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G. A. LOWRY.

FEEDING DEVICE FOR PRESSES.

(Application filed May 29, 1899.)

(No Model.)

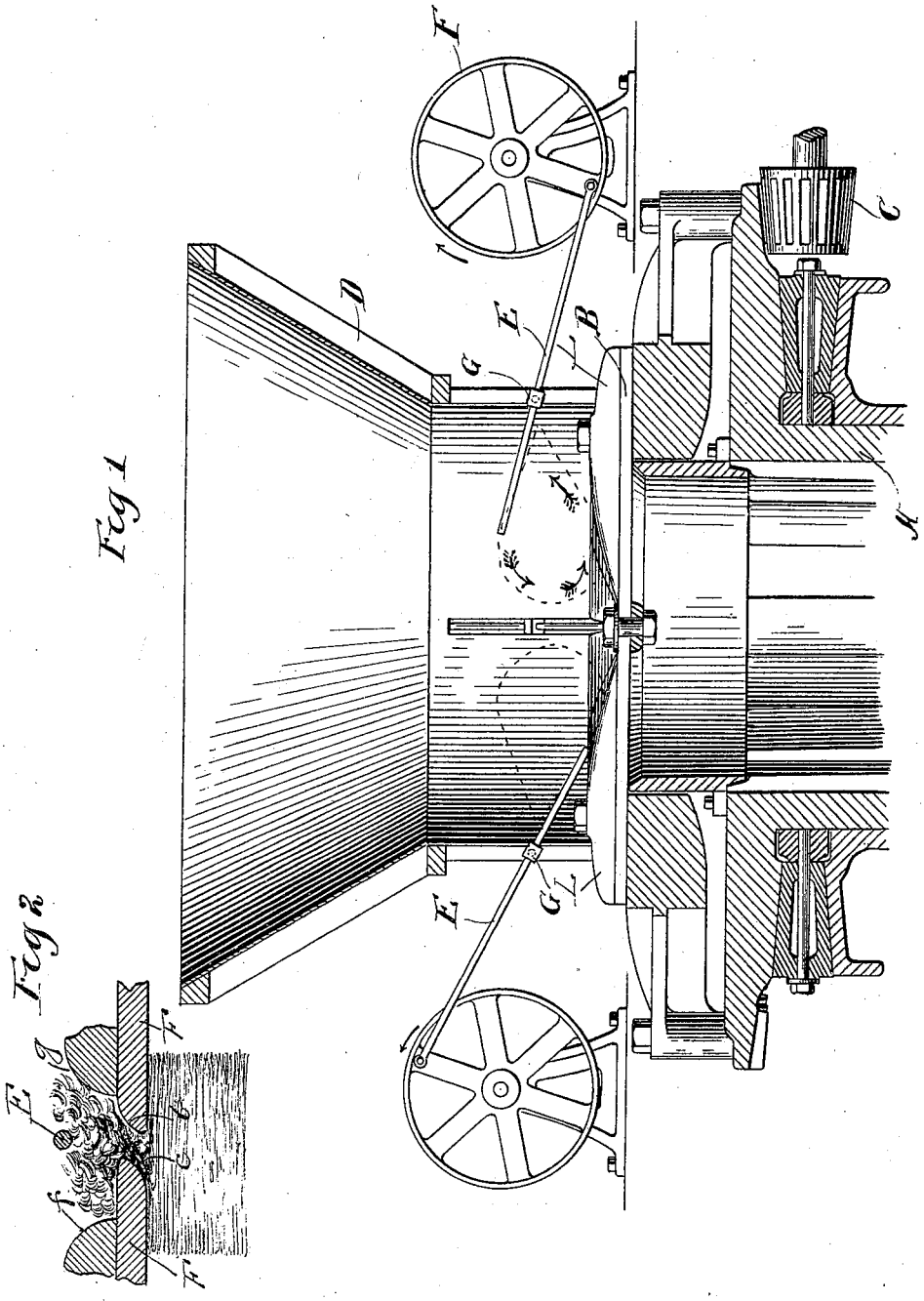

Fig 1

Fig 2

Witnesses
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UNITED STATES PATENT OFFICE.

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FEEDING DEVICE FOR PRESSES.

SPECIFICATION forming part of Letters Patent No. 645,724, dated March 20, 1900.

Application filed May 29, 1899. Serial No. 718,647. (No model.)

To all whom it may concern:

Be it known that I, GEORGE A. LOWRY, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Feeding Devices for Presses, of which the following is a specification.

This invention relates to feeding devices for presses.

One object of the invention is to provide means for efficiently presenting the material to the press.

A further object of the invention is to provide means whereby the material to be pressed is presented or caused to approach in close proximity to the surface of the material in the press.

A further object of the invention is to provide means for preventing the material from arching or bridging across the feed-slots in the head-plate.

Other objects of the invention will appear more fully hereinafter.

The invention consists, substantially, in the construction, combination, location, and arrangement of parts, all as will be more fully hereinafter set forth, as shown in the accompanying drawings, and finally pointed out in the appended claims.

