar 25 passes through the notches, which are in alinement.

Each notch is enlarged transversely near the edge of the side wall, as shown at 26, and a cross bar 27 is arranged beneath the bar 25, and secured thereto, the ends of the cross bars engaging in the ends of the enlargements. A resilient bar 28 is secured to each end of the supporting bar 25, by a cap screw 29, and the free end of each resilient bar is provided with a head 30, and shoulders 30^a and 30^b are formed between the head and the bar on each side of the said bar. The shoulder 30^b is adapted to engage above the upper edge of a box, to be presently described, which encircles the dies.

The upper die 31 is in the shape of a plate, provided on its upper face near each end with pairs of spaced lugs 32, and on its lower face with spaced parallel transverse grooves 33, and each end of the plate is provided with an outwardly extending lug 34 near its upper face.

A resilient bar 35 is secured to each of the lugs 34, by a cap screw 36, and the lower free end of each bar is provided with an angular portion or hook 37, for engaging the shoulder 30^a on the bar 28 of the lower die.

A box 38 rectangular in shape encircles the dies, and the said box is provided at spaced intervals with transverse parallel division or partition plates 39 which fit in the grooves 33, and in the spaces 40 between the sections of the lower dies. The box is

also provided at each end with a flange 41 extending laterally from the end of the box, and provided with an opening 41^a for the bar 35, the flange moves in the grooves 19^a of cross bars 68 on the frame.

A rod 42 is threaded into the upper face of the plate 31 at each end, and the upper end of the rod moves in a sleeve 43, on a bracket 44, secured to plates 45, extending between the uprights, by bolts 46, and the rods act as guides for the die plate in its vertical movement.

Other rods 47 provided at each end with a head 48 are connected with the die plate, one of the heads of each rod being received between a pair of lugs 32, and pivoted thereto by a pivot pin 49, whose ends are engaged by cotter pins 50, to retain the pins in place.

The upper heads of the rods 47 are received between spaced ears 51, on the lower ends of rods 52, whose upper ends are formed into loops 53 encircling the top bar 7. A pivot pin 54 is passed through the ears and the head, pivotally connecting the rods, and the ends of each pivot pin are extended to engage openings in the arms 55 of a yoke 56, extending horizontally, the parts being held in place by cotter pins 57, passing through the ends of the pivot pins.

The body portion of each yoke is provided with a sectional bearing 55^a in which is journaled a crank arm 59, on a crank shaft 60, journaled transversely of the frame. One end of the crank shaft is provided with a laterally extending lever 61 whereby to oscillate the shaft, the lever extending toward the front of the machine, as shown in Fig. 1.

A rock shaft 62 is journaled at the front of the frame, in sectional bearings 63 on the uprights, the shaft having an arm 66, near each end between the uprights, and an arm 65 outside of the uprights at one end and extending toward the front of the machine. The arms 66 extend downwardly and forwardly to a pivotal connection with one end of links 67, extending forwardly from the box inclosing the dies and pivoted thereto at their opposite ends as at 67^a. Each pair of rods 47—52 form a toggle lever which is broken and straightened by the movement of the crank shaft, the levers acting at one end against the upper die, and at the other against the top bar 7.

In the operation of the machine, the plastic mixture is placed in the hopper. The guideways or grooves 19 in the arms 18 are in alinement with grooves 19^a extending across the frame in bars 68 and underneath the hopper in the bracket arms 15, so that the box may be moved from beneath the hopper to the front of the frame. With the box beneath the hopper as shown in Fig. 9 the plastic material passes from the hopper into the molds formed by the box 38 and die

