March 25, 1930. R. T. ANDERSON 1,752,222

PRESS

Original Filed April 12, 1926 2 Sheets-Sheet 1

Fig. 1.

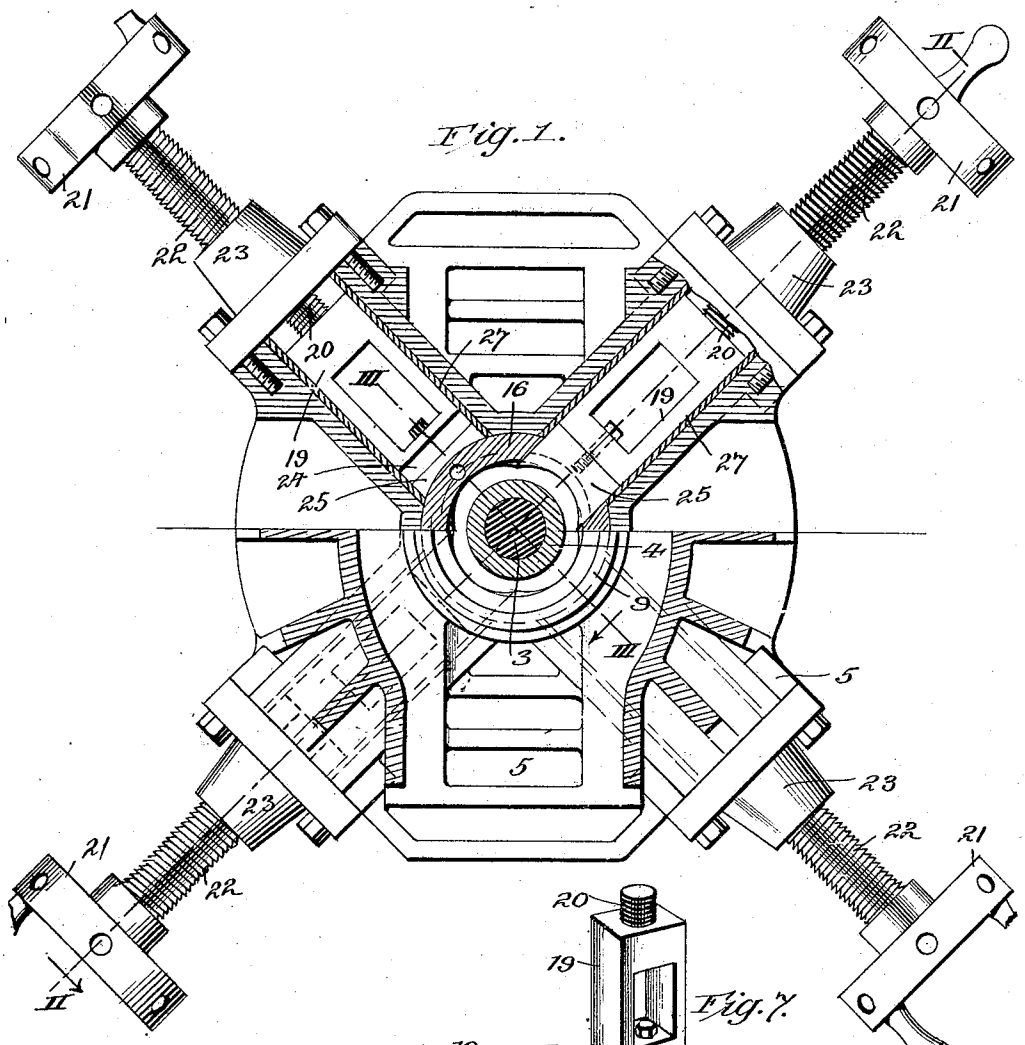


Fig. 7.

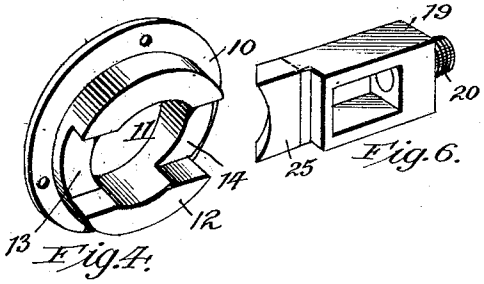


Fig. 6.

Fig. 4.

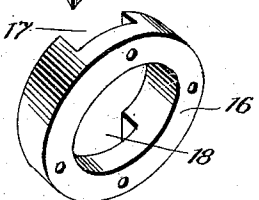


Fig. 5.

