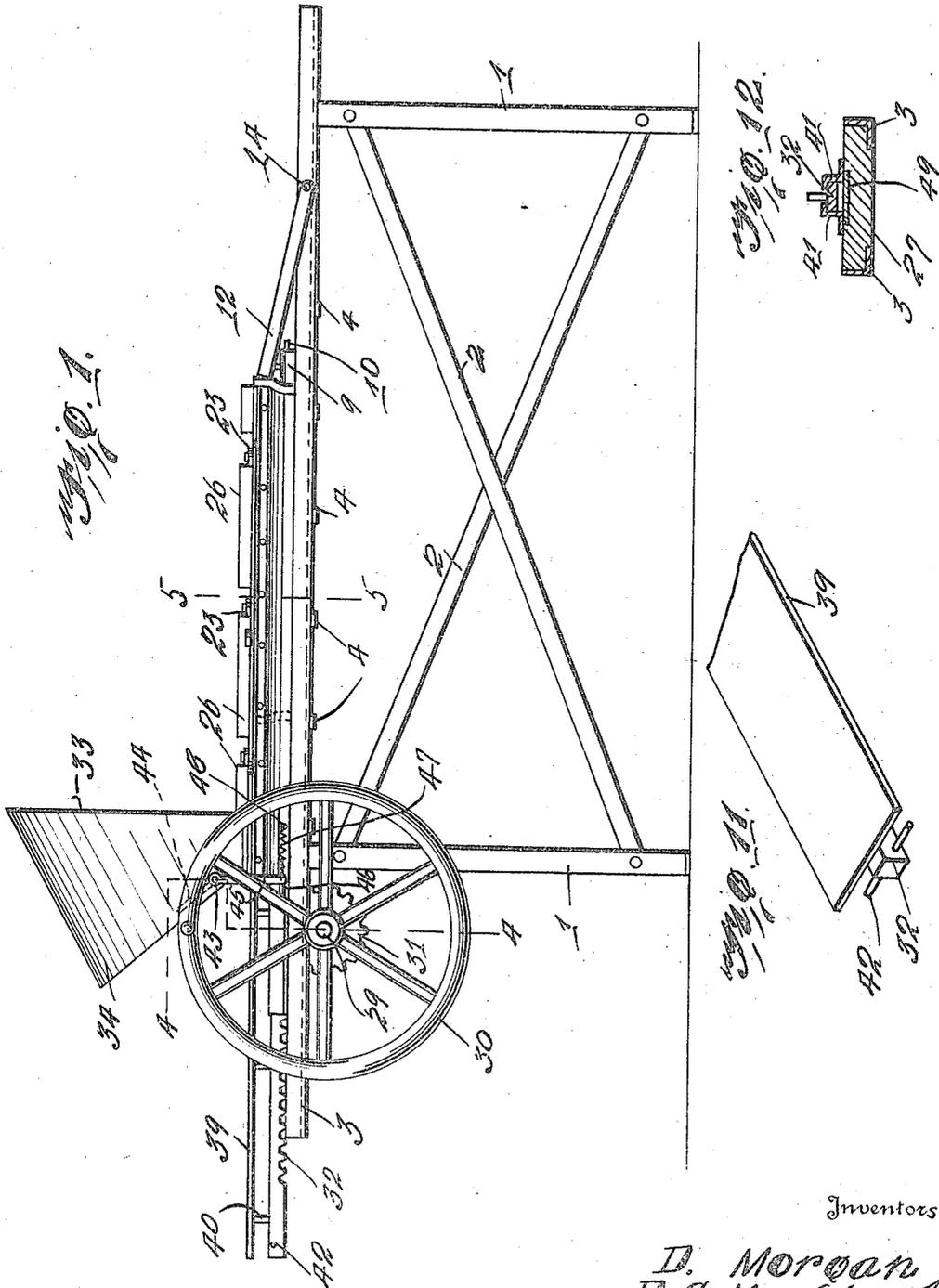


D. MORGAN & R. C. MAYLAND.  
 MACHINE FOR MAKING REINFORCED CONCRETE BLOCKS,  
 APPLICATION FILED JULY 18, 1917.

1,255,330.

Patented Feb. 5, 1918.

