

No. 645,729.

Patented Mar. 20, 1900.

G. A. LOWRY & W. M. HOLMES.

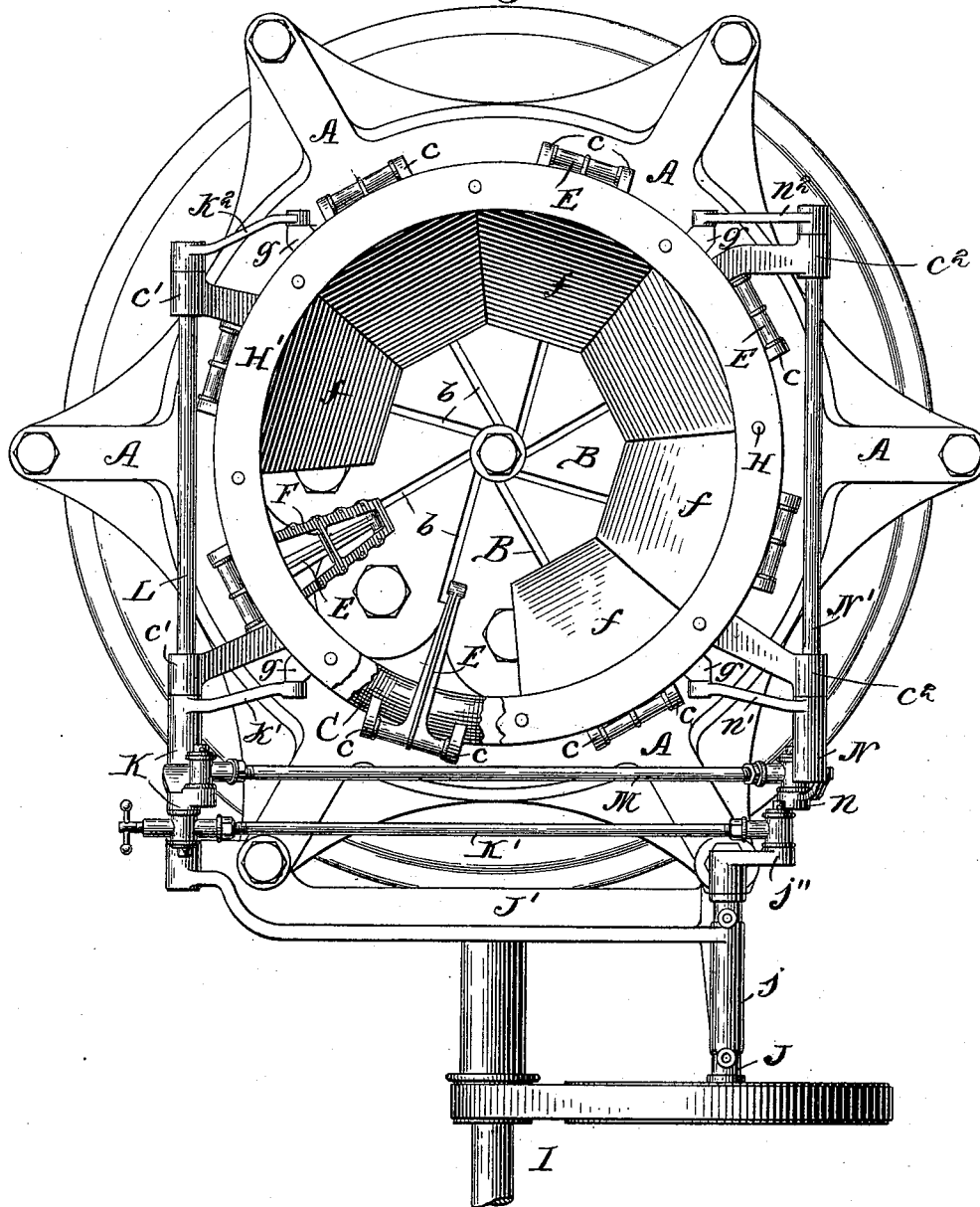
COMBINED HOPPER AND FEEDER FOR PRESSES.

(Application filed Aug. 24, 1899.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 1.