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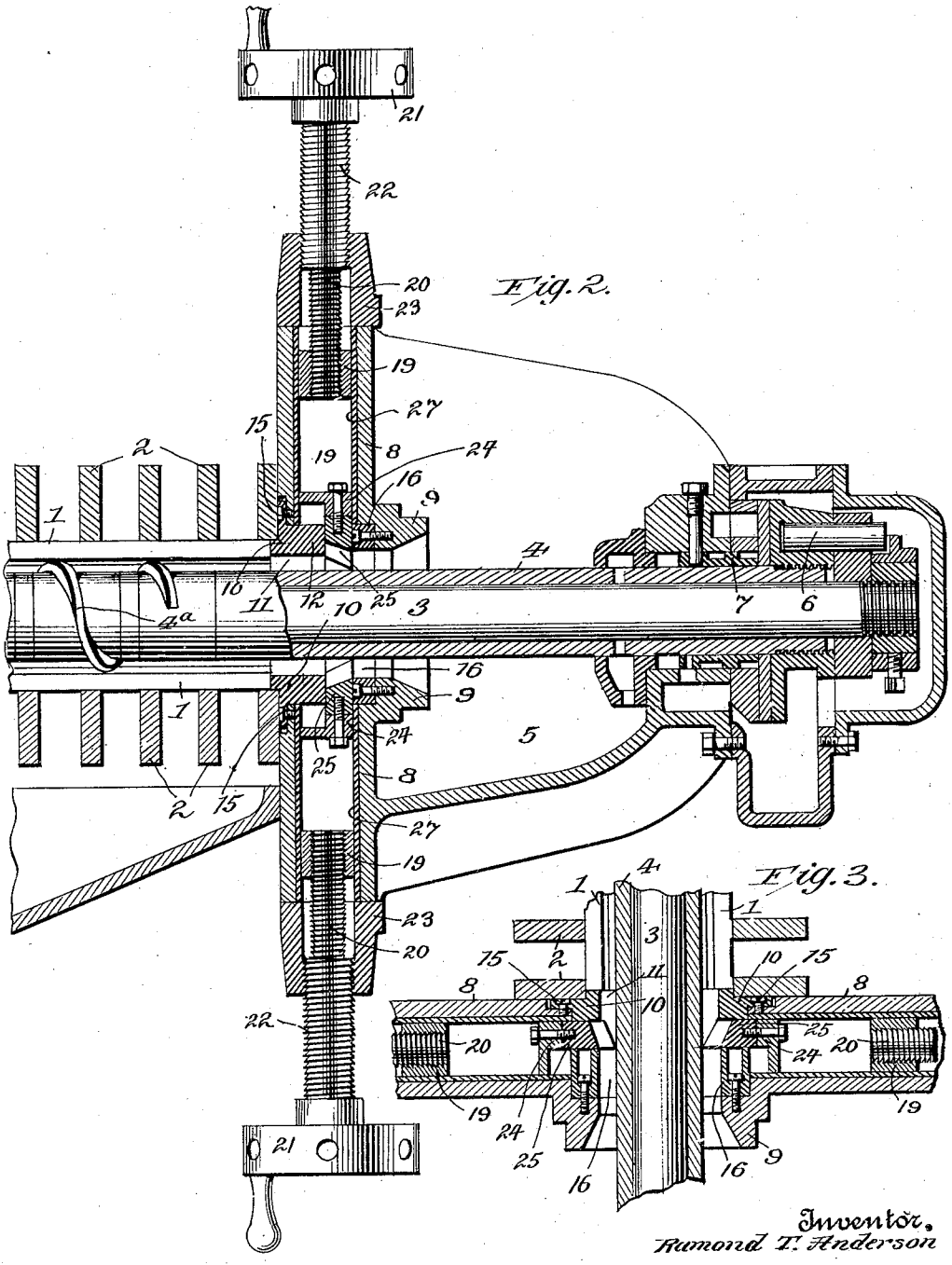


Fig. 2.

Fig. 3.

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Patented Mar. 25, 1930 1,752,222

UNITED STATES PATENT OFFICE

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PRESS

Application filed April 12, 1926, Serial No. 101,507. Renewed February 11, 1930.

