July 30, 1929. R. T. ANDERSON 1,722,882

PRESS

Filed May 25, 1928 2 Sheets-Sheet 1

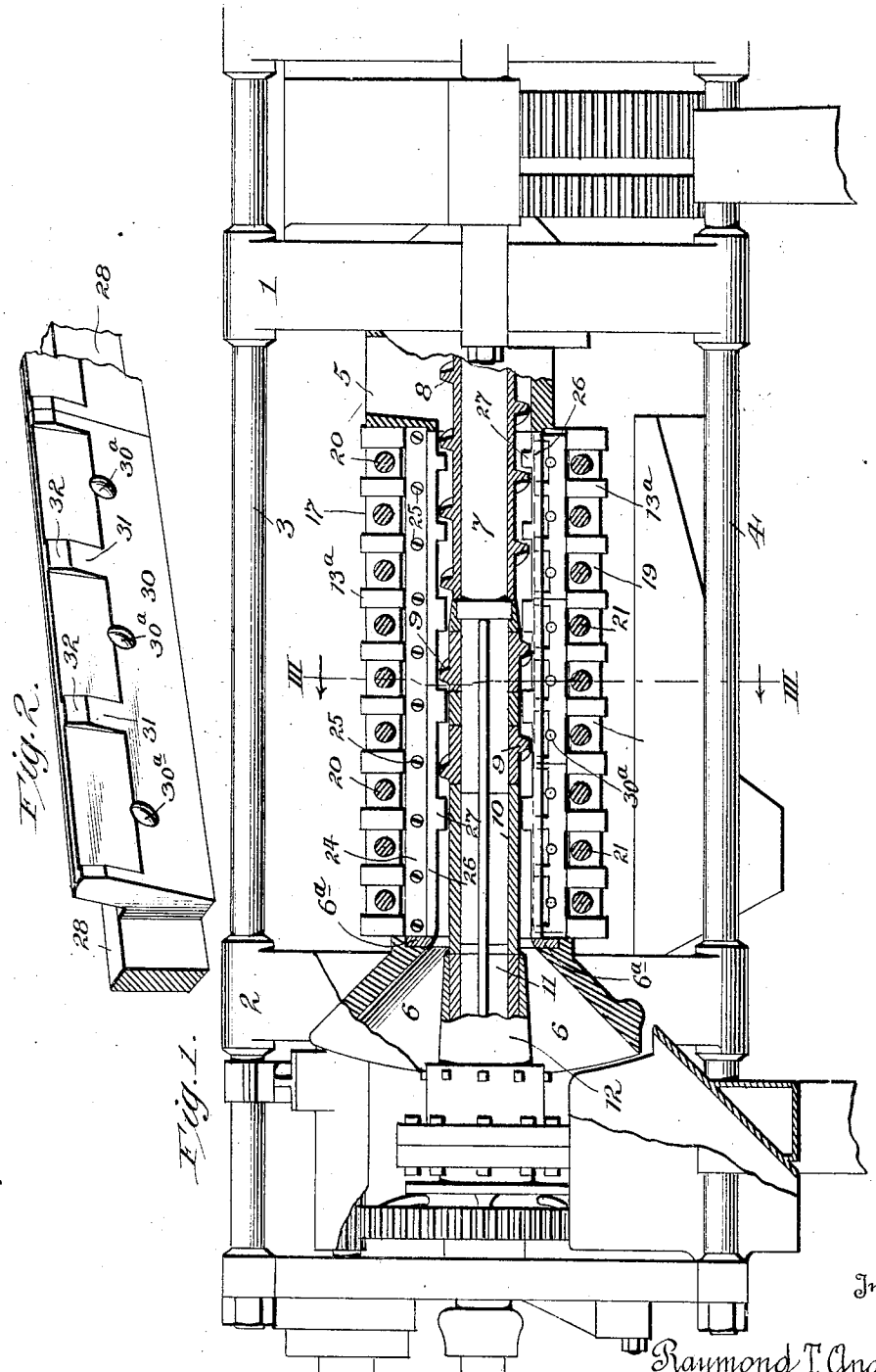

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Fig. 3.

