No. 731,734. PATENTED JUNE 23, 1903.

V. D. ANDERSON.

PRESS.

APPLICATION FILED OCT. 21, 1901.

NO MODEL. 2 SHEETS—SHEET 1.

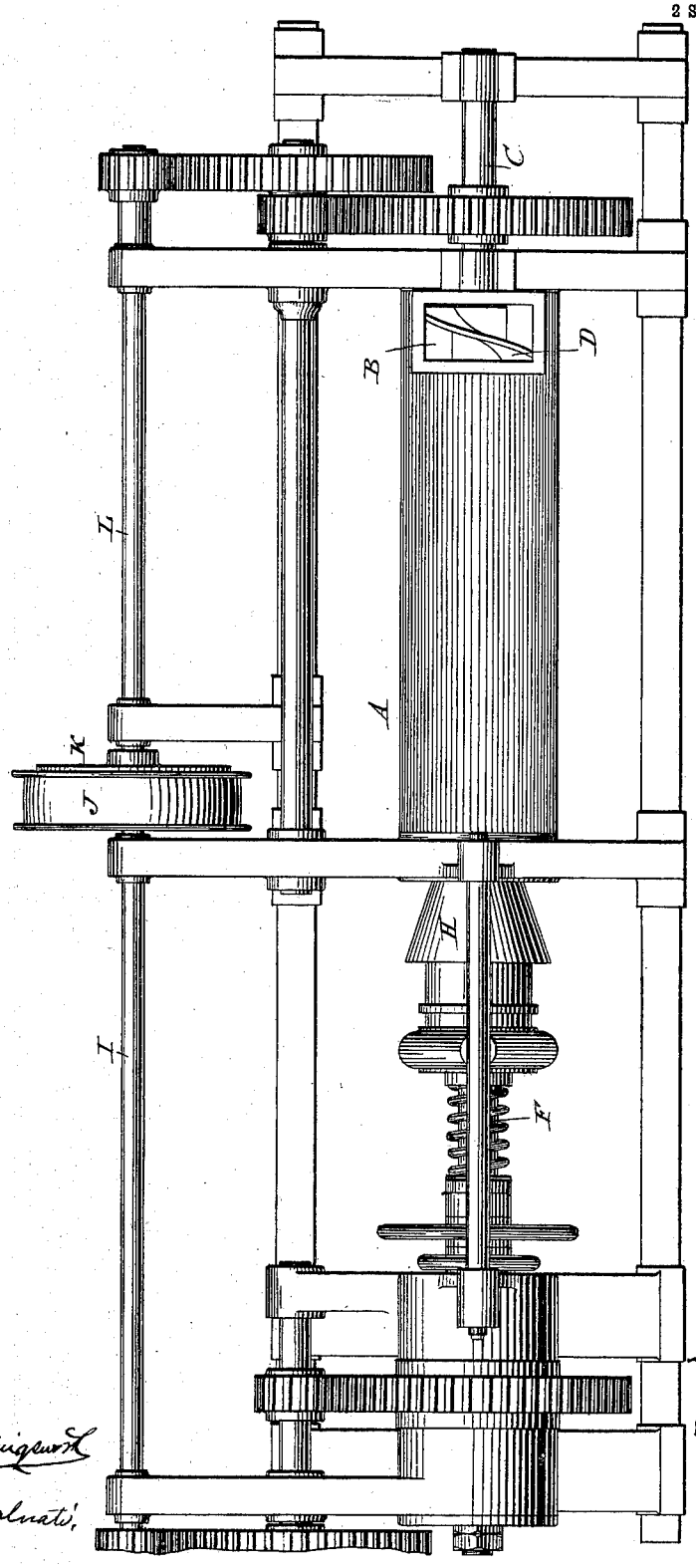


Fig. 1.

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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NO MODEL. 2 SHEETS—SHEET 2.