This invention pertains to improvements in presses and more particularly to that type set forth in United States Letters Patent to Anderson Nos. 731,734, 731,735 and 731,737 dated June 23, 1903, wherein there is shown a shell with a series of separated screws mounted therein, which screws feed the material lengthwise through the shell, compress the same and force the liquid content, such as oil and the like, therefrom. Working in conjunction with the outlet of the press, as shown in the patents above referred to, means is provided for retarding the outflow and causing the material to be held in the press or shell for the requisite period of time.

The present invention relates more particularly to the means employed for regulating the discharge from the press and takes the place of the cone construction shown in Patent 731,734, or the head, shell or casing G′ of Patent 731,735.

Under the present invention, the choke, as it may be termed, at the discharge end of the press is stationary in so far as any rotary movement is concerned though it is adjustable to vary its effectiveness with relation to the discharge of the material and such adjustment may be effected while the machine is in operation, whereas under the old construction where the cone was employed, it was necessary to stop the machine when adjustment was to be brought about. Furthermore, with the stationary choke of the present case less friction obtains between the choke and the pressed cake being discharged from the expeller, with the result that the cake is lighter in color, which is a desirable feature. Under the old construction where the cone revolves and the cake is forced thereover, the cake becomes hot on account of the friction produced by revolving the cone under the extreme pressure which obtains in presses of this type. Furthermore, by the present construction the press is easier to repair, inasmuch as new parts can be installed without dismantling the expeller, which dismantling was necessary under the old cone construction. Again, the present choke materially reduces the amount of machinery and gears required at the discharge end of the expeller over that which obtained under the old construction, or at least under the old commercial form, where the cone was employed.

Furthermore, the present structure eliminates the cone point and discharge collar with its attendant tendency to leak liquids under cone point and outside of discharge collar as in older forms of presses. In addition to the constructional advantages above set forth, it has been found that better extraction is effected and a gain as high at 2% obtains over the older forms.

The invention is illustrated in the annexed drawings wherein,

Figure 1 is a sectional elevation taken on two planes of the discharge end of so much of the press as is necessary to an understanding of the present invention,

Figure 2 a longitudinal sectional view taken on the line II—II of Figure 1,

Figure 3 a similar view taken on the line III—III of Figure 1,

Figure 4 is a perspective view of the inner wear and guiding plate employed in conjunction with two oppositely disposed choke members or jaws,

Figure 5 a similar view of the outer guiding member, and

Figures 6 and 7 perspective views of the jaws.

For a detail of the press construction, as such, reference may be had to the patents above referred to and I have not deemed it essential to illustrate the whole structure for the purposes of description in the present instance.

In the drawings, Figure 2, a portion of the shell of the press is shown and may be said to comprise a plurality of longitudinally disposed bars 1 which are held in spaced relation in circular series by a plurality of transversely extending ribs 2. Extending through the shell is a shaft 3 surrounded by a tubular sleeve or member 4. Said shaft and sleeve carry the worms, one of which is shown at 4^a, in the shell of the press and act upon the material to break up and compress the same, expressing the oil therefrom which flows outwardly between the spaced bars 1.

The rear frame element of the press is denoted by 5 and has mounted thereon combined thrust and lateral bearings denoted generally by 6 and 7. Formed in the end frame or casting 5 are four guideways denoted generally by the reference numeral 8. These guideways stand in pairs opposite each other and one pair is disposed at right angles to the other. The frame is also formed with a boss or enlargement 9 through which the members 3 and 4 extend in spaced relation. The inner face of the casting 5 is so formed as to receive an inner jaw guiding member 10 of the form best shown in Figure 4. Said member is circular in outline having a central bore 11 and an outwardly extending projection 12 which is diametrically cut away as at 13 and 14 forming guides for the jaws which enter said cutaway portions. This block or guide member extends into an opening formed in the inner face of the casting 5 and is secured thereto in any suitable manner as by machine screws 15 as shown in Figures 2 and 3. A second guide block 16 is secured to the casting 5 opposite the guide block 10 and in spaced relation thereto. Said block, as will be seen upon reference to Figure 5, is provided with two diametrically disposed guideways 17 and 18, which guideways, when the parts are in their assembled position, stand at right angles to the guideways 13 and 14 in the block 10. There is thus produced in the structure at the outlet or discharge opening for the cake four guideways which stand in line with the respective guideways 8 formed in the element 5.

Mounted in each of the guideways 8 are slides, each slide carrying at its inner end a jaw, which jaws extend through the guideways 13 and 14 and 17 and 18, respectively. Inasmuch as the slides and jaws, and the means for actuating or positioning the jaws with reference to the sleeve 4, are alike in form and operation, a description of one will suffice for all and the parts are lettered the same throughout.