Referring to the accompanying drawings, Figure 1 is a broken view, in longitudinal central section, of a press, showing the application thereto of a form of apparatus embodying the principles of my invention. Fig. 2 is a sectional detail view of the head-plate, the plane of section transversely intersecting the feed-slot therein.

In the drawings reference-sign A designates a chamber or holder in which the material is compressed, and B a slotted head-plate therefor. These parts are suitably supported and mounted for relative rotation. For instance, and in the form shown, to which, however, the invention is not limited or restricted, the head-plate is held stationary, while the chamber is mounted to rotate. Rotation may be imparted to the rotating part in any suitable or convenient manner—as, for instance, through pinion C, driven from any suitable or convenient source. The chamber or holder A is open at both ends and, if desired, may be tapering in internal diameter. The head-plate B is arranged over the larger end of the chamber or holder.

In the operation of a press embodying the features above noted a sufficient amount of material is preliminarily placed in the chamber to fill the same to a point such as to cause the same to exert some pressure against the under surface of the head-plate. Now by imparting a relative rotation to the chamber and head-plate the material thus preliminarily introduced to the chamber and which moves in contact with the under surface of the head-plate effects a drawing action across the slot or slots in the head-plate as it moves across them. Therefore if additional material is presented to the slot or slots and in such close proximity thereto as to be brought into contact with the surface of the mass of material in the chamber or holder such additional material, the fibers of which are already more or less entangled or interlaced with each other, is caught or engaged by the material in the chamber and is thereby drawn through the slot or slots into the chamber and between the surface of the mass in the chamber and the inner surface of the head-plate, thus building up the bale in superposed flattened and condensed spiral layers or convolutions, each succeeding layer being compressed upon the preceding layers and adding to the extent thereof an increment to the compressed mass in the chamber. In this manner the material is compressed and correspondingly advanced through the chamber by each spiral layer added as an increment thereto, such material finally emerging from the chamber in a condensed highly-compressed column. Thus the chamber operates as a holder for the mass of material which is being compressed and the head-plate operates as an abutment against which the end of the compressed column bears.

The construction and operation so far described embodies in its generic principles the features set forth and claimed, broadly, in my Patents Nos. 581,600 and 581,601, dated April 27, 1897, and in Patent No. 630,369, dated August 8, 1899.

The material to be compressed may be delivered to the head-plate in any suitable or convenient manner. In the form shown, to which, however, the invention is not limited or restricted, a basket or receptacle D is arranged over the head-plate, and into this basket or receptacle the material to be compressed is delivered and from which it is drawn into the chamber in the manner above described.

It sometimes happens where the material is light and fluffy, as in the case of cotton, wool, or the like, and is supplied in large quantities to the head-plate that such material arches or bridges across the slot or slots in the head-plate. This is particularly true where, in order to secure the desired rigidity in the construction of that portion of the head-plate which overhangs the open end of the chamber to enable it to withstand the pressure against the inner surface thereof to which it is subjected, the head-plate is so constructed as to leave a considerable ridge or elevation in the surface thereof between adjacent slots, the surface of which elevations or ridges slopes or tapers toward the edges or lips of the slot. This bridging or arching of the material also sometimes occurs in the basket or receptacle before the material reaches the head-plate. This arching or bridging of the material, whether across the slots in the head-plate or in the basket or receptacle, is objectionable for the reason that it prevents the loose material from coming into sufficiently close proximity to the slot in the head-plate to enable it to contact with the surface of the mass of material in the chamber. It is the purpose of the present invention to provide means for preventing or breaking up these arches or bridges and to insure that the material is brought into sufficiently close proximity to the slots to enable it to be caught or engaged by the material in the chamber and thereby drawn into the chamber. This result may be accomplished by a wide variety of different constructions and arrangements of specific devices and apparatus. While, therefore, I have shown and will now describe one specific form and construction for accomplishing the desired object, I desire it to be understood that the construction is merely illustrative of the generic principles of the invention.

In the form shown I employ one or more arms E and arrange the same to be moved toward and from the head-plate, so as to cause the loose material supplied thereto to be pushed or crowded down into proximity to the slot or slots in such plate, thus not only breaking up and preventing the formation of arches or bridges of the material across the slot, but also positively pressing the material toward the slot, so as to insure the contact thereof with the surface of the relatively-moving mass in the chamber or holder, and hence insuring an efficient feed of the material to be pressed into the chamber. I have shown three of such arms or feeders; but it is obvious that one or any number of such arms may be employed. In practice it may be well to employ a feeder-arm in connection with each slot in the head-plate.

Many specifically different arrangements may be employed for operating the feeding devices. As illustrative of an operative arrangement I have shown each arm pivotally connected to a wrist-pin on the face of a sheave or disk F, through the rotation of which the feeder-arm is rocked. The sheave or disk may be rotated in any suitable manner and from any convenient source. The arms are so arranged that the free ends thereof project over the head-plate and in line with a slot therein. In order that the desired movement of the feeding devices toward and from the head-plate may be secured, the feeder-arms may be suitably fulcrumed at a point intermediate the ends thereof. This may be accomplished in many different ways. For instance, said arms may each be mounted to slide through pivotally-mounted guide-blocks G, suitably and conveniently arranged.

