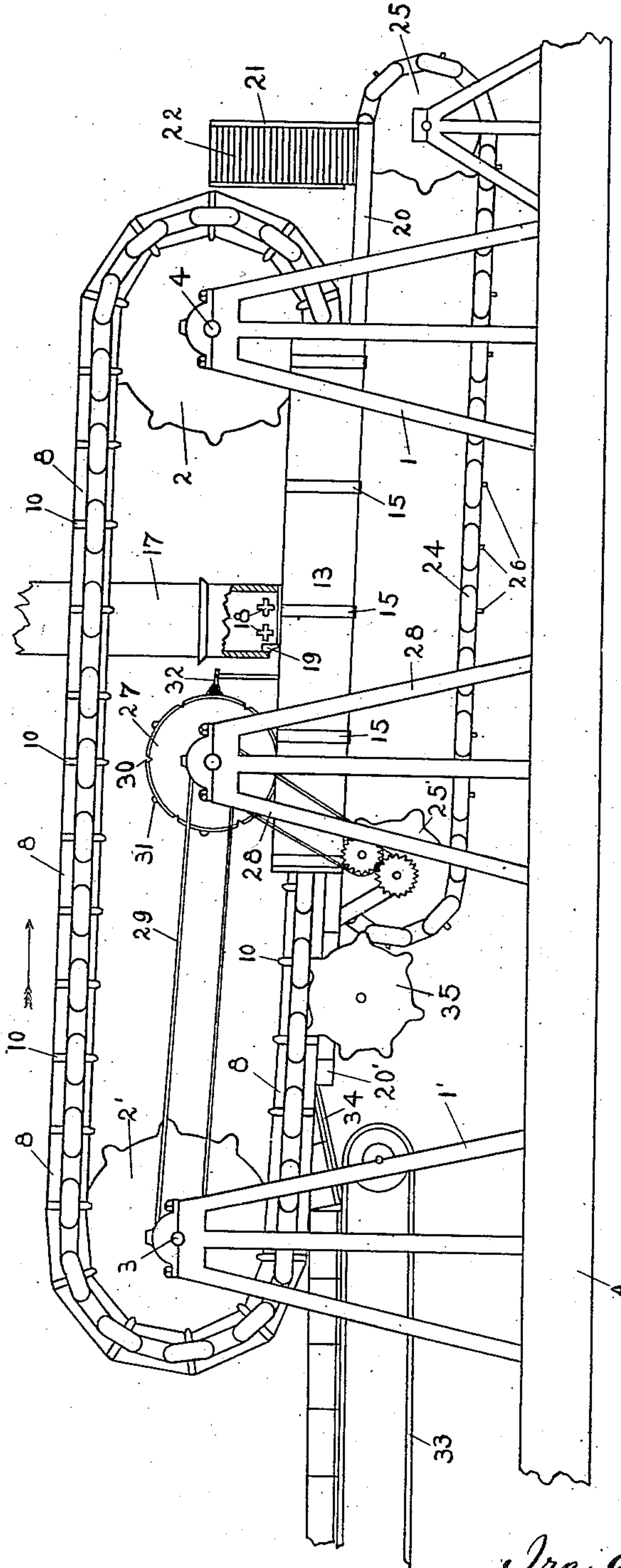


No. 862,558.

PATENTED AUG. 6, 1907

I. E. HISCOCK.
BRICKMAKING MACHINE.
APPLICATION FILED MAR. 12, 1907.

3 SHEETS—SHEET 1.



H. E. H.

WITNESSES:

