

G. J. BUCKEYE & J. BUERLEIN.

CEMENT BRICK MACHINE.

APPLICATION FILED FEB. 27, 1908.

954,418.

Patented Apr. 12, 1910.

2 SHEETS—SHEET 1.

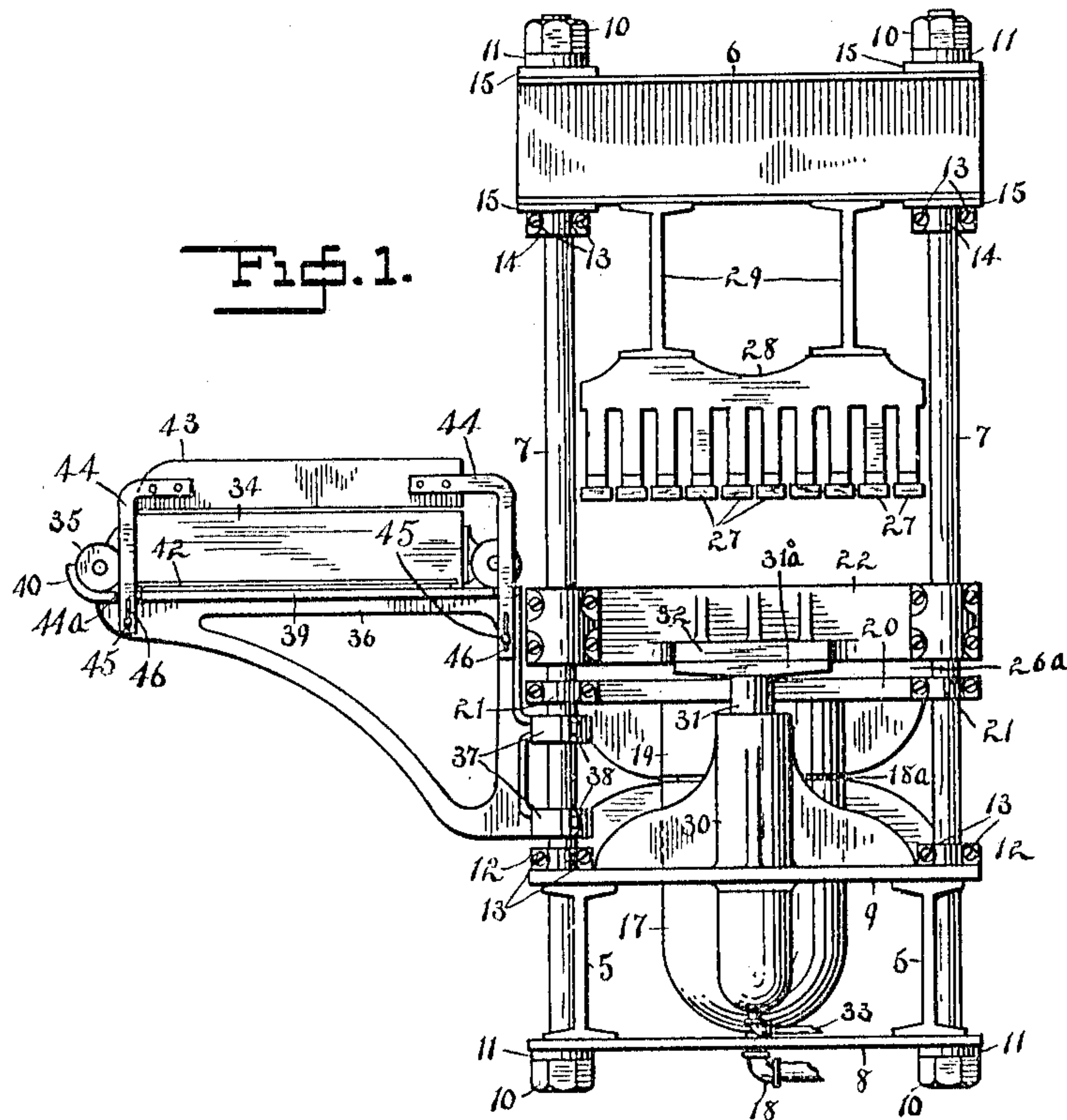
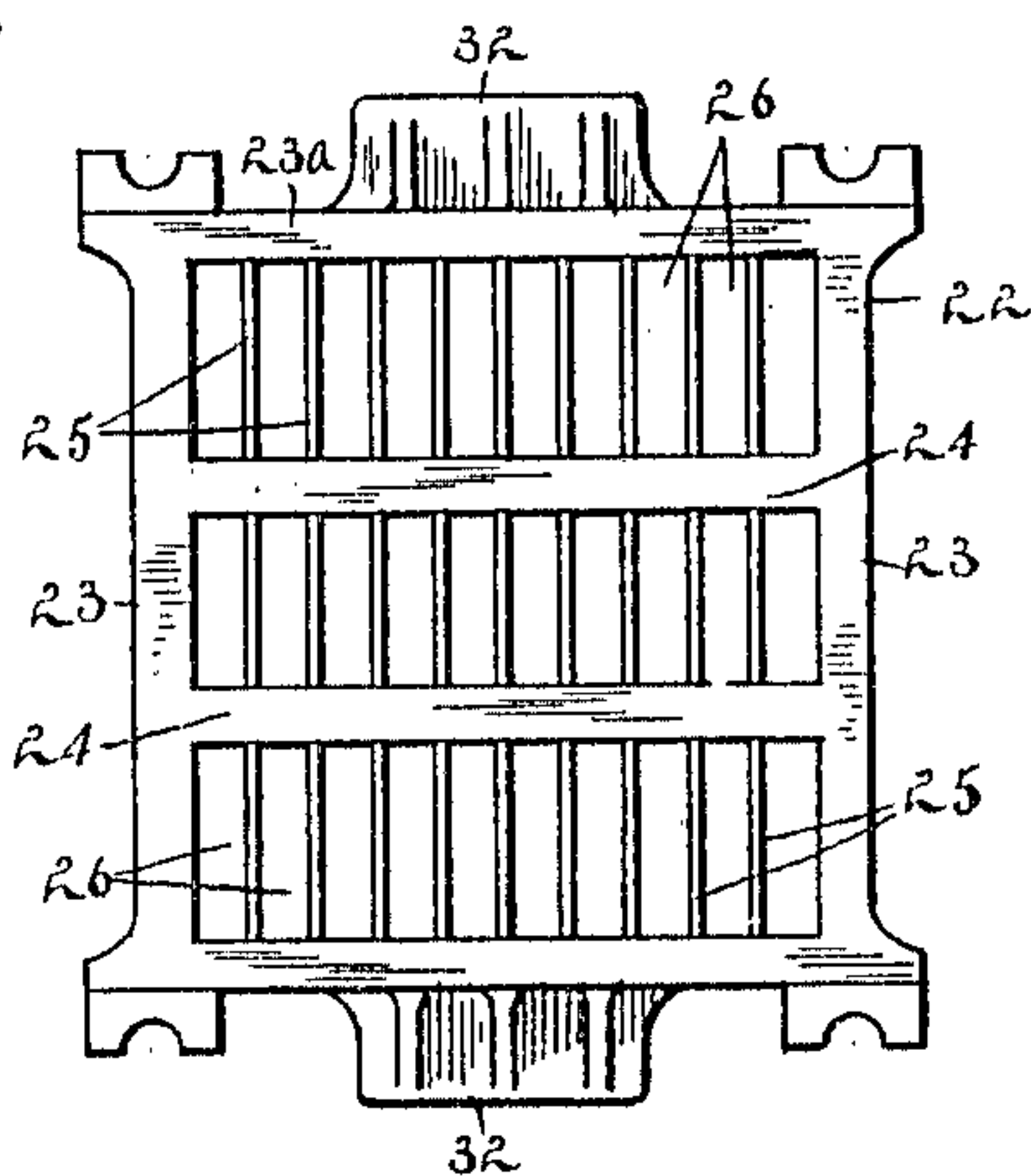


Fig. 2.



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Fig. 3.

