

No. 841,689.

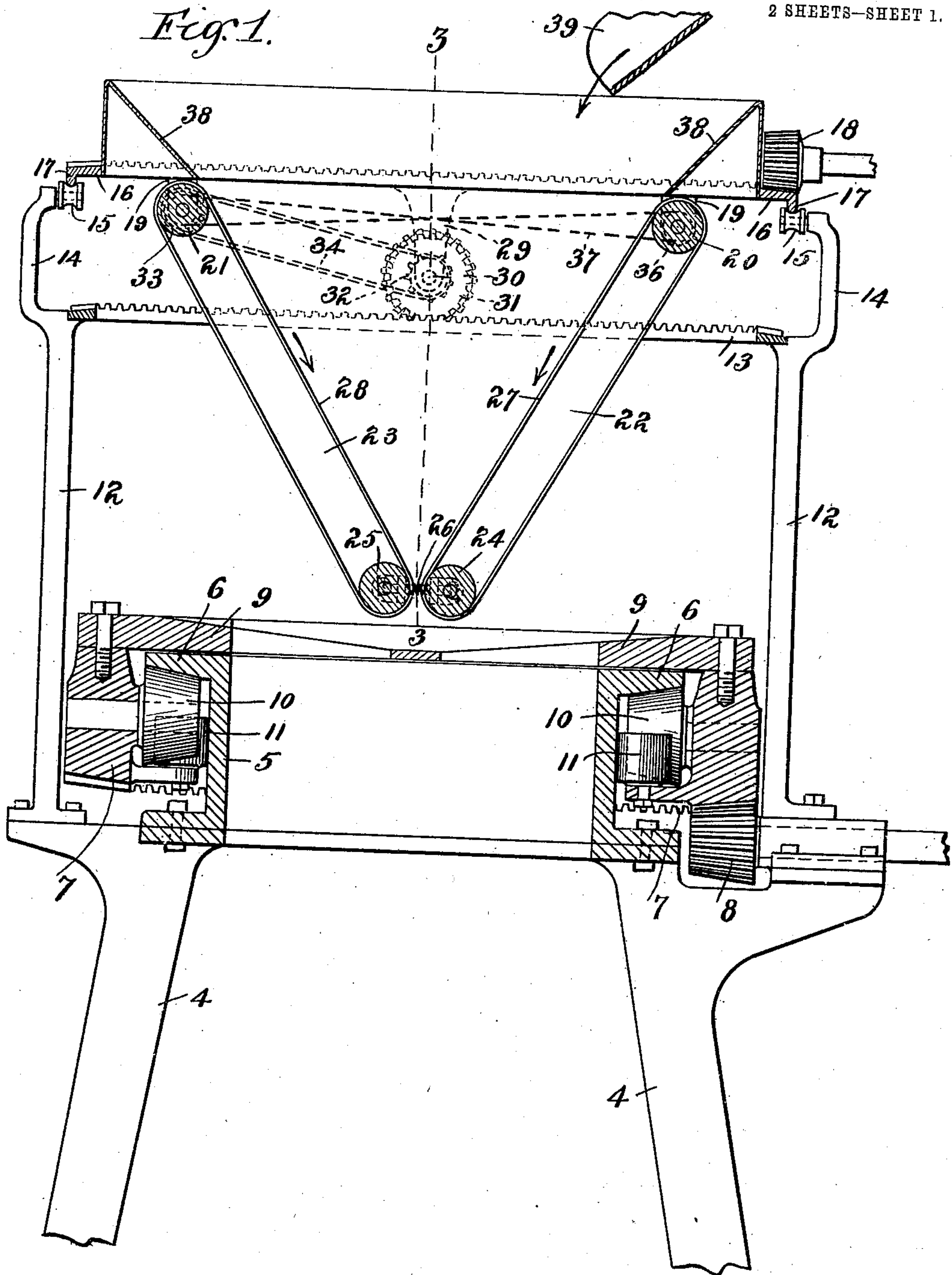
W. M. HOLMES.

PATENTED JAN. 22, 1907.

PRESS FOR COTTON, WOOL, HAY, AND THE LIKE, AND FEEDING
DEVICE THEREFOR.

APPLICATION FILED FEB. 3, 1900.

