

No. 662,684.

Patented Nov. 27, 1900.

J. BROWER.

MACHINE FOR FORMING COMPOSITE BLOCKS.

(Application filed Sept. 21, 1898.)

(No Model.)

2 Sheets—Sheet 1.

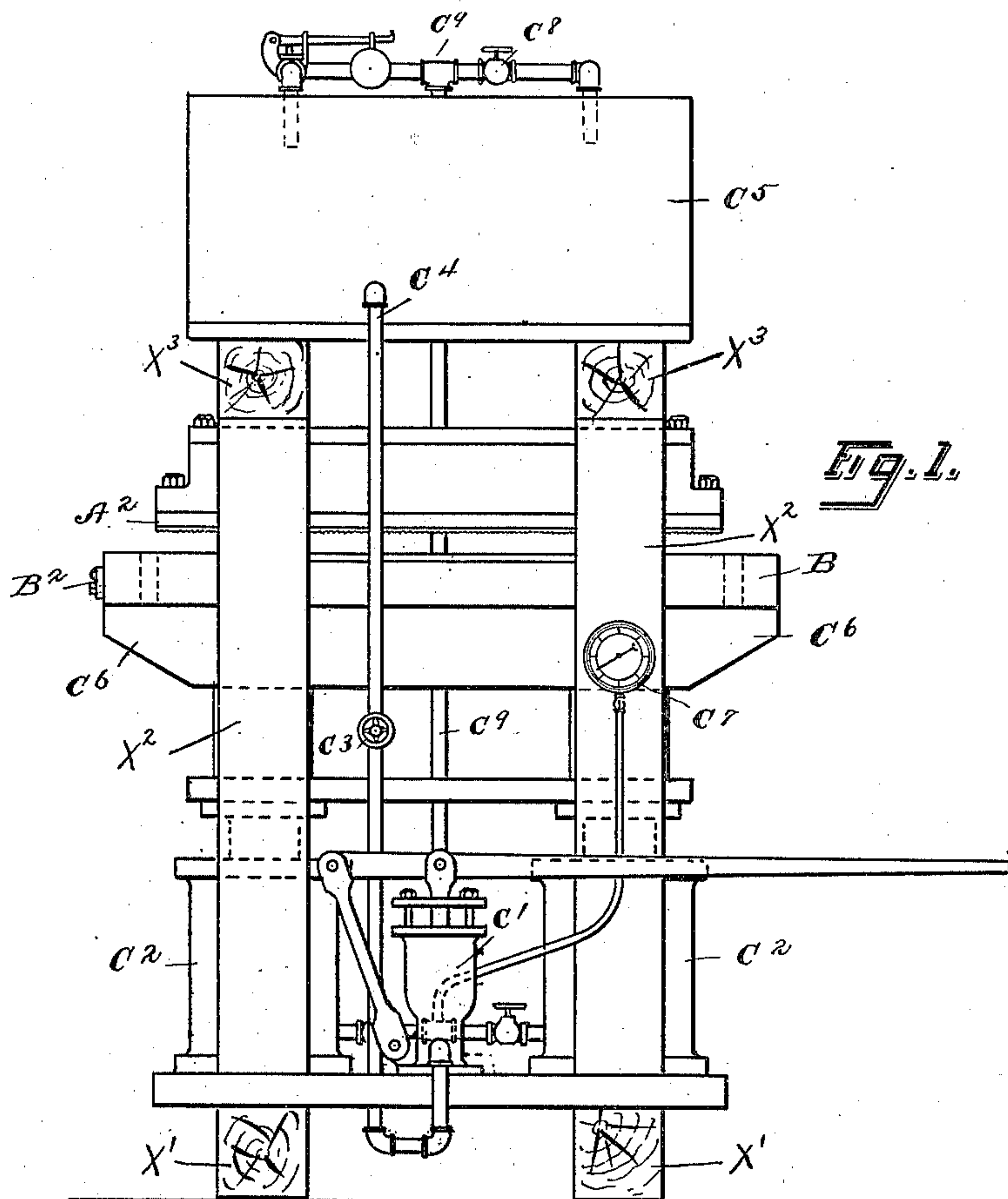


Fig. 1.