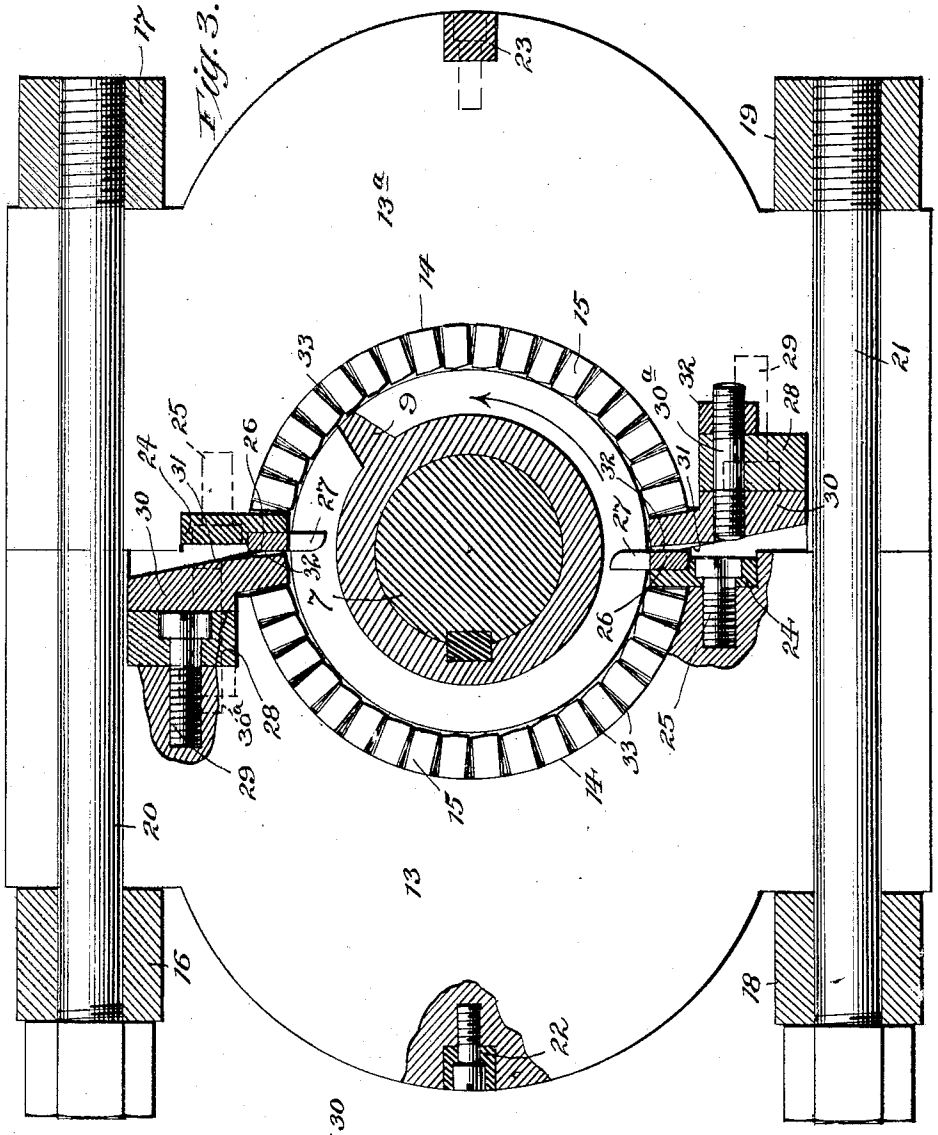
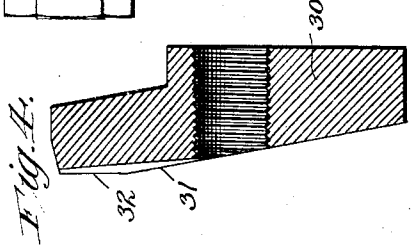


Fig. 4.