4 SHEETS—SHEET 1.



Inventors

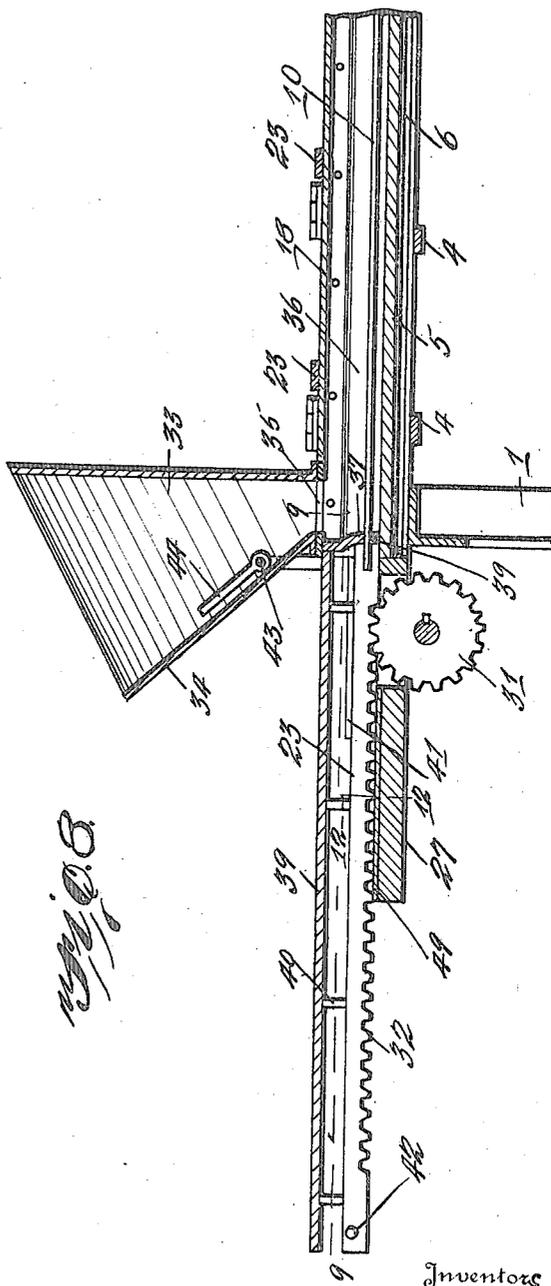
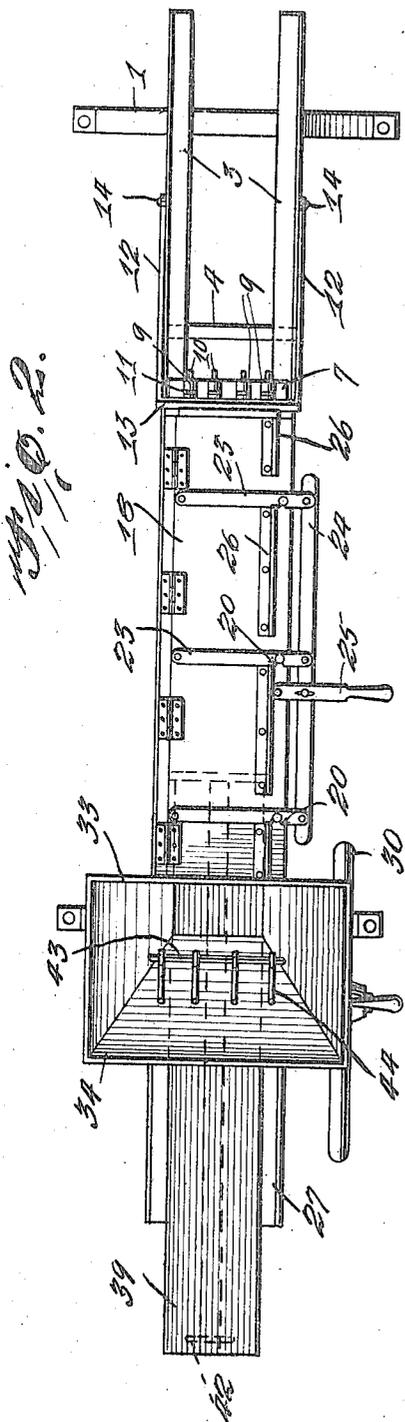
D. Morgan  
 R. C. Mayland.