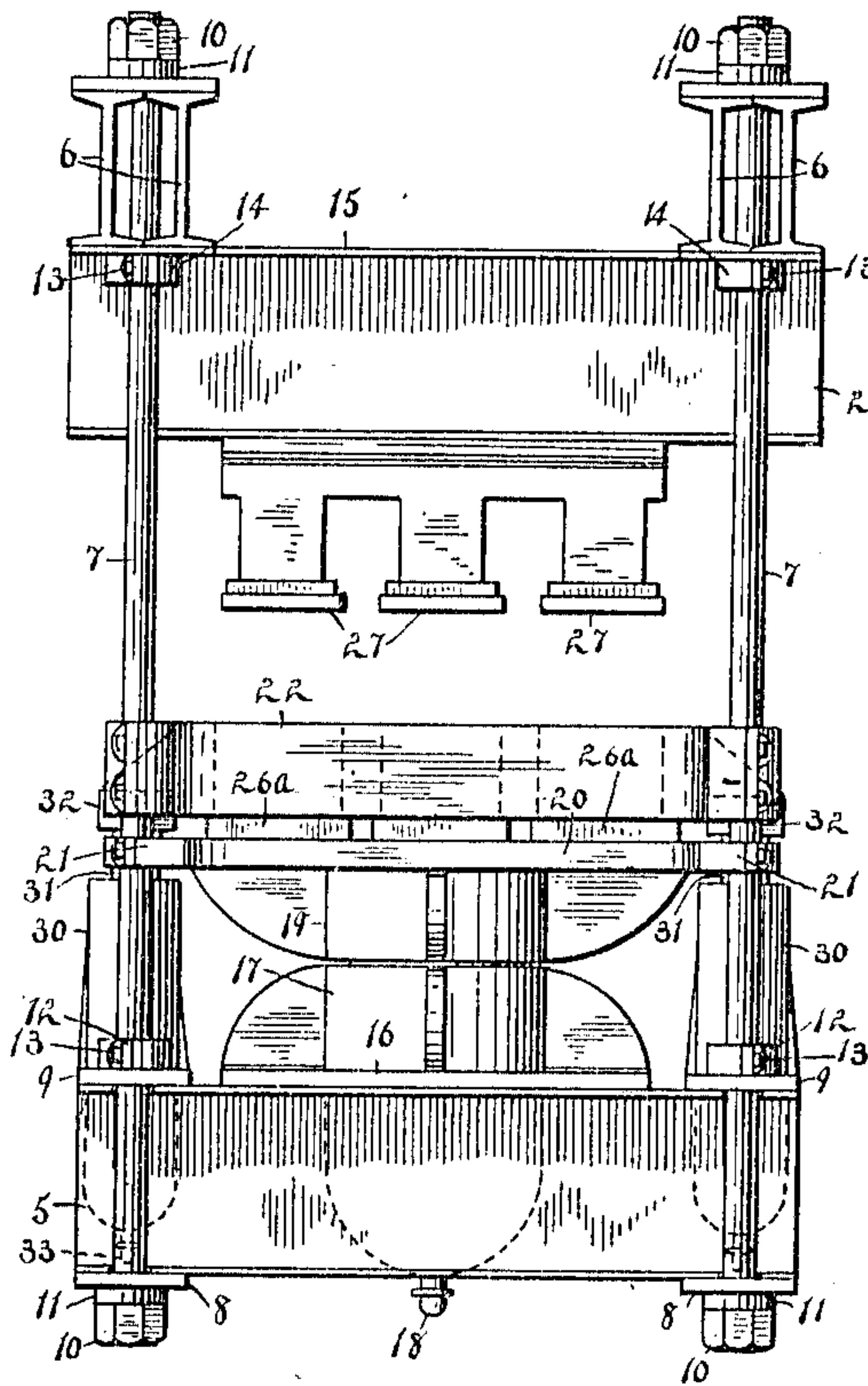