J. Ray Abbey
Ralph S. Warfield

INVENTOR

Ira E. Hiscock

BY

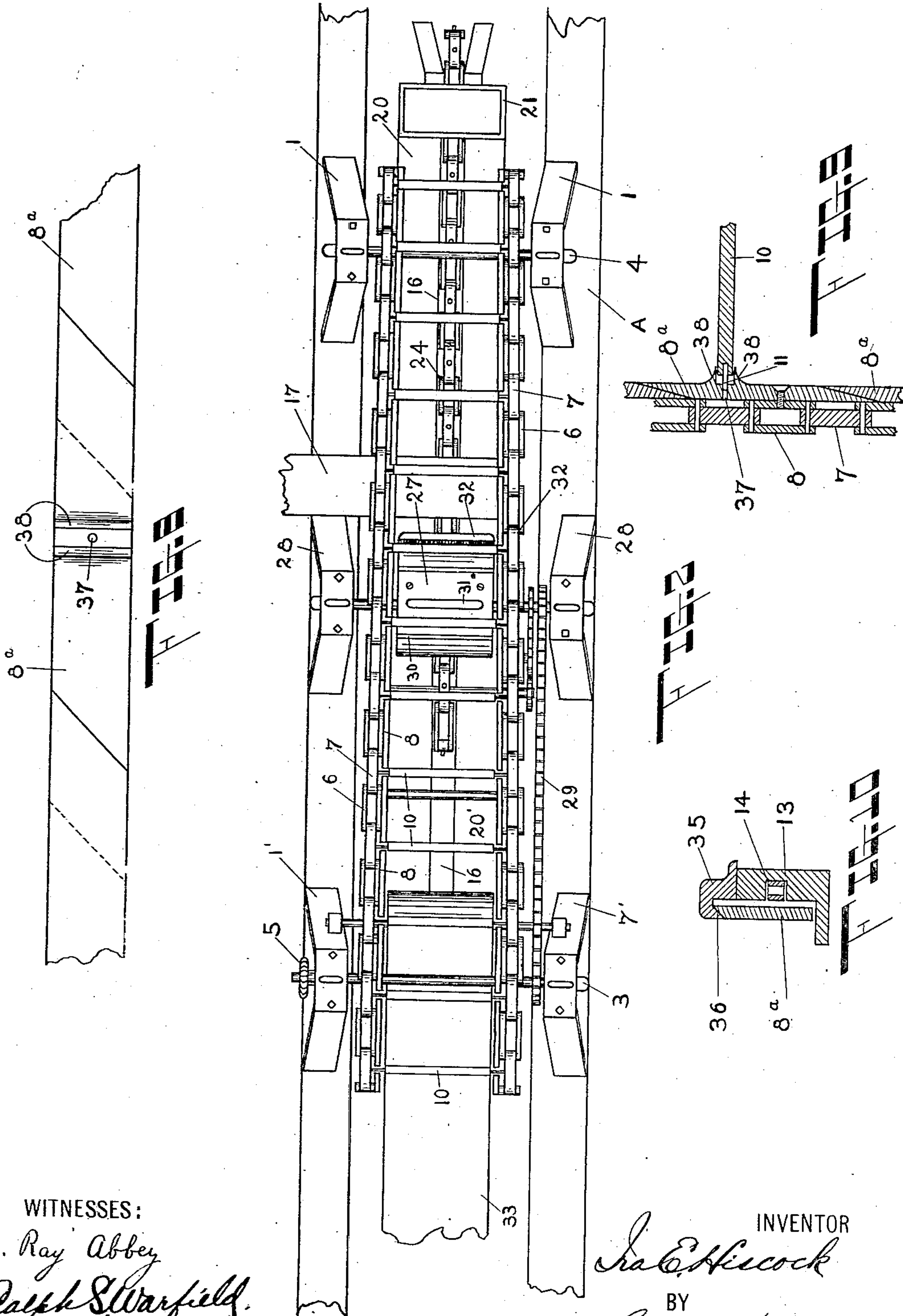
Geo. B. Wilcox
ATTORNEY

No. 862,558.

PATENTED AUG. 6, 1907.

I. E. HISCOCK.
BRICKMAKING MACHINE.
APPLICATION FILED MAR. 12, 1907.

3 SHEETS—SHEET 2.



WITNESSES:

