

No. 835,674.

PATENTED NOV. 13, 1906..

S. S. GARDINER.

BRICK MACHINE.

APPLICATION FILED JUNE 10, 1905.

3 SHEETS—SHEET 1

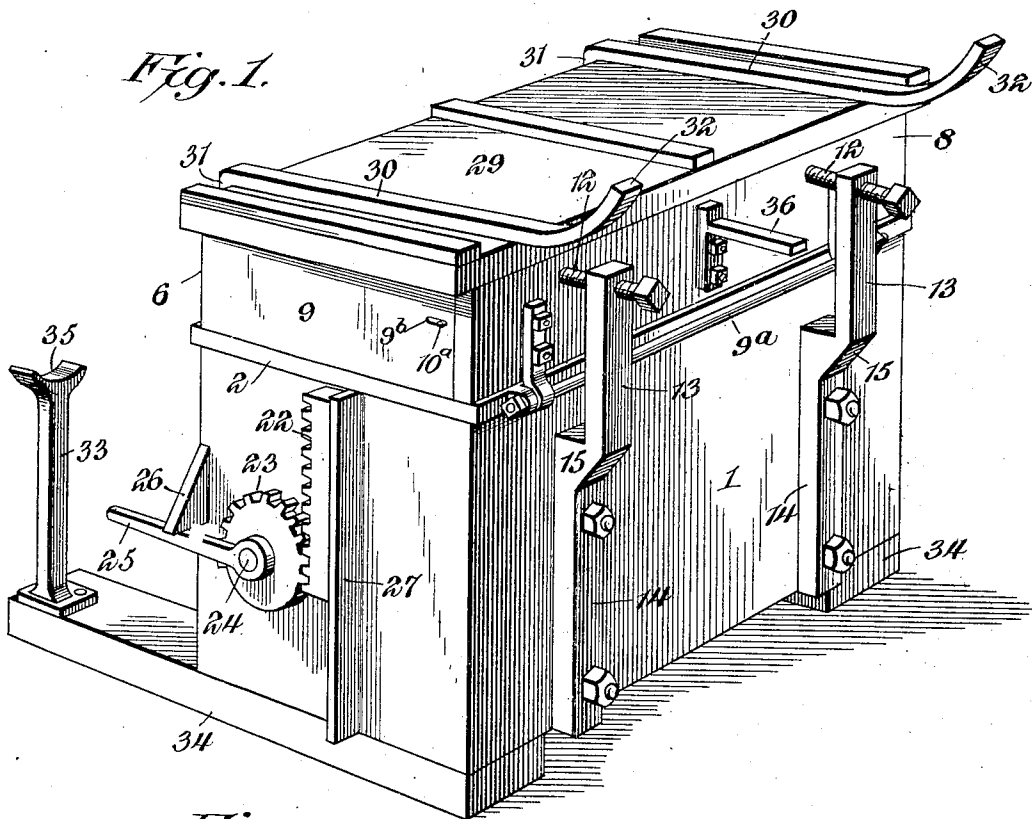


Fig. 6.

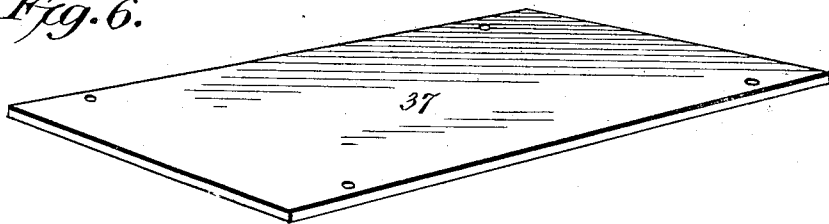


Fig. 7.

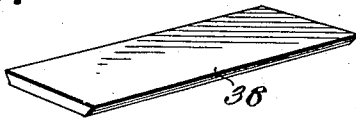
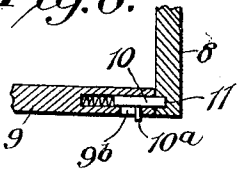


Fig. 8.



Witnesses

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3 SHEETS—SHEET 2.

Fig. 2.

