J. BECKER & A. BEYER.

HYDRAULIC PRESS.

APPLICATION FILED SEPT. 16, 1910.

999,087.

Patented July 25, 1911.

2 SHEETS—SHEET 1.

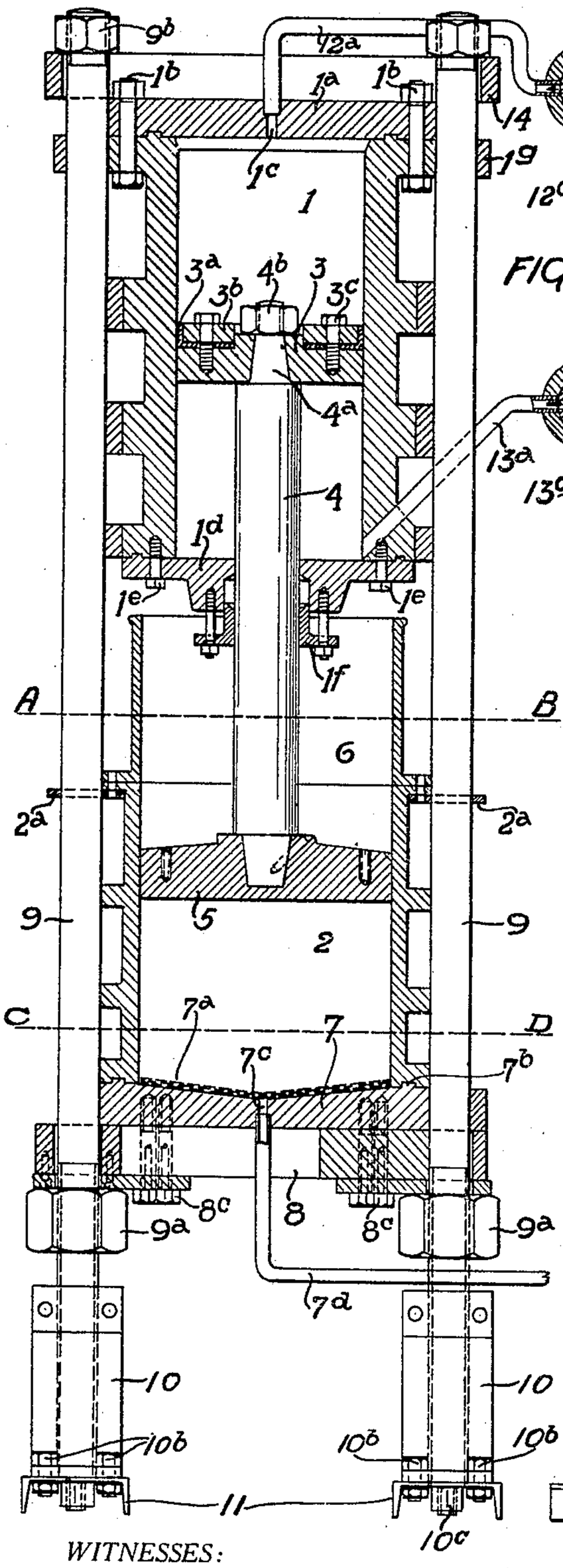


FIG. 2.