From the foregoing description it will be seen that when sheave or disk F is rotated the free end of the arm connected thereto is caused to move toward and away from the slot in the head-palte, such free end describing an orbital path, as indicated in dotted lines in Fig. 1. Thus on the movement of such arm toward the slot it is also projected endwise, so as to enter the body of loose material, and hence crowds or pushes the same toward the slot and into proximity thereto, and in the movement of such arm away from the slot it is simultaneously withdrawn endwise, thus freeing itself from the loose material and permitting such material to descend toward the head-plate. If desired, the extent of withdrawal of the arms in the operation of the device may be such as to cause an entire withdrawal of the same from the body of loose material. The movements of the feeder-arms not only effect the crowding or pushing of the material into proximity to the slots, but also by the agitation of the material prevent the formation of the arches or bridges across the slots. If desired, the extent and path of movement of the free end of a feeder-arm toward and from the head-plate may be varied by varying the location of the fulcrum about which it rocks with respect to the drive or actuating disk or sheave.

In the case where a basket or receptacle is employed the feeder-arms may be conveniently arranged to operate through elongated slots in the wall of such basket, said arms projecting through the slots into the basket. It is evident, however, that the basket may be omitted without departure from the spirit of the invention.

It is also to be understood that a feeder apparatus embodying the principles above set forth while particularly adapted for use in con-

nection with a press of the character disclosed is equally well adapted for use in connection with other types or constructions of press. I do not desire, therefore, in the broad scope of my invention to be limited in this respect to the particular type of press shown. It is also obvious that the broad idea of feeding devices for a press of the type shown may be embodied in a wide variety of different specific constructions and still fall within the spirit and scope of the invention.

By employing several feeder-arms and arranging them to be advanced at different times it will be seen that the press will be drawing in material through one or more of the slots at all times.

Having now set forth the object and nature of my invention and one construction embodying the broad and generic principles thereof and having set forth the construction, function, and mode of operation thereof, what I claim as new and useful and of my own invention, and desire to secure by Letters Patent of the United States, is—

1. In a cotton or other press, a compressing-chamber, a slotted head-plate, and means for relatively moving these parts, in combination with means arranged to operate in the plane of said slot for crowding the material into proximity to the slot in said head-plate, as and for the purpose set forth.

2. In a cotton or other press, an open-ended chamber or holder, means for rotating the same, and a slotted stationarily-mounted head-plate, in combination with means arranged to operate in the plane of the slot in said head-plate for pressing or crowding the material into proximity to said slot, as and for the purpose set forth.

3. A cotton or other press, comprising an open-ended chamber or holder, a slotted head-plate, means operating in the plane of the slot in said head-plate for presenting the material to be compressed into proximity to such slot, and means for relatively rotating said chamber and plate, as and for the purpose set forth.

4. In a machine for compressing fibrous material, and in combination with means for rotating a mass of compressed material, a slotted head-plate forming an abutment for said compressed material, and means operating in the plane of said slot for crowding or pushing loose material to be compressed into proximity to the slot in said head-plate, as and for the purpose set forth.

5. In a machine for compressing fibrous material, and in combination with means for rotating a mass of compressed material, a slotted head-plate forming an abutment for said compressed material, and a feeder operating in the plane of said slot for crowding the material to be pressed toward the slot in said head-plate, and means for moving said feeder toward and from said slot, as and for the purpose set forth.

6. In a press for cotton or other material, a feeding device for the material comprising an arm, an actuating sheave or wheel to which one end of said arm is connected, and a stationary support for said arm intermediate its ends on which said arm is fulcrumed, as and for the purpose set forth.

7. A feeding device for presses, comprising an arm, a rotating sheave or wheel to which one end of said arm is eccentrically connected, and a pivoted support for said arm intermediate the ends thereof, and through which said arm slides, as and for the purpose set forth.

8. In a cotton or other press, an open-ended chamber, a slotted head-plate therefor, and means for relatively rotating these parts, in combination with a basket arranged over said head-plate and adapted to receive the material to be pressed, and means arranged to operate in said basket and in the plane of said slot for feeding or crowding the material into proximity to the slots in said head-plate, as and for the purpose set forth.

9. In a cotton or other press, an open-ended chamber, a slotted head-plate therefor, and means for relatively rotating these parts, in combination with a basket arranged over said head-plate and adapted to receive the material to be pressed, said basket provided with slots through the wall thereof, and feeder-arms arranged to project through the slots in said basket and into the plane of said slots in the head-plate, and means for actuating said arms, as and for the purpose set forth.

In witness whereof I have hereunto set my hand, this 27th day of May, 1899, in the presence of the subscribing witnesses.

GEORGE A. LOWRY.

Witnesses:
FRANK T. BROWN,
S. E. DARBY.