

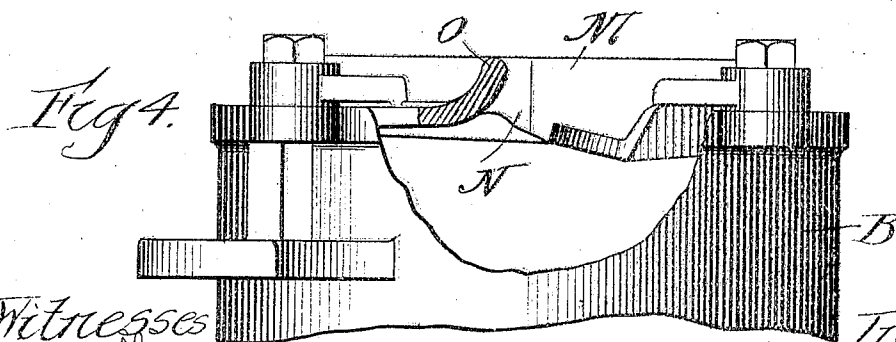
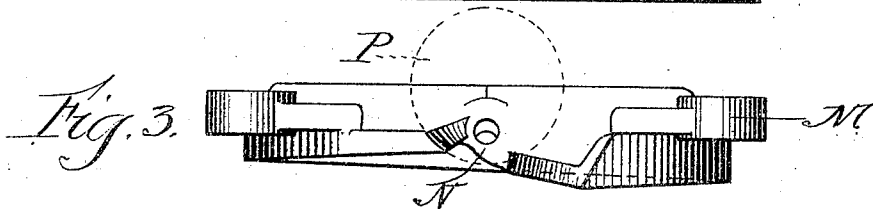
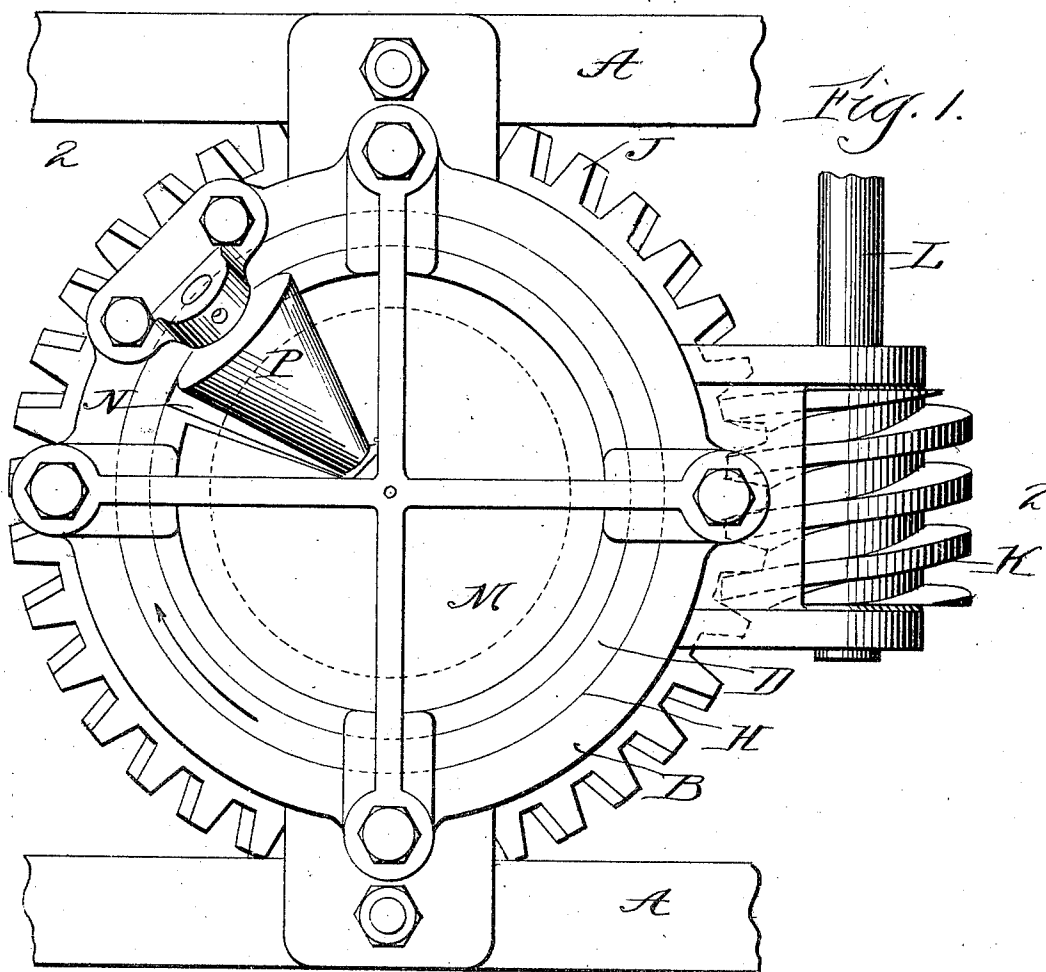
(No Model.)

