

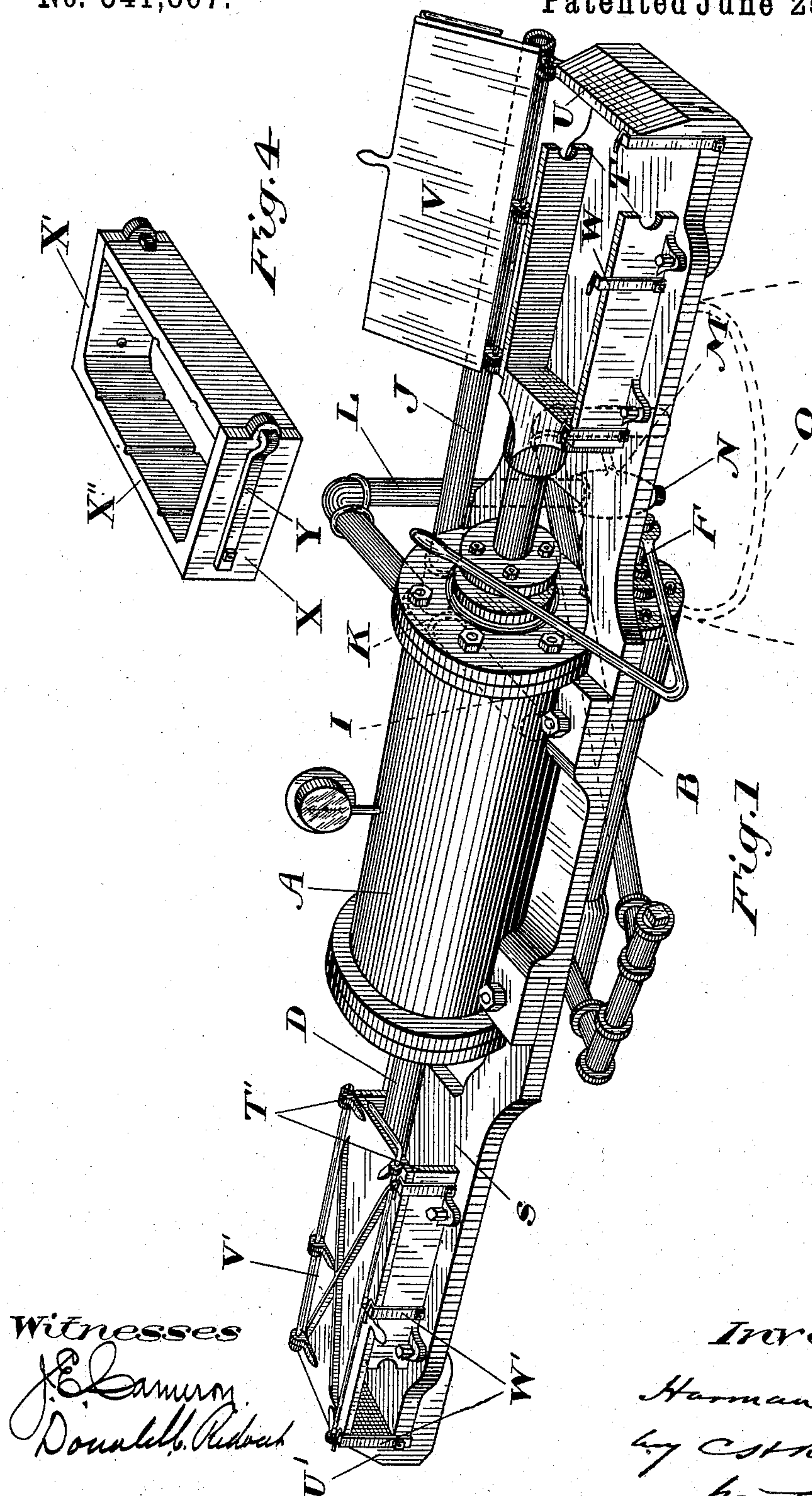
(No Model.)

2 Sheets—Sheet 1.

H. BUNKER.
PRESS.

No. 541,807.

Patented June 25, 1895.



(No Model.)