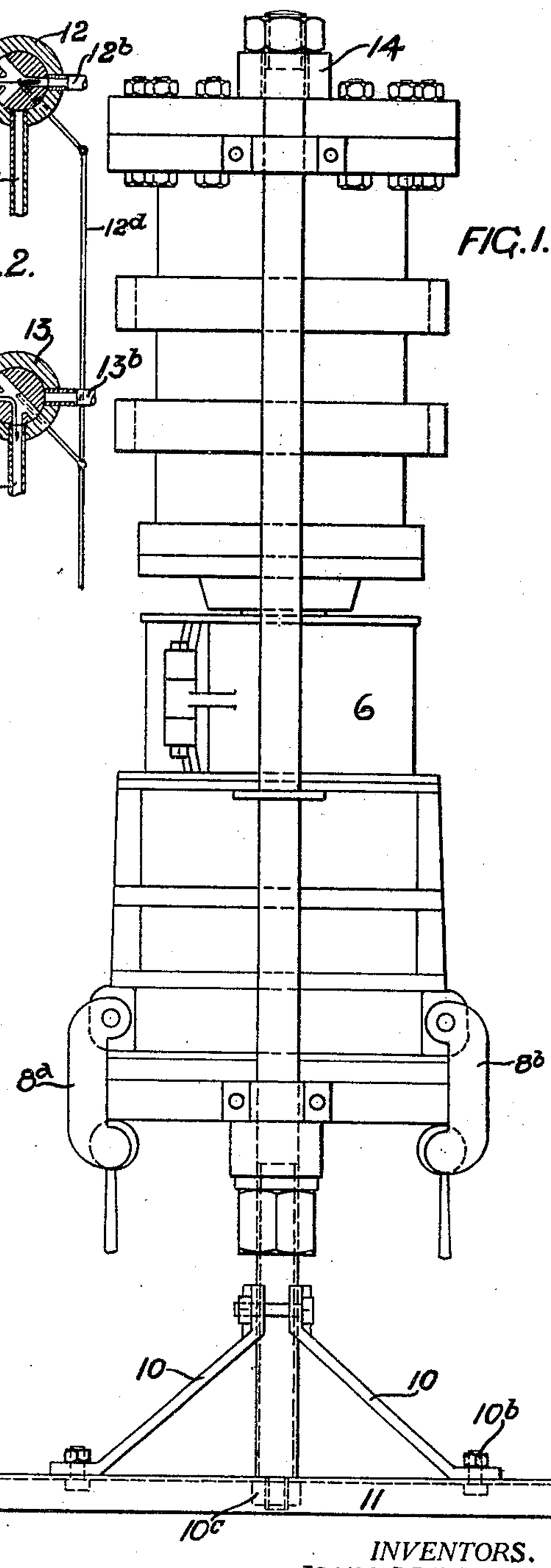


FIG. 1.

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2 SHEETS—SHEET 2.

FIG. 3.

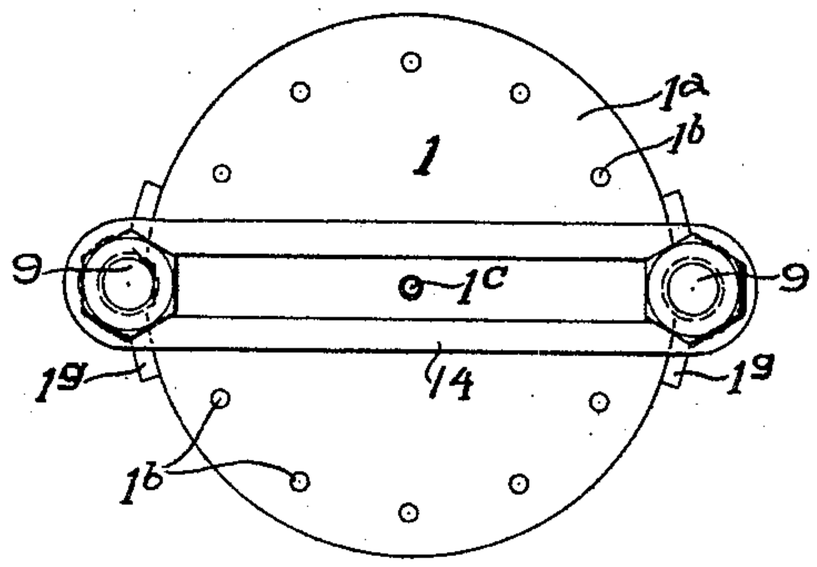



FIG. 4.