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Patented July 30, 1929. 1,722,882

UNITED STATES PATENT OFFICE.

RAYMOND T. ANDERSON, OF CLEVELAND, OHIO, ASSIGNOR TO THE V. D. ANDERSON COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

PRESS.

Application filed May 25, 1928. Serial No. 280,639.

This invention pertains to improvements in presses and more particularly presses of the worm or screw type, such for instance as is shown in the Anderson Patents Numbers 829,314 and 829,315, dated August 21st, 1906, though of course the invention is applicable to other types and forms.

The invention pertains more particularly to an improved shell or barrel for a press of the type disclosed in said patents and has for its main object the simplification of the barrel construction while at the same time insuring greater rigidity and the provision of a greater number of drainage openings in the barrel between the bars. The arrangement, moreover, permits the employment of a greater number of plain barrel bars for the same size barrel than could be employed under the older constructions.

The shell or barrel of the present press embodies a plurality of transversely extending frame elements each provided with a semi-circular recess within which the shell bars are mounted, there being a plurality of these frame elements arranged in spaced relation to each side of the center of the shell. In other words, a pair of these frame elements, oppositely arranged, will produce a circular opening in which the shell bars are arranged in circular series.

Under the older constructions it was common to employ a series of frame bars, three for each frame element, which bars extend longitudinally of the shell, the outermost pair or those adjacent the edge of the frame carrying what is known as shoe bars, while the intermediate one carries the key bar or wedge-like element. The ordinary knife bars, common to presses of this type, were located between the shoe bars where they stood opposite each other at the edges of the frame members.

Under the present construction the intermediate frame bars are done away with entirely as are also the key bars. Furthermore, certain bars, hereinafter termed pressure bars, are employed instead of the shoe bars which were present in the old construction. The inner portions of said pressure bars are contoured to substantially conform to the bars which go to make up the main body of the shell and in this way drainage openings other than those which were present in the old construction are provided. Again, abutment bars, as they may be termed, are present and these bars are also so shaped as to afford a drainage opening between one face thereof and the face of the next adjacent barrel bar.

In the drawings,

Figure 1 is a sectional elevation of so much of the press as is necessary to an understanding of the structure,

Figure 2 a perspective view of a portion of the pressure bar with the associated frame connecting bar,

Figure 3 a transverse vertical sectional view, on an enlarged scale, taken on the line III—III of Figure 1, and

Figure 4 a transverse sectional view of one of the pressure bars.

In the drawings 1 and 2 denote the usual frame members which are spaced apart and interconnected by tie rods as 3 and 4.

At the head or intake end of the machine there is provided a feed hopper 5, while at the opposite end there is a member 6 through which the cake is discharged. A shaft 7 extends through the structure, said shaft carrying the usual feed worm 8, the separated compression screws 9 and sleeves 10 and 11. A cone 12 overlies the sleeves and lies adjacent the discharge end of the barrel. The feed worm and shaft may be driven in the usual manner.

The shell of the press lies between the hopper member 5 at one end and the member 6 and its inset wear element 6^a at the opposite end and surrounds the shaft and the members or elements carried thereby.

As under the former constructions there is provided a series of frame members 13 and 13^a, said members being arranged in pairs, standing edge to edge, and the pairs, of which ten are shown in Figure 1, standing in spaced relation to each other.

Said members are each formed at their inner edges with a semicircular bearing face 14 upon which the usual barrel forming bars 15 are seated and held.

Clamping bars 16 and 17, and 18 and 19 bearing against flat faces formed on the members 13 and 13a, together with the studs 20 and 21 hold the frame members in place. Longitudinally extending tie rods 22 and 23 also serve to hold the frame members in each series in their proper spaced relation at all times.

Each frame member is cut away at one end of the curved seating face 14 and a bar 24, termed an abutment bar, is seated in said cut away portion and secured in place by machine screws 25. Such bar of course extends throughout the series of frame members and is secured to each one thereof.