sections 21. When the molds are filled, the shaft 62 is operated to move the box 38, apron 75 and die sections 21 forwardly beneath the upper die section 31. The lever 61 is now operated to straighten the toggles 47—52, thus moving the upper die downwardly and compressing the plastic mixture in the molds. As the upper die moves downwardly, the hooks 37 of the bars 35 engage beneath the shoulders 30^a of the heads 30. The shaft 60 is then operated to break the toggles 47—52, moving the upper die 31 upwardly and the bar 25 with the die sections 21 supported thereby is lifted with the upper die. The said die sections 21 move upwardly between the partitions 39 and lift the blocks 76 above the upper edge of the box 38 and partitions 39. When the said bar 25 has been lifted to its highest position, the shoulders 30^b of the bars 28 engage over the upper edge of the box, thus locking the die sections 21 in the compartments formed between the box 38 and partition 39 and with the upper surface of the die sections level with the upper edge of the box. The pallet 71 has meanwhile been placed on the arms 77, each of which arms is provided at its outer end with an upwardly extending lug 78 for engaging the edge of the pallet to cause the said pallet to move with the apron and molds. The shaft 62 is again operated to move the apron, box and die sections rearwardly, and the blocks 76 engage on their rear ends the plate 69 and are held from further rearward movement with the apron. As the apron continues its rearward movement, the pallet 77 is moved beneath the blocks as indicated in Fig. 9. The shoulders 30^b are now disengaged from the upper edges of the box 38 in any suitable manner, permitting the bar 25 and the die sections 21 supported thereby to drop into the position shown in Fig. 9 ready to receive another charge of plastic material. When the apron again moves forwardly, the pallet 77, blocks 76 are moved into the position shown in dotted lines in the arms 18. The pallet and blocks may then be removed manually, the recess 20 permitting the hands of the operator to engage beneath the pallet. The toggle levers are meanwhile broken, so that the upper die plate is in elevated position. When the box is in position in the frame, the shaft is oscillated, to straighten the toggle levers, thus bringing the upper plate onto the lower with an immense pressure, thoroughly tamping the mixture into the molds formed by the upper and lower plates, the box and its partitions. As the upper plate descends, the hook 37 engages the shoulder 30^a, and the hook and shoulder lock with each other, and the box and plates are firmly held in this position. It will be observed that the outer faces of the heads 30 are beveled so that the hook and shoulder may be

easily separated when it is necessary. While the die plates are locked together as above described, the toggle levers are again broken, and the molds are lifted into position level with the pallet 71 which is supported in the guideways of the bracket arms 18. The bricks 76 are now transferred to the pallet, which may be removed from the machine by hand, the recesses 20 permitting access to the bottom of the pallet from the sides. The wear of the toggle mechanism may be compensated for by the set screws 9. It will be evident that the lower die plate may be considered as a plate having transverse grooves to receive the partitions, and that the box is in effect a rectangular frame.

An apron 75 is mounted to slide transversely of the machine beneath the hopper, to close the bottom of the same when the lower dies are moved beneath the upper dies (Fig. 7) and the said apron is connected with the upper edge of the box 38 and extends rearwardly therefrom. When the box is moved beneath the hopper, the apron is moved rearwardly from under the same, and when the box is moved forwardly the apron closes the bottom of the hopper.

A plate 69 is arranged across the machine at the front of the hopper, (Fig. 1) to support the brick against rearward movement when the pallet is moved under them.

The box 38 which encircles the lower dies is locked in position around the dies by the engagement of the shoulder 30^b with the upper edge of the said box. The arms 77 extending forwardly from the apron 75 are adapted to receive the pallet and support the same.

I claim:

1. A machine of the class described comprising a frame having transverse guideways, an open end box movable in the guideways, and provided with spaced parallel transverse partitions, a lower die plate composed of similar sections spaced apart, each having a flat upper face, the faces being in the same plane, each section moving in a compartment of the box, means for supporting the sections, an upper die plate having transverse grooves for receiving the partitions, a top cross bar on the frame, toggle levers arranged between the upper die plate and the top cross bar, an arm connected with the joint of each toggle, a crank shaft journaled on the frame and having a crank for each toggle to which the arm is connected, a lever for oscillating the shaft, a rock shaft journaled on the frame, and having an arm at one end for oscillating said shaft, and a plurality of arms intermediate its ends, links rigid with the arms, arms pivoted to the box and to the links, a hopper at one side of the frame and above the adjacent ends of the guideways, and a pallet support at the opposite end of the frame at the oppo-

site end of the guideways, and means for detachably locking the plates together.