J. Ray Abbey
Ralph S. Warfield.

INVENTOR

I. E. Hiscock

BY

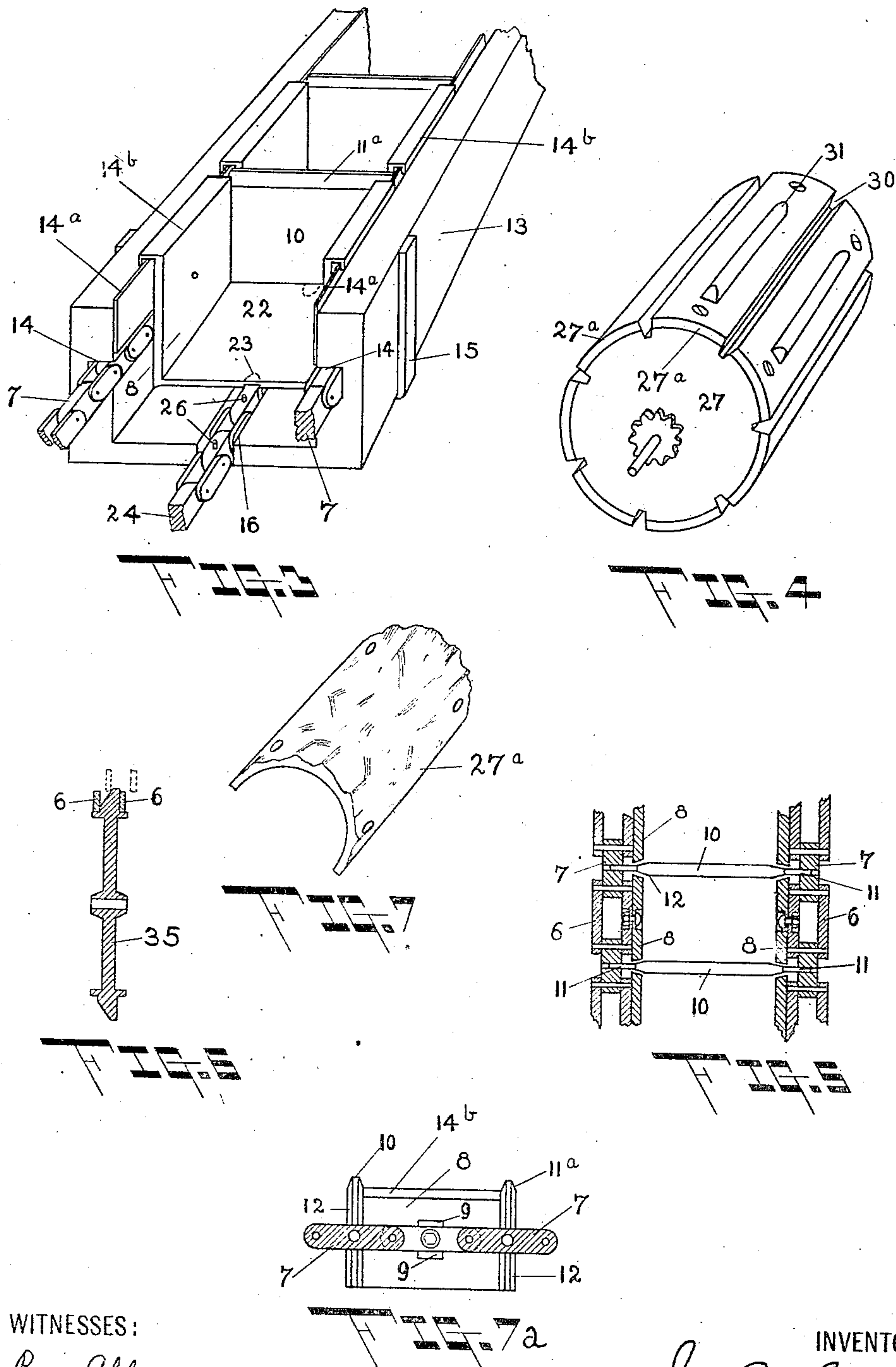
Geo. B. Wilcox
ATTORNEY

No. 862,558.

PATENTED AUG. 6, 1907.

I. E. HISCOCK.
BRICKMAKING MACHINE.
APPLICATION FILED MAR. 12, 1907.

3 SHEETS—SHEET 3.



WITNESSES:

J. Ray Abbey
Ralph S. Warfield.

INVENTOR

Ira E. Hiscock

BY

Geo. B. Wilcox
ATTORNEY

UNITED STATES PATENT OFFICE.