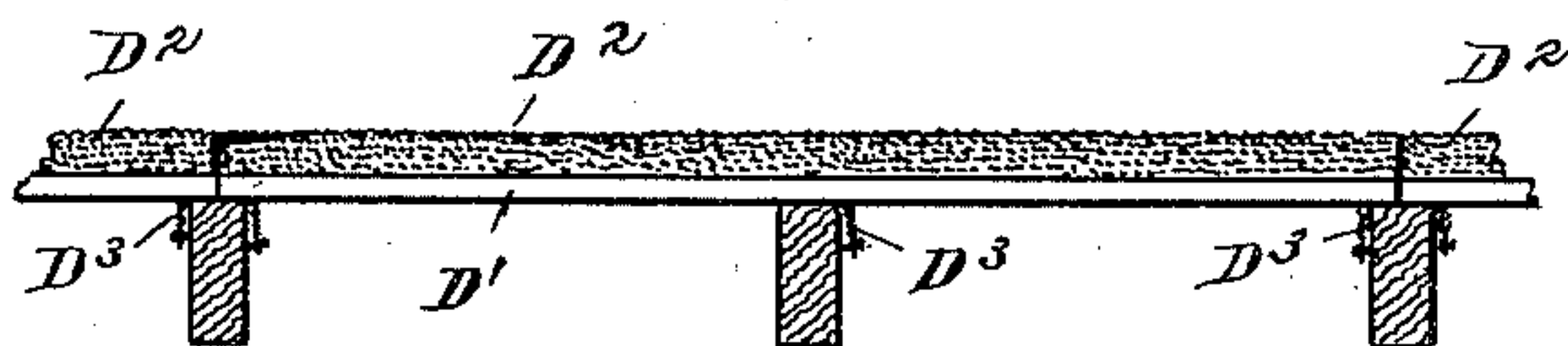


Fig. 2.

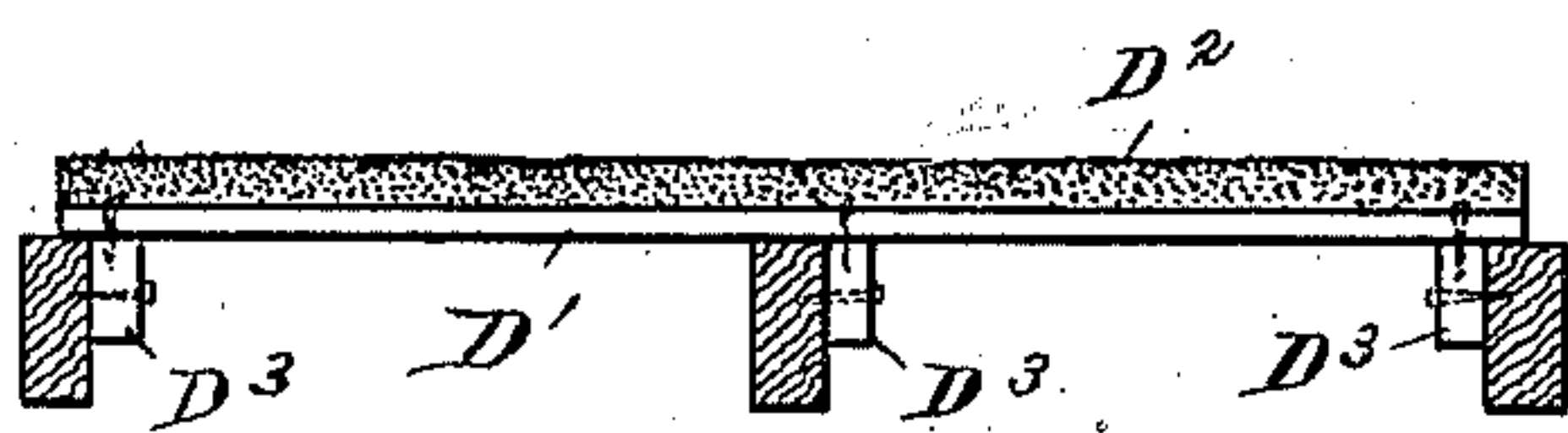


Fig. 3.