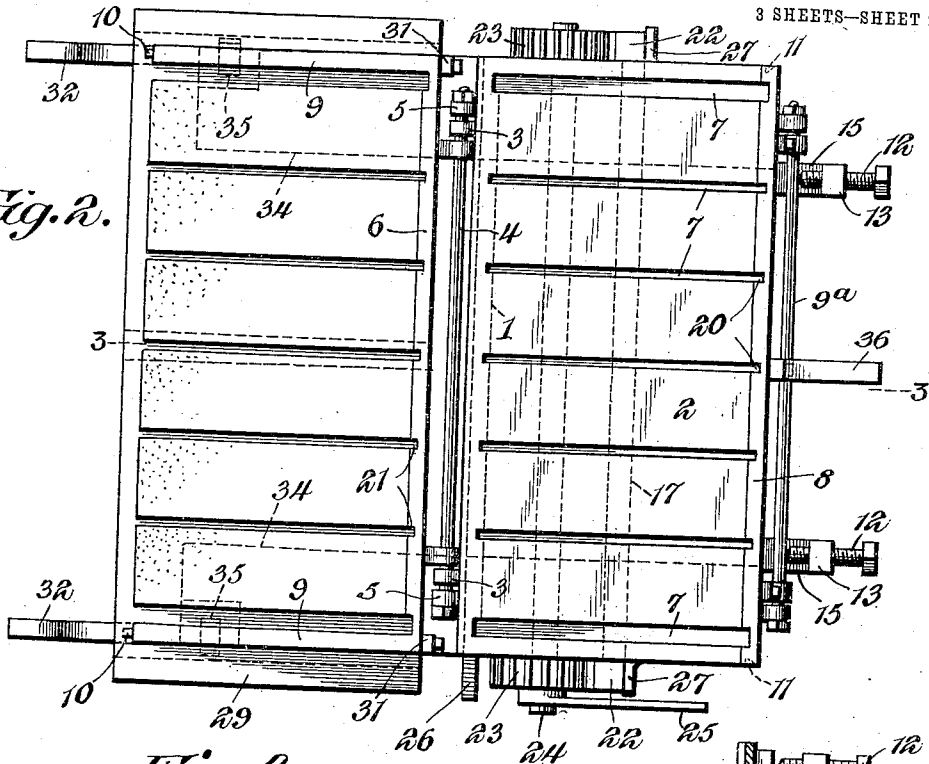
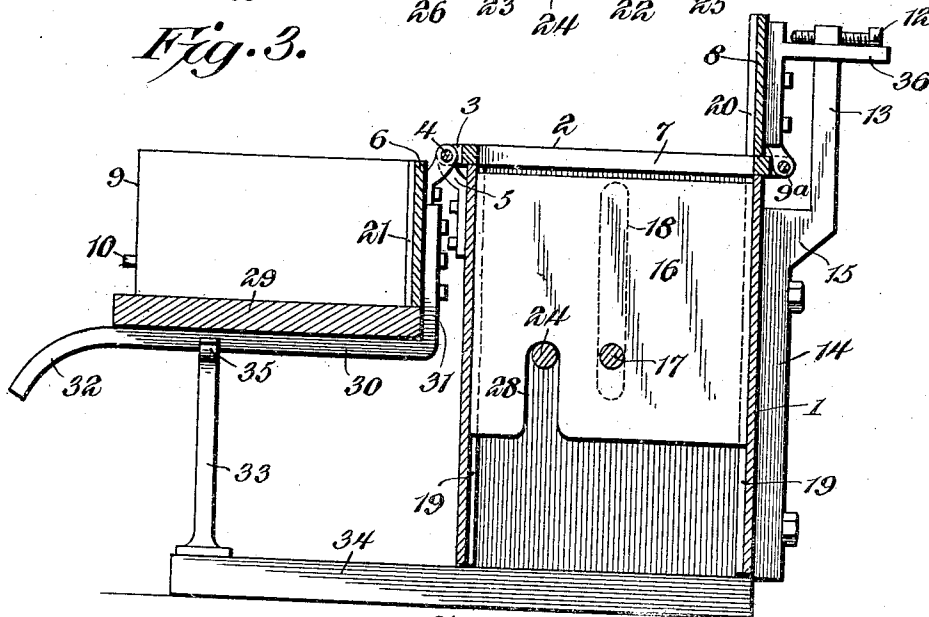


Fig. 3.



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3 SHEETS—SHEET 3.

Fig. 4.