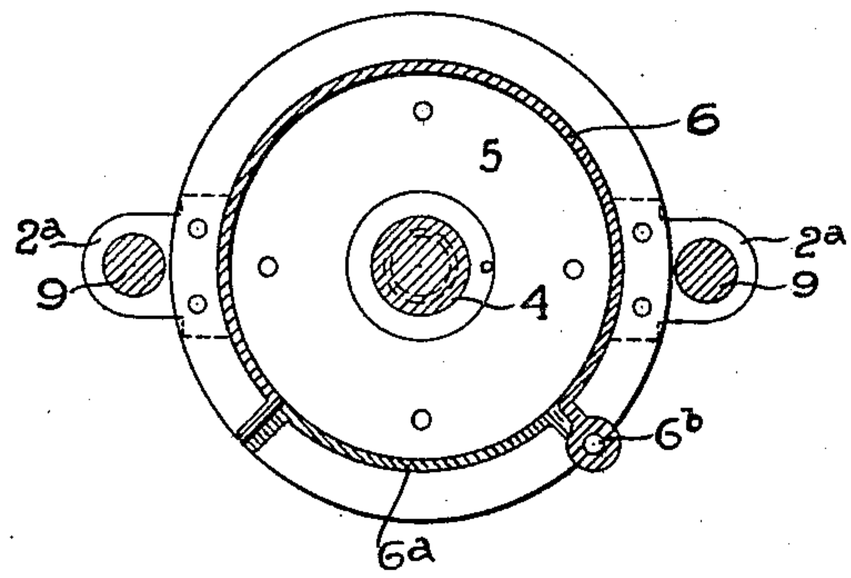
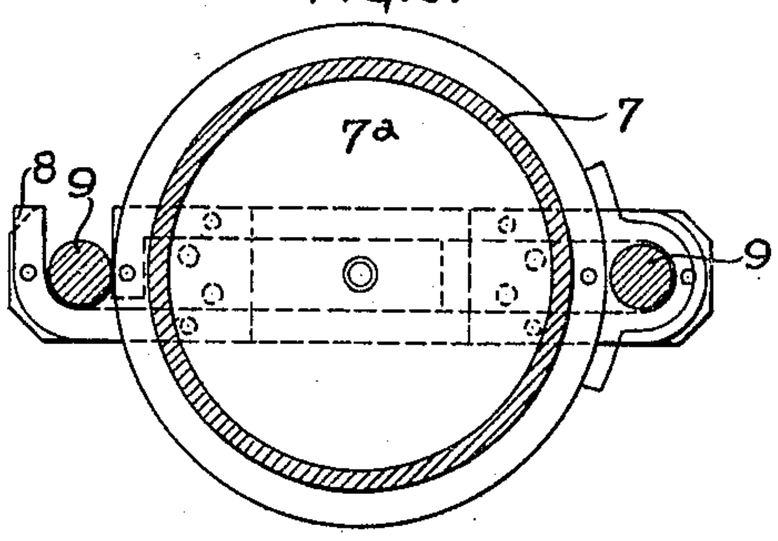



FIG. 5.

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# UNITED STATES PATENT OFFICE.

JOHN BECKER, OF NATIONAL CITY, AND ADOLPH BEYER, OF SAN DIEGO, CALIFORNIA.

## HYDRAULIC PRESS.

999,087. Specification of Letters Patent. Patented July 25, 1911.

Application filed September 16, 1910. Serial No. 582,298.

*To all whom it may concern:*

Be it known that we, JOHN BECKER, a citizen of the United States, and a resident of National City, in the county of San Diego and State of California, and ADOLPH BEYER, a citizen of the United States, and a resident of San Diego, in the county of San Diego and State of California, have invented certain new and useful Improvements in Hydraulic Presses, of which the following is a specification.

Our invention relates to hydraulic presses in which the pressure is produced by means of a liquid forced into a cylinder by a pump and is released by means of other pressure, and it is to be used more particularly for pressing and separating the juice from the pulp of fruits of various kinds, and the objects are: First.—To provide a simple, efficient, economically constructed and easily operated press. Second.—To provide a press that is easily accessible for filling and emptying and for keeping it in a sanitary condition.