Witnesses:

Walter E. Lombard
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Inventors

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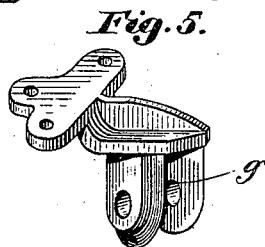
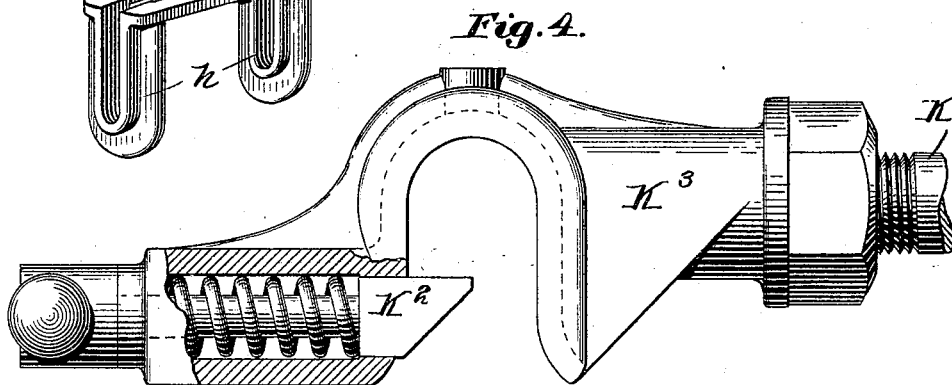
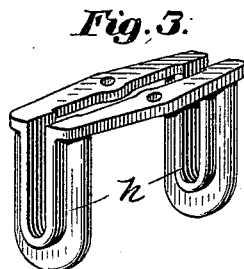
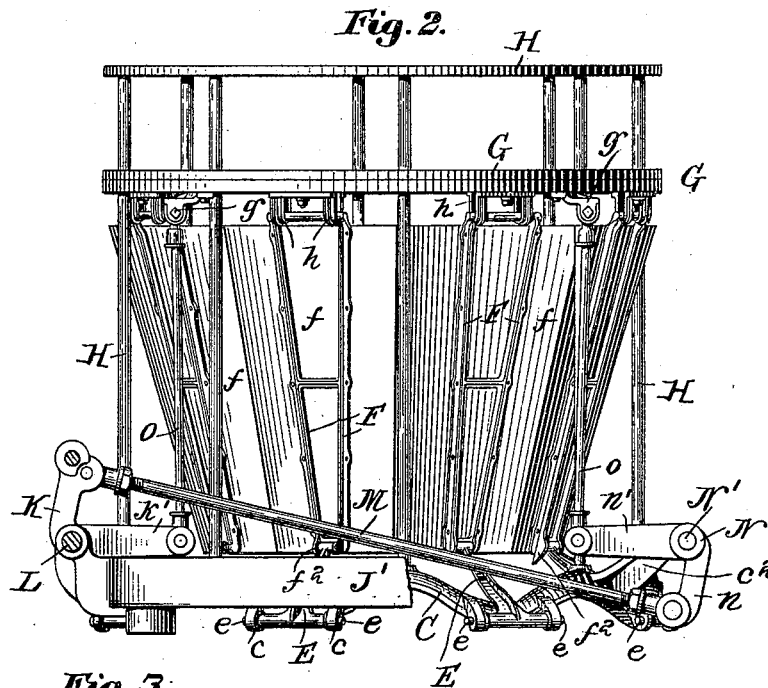
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3 Sheets—Sheet 2.



Witnesses:
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3 Sheets—Sheet 3

(No Model.)

Fig. 6.