By *E. P. Wooman* Esq.,  
 their Attorney

D. MORGAN & R. C. MAYLAND.  
 MACHINE FOR MAKING REINFORCED CONCRETE BLOCKS.  
 APPLICATION FILED JULY 18, 1917.

1,255,330.

Patented Feb. 5, 1918.  
 4 SHEETS—SHEET 2.



Inventors

D. Morgan  
 R. C. Mayland

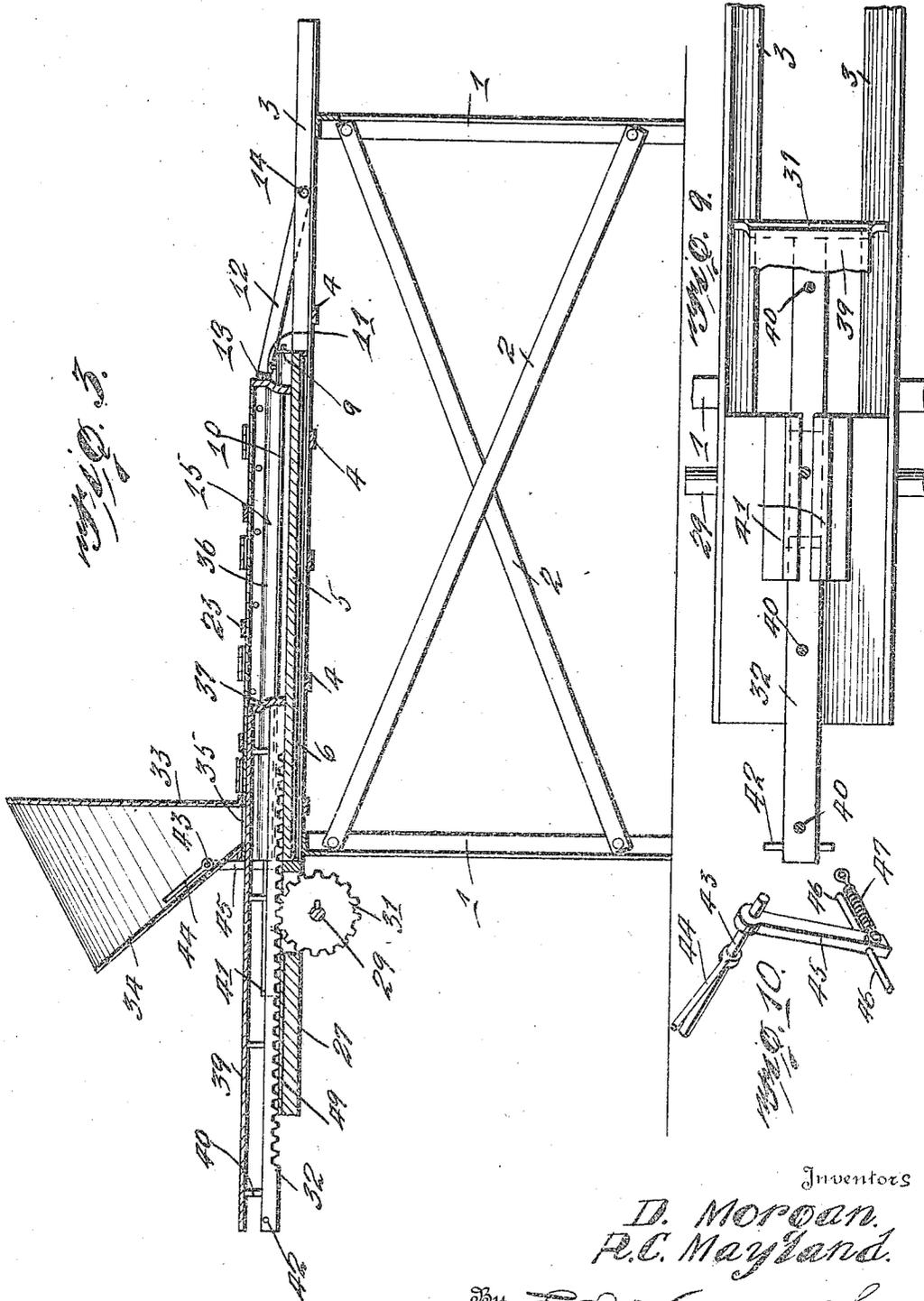
*E. O. Brown & Co.,  
 their Attorneys*

D. MORGAN & R. C. MAYLAND.  
 MACHINE FOR MAKING REINFORCED CONCRETE BLOCKS.  
 APPLICATION FILED JULY 18, 1917.

1,255,330.