With these and other objects in view, our invention consists of certain novel features of construction, combination and arrangement of parts, as will appear in the detail description and is particularly set forth in the appended claims, reference being had to the accompanying drawings in which:—

Figure 1 is a side elevational view of the press, Fig. 2 is a longitudinal sectional view thereof, Fig. 3 is a top view thereof, Fig. 4 is a sectional view taken through A. B. in Fig. 2, and Fig. 5 is a sectional view taken through C. D. in Fig. 2.

Similar characters of reference refer to similar parts throughout the several views.

The hydraulic cylinder 1, press cylinder 2, hydraulic piston 3, piston rod 4, press piston 5, press cylinder extension 6, bottom 7, relief gate 8, tie rods 9, braces 10, base 11, and valves 12 and 13, form the principal parts of our machine. The hydraulic cylinder 1 is provided on its upper end with cylinder head $1^a$ substantially attached thereto by means of bolts $1^b$, and centrally located therein is provided a hole $1^c$ adapted for a feed pipe $12^a$ to be screwed therein. On the lower end of cylinder 1 is provided another cylinder head $1^d$ substantially attached to the lower end by means of bolts $1^e$. Centrally located in said cylinder head $1^d$ is provided a hole in which operates piston rod 4, and around said piston rod 4 in the outer surface of cylinder head $1^d$ is provided a stuffing box $1^f$ for the purpose of forming a tight joint around piston rod 4. The upper end of piston rod 4 is reduced in size and tapered at $4^a$ and adapted to fit a hole in hydraulic piston 3, and on its extreme upper end is provided a nut $4^b$ which screws on piston rod 4 against piston 3 on said piston rod. Said piston 3 is provided with a leather cup $3^a$ which is firmly held in place by means of an annular retaining washer $3^b$ and tap bolts $3^c$. Said piston 3 is adapted to fit and operate in cylinder 1. In the lower end of cylinder 1 and in the one side thereof is provided another feed pipe $13^a$. Adjacent to said cylinder 1 and directly beneath it is provided a pressure cylinder 2 in which operates piston 5 which is substantially attached to the lower end of piston rod 4, and is adapted to fit said cylinder 2, and operate therein. The upper end of cylinder 2 is provided with an extension 6 which is substantially attached thereto, and on the one side of said extension 6 there is provided a hinged door $6^a$ hinged at point $6^b$. This door is for the purpose of facilitating the filling of the press cylinder. Said cylinder 2 is provided on its lower extended end with bottom 7 which is provided with an annular projection $7^b$ adapted to fit into an annular groove in the lower end of cylinder 2. The upper surface of bottom 7 is concave and has mounted thereon a plurality of screens of different sized meshes $7^a$. Just beneath said bottom 7 and rigidly attached thereto by means of bolts $8^c$ is provided support 8 which supports said bottom 7 and with it acts as a door for the exit of the pulp after it has been sufficiently pressed. This support 8 is shaped as shown best in Fig. 5, and it is supported by means of nuts $9^a$. On opposite sides of said press are hinged pieces $8^a$ and $8^b$ adapted to support the extended edges of bottom 7. These

hinged pieces $8^a$ and $8^b$ are adapted to be swung outward allowing the parts 7 and 8 to descend until the annular projection $7^b$ is below the lower surface of cylinder 2, when parts 7 and 8 may be swung to one side on one of the tie-bolts 9, thus allowing the ready exit of the pulp. The machine is supported on the extended ends of tie-rods 9, which are substantially braced by means of braces 10. Said tie-rods 9 and braces 10 are substantially attached to channel iron base 11, by means of bolts $10^b$ and nuts $10^c$. The cylinders 1 and 2 are substantially held in their relative positions by means of tie rods 9 which are provided on each of their ends with nuts $9^a$ and $9^b$. On the upper end of cylinder 1 and across the head $1^a$ is provided a link 14 through which the upper extended end of bolts 9 protrude. This link 14 acts as a bar across the head of the machine, and reinforces the cylinder head $1^a$ and holds the tie-bolts 9 in their relative positions. Each of the cylinders are substantially ribbed for strength and are provided with guide pieces $2^a$ and $1^g$ through which rods 9 extend. In connection with feed pipe $12^a$ is valve 12 which connects with a hydraulic pump by means of pipe $12^b$ and also with a drainage pipe $12^c$.