IRA E. HISCOCK, OF BAY CITY, MICHIGAN.

BRICKMAKING-MACHINE.

No. 862,558.

Specification of Letters Patent.

Patented Aug. 6, 1907.

Application filed March 12, 1907. Serial No. 361,953.

To all whom it may concern:

Be it known that I, IRA E. HISCOCK, a citizen of the United States, residing at Bay City, in the county of Bay and State of Michigan, have invented certain new and useful Improvements in Brickmaking-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

10 This invention relates to brick-making machines, and more particularly to that class of machines comprising an endless chain of molds into which the material is discharged and from which the completed brick are discharged.

15 One object of my invention is the provision of a machine wherein the molds travel continuously.

A further object is the provision of a rotary presser for compressing the material into brick form as it passes therebeneath.

20 A still further object is the provision of novel means for automatically supplying pallet boards to the endless chain of molds.

Another object is the provision of novel means for releasing the completed brick from the molds.

25 Still another object is the provision of means for preventing the entrance of extraneous material to the mold chain trough.

To these and other ends, therefore, my invention comprises certain novel features and combinations of parts, such as will be more fully described hereinafter and particularly pointed out in the claims.

30 In the drawings, Figure 1 is a side view of my invention; Fig. 2 is a top plan view; Fig. 3 is a detail perspective view showing a portion of the chain of molds in its trough; Fig. 4 is a detail perspective view of the presser wheel; Fig. 5 is a detail top plan view partly in section of the mold chain; Fig. 6 is a detail sectional view of the spreading sprocket; Fig. 7 is a detail view of a rock face plate applicable to the rotary compressor; Fig. 7^a is a detail view of one end of a mold, the chain being shown in section; Fig. 8 is a detail view of a portion of the series of end walls used when making blocks; Fig. 9 is a top plan view thereof; and Fig. 10 is a detail cross-sectional view showing the means for preventing the entrance of dirt between the chain and channel.

45 (A) indicates any suitable support upon which the standards (1) (1') are placed, the standard (1') being slightly higher than standard (1). Sprockets (2) (2') arranged in pairs are carried on shafts (3) (4) journaled on standards (1) (1'). Shaft (3) is the drive shaft and carries a gear (5) driven in any suitable manner, not shown.

50 A pair of endless mold-forming chains pass around the respective pairs of sprockets (2) (2'), each chain consisting of alternate open and closed links (6) and (7) respectively, the open links and the closed links of one

chain lying opposite and traveling with the open and closed links respectively of the opposite chain. End walls (8) (8) are secured in any suitable manner to the inside sections of the open links, the end walls being preferably of a length equal to the length of the end of the bricks to be formed, and each end wall may be provided with a pair of lips (9) (9) located on opposite sides of the inner section of the open link to prevent an undue rocking of the end walls relative to the chains, should it be found necessary to limit or prevent such movement.

60 Located between each two adjacent pairs of opposing end walls are the side walls (10). The end walls lie parallel with the chains, but the side walls extend across from chain to chain, the ends of such side walls being loosely receivable in the interstices between the successive end walls. Pins (11) project from the ends of the side walls and are loosely received in apertures formed transversely of the solid links (7) of the respective chains. The upper edges of the side walls are reduced, as shown at (11^a) to fit the grooves of the presser wheel hereinafter described. Furthermore, the ends of the side walls are reduced or provided with a slight draw, as at (12) to cause them to fit snugly between the end walls.

75 The mold chain travels in the direction of the arrow (Fig. 1) passing around the sprockets (2) and into a trough or chain-housing (13) approximately U-shaped in cross section, as shown in Fig. 3, the links of the respective chains forming the mold conveyer, being received in ways (14) formed in the inner faces of the housing. The housing preferably comprises two L-shaped members connected by means of the straps (15), in such a manner as to leave a slot (16) extending longitudinally of the bottom of the housing for a purpose hereinafter described. The end walls of the molds thus come flush against the sides of the housing, the molds passing beneath a supply chute or hopper (17) adapted to supply the molds with a plastic salve-like concrete mixture which supplies them with material. I preferably place beaters or mixers (18) at the mouth of the chute rotating such beaters in a direction opposite to the direction of travel of the endless molds, for the purpose of imparting a final mixing to the material and also to tamp the material into the molds. The chute may also be provided with a stroke-off iron (19) adapted to stroke the material off level with the upper open ends of the molds. The sides of the mold housing extend preferably from a point adjacent the sprockets (2) past the presser wheel hereinafter described, but the slotted bottom of the housing extends some distance beyond the sides at both ends, as at (20) (20').