The slides are shown in detail in Figures 6 and 7. They may be said to comprise a rectangular body 19, into the upper end of which is threaded a jack-screw 20. The upper portion of said screw has secured to it a hand wheel or capstan member 21, the upper larger portion of the screw, or that denoted by 22, passes through a threaded nut 23 which is securely bolted to the casting 5. The lower portion of the jack-screw is smaller in diameter than the upper portion which passes through the nut and, while threaded in the same direction as the upper part, the threads are closer together. In practice the upper portion has been provided with three threads per inch while the lower portion has four threads per inch. By this arrangement rugged threads may be utilized and a fine inward or outward feed and adjustment of the slide 19 may be effected.

Each slide at its inner end, is provided with a longitudinally projecting portion 24 somewhat narrower than the body of the slide or of a width equal to the width of the space between the opposite face of the member 10 or 16 and the bottom of the guideway formed in the opposite member.

To the outer end of the projection 24 is secured a removable jaw 25, the outer end of the jaw being arcuate in outline and beveled transversely or beveled outwardly from the outer face toward the inner face thereof. It will thus be seen that the jaws may be moved inwardly or outwardly independently of each other and toward and from the sleeve member 4 to provide a choke of the proper size for the particular material undergoing treatment. The inner edges of the jaws may be caused to closely approach the sleeve 4 and thus effect a greater retardation of the discharge of the material than would be the case if the jaws were retracted by turning the jack-screws outwardly.

The guideways 8 will preferably be babbitted as at 27. The guide plates 10 and 16 will be formed of hardened steel or other appropriate metal and the jaws 25 will also be formed of hard steel.

The jaws, as above noted, tend to restrict the outflow of the cake which, after it passes them, passes through the cylindrical bore of the member 16 and outwardly through the member 9.

What is claimed is:

1. In a press, the combination of a shell; a shaft extending longitudinally therethrough and outwardly through the discharge opening of the press; a plurality of guideways standing at right angles to the shaft, said guideways standing in spaced relation to each other; a slide mounted in each guideway; a jaw secured to the inner end of each slide, the inner face of the jaw being arcuate in outline and inclining toward the shaft in the direction of the discharge of the material from the press; and means for moving the slide in the guideway toward and from the shaft and holding the same in its adjusted position and thereby varying the position of the jaw with reference to the shaft and likewise holding it in its adjusted position.

2. In a press, the combination of a shell; a shaft extending through and outwardly from the same; means sustained from the shaft for exerting pressure upon the material within the shell; a casting mounted adjacent to the end of the shell, said casting having a central opening formed therein and likewise provided with a plurality of guideways extending radially from said opening in spaced relation; a guide block secured to the inner face of the casting in line with the end of the shell, said block having a central

opening and two laterally extending guideways in line with the adjacent guideways formed in the casting; a second guide block mounted in the inner face of the casting, said second block having guideways formed therein which align with the corresponding ways formed in the casting; a slide mounted in each of the guideways of the casting; a jaw secured to the inner end of each slideway, said jaws being so arranged as to pass through the respective ways formed in the guide blocks; a nut secured to the casting at the outer end of each slideway; and a screw extending through the nut and taking into the slide mounted in the way.

3. In a press, the combination of a shell; a shaft extending through and outwardly from the same; means sustained from the shaft for exerting pressure upon the material within the shell; a casting mounted adjacent the end of the shell, said casting having a central opening formed therein and likewise provided with a plurality of guideways extending radially from said opening in spaced relation; a guide block secured to the inner face of the casting in line with the end of the shell, said block having a central opening and laterally extending guideways aligning with certain of the adjacent guideways formed in the casting; a second guide block mounted in the inner face of the casting, said second block having guideways formed therein which align with the corresponding ways formed in the casting; a slide mounted in each of the guideways of the casting; a jaw secured to the inner end of each slideway, said jaws being so arranged as to pass through the respective ways formed in the guide blocks; a nut secured to the casting at the outer end of each slideway; and a screw threaded into the nut, the inner end of the screw being likewise threaded and passing into a threaded opening formed in the outer end of the adjacent slide, the threads upon that part of the screw which passes into the slide being greater in number per inch than those formed upon that portion of the screw which take into the nut.

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

RAYMOND T. ANDERSON.