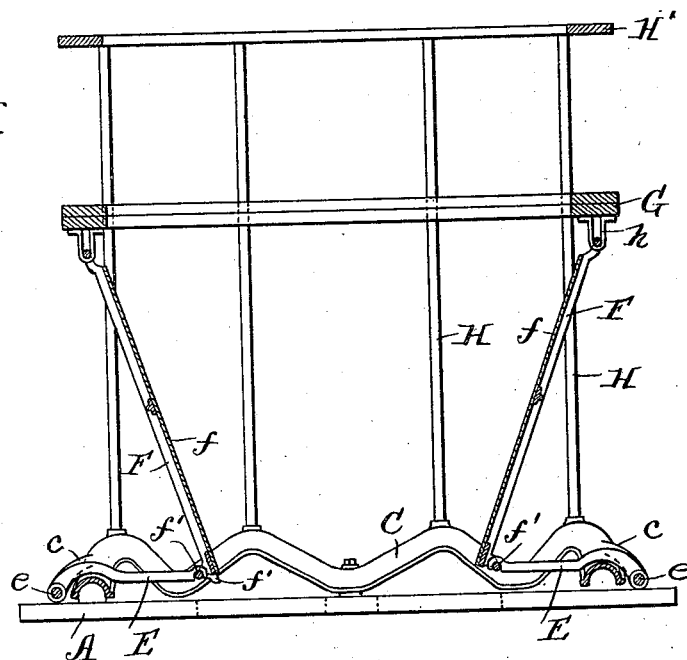
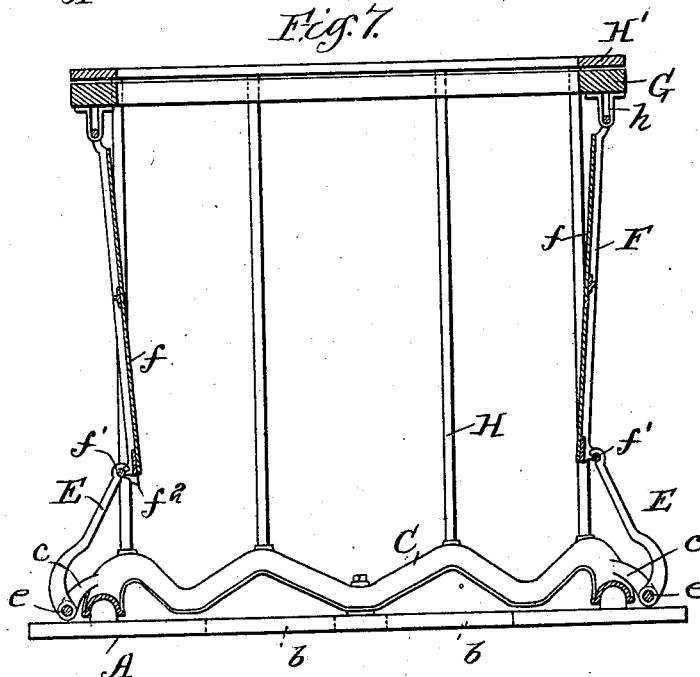


Fig. 7.



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UNITED STATES PATENT OFFICE.

GEORGE A. LOWRY AND WATSON M. HOLMES, OF BOSTON, MASSACHUSETTS,
ASSIGNORS TO THE PLANTERS COMPRESS COMPANY, OF WEST VIRGINIA.

COMBINED HOPPER AND FEEDER FOR PRESSES.

SPECIFICATION forming part of Letters Patent No. 645,729, dated March 20, 1900.

Application filed August 24, 1899. Serial No. 728,278. (No model.)

To all whom it may concern:

Be it known that we, GEORGE A. LOWRY and WATSON M. HOLMES, citizens of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Combined Hopper and Feeder for Presses, of which the following is a specification.

This invention relates to an improvement in a combined hopper and feeder for presses; and its object is to feed the material to the press more efficiently.

The invention consists in substantially the construction set forth in the succeeding specification and more particularly pointed out in the claims.

Like letters designate corresponding parts in the several figures of the drawings, in which—

Figure 1 is a plan view of the combined feeder and hopper as applied to a press. Fig. 2 is a side elevation of the combined feeder and hopper. Fig. 3 is a perspective view in detail of a hinge used in connection with the device. Fig. 4 is a detail view, in side elevation and partly in section, of the latch attachment. Fig. 5 is a detail view of another form of hinge. Fig. 6 shows a diagrammatic vertical sectional view of a hopper with the feeding device contracted. Fig. 7 is a similar view with the feeding device expanded or withdrawn.

The improved hopper and feeder forming the subject-matter of the present invention is adapted to be applied to various forms of presses, but is particularly designed for use in connection with a form of press like that shown and described in the patent to George A. Lowry, No. 630,369, granted August 8, 1899.

In the drawings the letter A designates a part of the upper end of the press, to which the combined hopper and feeder may be secured.