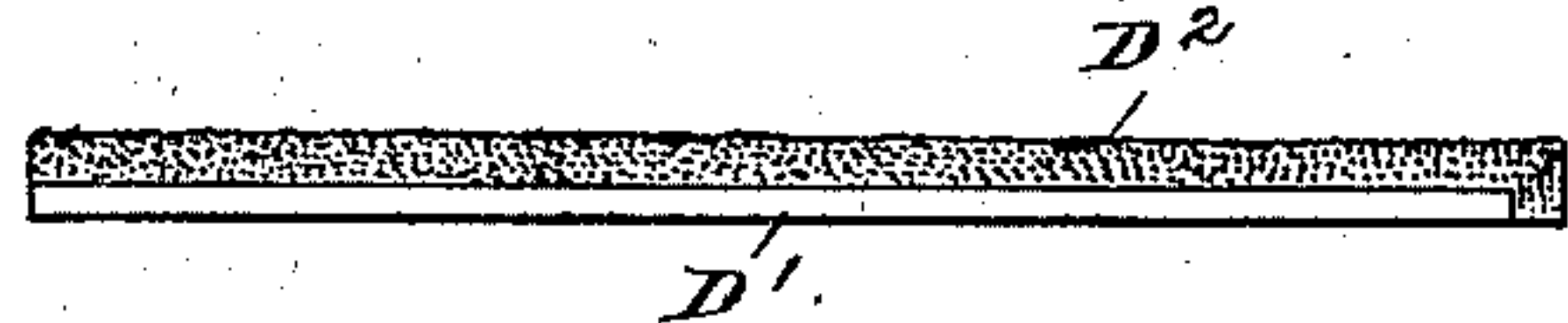


Fig. 4.

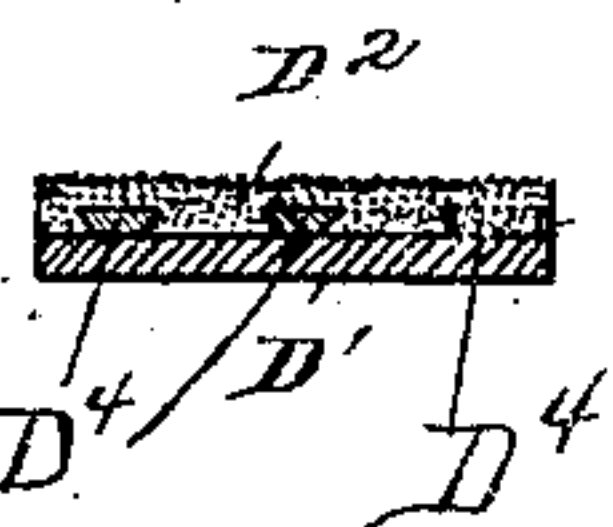


Fig. 5.

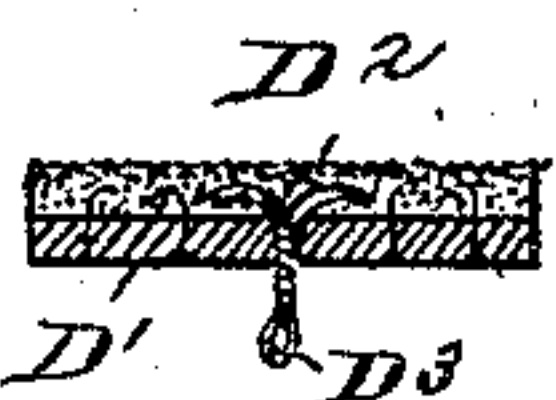


Fig. 6.