2 Sheets—Sheet 1.

G. A. LOWRY.
PRESS FOR COTTON, WOOL, &c.

No. 581,600.

Patented Apr. 27, 1897.



Witnesses
Wm. J. Fleming
Sp. M. Rheem.

Inventor
George A. Lowry
By Howard Darby Atty.

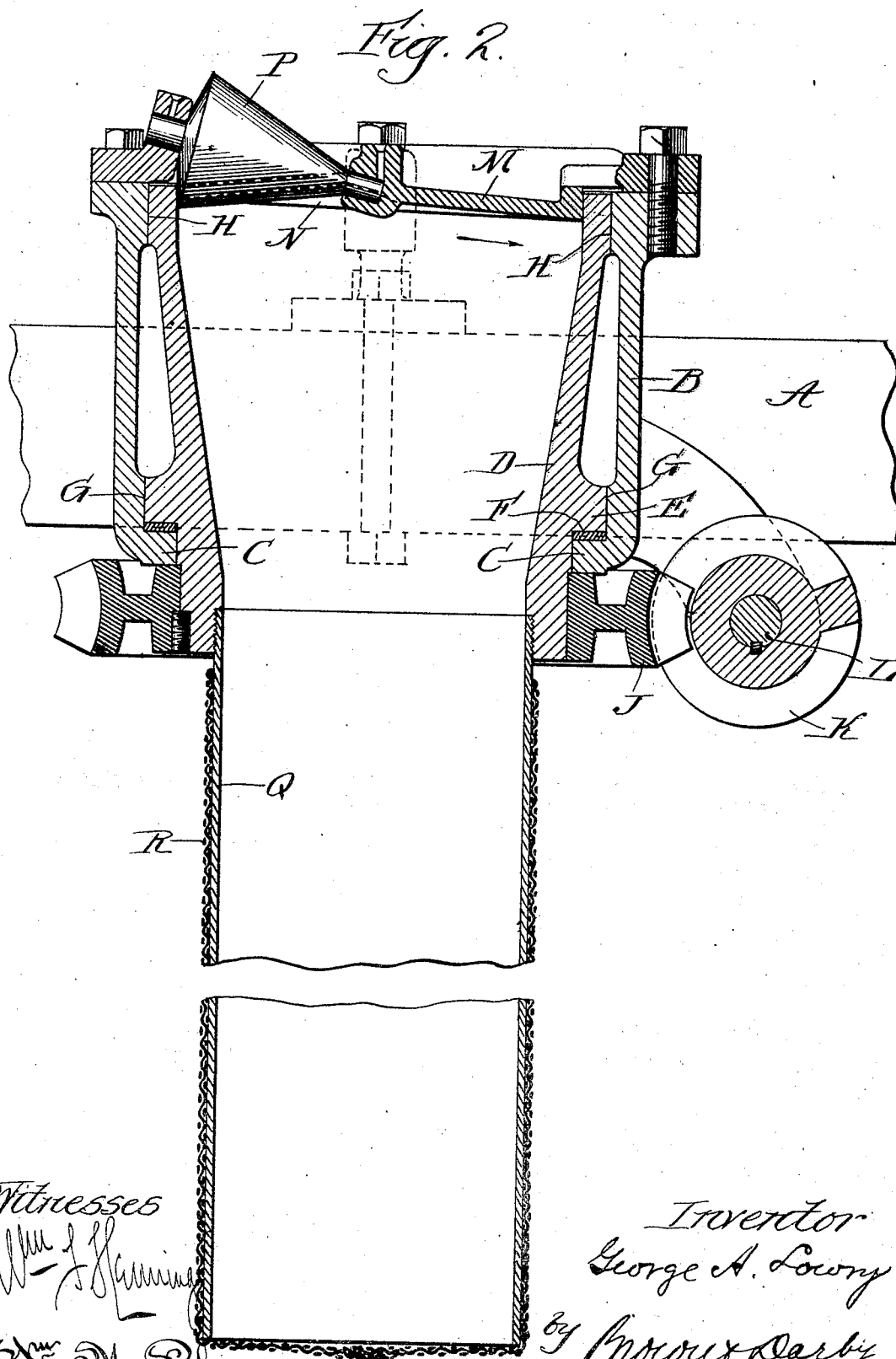
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Wm J. Harrison