B designates the cap-plate of the press, and *b* the slots formed in such cap-plate, through which the fibrous material must pass and to which slots it is the object of the present invention to properly and efficiently convey such fibrous material.

The frame of the hopper is supported on a

metal ring C, which is securely fastened to the upper part of the press, and this ring C may have lugs *c*, provided with bearings for the axles or shafts of the cranks hereinafter referred to. These cranks are designated by the letter E and at one end have shafts or axles extending transversely to the length of the crank-arm, the ends *e* of which find a bearing, as above stated, in the lug *c*. The other ends of these crank-arms are pivotally secured to the sections of the hopper and preferably, although not necessarily, through the medium of a casting F, which has at its lower end a pin *f'*, over which a hook on the crank-arm E may be placed, and thereby form a readily-detachable pivotal connection. When this construction is used, the sectional part of the hopper is designated by the reference-letter *f* and is secured to the inner side of the casting F, as shown in the drawings. The castings are suitably pivoted at their upper ends, so as to be capable of swinging from such upper ends, and a convenient construction for this purpose is shown in the drawings to consist of a cross-shaft at the upper end of the casting, fitting and playing in a vertically-elongated bearing formed in a hinged piece *h*, which in turn is bolted to the under side of a ring G. The sections *f* of the hopper are sufficient in number so that when placed edge to edge they will complete the circle or polygon in cross-section and be conical in a vertical direction. The ring G is capable of vertical movement and is operated by mechanism which will be hereinafter described. It is guided by the rods H, which are secured at their lower ends to the ring C and at their upper ends to the ring H'. The lower ends of the sectional plates of the hopper *f* may be provided with fingers *f''*, which in the contracted position of the sectional plates are located just above the outer ends of the slots *b* in the cap-plate and serve to gently push the material into the slots at such point.

The main shaft of the machine is shown in Fig. 1 of the drawings and designated by the letter I, and this shaft is belted or otherwise geared to the short shaft J, which has a bearing in the sleeve *j*, secured to the extension of the main frame J'. At the inner end of

this shaft J is a crank j^1 , to the pin of which is secured the connecting-rod K' , which at its other end is detachably connected to an arm of the bell-crank K by the yoke K^3 , Fig. 4 of the drawings, containing the latch K^2 . This bell-crank K is keyed to a shaft L, which has bearings in the arms $c' c'$, projecting from the main frame of the machine. Also connected to the upper arm of this bell-crank lever K is a rod M, which at its other end is pivoted to the lower arm n of another bell-crank lever mounted upon a shaft N' , which latter has bearings in arms c^2 , projecting from the main frame at the opposite side of the machine from the arms c' before mentioned. Keyed to the shaft L, at opposite ends thereof, are the arms k' and k^2 , and keyed to the shaft N' are the arms n' and n^2 . These four arms $k' k^2 n' n^2$ form the other arm of the bell-crank levers before mentioned—that is, the bell-crank lever K and the bell-crank lever N. To the inner end of each of these arms $k' k^2 n' n^2$ is pivoted a vertical rod O, and the upper end of each of these vertical rods is connected to a hinge g , which is secured to the under side of the ring G, while the main shaft I, rotating through the medium of the mechanism just described, gives a vertical reciprocating movement to the hopper, and the sectional side plates of this hopper are at the same time caused to crowd inward at their lower ends, and thus concentrate the cotton over the slots, while at the same time pushing it down toward such slots. This downward push of the cotton is rendered yielding by reason of the fact that the brackets or hinges h have an elongated vertical bearing for the pivots of the sectional plates, and thus permit such plates to be lifted slightly. The fingers f^2 at the bottom of the sectional plates will, as above described, assist in pushing the fibrous material into the end of the slots in the cap-plate. In this manner the fibrous material which is drawn into the hopper is guided by such hopper and concentrated to a proper position over the slots to be fed therethrough and at the same time is gently fed to such slots by the downward action of the hopper. This feeding and concentrating action of the hopper is of course desirable in various forms of presses; but it is particularly advantageous in a press like that described in the patent particularly specified in the foregoing part of this specification, in which the material is compressed in layers or increments as it passes underneath the lip on the under side of the cap-plate, for in such a press the air which is squeezed out of the layer of material causes something of an upward current and tends to partially lift fibrous material, and especially such light material as cotton, away from the cap-plate; but this form of feeder overcomes such lifting action and gently forces the material down into position to be caught and drawn through the slots in the cap-plate and compressed.