Patented Feb. 5, 1918.

4 SHEETS—SHEET 3.



Inventors  
 D. Morgan.  
 R. C. Mayland.

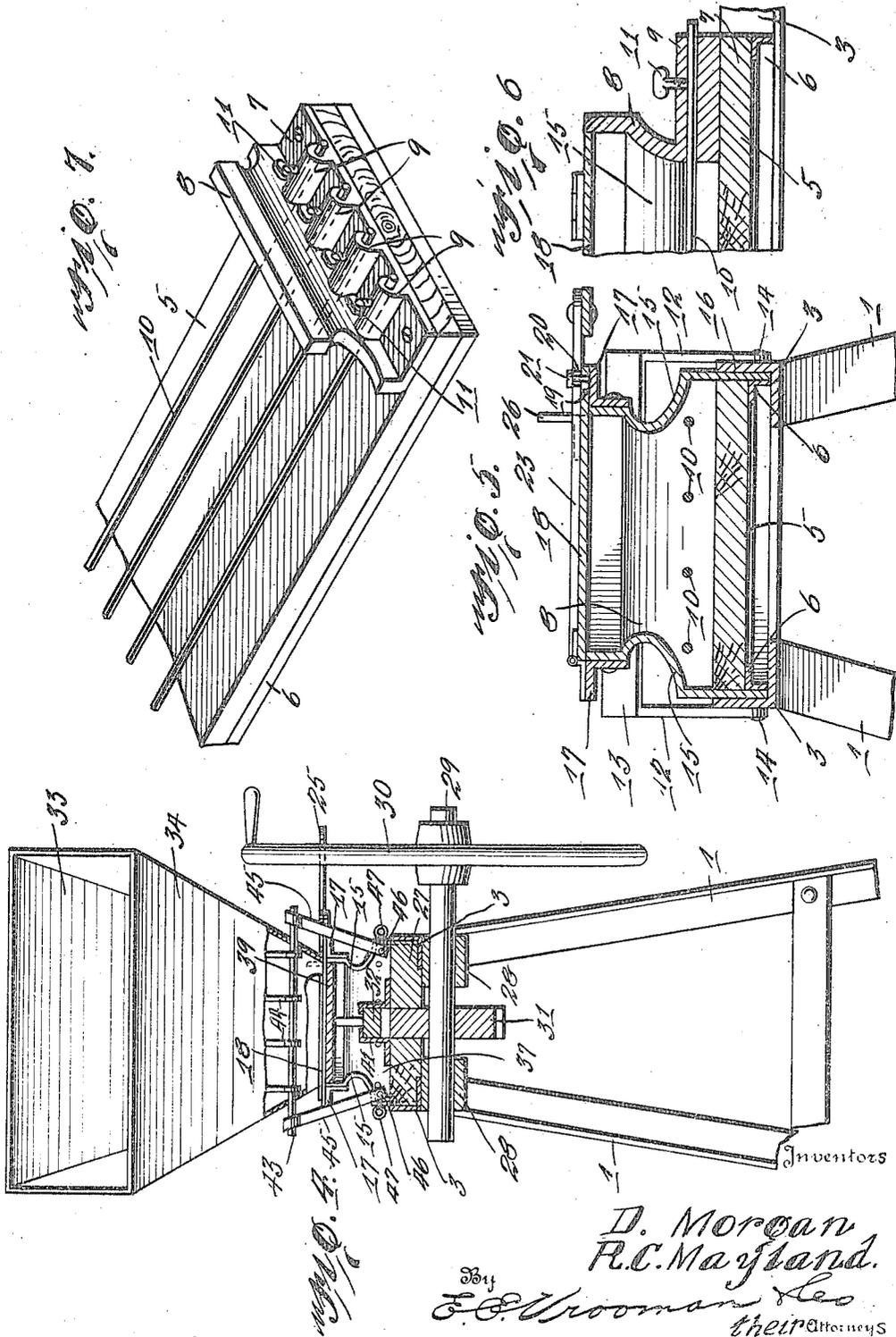
234  
 E. C. Noonan & Co.,  
 their Attorneys

D. MORGAN & R. C. MAYLAND.  
 MACHINE FOR MAKING REINFORCED CONCRETE BLOCKS.  
 APPLICATION FILED JULY 18, 1917.

1,255,330.