2 SHEETS—SHEET 1.



Witnesses.
Wm. M. Rheum
E. C. Sample

Inventor
Watson M. Holmes
by Brown & Darby
Attys

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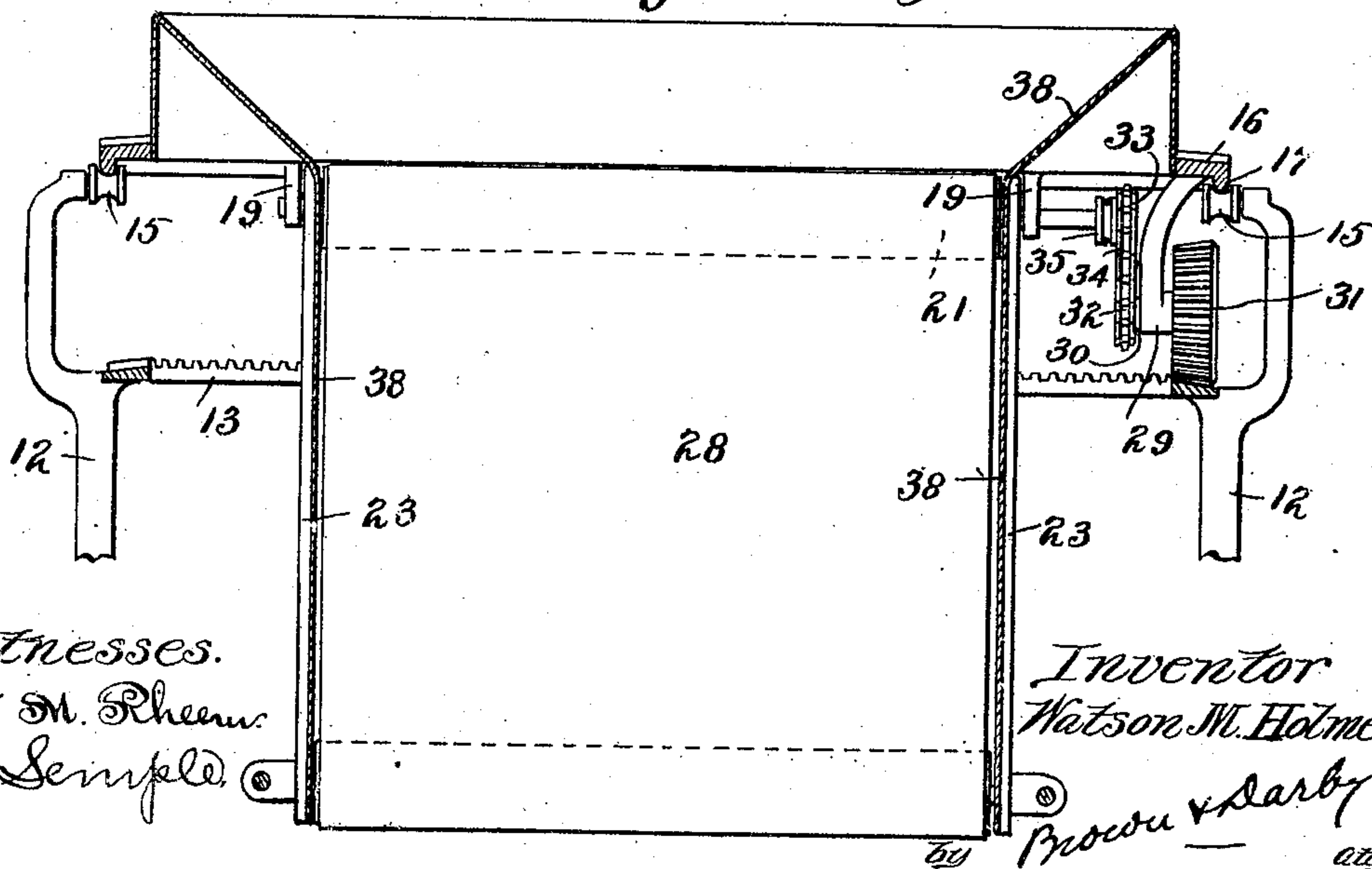
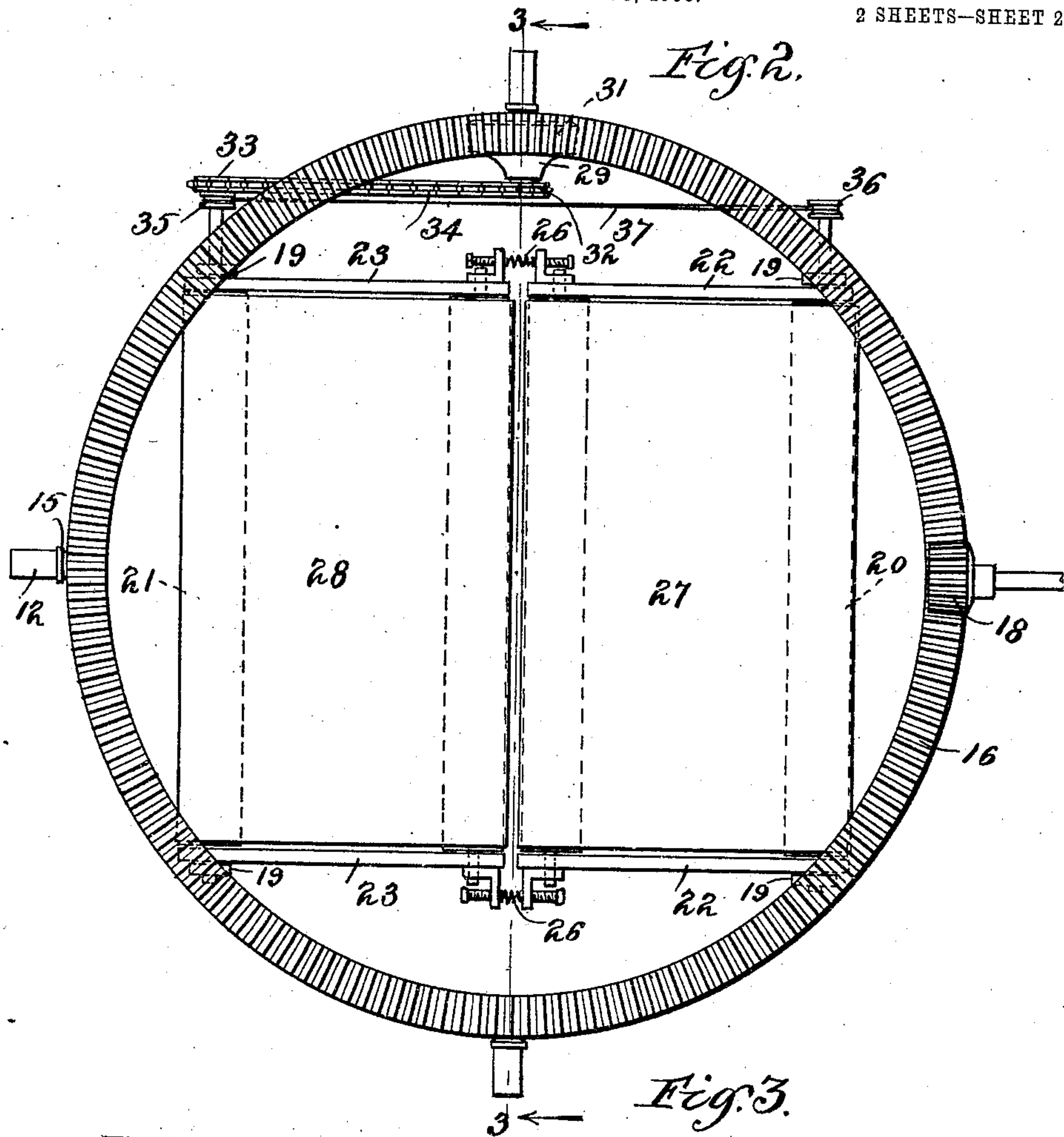
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UNITED STATES PATENT OFFICE.