Spur M. Rhein

Inventor

George A. Lowry

by Monroe Kirby *Kirby*

UNITED STATES PATENT OFFICE.

GEORGE A. LOWRY, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO
JAMES F. O'SHAUGHNESSY, OF NEW YORK, N. Y.

PRESS FOR COTTON, WOOL, &c.

SPECIFICATION forming part of Letters Patent No. 581,800, dated April 27, 1897.

Application filed December 17, 1896. Serial No. 615,993. (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 Presses for Cotton, Wool, Hair, and the Like, of which the following is a specification.

This invention relates to presses for cotton, wool, hair, and the like.

The object of the invention is to provide a press of novel and exceedingly simple construction for pressing cotton, wool, hair, and the like into bales.

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

Figure 1 is a plan view of a press embodying the principles of my invention, parts of the supporting-frame and driving-shaft being broken away. Fig. 2 is a vertical central longitudinal sectional view of the same on the line 2 2, Fig. 1. Fig. 3 is a view in side elevation of the cap-plate. Fig. 4 is a view in side elevation of a slightly-modified form of press embodying my invention, parts being broken away, parts broken out, and parts in vertical section.

The same part is designated by the same reference-sign wherever it occurs throughout the several views.

In carrying out my invention I provide a suitable framework A, upon which the press is mounted. The press comprises a receiving-chamber D, into which the cotton or other material to be pressed into a bale is introduced, and a cap-plate or cover M. The chamber D is preferably open-ended, as shown, and the cap-plate M is arranged over one of the open ends of said chamber, with the inner surface thereof projecting into said chamber. The object of making this chamber open-ended is to provide a practically unobstructed passage from the cap-plate through the chamber, in contradistinction to the class of presses in which the material in its passage is compressed against something, whether stationary or movable.

The cap-plate M is provided with a slot or opening N through the same, through which the material to be pressed is introduced to the receiving-chamber. Preferably, though not necessarily, this slot is arranged radially in said cap-plate. The surface of cap-plate M, which is arranged to project into the receiving-chamber, is preferably formed to project to a progressively-increasing depth into the said chamber from one edge of the slot or opening N to the other edge thereof, as most clearly shown in Fig. 3.

From the foregoing description it will be seen that by continuously introducing the material to be pressed into the receiving-chamber and simultaneously therewith relatively rotating said chamber and cap-plate the material is subjected to a progressive pressure, due to the action thereon of the peculiarly-shaped surface of the cap-plate, which is arranged to project into the receiving and compression chamber.