Patented Feb. 5, 1918.

4 SHEETS—SHEET 4.



# UNITED STATES PATENT OFFICE.

DAVID MORGAN AND RICHARD C. MAYLAND, OF BLOOMINGTON, ILLINOIS.

MACHINE FOR MAKING REINFORCED-CONCRETE BLOCKS.

1,255,330.

Specification of Letters Patent.

Patented Feb. 5, 1918.

Application filed July 18, 1917. Serial No. 181,350.

*To all whom it may concern:*

Be it known that we, DAVID MORGAN and RICHARD C. MAYLAND, citizens of the United States of America, residing at Bloomington, in the county of McLean and State of Illinois, have invented certain new and useful Improvements in Machines for Making Reinforced-Concrete Blocks, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to a machine for making reinforced concrete blocks, and the like, and has for its principal object the production of a simple and efficient means which will thoroughly and efficiently compress the cement so as to exclude all air from the block, while the same is forming.

Another object of this invention is the production of a simple and efficient operating means for the compression plunger and means for agitating the cement or plastic material in the feeding hopper.

With these and other objects in view this invention consists of certain novel combinations and arrangements of parts, as will be hereinafter fully described and claimed.

In the accompanying drawings:—

Figure 1 is a side elevation of the plastic block machine.

Fig. 2 is a top plan view thereof.

Fig. 3 is a central longitudinal section through the machine.

Fig. 4 is a section taken on line 4—4 of Fig. 1.

Fig. 5 is a section taken on line 5—5 of Fig. 1.

Fig. 6 is an enlarged longitudinal section through the outer end of the pallet and the cover for the mold.

Fig. 7 is a detail perspective of one end of the pallet.

Fig. 8 is an enlarged longitudinal section through the feeding end of the cement block making machine.

Fig. 9 is a section taken on line 9—9 of Fig. 8, the hopper and other parts being broken away.

Fig. 10 is a detail perspective view of one end of the agitating shaft, showing the operating arms carried thereby.

Fig. 11 is a detail perspective of the closure gate for the feeding hopper.

Fig. 12 is an enlarged transverse section taken on line 12—12 of Fig. 8.

By referring to the accompanying drawings, by numerals, it will be seen that the

cement block making machine is supported upon a frame, which frame comprises a plurality of supporting lugs 1 of angle iron construction, the side lugs being braced, and connected together by means of the cross bracing bars 2. The lugs 1 support angle iron side rails 3 on the upper ends, as illustrated in detail in Figs. 4 and 5 of the drawings, and these side rails 3 constitute tracks upon which the pallet is adapted to slide, as well as the operating plunger hereinafter described. These side rails 3, are braced by means of the transversely extending braces 4 extending across the bottom of the machine, as shown clearly in Figs. 1 and 3 of the drawings.

A pallet is supported upon the side rails 3 and comprises a pallet plate 5, which pallet plate is supported upon the tracks or angle plates 3 by means of the inverted angle plates 6, which engage the under face of the pallet plate 6, and have their lower edges traveling upon the track plates or angle plates 3, as is clearly illustrated in Figs. 5 and 6. This pallet plate 5 carries an abutment block 7 at its outer end and this abutment block 7 is provided with a vertically extending web portion 8. The block 7 is also provided with sleeve portions 9 abutting against the vertically extending web portion 8, and these sleeve portions 9 are adapted to receive the reinforcing rods 10 and hold the same in a proper position for being embedded within the plastic block adapted to be formed within the mold. Thumb screws 11 pass through the sleeve portions 9 for firmly holding the reinforcing rods 10 in a set position, and against movement during the compression of the block.