100 Seated, it may be, on the front end extension (20) to the bottom of the casing is a container (21) of any suitable construction adapted to receive a plurality of pallet boards (22), the pallet boards being recessed at opposite sides from beneath, as at (23), the object of recessing

80

85

90

95

100

105

110

both sides being to avoid the necessity of placing them in the container in any particular manner. Care must, however, be taken to place the pallet boards in the container bottom downward. The lower-most pallet board rests upon the slotted bottom, the recesses registering with the slot.

A pallet-feeding chain (24) is mounted on sprockets (25) (25') supported in any convenient manner, sprocket (25') being driven from shaft (3) so that the travel of the mold chain and the pallet-feeding chain are synchronized or timed, in order that a pallet will be presented to each mold as it leaves sprockets (2). The pallet-feeding chain is provided with a series of lugs (26) spaced apart relative to each other, and adapted to engage successive pallets in the container to slide them along the extension (20) so that they will register with the molds successively. The pallet-feeding chain travels in the slot in the bottom of the mold casing, the lugs (26) projecting into the recesses (23) of the pallet boards, and causing them to travel with the molds, the pallet board feeding chain leaving the casing at the beginning of the extension (20') of the bottom. Of course, the sides of the casing may be continued toward the front of the machine to container (21).

Located behind the supply-chute (17) is the rotary compressor or wheel (27) journaled in suitable standards (28) and driven from the shaft (3) by a chain (29). This wheel is provided with peripheral longitudinally extending grooves (30) (30') adapted to receive the upper reduced edges (11^a) of the side walls (10) of the molds, the grooves being spaced apart a sufficient distance to mesh with each side wall. The grooves are preferably so shaped that the periphery of the wheel between the grooves will engage the entire upper surface of the material in the molds and compress the latter. In other words, the entire area of the space between each two adjacent grooves of the presser wheel engages the entire upper surface of the material in the mold and compacts it. Intermediate the grooves (30), I may place the ribs (31) adapted to form depressions in the upper faces of the bricks and in order to clean the surface of the roll or wheel, I may provide the brush (32). One end of an off-carrying belt (33) is located beneath the sprocket (2'), an inclined plate (34) leading from the end of the extension (20') to the belt.

As one means for releasing the molds from the brick, I provide the following—Carried by the extension (20') at points between the inclined plate (34) and the rear sprocket (25)' of the pallet feeding chain are a pair of spreading sprockets (35), so that the mold chains, in passing thereover are caused to diverge or spread apart to accommodate which the driving sprockets (2') are set further apart than are the sprockets (2). These spreading sprockets engage the lower portions of the mold chains as they emerge from the casing (13) which casing prevents the chains from spreading while in the ways (14). The spreading apart of the mold chains operates to release the end walls (8) (8') from the brick and pallet board, and simultaneously with the spreading apart of the chains, they commence to ascend by reason of the fact that the sprocket wheels (2') are hung higher than are the sprocket wheels (2). Thus a simultaneous spreading apart and ascension of the mold chains is effected whereby the brick on its original pallet is released from the molds, such release being facilitated

by a slight "draw" (not shown) given the traveling molds whereby the lower faces are very slightly larger than the upper faces of the molds. The brick and pallets are not entirely released from the molds until they reach the inclined plate (34) down which the pallet and brick is pushed by the succeeding bricks and pallets until it rests upon the off-carrying belt (33).

The teeth of the spreading sprockets are straight on one side and inclined on the opposite side, whereby the mold chains are caused to slip sidewise or laterally upon the teeth and thus be spread apart. Furthermore, the spreading sprockets also serve as idlers, to take up the slack in the mold chains, and the latter as they are spread apart move relatively to the pins (11) carried by the ends of the side walls of the mold, such side walls or division plates being carried around with the chains at all times.