I have shown the inner surface of cap-plate M as being formed into a spiral, but I do not desire to be limited thereto, as my invention includes any arrangement of surface which projects a progressive depth into the receiving-chamber from one edge of the slot or opening N to the other.

Any suitable gearing for relatively rotating the chamber D and the cap-plate M may be employed. In the particular form shown, to which, however, my invention is not limited, I rotate the chamber D, and to this end I mount a gear-wheel J thereon, arranged to be engaged and driven by a gear K upon a suitably-arranged shaft L, adapted to receive rotation from any suitable or convenient source. Of course it will be understood that my invention is in no manner limited or confined to the particular form or arrangement of gearing shown. In the particular arrangement shown, to which, however, my invention is not restricted, and wherein the chamber D is rotated, said cap-plate is stationarily mounted, and a suitable bearing is provided, in which the chamber D is mounted to rotate. I have shown a convenient arrangement, to which, however, I do not desire to be limited or restricted, wherein I mount a cylindrical casing B upon the frame A, said casing being

securely bolted to said frame, and the chamber D is arranged to be received in said casing. I have shown a simple and efficient relative arrangement of the chamber and casing, wherein I provide said casing with an inwardly-projecting rim or flange C, the chamber D being provided with a similar peripheral rim or flange E, adapted to rest upon said rim or flange C. Any suitable means for reducing friction between the bearing-surfaces of the flanges C E may be employed. In the form shown, to which, however, I do not desire to be limited or restricted, I introduce a wearing-strip F—say, for instance, of brass—between the bearing-surfaces of said flanges. In order that the chamber may be properly supported within casing B, said chamber is arranged to bear peripherally against the inner wall of said casing, and preferably, in order to reduce friction to the lowest point, such peripheral bearing is provided only at the ends of the chamber D, as indicated at G H. The cap-plate M is securely bolted or otherwise rigidly secured to the casing B in a manner permitting the removal of such cap-plate.

The mode of operation of my press will be readily seen and understood from the foregoing description and is as follows: The chamber D is first filled with the cotton or other material to be pressed, either by hand or otherwise, and then the cap-plate M and said chamber are assembled with the peculiarly-shaped cam or spiral surface of the cap-plate projecting into the chamber. Now by imparting a relative rotation to said chamber and cap-plate and simultaneously therewith introducing additional material to said chamber through the slot or opening in the cap-plate such relative rotation accomplishes two important functions. In the first place it effects a continuous drawing or feeding of the additional material into the chamber D, and, in the next place, such relative rotation imparts to the material thus continuously introduced to the chamber a progressive pressure, due to the action of the peculiar shape of the surface of cap-plate M, projecting into the chamber. The material to be pressed may be delivered by hand or in any suitable or convenient manner to the slot N, and in order to facilitate its entrance through said slot or opening into the chamber I may provide the far edge of said slot or opening with an up-turned flange or lip O, Fig. 4, or, if desired, I may mount a suitable antifriction-roller P, Figs. 1 and 2, adjacent to the far edge of said slot or opening, and which serves as a guide for the material. If desired, and as shown, this roller may be cone-shaped. By reason of the relative rotation of the cap-plate and compression-chamber and the coincident introduction of the material to said chamber through the opening in said cap-plate it will be readily seen that the material is formed into spiral layers and is, as above explained, subjected to a progressive compression. It will also be

seen that on account of such relative rotation of the cap-plate and chamber an unfilled space in the bale is left at the axis of rotation. In order to remedy this, and with the object of producing a solidly-formed bale, I preferably contract the internal diameter of chamber D, as most clearly shown in Fig. 2, from the end thereof adjacent to the cap-plate to the other or delivery end of such chamber. By this provision I impart a lateral compression to the body of the bale as the material proceeds through the chamber, thus efficiently compressing the bale into the unfilled space at the axis of rotation. The formed and compressed bale emerges from the open end of the chamber D, and by suitably arranging a cover R over said delivery end of the compression-chamber—as, for instance, by telescoping a sack or covering of bagging or other suitable material over such delivery end—it will be seen that the bale as it emerges from the compression-chamber simultaneously therewith receives its permanent covering. When a sufficient length to form the desired length of bale has been thus projected from the chamber, the bale is then broken off, the spiral character of the layers of material facilitating and readily permitting the breaking off of the bale, notwithstanding the degree of compression to which the material has been subjected.