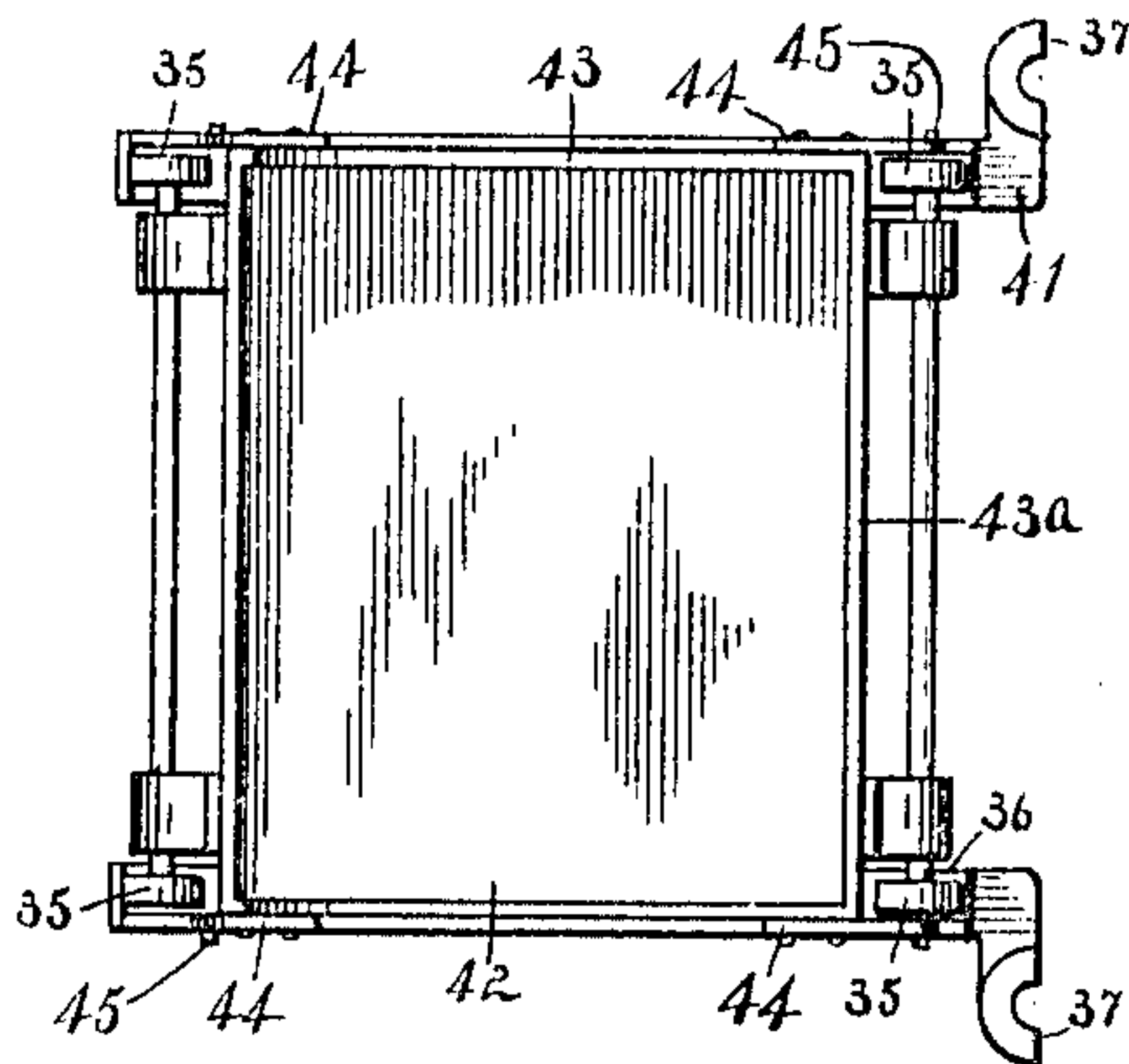