A suitable reinforcing or bracing yoke 12 which is substantially V-shaped has its upward end 13 abutting against the rear face of the plate 8, as shown clearly in Fig. 3 of the drawing, and the side lugs of the bracing plates 12 are pivotally secured to the angle plates 3 by means of the pivot pins or rivets 14, shown clearly in Figs. 1 and 3 of the drawings. It should be understood that this yoke brace 12 may be swung out of engagement with the abutment block 7, when so desired, in order to permit the entire pallet plate to be shifted to a desired position upon the rails or angle plates 3.

Side plates 15 are interposed between the side edges of the pallet plate 5, and the

vertically extending web portions 16 of the plates 3, and these side plates 15 of the mold are adapted to be formed of spring material so as to normally, while not under pressure, spring away from the sides of the block, as soon as the cover of the mold has been released. It should of course be understood that the side plates 15 may be formed of any shape desired without departing from the spirit of the present invention, for the reason that the shape of these plates will vary with the design of the block which is adapted to be formed. Each side plate 15 is provided with an angle plate 17 upon the upper edge thereof, and a hinge cover plate 18 is hingedly secured to one of the plates 18 and is adapted to have its opposite edge rest upon the opposite angle plate 17 as shown in detail in Fig. 5. The cover plate 18 is provided with suitable notches 19 for fitting over the pins 20 carried by one of the angle plates 17, and these pins 20 have enlarged heads 21, under which enlarged heads 21 are adapted to fit the notches 22 of the locking levers 23. These locking levers 23 are hingedly secured to the cover plate 18 and are adapted to be swung under the enlarged heads 21 of the pins 20, and in this way firmly hold the cover 18 in a closed position over the top of the mold. The outer ends of the lugs 27 are connected by means of a connecting link 24, and this connecting link is engaged by a lever 25 which lever is pivotally mounted upon the top of the cover plate 18. This cover plate 18 is reinforced near its outer edge by means of the angle reinforcing plates 26, as shown clearly in Fig. 2 of the drawings. From the foregoing description it will be seen that the cover 18 may be readily swung to an open position, merely through the operation of the lever 25, which will release the locking links 23 from the pins 20 and thereby permit the cover to be swung upwardly. As soon as the cover has been swung upwardly the swinging action of the sides 15 will cause the same to slightly give away from the sides of the block, which is formed within the mold.

A rack supporting plate 27 is supported near one end of the frame, as shown clearly in Figs. 4 and 8, and this rack supporting plate 27 carries a plurality of bearings 28 through which an operating shaft 29 passes, as shown in Fig. 4 of the drawings. A suitable hand operating wheel 30 is carried by and keyed to this shaft 29. A pinion 31 is also keyed to the shaft 29 and this pinion meshes with the teeth formed upon the under faces of the rack bar 32, shown clearly in Figs. 4 and 8 of the drawings.

The feeding hopper 33 is supported upon one end of the frame of the plastic block machine and this hopper is provided with a rear inclined wall 34 and the plastic mate-

rial is adapted to be placed within the hopper 33, and to be discharged out through the discharge end 35 of the hopper into the mold 36, which is formed by means of the side plates 15, the cover 18 and the pallet 5. Of course, the outer end of this mold 36 is closed by means of the abutment block, above described, and a suitable plunger 37 is slidably mounted upon the plate 5 and between the cover 18 as shown clearly in Fig. 8. This plunger 37 is provided with suitable apertures 38 through which the inner ends of the reinforcing rods 10 pass. The plunger head 37 is carried by the forward end of the rack bar 23, and it should be understood that as the pinion 31 is rotated in one direction, the rack bar 23 will force the plunger 37 upwardly and thereby compress the plastic material which has been poured into the mold 36 through the aperture 35. A suitable cut-off plate 39 is supported upon the top of the rack bar 23 by means of the support 40, and this plate 39 is adapted to pass under the discharge opening 35 of the hopper 33, and cut off the supply of plastic material into the mold 36. The rack bar 32 works through the guiding elements, as shown in detail in Fig. 9 and the rack bar 49 is provided with a laterally extending stop pin 42 which limits the forward movement of the plunger 37 by abutting against the rear end of the guiding elements 41.