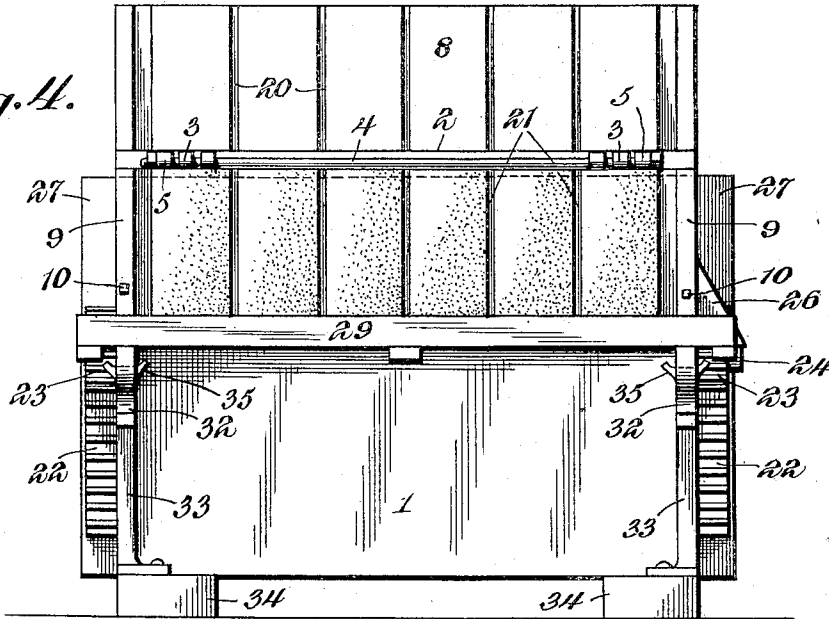
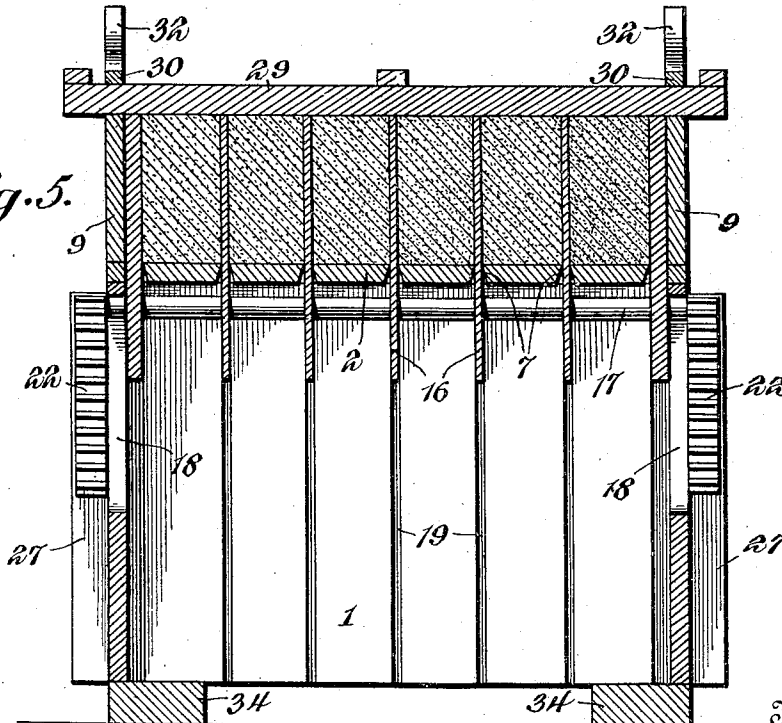


Fig. 5.



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UNITED STATES PATENT OFFICE.

STEPHEN SMITH GARDINER, OF LINCOLN, NEBRASKA.

BRICK-MACHINE.

No. 835,674.

Specification of Letters Patent.

Patented Nov. 13, 1906.

Application filed June 10, 1905. Serial No. 264,686.

To all whom it may concern:

Be it known that I, STEPHEN SMITH GARDINER, a citizen of the United States, residing at Lincoln, in the county of Lancaster and State of Nebraska, have invented a new and useful Brick-Machine, of which the following is a specification.

The invention relates to improvements in brick-machines.

The object of the present invention is to improve the construction of brick-machines and to provide a simple and comparatively inexpensive one designed particularly for making bricks or blocks of cement and capable of enabling the same to be rapidly molded.

A further object of the invention is to provide a machine of this character which will be adapted for simultaneously making a plurality of bricks or blocks and which will enable the same to be quickly and conveniently removed from the machine on a pallet.