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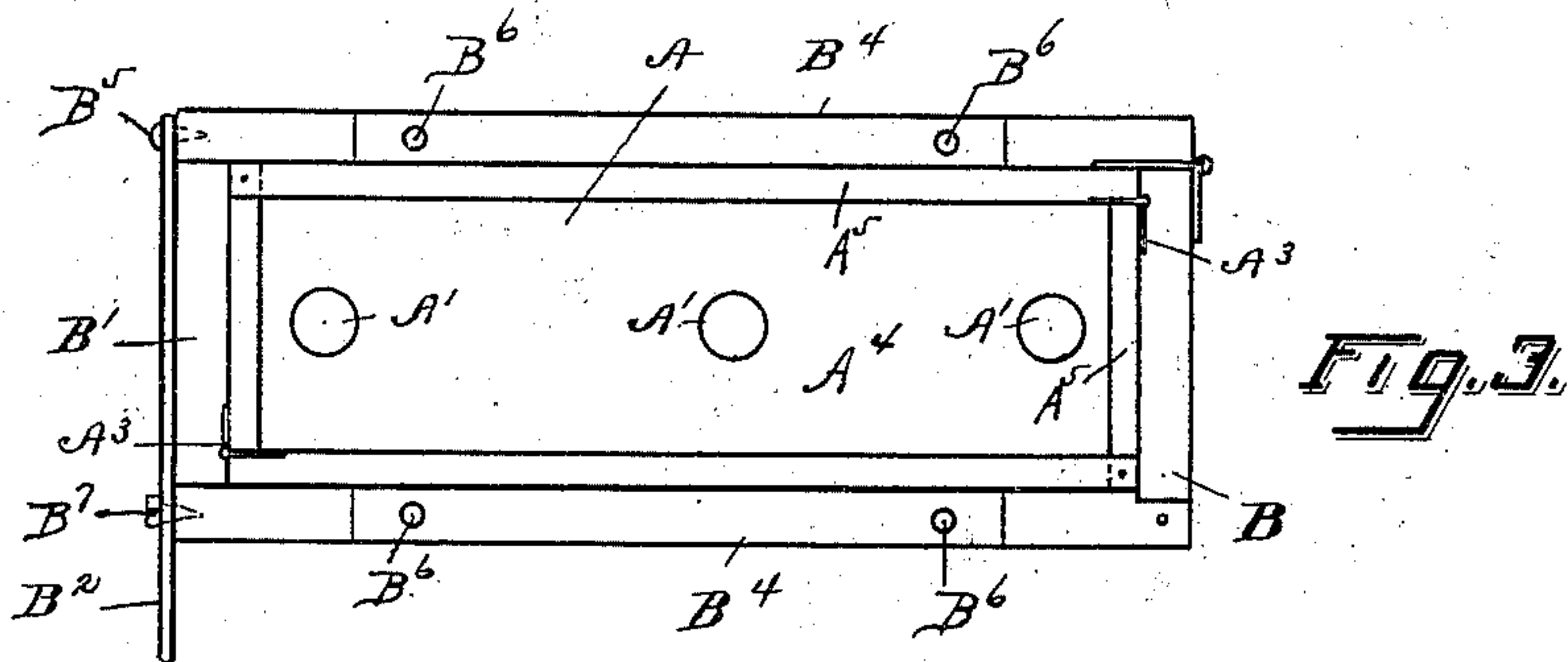
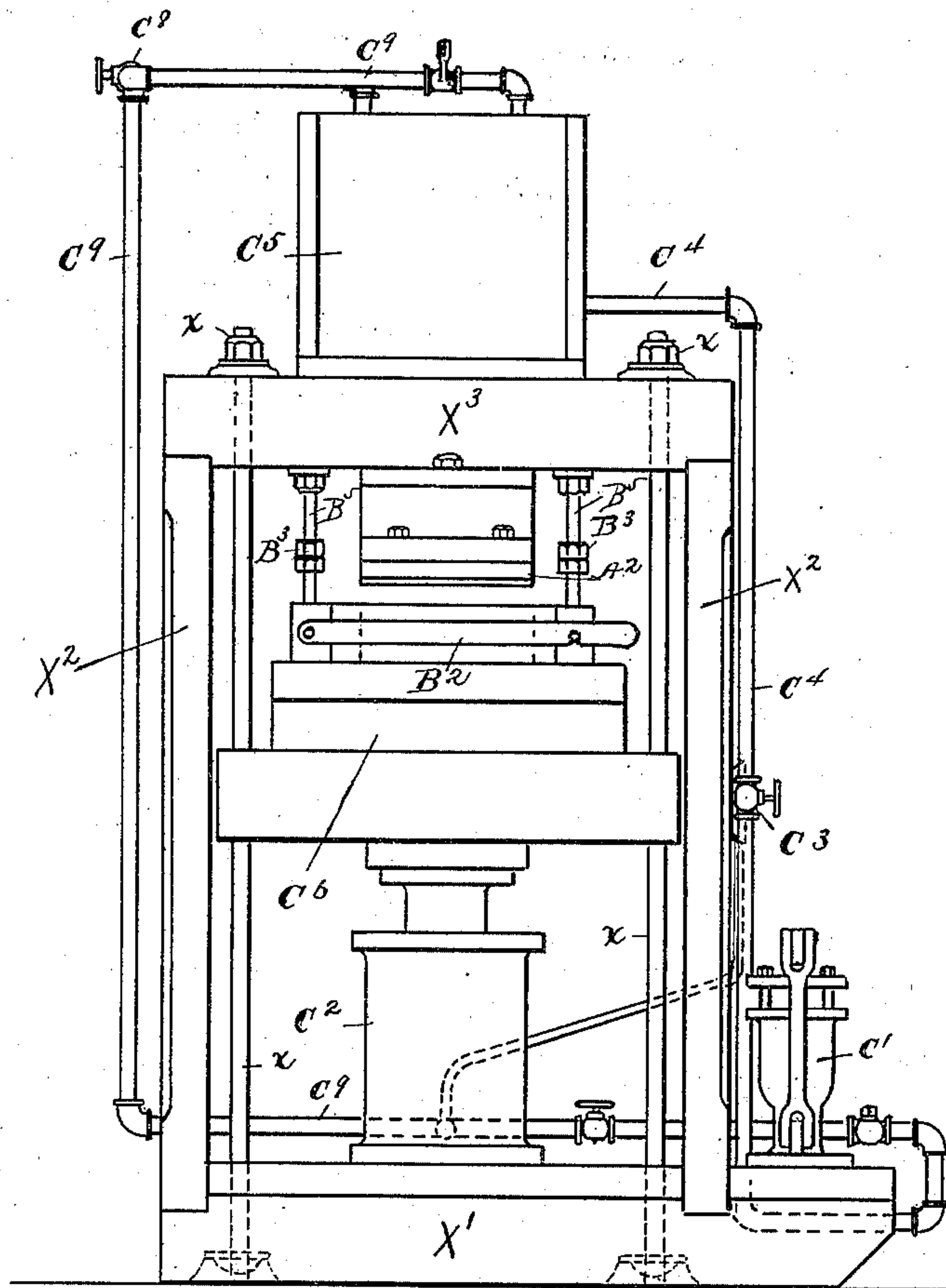
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(Application filed Sept. 21, 1898.)