Fig. 4.



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UNITED STATES PATENT OFFICE.

GEORGE J. BUCKEYE AND JACOB BUERLEIN, OF JOLIET, ILLINOIS.

CEMENT-BRICK MACHINE.

954,418.

Specification of Letters Patent.

Patented Apr. 12, 1910.

Application filed February 27, 1908. Serial No. 418,018.

To all whom it may concern:

Be it known that we, GEORGE J. BUCKEYE and JACOB BUERLEIN, citizens of the United States, residing at Joliet, in the county of Will and State of Illinois, have invented certain new and useful Improvements in Cement-Brick Machines, of which the following is a specification.

This invention relates to apparatus employed in the production of concrete bricks and refers especially to molding machines operated by hydraulic pressure.

The more important objects of the improvements which form the subject matter of this application are to provide means for elevating the mold-box in connection with, or independently of the movement of the bed plate, and to apply the lifting force in such a manner that the box is held level at all times, thus avoiding any tendency to bind upon the guide ways; to furnish a conveyer for handling the plastic material and depositing it in the molds; to provide means for adjusting the height of the track upon which the conveyer travels, in order to accommodate mold-boxes of different heights, and to construct a frame of simple design that will combine the requisite strength and rigidity to withstand the severe stress to which hydraulic apparatus of this class are subjected and to furnish a mechanism and supporting structure that can be readily and economically constructed.

We accomplish the desired results by the employment of the apparatus illustrated in the accompanying drawing which forms a part of this application, and in which:—

Figure 1 is a side elevation of the complete apparatus; Fig. 2 is a top plan view of the mold; Fig. 3 is a rear elevation of the machine with the car removed, and Fig. 4 is a top plan view of the car and supporting brackets.

Referring to the details of the drawings the framework of the machine is composed of strong I-beams 5, 6, which are supported by vertical strain rods 7 arranged in a rectangle, and tie plates 8, 9. The ends of the strain rods are threaded and furnished with nuts and integrally formed disk-shaped bearing ends 11, thus affording a strong and rigid construction well calculated to withstand the immense pressure exerted by the powerful hydraulic press installed between the upper and lower beams, in a manner to be described. The lower beams 5 are confined

between the tie-plates 8 and 9 and the parts secured by clamping collars 12, which are halved, the sections being secured by bolts 13. Similar collars 14 support the upper beams 6, bearing plates 15 being interposed between the beams and adjacent nuts.

Between the tie plates 9 is a transverse plate 16, its ends supported upon the beams 5. This plate is cast integral with a hydraulic cylinder 17, provided with a supply pipe 18. This cylinder is fitted with a plunger 18^a which has a bearing in a casting 19 formed integral with a bed-plate 20 provided with boxes 21 adapted to slide upon the strain rods 7. Above the pressure plate 20 is located a mold box 22 which consists of a rectangular framework composed of comparatively thick side members 23, ends 23^a, and partitions 24, to withstand the heavy pressure, and the sections or compartments thus formed are again subdivided by lighter partition plates 25 producing a series of rectangular cells 26. Beneath each section is placed a pallet board 26^a and above this mold box are located series of dies 27 formed integral with a supporting web 28 fixed to longitudinal I-beams 29, which depend from the upper I-beams 6. The matrix or mold 22 may be raised and lowered by the action of the main press, but it also has an independent movement through the action of auxiliary presses located at opposite ends of the framework. Each auxiliary press consists of a cylinder 30 cast integral with a transverse tie-plate 9, and furnished with a piston 31, having a laterally extending head 31^a, upon which projections 32 of the matrix 22 rest, and are fastened thereto. Each of said auxiliary cylinders has the usual supply pipe 33.

To provide means for conveniently and rapidly filling the mold, a conveyer, or car 34 is arranged upon wheels 35, which travel upon the upper faces of bracket arms 36 adjustably attached to the posts 7 by sectional collars 37, the parts of the collars being held together by clamping screws or bolts 38. The said bracket arms 36 are furnished with marginal flanges 39, which prevent the wheels 35 from leaving the track, and said arms are turned upwardly in the rear to form stops 40. By means of the collars 37 the brackets are adjusted upon the rods 7 at such a height that the track for the wheels will be on a level with the top face of the mold-box 22 when the parts are in operative

position, permitting the car to be easily rolled from the brackets upon the mold box, the wheels traveling upon the end members 23^a, provision being made for locating the bracket arms in alinement therewith by the offsets 41, to which the slidable collars 37 are attached. The car 34 is furnished with a slidable bottom 42, which can be drawn out to allow the contents to fall into the mold-box when the car is rolled thereupon. A very desirable feature of the bracket construction is its vertical adjustability as this permits of the use of mold-boxes of different heights.