In order to prevent dirt or other extraneous material from working in between the side walls of the molds and the casing, I prefer to line the casing above the ways (14) with sheet metal (14^a), the upper edge of which projects above the casing. I also extend the end walls of the molds, as at (14^b) and flare or bend such extended portion over behind the projecting edge of the lining, thereby preventing the entrance of dirt to the casing.

The operation of the machine is as follows—The endless chain of molds, as they leave the under face of the sprockets (2), are equipped with pallet boards (22) presented successively thereto by the feeding-chain (24). The molds then pass beneath the supply-chute (17) which fills them with material, the molds being stroked off as they leave the chute, after which they pass beneath the rotary compressor (27) which packs or presses the material firmly in the mold. At this point, it may be well to state that the cubic area of the mold is larger than the cubic area of the bricks so that the molds may receive a large amount of material which is packed down by the rotary compressor, the thickness of the brick being determined by the distance between the under face of the compressor and the upper face of the pallet board. As the bricks pass from beneath the compressor the mold chains are spread apart to release the brick from the molds, the chains remaining spread apart as they pass around the sprockets (2'), but as they approach the sprockets (2), the chains are brought together. A boy can keep the pallet hopper (21) filled with pallets. The chain of molds is arranged vertically, that is, the sprockets (2) (2') are set in vertical rather than horizontal planes, and the molds travel continuously rather than step-by-step.

It will be noted that the periphery of the press-wheel (27) consists of removable plates (27^a), it being obvious that the plates shown in Fig. 4 may be removed and the rock face plate shown in Fig. 7 substituted therefor. In fact, water tables, window caps, window sills or what-not can be made by applying to the wheel, plates adapted to form such articles, the wheel being wide enough, say eight inches, to receive such detachable plates. It is perfectly obvious also that my invention is adapted to manufacture blocks as well as bricks, it being necessary only to change the style of mold chains a trifle, as shown in Figs. 8 and 9, whereby the ends of the chain are beveled and overlapped so that the inner faces of the blocks are formed even and parallel, and the chains may break in passing around the sprockets.

In order to prevent dirt or extraneous material from working in between the block mold chains and the channel, I prefer to bevel the upper edges of the end plates (8^a) and locate an under-cut casting 35 on the upper edges of the side walls of the channel, the upper edges of the side plates or walls carried by the chain being received and conforming in shape to the under-cut groove (36) in the casting.

The cross walls are located sufficiently far apart to form blocks of any desired length, the pins (11) on the ends of the cross walls passing through apertures (37) formed in the side walls and received in the apertures in the solid links (7). The side walls are also provided with transversely extending parallel shoulders (38) adapted to receive the ends of the cross walls to prevent them from swinging on their pivots.

It is evident that many changes might be made in the form and arrangements of the several parts described without departing from the spirit and scope of my invention and hence I do not wish to limit myself to the exact construction herein set forth.

Having thus fully disclosed my invention, what I claim as new is—

1. A brick-making machine comprising an endless chain of molds, means for imparting a continuous motion to the chain of molds, a casing in which the return section of the chain of molds is confined during a portion of its travel, means for supplying material to the molds during their progress through the casing, means for automatically supplying pallet boards to the bottom faces of successive molds prior to the filling of the molds, means for compressing the material in the molds, and means for partially disassembling the molds to release the completed brick and pallet boards, as the chain of molds progresses.

2. The combination in a brick-making machine, of a pair of parallel chains, molds carried by the chains, the discharge end of the chain of molds being higher than the receiving end, means for filling the molds, means for supplying pallet boards to the molds prior to the filling of the molds, means for compressing the material in the molds, means for spreading the chains apart at the discharge end of the machine to partially disassemble the molds and deliver the molded articles, and means other than the means for supplying the pallet boards for conveying the articles from the machine.

3. In a brick-making machine, the combination with a pair of traveling endless chains, of molds carried by the chains, the molds open at top and bottom, means for supplying pallet boards to the separate molds at the receiving end of the machine, prior to filling the molds, and means for gradually simultaneously spreading and raising the chains at the discharge end of the machine to partially disassemble the molds.