An agitator shaft 43 is carried within the hopper 33 and is provided with a plurality of agitating fingers 44 as shown clearly in Figs. 2 and 8 of the drawings, and these agitating fingers 44 are adapted to swing within the hopper 33 as the shaft 43 is operated or rotated. The outer ends of this shaft 43 carry arms 45 which arms carry abutment pins 46, which pins 46 are adapted to be pivotally engaged by the plunger 35. When the discharge opening 35 is opened and as the plunger 35 abuts against the pin 46, it will be seen that the shaft 43 will be rotated thereby swinging the agitating arms 44. A coil spring 47 is carried by each arm 45 and is secured to the end of the machine at a point indicated by the numeral 48, for the purpose of swinging the agitating arms 44 back against the inclined wall 34 of the hopper 33.

The rack supporting plate 27 carries a bearing plate 49 for permitting the rack bar 23 to easily slide over the rack supporting plate 27, without injury to the rack bar supporting plate 27.

The force of compression of the pallet head in forcing forward the concrete in the mold is sufficient to exclude all air, resulting in a block in which there will be no air bubbles. Any air that might be in the mold will find an escape through the openings in the corners of the mold. The cover when clamped down is not air tight. The opening

is sufficiently small not to allow any concrete to be forced out, but is sufficiently large to allow air to pass out from the mold. This same condition is true of the corners in the bottom of the mold. It can be readily seen that the cover when clamped down will not make a perfect joint; that is air perfect, as there will be a small air space where the metal of the sides and cover fail to meet perfectly.

Blocks that have been made by the machine show that air is excluded, as many of the blocks have been broken and not an air bubble has as yet been discovered.

What is claimed is:—

1. A plastic block machine comprising a frame, a mold carried thereby, an abutment block carried by said mold, adapted to hold reinforcing wires which extend through said mold, a plunger working in said mold, said reinforcing rods working through said plunger, means for actuating said plunger, a feeding hopper, and means carried by said plunger for cutting off the supply of plastic material from said hopper to said mold.

2. A plastic block machine, comprising a frame, a mold carried thereby, a plunger working in said mold, a hopper, an operating shaft, a pinion carried by said shaft, a rack bar engaging said plunger, a cut-off plate supported upon said rack bar, a hopper supported upon said frame, an agitator supported upon said hopper, agitator fingers working within said hopper, tripping fingers carried by said shaft, at its respective ends, pins carried by said fingers and adapted to be engaged by said plunger, for swinging said agitator fingers, as said plunger is moved against said pins, and yieldable means for returning said agitator fingers to their normal positions.

3. A plastic block making machine of the class described, comprising a frame, said frame comprising a pair of side rails, a pallet plate, angle plates supporting said pallet plate and working upon said side rails, side plates secured between said side rails, and pallet plate, an abutment block, a plunger, a hinge cover releasably secured to said side

plates for closing the top of said side plates, and converting the same into a mold.

4. A plastic block making machine of the class described, comprising a frame, said frame comprising a pair of side rails, a pallet plate, angle plates supporting said pallet plate, and working upon said rails, side plates secured between said side rails, and pallet plate, an abutment block, a plunger, a hinge cover releasably secured to said side plates for closing the top of said side plates, and converting the same into a mold, locking levers carried by said top, and means engaged by said locking levers for firmly holding said cover in a closed position, said side plates being formed of spring material, and being adapted to swing upwardly when said cover is released therefrom.

5. A plastic block making machine of the class described, comprising a frame, a pallet plate carried thereby, an abutment plate, said abutment plate provided with a plurality of sleeves supported thereon adapted to hold reinforcing wires adapted to pass longitudinally of said pallet plate, and having their ends fitting in said sleeves, and means passing through said sleeves for locking said reinforcing wires in a set position upon said pallet plate.

6. A plastic block making machine of the class described, comprising a frame, a pallet plate carried thereby, an abutment plate, said abutment plate provided with a plurality of sleeves supported thereon adapted to hold reinforcing wires adapted to pass longitudinally of said pallet plate, and having their ends fitting in said sleeves, and means passing through said sleeves for locking said reinforcing wires in a set position upon said pallet plate, a yoke plate secured to the side of rails of said frame and bearing against the outer ends of said abutment plate for bracing the same while the abutment plate is under pressure.

In testimony whereof we hereunto affix our signatures.

DAVID MORGAN.  
RICHARD C. MAYLAND.