(No Model.)

2 Sheets—Sheet 2.



Witnesses
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UNITED STATES PATENT OFFICE.

JOHN BROWER, OF OAKLAND, CALIFORNIA.

MACHINE FOR FORMING COMPOSITE BLOCKS.

SPECIFICATION forming part of Letters Patent No. 662,684, dated November 27, 1900.

Application filed September 21, 1898. Serial No. 691,557. (No model.)

To all whom it may concern:

Be it known that I, JOHN BROWER, a citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented certain new and useful Improvements in Machines for Forming Composite Blocks; and I do hereby declare the following to be a full, clear, and exact description of said invention, such as will enable others skilled in the art to which it most nearly appertains to make, use, and practice the same.

My invention relates to machines for forming composite blocks, my object being to produce an efficient device which is complete within itself and can be transported, if desired, from place to place.

To this end and also to improve generally upon machines of the nature indicated the invention consists in the various matters hereinafter described and claimed.

It will be readily understood that the machine can be used to form blocks of any description from plastic material; but I have particularly designed it for forming artificial stone blocks for facing buildings, these blocks being composed, for example, of cement and sand, colored or stained, if desirable, to which may be added pebbles, crushed stone, or marble, and this compound is preferably mechanically attached to a base-board, as by means of cleats or other engaging members. The boards can then be readily attached to the frame of a building.

In the accompanying drawings, Figure 1 is a front elevation of the present machine. Fig. 2 is a side elevation thereof. Fig. 3 is a top plan view showing a casting-form with the locking-frame about the same. Figs. 4 and 5 show my blocks attached to a building-frame. Fig. 6 is a view of a corner-block, and Figs. 7 and 8 illustrate completed blocks.