4. A brick-making machine comprising endless chains, molds loosely carried by the chains, the molds open at top and bottom, removable pallet boards for the bottoms of the molds, pairs of sprockets around which the entire molds and chains travel, the sprockets at the discharge end of the machine being set further apart and in a higher plane than the sprockets at the receiving end of the machine to simultaneously spread and raise the molds to cause the discharge of their contents, and means for constantly supporting the pallet boards and their contents during such discharge.

5. A brick-making machine comprising an endless chain of molds, pairs of sprockets around which the molds travel, the sprockets at the discharge end of the machine being set further apart and higher than the sprockets at the receiving end of the machine, confining means through which the return section of the molds passes during a portion of its travel, idler sprockets located between the rear end of the casing and the sprockets at the discharge end of the machine and means for supporting the mold contents during its discharge.

6. A brick-making machine comprising an endless chain

of molds, means at the discharge end of the machine for simultaneously and automatically raising and partially disassembling the mold to effect the discharge of their contents, and means for reassembling the molds automatically.

7. A brick-making machine comprising an endless chain of molds, means at the discharge end of the machine for simultaneously and gradually raising and partially disassembling the molds, a casing extending from the receiving end toward the discharge end of the machine for receiving and confining the return section of the chain of molds throughout a portion of its travel, means for supplying pallet boards to the respective molds at the receiving end of the machine prior to filling the molds, the feeding means moving the pallet through the casing, an off-carrier and means for delivering the completed article to the carrier.

8. A brick-making machine comprising a pair of chains, sprockets around which the chains pass, molds carried by the chains, a casing through which the return sections of the chains pass during a portion of their travel, means for supplying pallet boards to the molds at the receiving end of the machine prior to filling the molds, the bottom of the casing provided with an extension projecting toward the discharge end of the machine, on which the pallet boards ride, and means for raising the molds and partially disassembling the chains as they reach the extension to free the completed articles and the pallet boards and deliver them onto the extension.

9. A brick making machine comprising an endless chain of molds, a casing for confining the return section of the chain of molds during a portion of its travel, the sides of the casing being removed adjacent the discharge end of the machine, the bottom of the casing being slotted and extending from the receiving end to the discharge end of the machine, means at the discharge end of the machine for simultaneously raising and separating the endless chain of molds and a pallet board feeding chain received in the slot in the bottom of the casing and adapted to supply the respective molds with pallet boards.

10. A brick making machine comprising a pair of parallel chains, end walls secured parallel with the chains, side walls extending between the chains, the ends of the side walls received between the ends of adjacent end walls, a casing in which the return section of the endless chain of molds is confined throughout a portion of its travel, the side walls of the casing having ways formed therein to receive the chains.

11. A brick making machine comprising an endless chain of molds, the molds consisting of end and side walls, a casing in which a portion of the return section of the endless chain is received, a metallic lining projecting above the inner surfaces of the walls of the casing, the end walls of the mold being flared outwardly to take behind and traveling along the projecting stationary portion of the lining.

12. A brick making machine comprising an endless chain of molds, the molds consisting of end and side walls, a casing in which a portion of the return section of the endless chain is received, and cooperating means carried by the endless chain of molds and by the casing to prevent the entrance of extraneous material between the casing and the endless chain of molds.

13. A brick-making machine comprising a plurality of pairs of sprockets spaced apart from each other, an endless chain of expansible molds comprising side and end walls connecting the pairs of sprockets and passing therearound, a casing through which the lower section of the chain of molds travels, a supply for filling the molds while passing through the casing and rotary pressure cylinder adapted to compress the material in the molds.

14. A brick making machine comprising a pair of parallel chains, the chains composed of hollow and solid links arranged alternately, end walls secured to the inner sections of the hollow links, and side walls extending between the chains, the ends of the side walls received between the adjacent end walls and sprockets, the teeth of which are received in the hollow links.

15. A brick making machine comprising a pair of chains, the chains consisting of alternate hollow and solid links, end walls pivotally secured to the inner sections of the hollow links, means carried by the end walls and engaging

the inner sections of the hollow links for limiting the pivotal movement of the end walls, and side walls extending between the chains.