With these and other objects in view the invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended, it being understood that various changes in the form, proportion, size, and minor details of construction within the scope of the claims may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings, Figure 1 is a perspective view of a brick-machine constructed in accordance with this invention and shown closed. Fig. 2 is a plan view, the brick-machine being open. Fig. 3 is a vertical sectional view of the same, taken substantially on the line 3-3 of Fig. 2. Fig. 4 is an elevation, the parts being arranged as shown in Figs. 2 and 3. Fig. 5 is a transverse sectional view, the machine being closed. Fig. 6 is a detail perspective view of a board or bottom piece which is employed when the machine is used for molding a large block of cement or other artificial stone. Fig. 7 is a detail view of a removable piece for varying the size of the brick-compartments. Fig. 8 is a detail sectional view illustrating the construction of the catches for interlocking the end wall of the mold with the front wall.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 designates a main frame or support consisting of an oblong box, preferably constructed of metal; but the frame or support may be constructed of any other desired material and is designed to be varied in size to provide a brick-machine of the desired capacity. Mounted upon the main frame or support is a mold composed of separable walls and adapted to be opened to facilitate the removal of the brick or other contents of the machine. The mold comprises a bottom 2, provided at one side with projecting eyes 3 for the reception of a horizontal pintle-rod 4, which is mounted in eyes 5 of the box or support 1 and which serves to hinge the side 6 of the mold to the support or main frame 1. The bottom 2, which is provided at intervals with slots 7, carries the opposite side wall 8, which is connected with the adjacent side edge of the bottom by means of a horizontal pintle-rod 9^a in order to swing outward for facilitating the removal of the contents of the mold, as hereinafter explained. The side wall 6, which is hinged to the main frame or support, carries the end walls 9 of the mold, and the said end walls 9, which are rigidly secured to the side walls 6 at the ends thereof, are provided with projecting catches 10, arranged to engage sockets or recesses 11 of the side wall 8 automatically when the mold is closed and arranged for use, as illustrated in Fig. 1 of the drawings.

The catches 10, which may be of any desired construction, preferably consist of spring-actuated bolts mounted in suitable bores or openings of the end walls 9 and arranged horizontally when the mold is in operative position. The bolts are provided with laterally-extending projections 10^a, operating in slots 9^b of the end walls 9 for limiting the outward movement of the bolts. The projections may be employed for conveniently retracting the bolts; but when the mold is inverted the front wall may be readily swung out of engagement with the catches, owing to the pivotal connection of the bottom 2. When the side wall 6 is in a vertical position, the end walls 9 of the mold are arranged upon the ends of the bottom 2 and the front wall 8 is rigidly held in a vertical position by means of set-screws 12, mounted in threaded perforations of vertically-disposed arms 13 and located at opposite sides of the center of the brick-machine, as clearly illustrated in Figs. 1 and 2 of the drawings.

The arms 13 consist of the upper portions of bars 14, which are bolted to the front of the main frame or support, 1, as shown. The bars are provided between their ends with enlargements 15, which offset their upper portions from the vertical planes of their lower portions and space the said arms 13 from the front wall of the mold.

The slots 7 of the bottom of the mold are adapted to permit a series of vertical partitions 16 to move upward through the bottom for dividing the space within the mold into a series of brick-receiving spaces or compartments, which are of the size of an ordinary brick, but which may be of any desired size, as will be readily understood. The mold may be constructed to make any number of bricks or blocks, and although in the accompanying drawings the mold is divided into only six brick-receiving spaces or compartments, yet in practice it will be found most advantageous to divide the mold into ten spaces or compartments, so that ten bricks or blocks may be made at each operation of the machine. The partitions 16 are guided in vertical ways and are mounted on a transverse bar 17, which extends horizontally from one end of the machine to the other and which operates in vertical slots 18 of the end walls of the main frame or support. The ways for guiding the vertically-movable partitions consist of vertical grooves 19 of the front and rear side walls of the main frame or support and grooves 20 and 21 of the front and rear walls of the mold. The grooves 20 and 21 of the front and rear walls of the mold correspond with and form continuations of the ways formed by the grooves of the front and rear walls of the frame or support when the mold is closed and the parts are arranged as shown in Fig. 1 of the drawings.