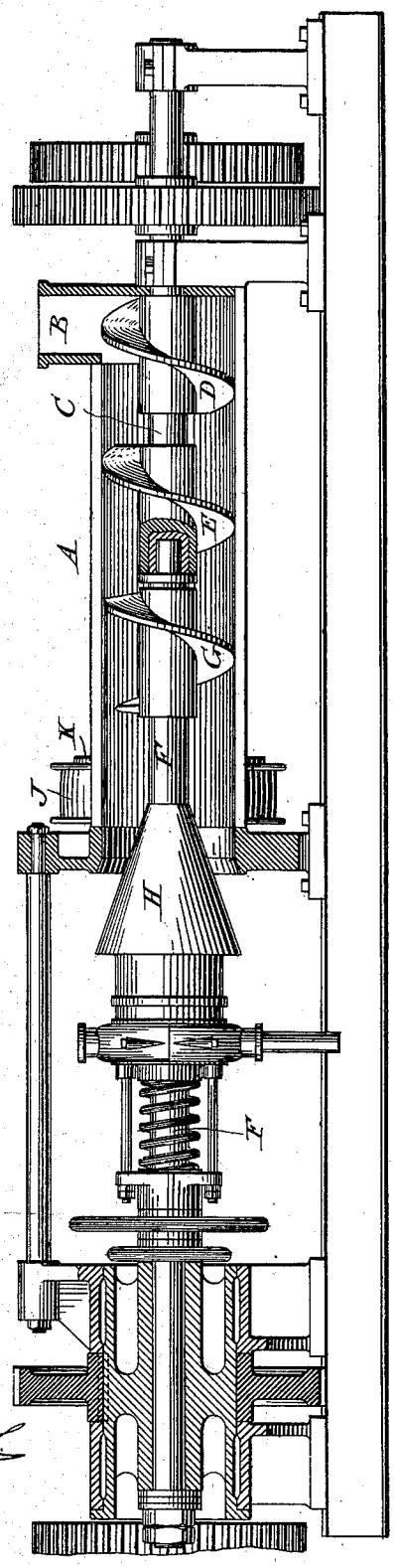


Fig. 2.

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No. 731,734. Patented June 23, 1903.

UNITED STATES PATENT OFFICE.

VALERIUS D. ANDERSON, OF CLEVELAND, OHIO.

PRESS.

SPECIFICATION forming part of Letters Patent No. 731,734, dated June 23, 1903.

Application filed October 21, 1901. Serial No. 79,445. (No model.)

To all whom it may concern:

Be it known that I, VALERIUS D. ANDERSON, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Presses, of which the following is a specification.

My present invention pertains to improvements in presses, the construction and advantages of which will be hereinafter set forth, reference being had to the annexed drawings, wherein—

Figure 1 is a top plan view of the press, and Fig. 2 a longitudinal sectional view.

The present construction is in a degree an improvement upon that shown in United States Letters Patent No. 647,354, dated April 10, 1900. The press shown and described in said patent gives eminent satisfaction. In fact, with certain grades of material it may be said to be too efficient—that is, the material becomes so compressed in the forward part of the press as to preclude its proper discharge after being dried and compressed. For instance, in treating cocoanut for the purpose of extracting the oil therefrom the material before it reaches the last screw often becomes so compressed in the shell or cylinder as to render said screw incapable of taking hold of the material under treatment, and if further rotation of the screws and consequent further compression occur injury to the press results.

The object of my present invention is to provide a press of the same general structure as that set forth in Patent No. 647,354, but with means for overcoming the difficulties above noted—that is to say, providing for the compression of the material in the body of the press to a certain degree not to be exceeded and employing, in conjunction with such means, a continuously-acting final compressing and discharging member, which in the present instance is a screw.

In the accompanying drawings there is shown one embodiment of my invention, which, however, may be varied as to details of construction without departing from the spirit thereof.

As in the former case, I employ a perforate shell or casing (designated by A) and having a feed-hopper B opening into the head thereof. The opposite end of the shell is open. Extending through the head of the press and into shell or cylinder A is a shaft C, upon which is mounted a series of screws, two, D and E, being shown in the accompanying drawings. These screws, as will be noted, are separated. A second shaft F extends into the opposite or discharge end of the cylinder, the abutting ends of the shafts being preferably socketed one in the other for the purpose of mutually supporting and bracing each other. The shafts are, however, free to rotate independently of one another. Shaft F carries a screw G and a frusto-conical member or head H, the smaller end of which extends into the open discharge end of the shell or casing. A shaft I, driven by pulley or belt-wheel J, imparts through suitable gearing, as shown, a continuous rotary motion to shaft F and the screw and plug or head H. A friction-clutch K works in conjunction with pulley J and imparts motion to shaft L, which, through suitable gearing, imparts motion to shaft C and the screws carried thereby. The arrangement of the clutch is such that only a certain degree of compression can be reached within the press, and when this point is attained the shaft ceases to rotate. This point is just below that at which screw G cannot take hold of the material, owing to its density. As before stated, if pressed to such a degree that the discharge-screw cannot take hold of it and shaft C be further rotated the press will break. It is immaterial whether the screws be right or left handed in their arrangement throughout. This applies as well to the series of screws mounted on the shaft C as to screw G. Screw G must, however, rotate in such a direction that its inner end may cut into the material forced up toward it in the space intervening between it and the adjacent screw.