Referring now more particularly to the drawings, and at present to Figs. 4 to 8 thereof, it will be seen that the block intended to be made by this machine comprises a base-board D' with securing members, such as cleats D⁴, projecting from one face thereof. The plastic compound D² is applied to the face provided with the said securing members, and by reason of the mechanical engagement with the same is when hardened firmly secured to the base. Suitably secured to the base-board

and projecting from the face not provided with the compound are anchors D³, by means of which the blocks are fastened to the framework of a building, these anchors being here shown as passing through the base-board and having their inner ends embedded in the compound. For corner-blocks the compound is preferably secured upon two adjacent faces, as shown in Fig. 6. Such being the particular block made upon my machine, I pass now to a consideration of the machine itself and refer particularly to Figs. 1, 2, and 3. Generally speaking, the machine comprises a frame upon which are mounted a die, a table adapted to receive a casting-form and to have movement for bringing the die to press upon the material contained in said form, a hydraulic ram supporting the table and moving the same, a tank in connection with the ram, and a force-pump in the circuit between the tank and the ram for supplying fluid to the latter. The frame has base-timbers X', from which extend corner uprights X², said uprights being connected at their tops by cross-timbers X³, while brace-rods X connect the upper and lower timbers, said rods lying a little to the inner side of each upright. The hydraulic ram or rams C² are mounted upon the lower timbers of the machine with their piston-rods projecting upwardly, as shown, and mounted upon these rods is a table C⁶, designed to receive the casting-form A. A die A² depends from the upper cross-timbers above the table and in position to cooperate with the same to compress the material in a form. Preferably the table C⁶ has projecting members through which pass the brace-rods X, so that in its vertical movements said table is guided along these rods. The casting-form here shown comprises a base-plate A⁴, provided with suitable apertures A', and from this base-plate extend side and end walls A⁵, said walls being hinged together by means of the hinges A³. The casting-form is inclosed within a locking-frame B upon the table C⁶, the forward end of said frame being formed by a removable plate B', held in position against the casting-form by means of a lever B² across the frame, said lever being pivoted, as at B⁵, to the end of one side piece of the frame and engaged by a locking member B⁷ upon the end of the other side

piece. Thus it will be seen that upon placing a base-board D' in the casting-form with the cleats uppermost and the anchors projecting through the openings A' the plastic compound can be applied to the upper face of the board, and the casting-form is then slid into the locking-frame through the open end thereof. This open end is then closed by the block B', said block being locked in position by the lever, and upon the application of power to the ram the table is elevated to bring the compound against the die, thus effecting compression of said compound upon the base-board, or, in other words, uniting the parts of the composite block. After this action the table is lowered, the frame opened, and the casting-form withdrawn. The sides of the form are then opened from about the block and said block is removed for drying.

In order to guide the frame and also to equalize the pressure upon the compound, I have provided rods B⁵, which depend from the upper timbers at the sides of the die, said rods at their lower ends being adapted to enter openings B⁶ in the upper faces of the locking-frame side pieces. Adjustable stops B³, here shown as nuts, are supported upon the rods and serve to limit the movement of each side of the frame, thus equalizing the pressure. Preferably each side piece of the frame is faced with a strip B⁴ of iron or the like, against which the stops are adapted to bear, thus preventing the stops being forced into the frame-sides.

A tank C⁵, supported upon the upper cross-timbers, is provided for the water with which to operate the ram or rams, and a supply-pipe C⁴ connects said tank with the rams, a force-pump C' being interposed in the connection between the tank and the rams. A cock or valve C³ between the tank and the force-pump controls the supply of water, and an exhaust-pipe C⁹ extends between the rams and the

tank, said latter pipe having a cock or valve C⁸. It will now be seen that, the tank having been supplied with water, the cock C³ opened, and the cock C⁸ closed, operation of the pump serves to operate the rams and raise the table C⁶, thus compressing the block, as previously described, while after compression has been effected opening of the cock C⁸ permits the escape of water from the rams as the table descends, and the table falls without shock or jar. By this arrangement of parts the same water is used continuously, and it is therefore unnecessary to provide a constant water-supply for the tank. A pressure-gage C⁷ may, if desired, be suitably placed in the circulatory system to indicate the pressure exerted by the rams.

It is believed that the construction and operation of my machine will now be clear.

The device is compact, is efficient, and, being complete within itself, can be readily transported from place to place, as may be necessary or desirable.

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

In a press, a pressing-table, an open-top locking-frame thereon having a removable block closing one end thereof, and a lever pivoted upon one side of said frame and adapted to lie across the end closed by said removable block to hold said block in place, there being provided a catch for said lever when in locking position, in combination with a removable open-top casting-form inserted into said frame through the end closed by the removable block; substantially as described.

In testimony whereof I have hereunto set my hand this 6th day of September, 1898.

JOHN BROWER.

Witnesses:

E. F. MURDOCK,
GEO. RHORER.