The vertically-movable partitions, which are adapted to lie below the plane of the bottom of the mold, as shown in Fig. 3 of the drawings, are operated by means of rack-bars 22, arranged on the exterior of the end walls of the main frame or support and secured to the ends of the horizontal rod or bar 17. The rack-bars mesh with pinions 23 of a horizontal shaft 24, which is journaled in suitable bearings of the end walls of the main frame or support and which extends beyond the same to receive the said pinions 23. The pinions 23 are preferably mutilated, it being only necessary to provide spur-teeth throughout a portion of their periphery, and the shaft 24 is partially rotated by means of a handle or arm 25. The operating arm or handle 25 is adapted to be swung downward from substantially a vertical position to the horizontal position shown in Fig. 1 for elevating the partitions, and the latter are retained in their raised position by means of a suitable catch or stop 26, consisting of a substantially triangular projection or flange present-

ing an inclined upper side edge and having a horizontal lower end edge or shoulder for engagement with the operating arm or handle of the shaft. The arm or handle in practice will have sufficient play to enable it to be readily engaged with and disengaged from the catch or stop 26, and when it is in engagement with the same the partitions will be firmly supported in their elevated position. The end walls of the frame or support are provided with vertical guides or flanges 27, located adjacent to and adapted to brace and support the vertically-movable rack-bars 22. The vertical guides or flanges 27 are spaced from the pinions 23, and the rack-bars are interposed between the pinions and the guide bars or flanges. The horizontal shaft is located in the same horizontal plane as the rod or bar 17 when the partitions are in their lower positions, as illustrated in Fig. 3 of the drawings, and the said partitions are provided at their lower portions with slots 28 to permit them to pass the shaft 24, which is arranged within the upper portions of the slots 28 when the partitions are lowered. The partitions are preferably constructed of steel, and the end partitions are of greater thickness than the intermediate ones, as shown in Fig. 5, the end grooves being correspondingly enlarged. Also the side walls of the slots of the bottom of the mold are oppositely beveled at the bottom to facilitate the passage of the partitions and to prevent the same from binding.

The partitions move vertically through the bottom of the mold, and when they are in their raised position for dividing the space within the mold into separate brick-receiving spaces or compartments the cement or other plastic material of which the brick is to be constructed is placed within the mold and the surplus material is scraped off the top by means of a stick, shovel, or other suitable means. When the material is properly smoothed off at the top, a supporting board or pallet 29 is placed upon and is adapted to form a temporary cover or top for the mold. The rear wall 6 of the mold is provided with pallet-supports 30, consisting of metal bars spaced from the top of the mold and extending transversely of the same and provided at their inner ends with extensions or shank portions 31 and having their outer ends extended and curved to form handles 32. The arms or shank portions 31 are bent at right angles and are secured to the exterior of the rear wall 6, and the curved portions 32 extend in advance of the mold when the parts are arranged as shown in Fig. 1.

After the bricks have been molded the vertical partitions are lowered to remove them from the mold, and the latter is swung backward from over the frame or support to a position in rear of the same, where it is supported by a pair of posts 33, arranged to re-

ceive the pallet-supports 30. The posts are mounted on extensions or sills 34, on which the main frame or support is mounted, and the upper ends 35 of the posts are enlarged to form seats to receive the mold. When the mold is swung backward, it is inverted and the pallet 29 is arranged at the bottom with the bricks or blocks of cement upon it. The mold is then opened by swinging the front wall 8 and the bottom 2 forwardly to the position illustrated in Fig. 3 of the drawings. The pallet may then be removed from the mold, with the contents thereof, by drawing it outward when the parts are in the position shown in Fig. 3. The mold may then be quickly closed and the brick-making operation repeated. The front walls 8 of the mold are provided with a projecting handle 36, adapted to be grasped by the operator for swinging the mold backward to remove the cement bricks or blocks. The operating arm or handle 25 of the gearing for operating the vertical partitions is located at one end of the machine and is adapted to be readily grasped by the operator, and as soon as the partitions have been lowered the operator may grasp the handle 36 without changing his position at the end of the machine. By this arrangement the machine may be quickly operated after the blocks or bricks have been molded.

Instead of dividing the space within the mold into a series of brick-receiving spaces or compartments a single block of cement or artificial stone may be molded, and a removable bottom 37 is placed upon the bottom of the mold. The bottom 37 consists of a board or plate adapted to cover the slots of the mold. Also blocks or pieces 38 of the same area as the bottoms of the brick-receiving spaces or compartments may be placed in the same for reducing the size thereof for making bricks or blocks of the desired size. The plate or piece 38, as shown in Fig. 7 of the drawings, has beveled side edges to facilitate the passage of the vertically-movable partitions through the mold. By these means thin or veneer brick may be made. Also either plain or ornamental brick may be made, and when it is desired to make ornamental or decorated brick suitable plates or boards may be placed within the mold for this purpose.