Immediately above the car body 34 is located a rectangular frame 43 having three sides thus being open on the front, said frame being supported by bent arms 44, secured to the main bracket 36 by bolts 45, which pass through slots 46 in said arms 44. The frame 43 is of the same dimensions laterally as the car body so that the planes of the car sides and those of the frame coincide. The frame is adjusted by means of the bolts 45 so that its lower margins will just clear the car as it is moved underneath. This frame serves as a hopper to facilitate filling the car, and when the car is moved on to the mold box the rear side 43^a of the frame will act as a leveler to remove the surplus material and thus insure the deposit of a proper quantity in the mold.

The method of operating the machine is as follows: The various movable parts being in their initial positions as shown in the drawings the plastic material is placed within the car, the latter having a capacity adapted to the requirements of the mold in use. When the car is properly loaded it is moved from the brackets upon the upper face of the mold and when in position above the cells the bottom 42 is removed allowing the material to fall directly into the cells 26. The empty car is then restored to its initial position upon the brackets 36 and the central or main press then operated which has the effect of raising the bed plate and superposed mold until the dies 27 enter the cells 26, the action of said press continuing until the required degree of compression has been attained. The cylinders 30 are then brought into action to raise the mold alone still higher until the bricks are freed therefrom by the action of the fixed dies 27. The mold is now held in this position by the plungers 31 while the plate 20 is lowered to its original location, bearing with it the pallet boards 26^a upon which lie the finished bricks, which may be then carried away by lifting the said boards from the face of the plate 20. The water is then removed from the cylinder 30 and the mold 32 allowed to descend to its first position, a new set of pallet boards having been supplied. The ma-

chine is now ready for a repetition of the procedure thus described.

Having thus described our invention what we claim as new, is:—

1. In a molding machine, the combination with a suitable frame, a bed-plate slidably mounted on said frame, and a main hydraulic press adapted to operate said bed plate, of a matrix mounted to slide on said frame above the plate, a pair of auxiliary hydraulic cylinders, arranged upon opposite sides of said main press, pistons in said cylinders projecting upward and adapted to engage projections on said matrix, fixed dies adapted to project through said matrix, an adjustable conveyer supported on said frame, and an adjustable leveling device arranged above said conveyer.

2. In a molding machine, the combination with a suitable frame, a bed-plate slidably mounted thereon, and a press arranged below said plate, of a rectangular matrix mounted to slide on said frame, projections on said matrix, a pair of hydraulic cylinders arranged upon opposite sides of said main press, upwardly projecting pistons in said cylinders, transverse heads on said pistons engaging the projections on the matrix, fixed dies arranged above the matrix and adapted to project therethrough when the matrix is slid upward, brackets adjustably mounted on said frame adjacent to the bed-plate, a car arranged to travel on said brackets and provided with a removable bottom, and a hopper frame adjustably arranged above said car and adapted to serve as a leveler when the car is moved.

3. In a molding machine, the combination with a suitable frame, a bed plate slidably mounted thereon, and a press arranged below said plate, of a rectangular matrix mounted to slide on said frame, a pair of hydraulic cylinders arranged upon opposite sides of said press, upwardly projecting pistons in said cylinders engaging said matrix, fixed dies arranged above the matrix and adapted to project therethrough, brackets adjustably mounted on said frame adjacent to the bed-plate, a car mounted on wheels arranged to travel on said brackets, a removable bottom for the car, a hopper frame open upon one side, arms adjustably secured to said brackets and supporting said hopper frame, said hopper frame being also adapted to serve as a leveler for the contents of the car when the latter is moved.

In testimony whereof we affix our signatures in the presence of two witnesses.

GEORGE J. BUCKEYE.
JACOB BUERLEIN.

Witnesses:

L. M. BLAIR,
GEORGE BARNARD.