2. A machine of the class described, comprising a frame having transverse guideways, an open end box movable in the guideways and provided with spaced parallel transverse partitions, a lower die plate composed of similar sections spaced apart, each having a flat upper face, the faces being in the same plane, each section moving in a compartment of the box, means for supporting the sections, an upper die plate having transverse grooves for receiving the partitions, a top cross bar on the frame, toggle levers arranged between the upper die plate and the top cross bar, an arm connected with the joint of each toggle, a crank shaft journaled on the frame and having a crank for each toggle to which the arm is connected, a lever for oscillating the shaft, a hopper at one end of the guideways, a pallet support at the other end, and means for moving the box and lower die plate from the hopper to the pallet support.

3. A machine of the class described comprising a frame having transverse guideways, an open end box movable in the guideways, and provided with spaced parallel transverse partitions, a lower die plate composed of similar sections spaced apart, each having a flat upper face, the faces being in the same plane, each section moving in a compartment of the box, means for supporting the sections, an upper die plate having transverse grooves for receiving the partitions, a top cross bar on the frame, toggle levers arranged between the upper die plate and the top cross bar, means for straightening and breaking the toggle levers, a hopper at one end of the guideways, a pallet support at the other end, and means for moving the box and lower die plate from the hopper to the pallet support.

4. In a machine of the class described, a frame, guideways arranged transversely of the frame, a hopper above the guideways at one end, a pallet support at the opposite end, a rectangular frame having transverse spaced parallel partitions movable in the guideways, an upper and a lower die plate, each having grooves to receive the partitions, a plurality of toggle levers arranged between the upper plate and the frame, means for straightening and breaking the toggle levers, means for automatically locking the plates when they are moved together, and means for moving the frame and the lower die plate on the guideways.

5. In a machine of the class described, a frame having transverse guideways, a hopper above one end of the guideway, a pallet rest at the other, a lower die plate, a frame encircling the plate and movable on the guideway and having transverse partitions, the plate having grooves for receiv-

ing the partitions, an upper die plate having grooves for receiving the partitions, means for moving the lower plate, and the mold frame on the guideway, means for moving the upper plate toward and from the lower plate, and automatic means for locking the plates when they are moved together.

6. In a machine of the class described, a frame having a transverse guideway, a mold frame movable on the guideway, a lower die plate encircled by the mold frame and movable therewith, means for moving said frame, an upper die plate movable toward and from the lower die plate, means for moving the upper plate, means for detachably connecting said plates when moved together, a hopper above one end of the guideway, and a pallet rest at the opposite end.

7. In a machine of the class described, a frame having a transverse guideway, a mold frame movable on the guideway, a lower die plate encircled by the mold frame and movable therewith, means for moving said frame, an upper die plate movable toward and from the lower die plate, means for moving the upper plate, and means for detachably connecting said plates when moved together.

8. In a machine of the class described, a

guideway, a hopper above one end thereof, a pallet rest at the opposite end, an upper and a lower die plate, a mold frame movable on the guideway and encircling the lower plate, means for moving the mold frame, means for moving the upper die plate, toward and from the lower plate, and means for automatically connecting the plates when moved together.

9. In a machine of the class described, a transverse guideway, a hopper above one end thereof, a pallet rest at the opposite end, an upper and a lower die plate intermediate the hopper and the pallet rest, a mold frame slidable longitudinally on the guideway and encircling the lower plate, and means for moving the mold frame.

10. In a machine of the class described, a substantially rectangular mold frame having transverse partitions in spaced and parallel relation to form compartments, a sectional lower die plate, one of the sections fitting in each compartment, a bar below the frame connecting the sections, and an upper die plate having transverse grooves to receive the partitions.

ARTHUR STANLEY BACON.

Witnesses:

GUY DAY,

ALBERT B. NEWBERN.