2 Sheets—Sheet 2.

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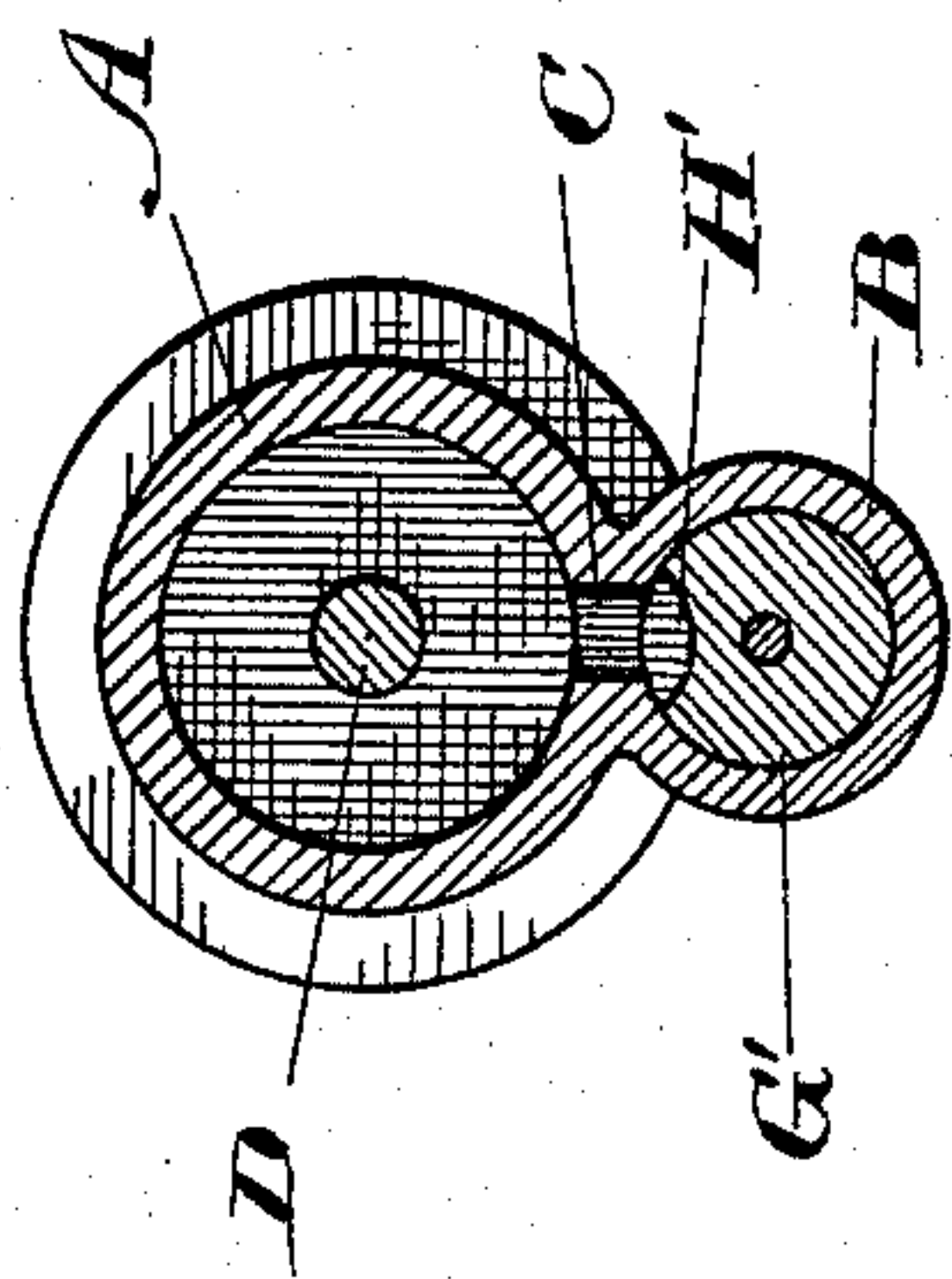