16. A brick making machine comprising a pair of chains, end walls secured to and parallel with the chains, side walls extending between the chains, and pins on the ends of the side walls, the pins loosely received in apertures in the chains to permit the chains to move laterally toward and from each other and means for spreading and confining the chains.

17. A brick making machine comprising a pair of chains, end walls carried by the chains, side walls extending between the chains, the ends of the side walls receivable between the adjacent ends of the end walls, and means for loosely connecting the chains and side walls to permit the chains to move toward and from the side walls, the latter being continuously supported by the chains.

18. A brick or block-making machine comprising a pair of endless chains, end walls secured thereto, the ends of the end walls being beveled and over-lapping the ends of the adjacent end walls, shoulders carried by the end walls, and side walls suitably mounted at their ends and received between the shoulders.

19. A brick making machine comprising an endless chain of molds, sprockets over which the molds pass, a stationary support on which the chain of molds is sustained throughout a portion of its travel and a presser cylinder located intermediate the sprockets and adjacent the stationary support, the chain of molds adapted to pass between the support and the cylinder.

20. A brick or block making machine comprising a pair of chains, a series of molds carried by the chains, the molds being open at top and bottom, sprockets over which the chains pass, the sprockets at the discharge end of the machine being set farther apart and in a higher plane than the sprockets at the receiving end of the machine, a confining casing through which the lower section of the series of molds passes, means for supplying material to the molds as they pass through the casing, means for feeding pallet boards to the molds prior to filling the latter with the material, means for pressing the material in the molds, and idler sprockets located between the casing and the sprockets at the discharge end of the machine, the idler sprockets being beveled on their outer edges to move the chains laterally further apart.

21. A brick or block making machine comprising a pair of chains, sprockets around which the chains pass, the sprockets at the discharge end of the machine being set further apart than the sprockets at the receiving end, molds open at top and bottom, the molds carried by the chains, confining means through which the endless chain of molds passes during a portion of its travel, means for compressing the material fed into the molds and idler sprockets located between the confining means and the sprockets at the discharge end of the machine adapted to

spread the chains apart as they leave the confining means.

22. A brick-making machine comprising an endless chain of continuously-traveling molds, a casing through which the return section of the chain of molds passes during a portion of its travel, means for supplying material to the molds during their progress through the casing, means for supplying pallet boards to the bottom faces of the molds prior to filling the molds, means for compressing the material in the molds, means for automatically partially disassembling the molds during their travel and after leaving the casing to release the completed brick and pallet boards, and off-carrying means on which the pallet boards and the bricks are received.

23. A brick-making machine comprising endless chains, molds loosely carried by the chains, pairs of sprockets, around which the chains and molds pass, the sprockets at the discharge end of the machine being set farther apart than the sprockets at the receiving end of the machine, whereby to spread the chains to partially disassemble the molds, the positions of the sprockets at the receiving end of the machine automatically reassembling the molds, the sprockets at the discharge end of the machine occupying a higher plane than the sprockets at the receiving end of the machine, whereby to elevate the discharge end of the chain of molds, means for confining the endless chains through a portion of their travel against spreading, and means for constantly supporting the molded articles as they are discharged from the molds.

24. A brick-making machine comprising a pair of endless chains, molds carried by the chains, sprockets around which the chains and molds pass, pallet boards for the molds, the sprockets at the discharge end of the machine occupying a higher plane than the sprockets at the receiving end of the machine, whereby to discharge the molded articles from the molds and means for constantly supporting the pallet boards and molded articles as they are discharged from the machine.

25. A brick-making machine comprising a pair of endless chains, sprockets for the chains, end walls carried by the chains, side walls extending across between the chains, the side walls carried by and movable with the chains around the sprockets, the chains capable of lateral movement relative to the side walls, while still supporting the side walls, the sprockets at the discharge end of the machine being set farther apart than the sprockets at the receiving end of the machine, pallet boards, and means for constantly supporting the molded articles on their pallet boards, as the articles are discharged from the machine.

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

IRA E. HISCOCK.

Witnesses:

FRED. M. HISCOCK,

RALPH S. WARFIELD.