The action of the press is apparent. The material which is fed in through opening B is taken up and compressed by screws D and E, screw D forcing it into the space between it and screw E. Screw E then takes the material and passes it along to the next space, which in the construction illustrated is adjacent to the last or discharge screw. So long as the pressure exerted by screws D and E is not too great screw G continues to act; but

when this pressure is exceeded shaft C ceases to rotate and screw G acts alone. As soon as the pressure is lessened by withdrawal of material from the cylinder screws D and E again come into action. From this it will be seen that an intermittent feed and compression and a constant discharge are obtained. Head H, which rotates with shaft F, carries the material around with it and causes its disintegration by forcing it into contact with the wall of the machine.

A press constructed in accordance with the foregoing description gives excellent results with certain classes of material, particularly that which is of a non-fibrous nature and which consequently becomes denser in the spaces intermediate the separated screws.

The extent to which the shell shall be perforated, the location, form, and size of the perforations, and the manner of producing the same are all matters of option. In the drawings I have shown the delivery end of the shell perforated; but this is merely suggestive or to show one type and arrangement of perforations. The form, size, arrangement, and extent of the perforations will be determined by the class of material to be treated and the result sought to be produced.

Having thus described my invention, what I claim is—

1. In combination with a perforate shell or casing; a rotatable shaft mounted therein; a series of separated screws mounted on said shaft; a yielding driving connection for said shaft; a second shaft mounted in the shell; a screw mounted thereon; and means for imparting a positive rotary motion to said second shaft.

2. In combination with a perforate shell or casing; a rotatable shaft mounted therein; a series of separated screws mounted on said shaft; a yielding driving connection for said shaft; a second shaft mounted in the shell; a screw mounted thereon; a conical head also mounted thereon and projecting into the discharge end of the shell; and means for imparting an independent positive rotary motion to said shaft.

3. In combination with a perforate shell or casing, a two-part rotatable shaft mounted therein, the end of one section being socketed in the adjacent end of the other section; a series of separated screws mounted on that section of the shaft adjacent to the feed end of the shell; a yielding driving connection for said section; a screw mounted upon the other section of the shaft; and means for imparting a positive rotary motion to said second section.

4. In combination with a perforate shell or casing; a series of separated screws mounted therein; means for imparting an intermittent motion thereto; a screw mounted in the discharge end of the shell; and means for imparting an independent positive rotary motion thereto.

5. In combination with a perforate shell or casing; a series of separated screws mounted therein; means for imparting rotary motion to the screws until a determinate pressure is exerted thereby upon the material under treatment; a screw mounted in the discharge end of the shell; and means for imparting an independent positive rotary motion thereto.

6. In combination with a perforate shell or casing; a series of separated screws mounted therein; means for preventing said screws from compressing the material undergoing treatment beyond a certain degree; a screw mounted in the discharge end of the shell; and means for imparting an independent positive rotary motion thereto.

7. In a press, the combination of a shell having perforations formed therein; means contained within one portion thereof, adapted and arranged to exert a determinate pressure upon a charge of material fed thereto and to maintain said pressure; and independent means mounted within the opposite end of the shell, acting upon the material so treated and compressed and discharging the same from the shell, substantially as described.

8. In a press, the combination of a shell having perforations formed therein; means contained within the feed end thereof, adapted and arranged to exert a determinate pressure only upon a charge of material fed thereto, and to constantly maintain said pressure throughout; independent means mounted within the opposite end of the shell, acting upon the material so treated and compressed, and serving to discharge the material from the shell; and means for disintegrating the material as it is forced out of the shell.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

VALERIUS D. ANDERSON.

Witnesses:
EUGENE H. BAILEY,
GUSTAV J. STEIN.