Fig. 3

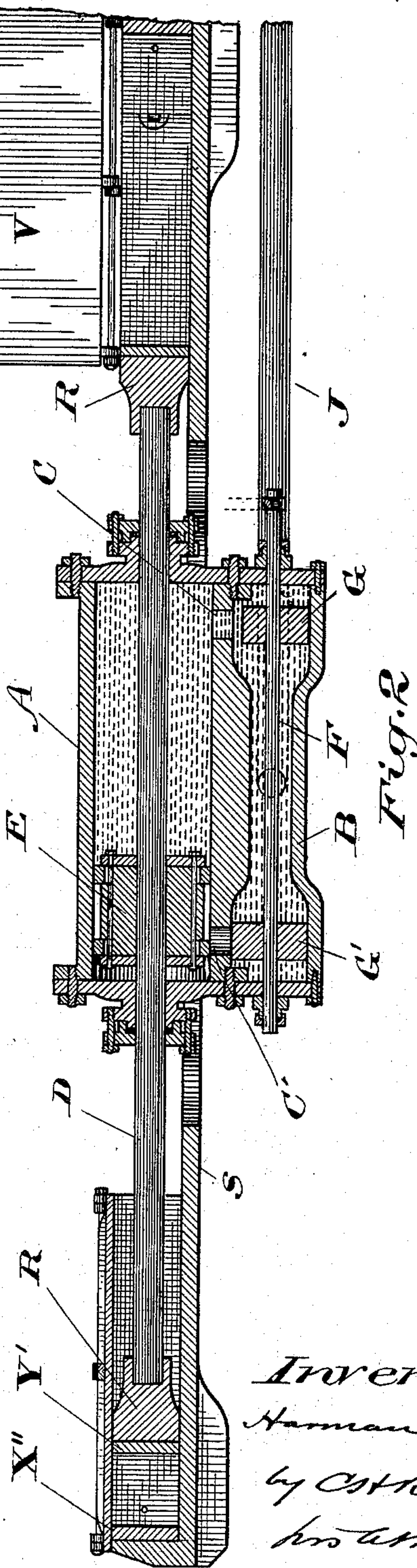


Fig. 2

Witnesses

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UNITED STATES PATENT OFFICE.

HARMAN BUNKER, OF BARRIE, CANADA.

PRESS.

SPECIFICATION forming part of Letters Patent No. 541,807, dated June 25, 1895.

Application filed December 19, 1894. Serial No. 532,377. (No model.)

To all whom it may concern:

Be it known that I, HARMAN BUNKER, of Barrie, in the county of Simcoe and Province of Ontario, Canada, have invented certain
5 new and useful Improvements in Presses; and I hereby declare that the following is a full, clear, and exact description of the same.

This invention relates to a press, which, by
interchanging the molds, is applicable for various purposes such as a brick press, cotton
10 press, hay or straw baling press, &c.

The object of the invention is to provide a simply constructed and effective baling press or apparatus, and the invention consists in
15 the novel construction of parts and their combinations, as hereinafter fully specified, and particularly pointed out in the claims.

In the drawings, Figure 1 is a perspective view of the complete press. Fig. 2 is a transverse sectional view on the lines *a—*
20 *a*, Fig. 1. Fig. 3 is a cross-sectional view on the lines *b—b*, Fig. 2. Fig. 4 is a perspective view of one of the molds.

Like letters of reference refer to like parts
25 throughout the specification and drawings.

The cylinder A is provided with a chest B and two ports C—C' respectively, located one at or near each end of the cylinder. Passing horizontally through the middle of the cylinder A is a piston rod D, and mounted on the
30 middle of the piston rod D is the piston head E. The chest B is of substantially the same length as the cylinder A, and passing horizontally through the middle of the chest B is a valve rod F on which is mounted two rotary
35 valves G—G' respectively. The valve G is arranged to close the port C, and the valve G' is arranged to close the port C'. The valve G consists of a cylindrically shaped piece of metal corresponding in diameter with the di-
40 ameter of the chest B. The face of the valve G is partially cut away to form a recess H' extending from end to end of the said valve, in order that when the said recess H' is contiguous to
45 and vertically below the port C the pressure fluid may enter the cylinder A through the recess H' and port C. The valve G' is similar in construction and is provided with a similar recess H' and for the same reason.
50 The valves G—G' are so arranged that the recesses H' are not set opposite each other, in order that when the valve G is turned to bring

the recess H' contiguous to and vertically below to open the port C the valve G' will be turned to throw the recess H' from the port C', and allow of the valve closing the port C'.
55 By this arrangement of valves and recesses it is not possible to open both ports together, or, in other words, when one port is open the other port is closed.

Entering the chest B is the end of the branch I of the supply pipe J. The supply pipe J is connected to the branch I by means of a T-coupling K. Connected also to the
60 T-coupling K is a second branch L of the supply pipe, and fitted to the branch L is a safety valve M to which is connected a discharge pipe N, which discharges into the receiver or tank O.

Connected to the chest B and on the opposite side of it to the supply pipe J is a discharge pipe P which also empties into the receiver or tank O. The discharge pipe P is fitted with a valve Q which is closed during
70 the admission of the fluid into the chest from the supply pipe, and while the pressure is applied on the piston head, and which is opened to allow of the discharge of the fluid from the cylinder and chest when it is intended to relieve the piston head from the pressure. The
80 pressure fluid is forced through the supply pipe into the chest, and when the piston head is moved or moving into the position shown in Fig. 2 of the drawings the pressure fluid enters the cylinder through the port C and
85 forces the piston head to that end of the cylinder. When the piston head is to be relieved from pressure the pressure fluid is no longer forced through the supply pipe and the valve
90 in the discharge pipe is opened to permit of the fluid discharging from the cylinder through the port C into the chest B, and then through the discharge pipe P into the tank O. The valve rod F is then turned to move
95 the valve G to close the port C, and to move the valve G' to open the port C'. The valve in the discharge pipe is then closed and the pressure fluid is forced through the supply pipe into the chest B, and through the recess
100 H' and port C' into the cylinder B to move the piston head to the opposite end of the cylinder.