From the foregoing description it will be understood that the pressure exerted by the surface of cap-plate M upon the material is resisted by the friction of the inner walls of the chamber D and of the delivery-tube Q, which resistance is exerted in a manner which does not injure in any manner the fiber of the material being pressed, notwithstanding the enormous pressure to which it is subjected. Of course in the case of a contacting chamber an additional resistance is also provided. In order that the resistance may not be too great, I preferably provide the chamber D and also the extension Q with a polished inner surface. By varying the length of extension Q, I vary the resistance to the pressure exerted by cap-plate M, and hence vary the degree of compression to which the bale is subjected, the longer said extension the greater the pressure.

The extension Q, which may be formed integral with or suitably supported by the chamber D, forms a convenient temporary support for the covering R in position to receive the bale as it emerges from the machine.

From the foregoing description it will be seen that I provide a press that is exceedingly simple in construction and efficient in operation.

While I have shown and described a specific embodiment of means for carrying the principles of my invention into practical operation, I desire it to be distinctly understood that the specific form shown, while the best form in which I at present contemplate carrying my invention into practical operation,

is merely illustrative of an operative embodiment of practical means, and I do not limit or confine myself thereto; but,

Having now set forth the object and nature of my invention and a form of apparatus embodying the same and having described 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, an open-ended receiving-chamber and a slotted cap-plate, in combination with mechanism for continuously feeding the material into such chamber and subjecting the same to progressive pressure; as and for the purpose set forth.

2. In a cotton or other press, an open-ended receiving-chamber, means for continuously feeding the material to be pressed into such chamber and subjecting the same to pressure, in combination with means for relatively rotating said chamber and said feeding and pressure means; as and for the purpose set forth.

3. In a cotton or other press, an open-ended chamber, a slotted cap-plate having a surface arranged to project to successively-increasing depths into said chamber, and means for relatively rotating said chamber and cap-plate; as and for the purpose set forth.

4. In a cotton or other press, an open-ended chamber, a slotted cap-plate arranged over one of the ends of said chamber and provided with a spiral surface arranged to project into said chamber, and means for relatively rotating said chamber and cap-plate; as and for the purpose set forth.

5. In a cotton or other press, an open-ended chamber, a cap-plate arranged over one end thereof, said cap-plate provided with a radial slot or opening therethrough, and an inner spiral surface arranged to project into said chamber, and means for relatively rotating said chamber and cap-plate; as and for the purpose set forth.

6. In a cotton or other press, an open-ended chamber, a stationarily-held cap-plate or cover for one end thereof, said cap-plate or cover being slotted and also provided with a spiral inner surface arranged to project into said chamber, and means for rotating said chamber; as and for the purpose set forth.

7. In a cotton or other press, an open-ended chamber, a stationary slotted cap-plate for one end of said chamber, having a surface arranged to project to successively-increasing depths into said chamber, and means for rotating said chamber; as and for the purpose set forth.

8. In a cotton or other press, a chamber open at both ends, and contracting in internal diameter from one end thereof to the other, a slotted cap-plate or cover for the larger end of said chamber, having a spiral surface arranged to project into said chamber, and means for

relatively rotating said chamber and cover; as and for the purpose set forth.

9. In a cotton or other press, a chamber open at both ends, and contracting in internal diameter from one end thereof to the other, means for rotating said chamber, in combination with a stationarily-held slotted cover or cap-plate, having a spiral surface arranged to project into the larger end of said chamber; as and for the purpose set forth.

10. In a cotton or other press, a chamber open at both ends, a cap-plate or cover for one end of said chamber and provided with a spiral surface arranged to project into said chamber, said cap-plate or cover provided with a slot or opening through which said material to be pressed is introduced into said chamber; said slot being arranged at the beginning and termination of said spiral surface, and means for relatively rotating said chamber and cap-plate or cover; as and for the purpose set forth.