In connection with pipe $13^a$ is another valve 13 which is in connection with a service pipe $13^b$ and drainage pipe $13^c$. These valves 12 and 13 are connected by means of a rod $12^d$ and are arranged so that when one is open for feed the other is closed against feed and open for drainage, and vice versa.

Although we have drawn and described a particular construction, we do not wish to be limited thereto, but we desire to include in our invention substantially the principles embodied together with the parts.

It will be readily seen that by this construction, we have provided a very efficient, economically constructed and easily operated hydraulic press, that the feed and discharge are very simple and easily operated.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent is:—

1. In a hydraulic press the combination of a hydraulic cylinder provided with cylinder heads, a stuffing box in one of said cylinder heads, a combined inlet and outlet pipe centrally located in the other cylinder head, a piston in said cylinder, a two section press cylinder provided with an annular groove in its lower end, a piston therein in connection with the aforementioned piston, an edgewise swinging door provided with an annular projection adapted to fit into said annular groove mounted on a vertical axis in connection with said press cylinder, a sidewise swinging door in the side of said press cylinder, a plurality of screens on the inner surface of the bottom of said press cylinder, tie bolts connecting said cylinders, and means for regulating the hydraulic operation of said press, all substantially as set forth.

2. In a hydraulic press the combination of a hydraulic cylinder provided with cylinder heads, a stuffing box in one of said heads, a combined inlet and outlet pipe centrally located in the other cylinder head, another combined inlet and outlet pipe in the side of said cylinder near its lower end, a detachable piston in said cylinder, a press cylinder provided with an annular groove in its one end, a detachable piston therein in connection with the piston in said hydraulic cylinder, a side swinging door hinged on the side of said press cylinder, a detachable side swinging bottom provided with an annular projection and a concave upper surface, a plurality of screens in connection with said concave surface, hinged supports for said bottom, a single outlet for liquids in the bottom of said press cylinder, tie bolts extending the full length of said press adapted to hold said cylinders firmly together, and special valve means for regulating the hydraulic operation of said press, all substantially as set forth.

3. In a hydraulic press the combination of a hydraulic operating means, a press cylinder provided with an annular groove in its one end, a detachable piston therein, a piston rod in connection therewith and with said hydraulic operating means, a swinging door hinged on the side of said cylinder, a removable bottom in said cylinder provided with an annular projection adapted to fit into said annular groove and mounted on a vertical axis and adapted to be raised and lowered and swung laterally thereon, a plurality of screens adapted to fit on the bottom on the inside of said cylinder, a centrally located outlet in the bottom of said cylinder adapted for the passage of liquids, and tie-bolts extending the full length of said press for holding said cylinders firmly together and for supporting said press, all substantially as set forth.

4. In a hydraulic press, the combination of a hydraulic cylinder, a two-section press cylinder provided with an annular groove on its bottom end, detachable pistons in each of said cylinders, a piston rod in operative connection with both of said pistons, a stuffing box on said piston rod, a removable bottom in said press cylinder provided with a concave surface on its upper side and provided with an annular projection adapted to fit into said annular groove, a plurality of screens resting on said concave surface, hinge means adapted for raising, lowering

and swinging laterally the bottom portion of said press cylinder, means for regulating the hydraulic operation of said press, tie-bolts adapted for connecting said cylinders and for supporting said press and reinforcing means in connection with said tie-bolts, all substantially as set forth.

In witness whereof, we hereunto subscribe our names in the presence of two subscribing witnesses.

JOHN BECKER.
ADOLPH BEYER.

Witnesses:
ELMER E. RODABAUGH,
ABRAM B. BOWMAN.