When the piston head is to be relieved from the pressure of the fluid the flow of the fluid

through the supply pipe is arrested and the valve in the discharge pipe is opened the fluid discharging from the cylinder through the port C' and recess H' into the chest B, and from the chest through the discharge pipe P into the tank O. One end of the piston rod D is fitted with a plunger head R, while the opposite end of the piston rod is fitted with a plunger head R'.

The cylinder A is supported on a bed plate S extending considerably beyond each end of the cylinder. Bolted to one end of the bed plate S are two guide bars T located a distance apart from each other equal to the width of the plunger head R, and so located that the plunger head is constantly between them during its stroke. The end of the bed plate S is provided with a stop U of substantially the same height as the guide bars T. Hinged to one of the guide bars T and to the corresponding end of the stop U is a lid V, and connected to the bed plate S are three spring catches W so located that each end and the middle of the lid V are held by them.

It will be noticed by reference to Fig. 1 of the drawings that the guide bars T do not extend to the stop U, and that a space of considerable size exists between the end of the guide bars and the adjacent face of the stop. Into this space is placed the mold. This mold consists of three sides X—X'—X'' rigidly connected together. Connected to the opposite sides X—X' are spring catches Y. The fourth side Y' of the mold is held to the other three sides by means of the spring catches Y. The opposite end of the bed plate S is provided with similar guide bars T', stop U', lid V' and spring catches W', and for exactly the same purpose.

In the operation of the device the plunger head is moved into position to commence its stroke and the fourth side of the mold is removed from the other three sides and placed against the plunger head when at the end of its stroke. The mold is placed in the space between the ends of the guides and the stop with the opening into the mold in continuation of the space between the guide bars. The material is filled into the mold and into the space between the guide bars, and the lid is then closed down on the guide bars, stop and mold and held by the spring catches. The pressure fluid is then turned into the cylinder and the plunger head commences its stroke forcing the material into the mold and moving the fourth side Y' to the other three sides of the mold close enough to allow of its being caught and held by the spring catches which will connect it to the fixed opposite sides of the mold.

It will be readily understood by the foregoing description that the construction and operation of the press are of the simplest character.

It might be here stated that the force of the

pressure can be increased to any required degree and that the safety valve M is set to correspond with the factor of safety, and that when the pressure of fluid rises above the factor of safety the safety valve will blow off and permit of the discharge of the pressure fluid through the discharge pipe.

I do not confine myself to the application of this press for any particular purpose, nor to employ any particular fluid to produce the required pressure.

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

1. In a power press, the combination of a cylinder, a cylinder support having its ends extended beyond the ends of the cylinder, a piston-rod provided with plunger-heads on its respective ends, baling-chambers mounted on the extended ends of the cylinder-bed or support, and composed of guide-plates to take and guide the plunger-heads, stop-plates at the ends of the baling-chambers and located at a distance from the ends of the guide-plates, a lid hinged to the stop and one of the guide-plates, catches to hold the lid down and over the chamber, and molds between the ends of the guide-plates and the stop plates, substantially as described.

2. The baling-mold herein described, consisting of the rectangular three-sided frame X, X', X'', spring-latches secured on the end-pieces of the frame, and a removable side Y', adapted to be held in position by the spring-catches of the three-sided frame, substantially as shown and described.

3. In a power-press, of the kind herein shown, a baling-chamber, a mold-box within the baling chamber consisting of three sides rigidly secured together, a fourth side adapted to be moved into locked connection with the other three sides of the mold, guide-plates between which the movable side is guided to the mold, and a moving-plunger adapted to slide between the guide-plates and push the fourth side into engagement with the other portions of the mold, substantially as described.

4. The combination of a plunger, and means to operate the same, of a baling-chamber, comprising a bed-plate, oppositely arranged guide-plates to take and guide the plunger, an end-stop arranged at a distance from the ends of the guide-plates, a cover on the chamber, a three-sided mold-box adapted to fit the space between the end-stop and the ends of the guide-plates, spring-catches on the ends of the mold-box, and a movable side for the mold-box adapted to be pushed into position by the plunger and to be held by the spring-catches, substantially as set forth.

Barrie, November 27, 1894.

HARMAN BUNKER.

In presence of—

I. BUCROFT,

A. W. JAMIESON.