As will be seen upon reference to Figure 3 the bar is of such depth that its inner edge extends inwardly to the same extent as the barrel bars 15.

The bar 24 is also recessed or cut away from the side face adjacent its inner edge to receive the knife bar 26, the knives or inwardly projecting members 27 whereof extend inwardly between the flights of the separated screws or worms.

At the opposite portion of the member 13, or 13a as the case may be, the member is cut away at its inner edge to receive a longitudinally extending connecting bar 28, which bar is attached by machine screws 29 to the member 13. To this bar is secured the so-called pressure bar, best shown in Figures 2, 3 and 4, and denoted generally by 30. The bar is attached to the longitudinally extending tie bar 28 by studs 30a which pass through the longitudinal bars 28 and are secured in place by nut 32.

Pressure bar 30 at its inner portion is reduced in thickness and given a taper form. A series of ribs 31, each having a beveled portion 32 at its outer end, is formed on one face of the pressure bar, said beveled portions contacting the adjacent face of the knife bar 26 when the parts are brought to their final assembled position as shown in Figure 3. These ribs, while holding the knife bars in place afford drainage therebetween. Drainage space is also present between the opposite face of the member 30 and the adjacent barrel bar 15.

As is usual in building up the press barrel, suitable spacers as 33 will be located between the various bars. It will also be noted that the bars 30 are not continuous throughout the length of the barrel but are formed of a series of sections. This is also true of the bars 15 as is usual.

As will be seen upon reference to Figure 3, drainage openings are provided between the various bars 15, 24 and 30 whereas in the prior arrangement above referred to drainage was not had between some of the frame bars and adjacent elements.

Compared to a barrel of the same size built under the old construction the present invention gives 30% more drainage.

The present arrangement assures that the drainage slots (openings between any two bars) are equally spaced around the barrel thus evenly draining the material being pressed and making a uniform cake. The increased drainage area permits one to greatly increase the speed of pressing; thus for a given period of time approximately 30% more material may be treated than could be done with the old barrel arrangement with the resultant cake equally as dry in oil or fat.

What is claimed is:

1. A shell or barrel for presses embodying a series of bars arranged in circular series; means for holding the same in place, comprising a pair of oppositely disposed pressure bars having a portion extending into the series and forming a part thereof; supplemental bars also extending into the series; and knife bars held between each pair of pressure and supplemental bars.

2. A shell or barrel for presses composed of a series of bars standing in circular series and embodying at least in one portion thereof a pair of oppositely disposed bars secured to fixed members and each having an inwardly extending portion forming a part of the circular series, one of said inwardly projecting portions having a recess formed in that face opposite the other inwardly extending portion which said last named portion is formed with a series of spaced ribs; and a knife bar seated in the recess aforesaid and bearing against the ribs.

3. In a press the combination of a series of oppositely disposed frame members, said members each having a semicircular recess formed in that face which stands opposite the opposite companion member; a bar extending longitudinally of each series of members, said bar being secured to said members adjacent one end of the recess aforesaid; a second bar secured to the first bar, said second bar having an inwardly projecting member; a third bar secured to each series of frame members adjacent the opposite end of the recess, said bar extending inwardly thereof and provided with a recess in its side face; a knife bar seated in such recess; a series of barrel bars held between the inwardly projecting portions of the bars aforesaid; and means for securing the frame members together.

4. A shell for a compression press formed of duplicate sections to each side of its longitudinal center, each section comprising a series of spaced frame elements, each element having a semicircular recess formed in a face thereof; a bar seated and secured in a recess formed in each frame element adjacent one end of the semicircular recess;

a second bar secured to said first bar, said second bar having a projecting portion extending inwardly beyond the line of the semicircular recess; a third bar seated and secured within a recess formed in each frame element opposite to the second bar; a series of bars seated in the semicircular recess between the second and third bars; a knife bar mounted in a recess formed in the side face of each of the third bars; and means for securing the duplicate sections together.

In testimony whereof I have signed my name to this specification.

RAYMOND T. ANDERSON.