11. In a cotton or other press, an open-ended chamber, a slotted cap-plate or cover for one end of said chamber, said cap-plate or cover being provided with a spiral surface arranged to project into said chamber, and a guide adjacent to said slot for facilitating the introduction of the material to be pressed through said slot into said chamber, and means for relatively rotating said chamber and cap-plate; as and for the purpose set forth.

12. In a cotton or other press, an open-ended chamber, a slotted cap-plate or cover for one end of said chamber, said cap-plate or cover being provided with a spiral surface arranged to project into said chamber, and a guide-roller loosely journaled adjacent to said slot for facilitating the introduction of the material to be pressed through said slot into said chamber, and means for relatively rotating said chamber and cap-plate; as and for the purpose set forth.

13. In a cotton or other press, an open-ended chamber and a slotted cap-plate, in combination with means for continuously feeding the material into such chamber at one end and subjecting the same to progressive pressure, and means for applying a permanent cover to the formed bale as it emerges from the chamber at the other end thereof; as and for the purpose set forth.

14. In a cotton or other press, an open-ended chamber and a slotted cap-plate, means for continuously feeding the material into such chamber at one end thereof and subjecting the same to progressive pressure, and being adapted to receive a permanent cover for the bale, whereby the bale receives its permanent covering as it emerges from the chamber; as and for the purpose set forth.

15. In a cotton or other press, a chamber and a slotted cap-plate, said chamber being open at both ends and provided with an extension at one end thereof, adapted to receive thereon a sack or covering for the finished

bale, means for continuously feeding the material into such chamber at the other end thereof, and simultaneously therewith subjecting the same to progressive pressure, 5 whereby the material is formed into a bale and is ejected from said chamber through said extension and into its permanent covering; as and for the purpose set forth.

16. In a cotton or other press, a framework, 10 a casing rigidly mounted thereon, an open-ended chamber adapted to be received in said casing and having a spiral surface arranged to project into one end of said chamber, and means for rotating said chamber; as and for 15 the purpose set forth.

17. In a cotton or other press, a framework, a casing rigidly mounted thereon and provided with an internally-projecting rim or flange, an open-ended chamber adapted to be 20 received in said casing, said chamber provided with a peripheral flange or rim adapted to rest upon the flange or rim of said casing, whereby said chamber is supported, a slotted cap-plate rigidly mounted on said casing and 25 provided with a spiral surface arranged to project into one of the open ends of said chamber and means for rotating said chamber; as and for the purpose set forth.

18. In a cotton or other press, a framework, 30 a casing rigidly mounted thereon and provided with an internally-projecting flange or rim, an open-ended chamber adapted to be received in said casing, said chamber provided with a peripheral flange or rim adapted

to rest upon the flange or rim of said casing, 35 whereby said chamber is supported, means for reducing friction between the bearing-surfaces of said flanges or rims, a slotted cap-plate rigidly mounted on said casing and provided with a spiral surface arranged to project 40 into one of the open ends of said chamber, and means for rotating said chamber; as and for the purpose set forth.

19. In a cotton or other press, a framework, 45 a cylindrical covering rigidly mounted thereon, an open-ended chamber arranged to be supported within said casing and having peripheral bearing against the internal walls of said casing at the ends thereof, a slotted cap-plate or cover rigidly mounted on said 50 casing and provided with a spiral surface arranged to project into said chamber, and means for rotating said chamber; as and for the purpose set forth.

20. In a cotton or other press, an open-ended 55 chamber contracting in internal diameter from one end thereof to the other, in combination with a slotted cover or cap-plate for the larger end of said chamber, and means for relatively rotating said chamber and 60 cover or cap-plate; as and for the purpose set forth.

In witness whereof I have hereunto set my hand this 15th day of December, 1896.

GEORGE A. LOWRY.

Witnesses:

S. E. DARBY,

M. I. CAVANAGH.