It will be seen that the machine for making bricks or blocks of cement or other plastic material is exceedingly simple in its construction, that the partitions for dividing the mold into separate spaces or compartments are readily operated, and that after the bricks or blocks have been molded and the partitions withdrawn from the mold the latter may be readily swung backward and opened to permit the removal of its contents. Also it will be clear that the mold, which is open at the top for the introduction of the material, is

provided with means for supporting a pallet and that when the mold is swung backward its contents are placed upon the pallet and may be readily removed with the same when the mold is opened.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A machine of the class described comprising a main frame or support, a mold hinged to the main frame or support, said mold being open at the top and adapted to be inverted, pallet-supports fixed to the mold at one side thereof and extending entirely across and spaced from the top of the same and projecting beyond the opposite side, the projecting portions forming handles for inverting the mold.

2. In a machine of the class described, the combination of a frame or support, a mold composed of separable sections hinged together, the means for hinging the sections together also serving as means for hinging the mold to the frame or support, whereby the mold is inverted for placing its contents upon a pallet or support.

3. In a machine of the class described, the combination of a main frame or support, and a sectional mold comprising a bottom carrying one of the side walls, and an opposite side wall carrying the ends of the mold, the latter side wall and the bottom being hinged to the frame or support at a common point and also serving to hinge the mold to the said frame or support, whereby the mold is adapted to be inverted to place its contents upon a pallet.

4. In a machine of the class described, the combination of a main frame or support, and a mold comprising a hinged bottom, a front wall hinged to the bottom, and a rear wall also hinged to the bottom and carrying end walls.

5. In a machine of the class described, the combination of a main frame or support, and a mold comprising a hinged bottom, a front wall carried by the bottom, and a hinged rear wall carrying end walls, the hinging of the bottom and the rear wall serving as means for hinging the mold to the frame or support.

6. In a machine of the class described, the combination of a main frame or support, and a mold comprising a hinged bottom, a front wall hinged to and carried by the bottom, a hinged rear wall, and end walls carried by the rear wall.

7. In a machine of the class described, the combination of a main frame or support, and a mold comprising a hinged bottom, a front wall hinged to and carried by the bottom, a hinged rear wall, and end walls fixed to and carried by the rear wall.

8. In a machine of the class described, the combination of a main frame or support, a hingedly-mounted mold adapted to be inverted and provided with a wall hinged at

the bottom, and clamping means for engaging the hinged wall for rigidly connecting the same with the adjacent wall.

9. In a machine of the class described, the
5 combination of a main frame or support, a mold movably mounted on the frame or support and adapted to be inverted, said mold having a hinged wall, and a fixed arm mounted
10 on the frame or support and arranged in spaced relation with the hinged wall of the mold and provided with adjustable means for engaging the same.

10. In a machine of the class described, the
15 combination of a main frame or support, a hinged mold movably mounted upon the same and having a hinged wall, fixed bars secured to the main frame or support and provided with offset portions arranged in spaced
20 relation with the hinged wall of the mold, and set-screws mounted on the offset portions of the bars for engaging the hinged wall of the mold.

11. In a machine of the class described, the
25 combination of a main frame or support, and a mold comprising a bottom arranged at the top of the frame or support and hinged to the same at the back thereof, a front wall hinged to the bottom of the mold and carried by the same, a rear wall hinged to the bottom and to
30 the main frame or support at the back thereof by the hinge which connects the bottom of the mold to the same, and end walls secured to the rear wall.

12. In a machine of the class described, the
35 combination of a main frame or support, a mold comprising a hinged bottom, a front wall carried by the bottom, and a hinged rear

wall for carrying the end walls, and catches for securing the end walls to the front wall.

13. In a machine of the class described, the
40 combination of a main frame or support, a mold comprising a hinged bottom, a front wall carried by the bottom, and a hinged rear wall for carrying the end walls, and catches
45 mounted on the end walls and arranged to automatically engage the front wall.

14. In a machine of the class described, the
combination of a main frame or support, a hinged mold composed of separable sections
50 detachably connected, one of the sections having a projecting handle, and fixed pallet-supporting means mounted on the other section and forming projecting handles.

15. In a machine of the class described, the
combination of a frame or support consisting
55 of a box provided with opposite slots, a plurality of partitions provided with slots and located within the box, a rod connected with the partitions and extending through the
60 slots, exteriorly-arranged rack-bars connected with the rod, a shaft mounted on the frame or support and located in line with the slots of the partitions, gears mounted on the shaft and meshing with the rack-bars, and
65 means for operating the gears and for limiting the partitions against movement.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

STEPHEN SMITH GARDINER.

Witnesses:

FREDERICK SHEPHERD,
O. C. POTTER.