It is obvious that persons skilled in the art

may make many changes and variations in the construction and arrangement above described without departing from the principle of the invention, and we therefore do not wish to be understood as limiting ourselves to the exact construction shown and described or the details thereof.

What we claim, and desire to secure by Letters Patent, is—

1. In a machine for compressing fibrous material, the combination with a slotted cap-plate and a holder for the compressed material, and means for relatively rotating such cap-plate and holder, of a hopper, and mechanism for moving such hopper toward and away from the slotted cap-plate, whereby such hopper acts as a feeder; substantially as and for the purpose set forth.

2. In a machine for compressing fibrous material, the combination with a slotted cap-plate, a holder for the compressed material, and means for relatively rotating such cap-plate and holder, of a hopper adapted to guide the material to the slotted cap-plate, and capable itself of being moved, and mechanism for giving a reciprocating movement to the hopper toward and away from the cap-plate; substantially as and for the purpose set forth.

3. In a machine for compressing fibrous material, the combination with a slotted cap-plate, of a hopper provided with devices for directing and concentrating such fibrous material, and mechanism for reciprocating the hopper toward and away from the cap-plate, and for actuating the devices for concentrating the material; substantially as and for the purpose set forth.

4. In a machine for compressing fibrous material, the combination with a slotted cap-plate, of a hopper composed of pivoted sections, and mechanism for moving the hopper bodily toward and away from the cap-plate, and for moving the sections inwardly so as to concentrate the material while it is being fed downward to the slotted cap-plate; substantially as and for the purpose set forth.

5. In a machine for compressing fibrous material, the combination with a slotted cap-plate, of a hopper composed of pivoted sections and capable of being as a whole moved bodily toward and away from the slotted cap-plate, and mechanism for giving this movement to the hopper, and for contracting the hopper on its downward movement and expanding it upon its upward movement, substantially as and for the purpose set forth.

6. In a machine for compressing fibrous material, the combination with a slotted cap-plate, of a hopper capable of being moved toward and away from the cap-plate, and provided with devices for pushing the material to the slots, including projections, to act upon the material near the outer end of such slots, and mechanism for reciprocating the hopper; substantially as and for the purpose set forth.

7. In a machine for compressing fibrous material, the combination with a slotted cap-

plate, of a hopper having pivoted sections and adapted to be moved toward and away from the cap-plate, and a loose connection for the pivot of such sections, whereby they may yield during the feeding operation, and mechanism for reciprocating such hopper with its sections; substantially as and for the purpose set forth.

8. In a machine for compressing fibrous material, the combination with a slotted cap-plate, of a hopper comprising an upper ring and a series of downwardly-depending sections pivoted to such ring, and mechanism connected to the ring to reciprocate the hopper bodily, and to the lower ends of the sections to reciprocate them inwardly and outwardly; substantially as and for the purpose set forth.

9. In a machine for compressing fibrous material, the combination with a slotted cap-plate, of a hopper composed of a ring and a series of downwardly-depending sections pivoted to such ring, and mechanism for reciprocating the ring in a vertical direction, and the sections inwardly and outwardly, and guides for the hopper supported by the main frame of the machine; substantially as and for the purpose set forth.

10. In a machine for compressing fibrous material, the combination with a slotted cap-plate, of a hopper composed of an upper ring and a series of depending sections pivoted to such upper ring, and mechanism for reciprocating the ring vertically, and the sections inwardly and outwardly, including cranks and connecting-rods, and latch connections whereby the connecting-rods may be readily detached; substantially as and for the purpose set forth.

11. In a machine for compressing fibrous material, the combination with a slotted cap-plate and the main frame of the machine, of a guiding-frame superposed above the main frame, and a hopper arranged to move on such guiding-frame, and provided with pivoted sides, and mechanism for reciprocating the hopper and moving its sides; substantially as and for the purpose set forth.

In witness whereof we have hereunto set our hands, this 21st day of August, 1899, in the presence of the subscribing witnesses.

GEORGE A. LOWRY.
WATSON M. HOLMES.

Witnesses:

WM. M. RHEEM,
DANL. W. HOWLAND.