WATSON M. HOLMES, OF HOOSICK FALLS, NEW YORK, ASSIGNOR, BY
MESNE ASSIGNMENTS, TO PLANTERS COMPRESS COMPANY, A COR-
PORATION OF MAINE.

PRESS FOR COTTON, WOOL, HAY, AND THE LIKE, AND FEEDING DEVICE THEREFOR.

No. 841,689.

Specification of Letters Patent.

Patented Jan. 22, 1907.

Application filed February 3, 1900. Serial No. 3,771.

To all whom it may concern:

Be it known that I, WATSON M. HOLMES, a citizen of the United States, residing at Hoosick Falls, in the county of Rensselaer and State of New York, have invented a new and useful Press for Cotton, Wool, Hay, and the Like and Feeding Devices Therefor, of which the following is a specification.

This invention relates to presses for cotton, wool, hay, and the like and feeding devices therefor.

The object of the invention is to improve the construction of presses of the type set forth in the patents to George A. Lowry, No. 581,600 and No. 581,601, dated April 27, 1897, and No. 630,369, dated August 8, 1899.

A further object of the invention is to provide means for efficiently feeding or presenting the material to the press, whereby bales of uniform density throughout are produced.

Other objects of the invention will appear more fully hereinafter.

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 pointed out in the claims.

Referring to the accompanying drawings and to the various views and reference-signs appearing thereon, Figure 1 is a longitudinal sectional view of a press constructed in accordance with the principles of my invention and showing the application of the feeding devices thereto. Fig. 2 is a view in top plan of the feed-hopper, the guiding-sheathing being removed. Fig. 3 is a central section on the line 3 3, Figs. 1 and 2.

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

In a press of the said type is employed a compression sleeve or chamber and a head-plate or cap provided with feed-slots there-through, these parts being mounted for relative movement. The present invention relates to a press of this type, and in the drawings is shown a compression sleeve or chamber 5 and a head-plate or cap 9, provided with feed-slots, these parts being suitably supported upon a frame (indicated at 4.) The relative movement of these parts may be secured by rotating either one or both. In

the particular form shown, to which, however, the invention is not limited or restricted, rotation is imparted to the slotted head-plate or cap. An annular ring 7, to which the head-plate or cap 9 is bolted or otherwise secured, is provided with rack-teeth formed on or carried thereby, with which rack intermeshes a pinion 8, driven from the main shaft of the machine or other suitable or convenient source. In order to reduce the friction of the relative rotation or movement of the parts and at the same time to provide means for taking up and resisting the end thrust developed in the operation of the machine, one of the rotating parts of the machine may carry suitable rollers arranged to have bearing upon the other part. For instance, in the particular form shown the compression sleeve or chamber 5 may be provided with an annular flange 6 to form a bearing or track for a series of rollers 10, suitably mounted and journaled upon the rack-ring 7. By this construction the friction of the rotating cap or head-plate is reduced and the end thrust exerted upon the cap or head-plate by the pressure to which it is subjected during the operation of the press is efficiently resisted and taken up. If desired and as shown, another series of rollers 11 may be suitably mounted and journaled upon one of the parts of the press, as upon the rack or ring 7, and have bearing against the other part, as against the surface of the compression-sleeve 5, thereby efficiently centering the compression-sleeve and head-plate or cap and holding these parts in centered relation with respect to each other. These rollers 11 also serve to reduce the friction of the rotating part of the press.

In the operation of a press of the type set forth and embodying the construction above described the material to be pressed is presented to the head-plate or cap and in sufficient proximity to the feed-slots therein for the fibers of such material to become engaged by or interlaced with the fibers of the material previously introduced to the compression chamber or sleeve, and is thereby drawn through such slots in the form of thin flat condensed sheets or layers from which the air has been expelled, and which flat, condensed, and compressed sheets or layers are superimposed in flat spirals upon the end

of the mass of material previously drawn through the feed-slots, thus building up the material in the form of a column in a highly compressed and condensed state, and in the construction above described the rotating part of the press is held and maintained in centered relation with respect to the stationary part, the friction is greatly reduced, and the end thrust due to the pressure of the compressed material against the inner surface of the head-plate or cap is taken up and resisted.

In the efficient operation of a press embodying the principles above set forth the material to be pressed is placed or delivered upon the head-plate or cap. It may sometimes occur that such material when thus delivered will drop more directly above one part of the upper surface of the material already under pressure than above the rest of the surface, thus resulting in feeding or drawing a greater quantity of the material through the feed-slots at one particular point—that is to say, the loose material becomes intermeshed with the material in the compression-chamber at or very close to the spot where it first strikes the head-plate, as the material remains stationary while the head-plate revolves. This is objectionable for the reason that thereby a greater density is thus imparted to the compressed column at one or more points than at others and the compressed column when it emerges from the press is more or less warped or crooked. This is particularly true in the form of press wherein the compressed column is stationary and the head-plate or cap revolves. It is one of the important objects of my invention to provide a construction wherein the material to be pressed is presented uniformly above the upper surface of the material already under pressure, thus securing uniformity of feed of the material through the slots, and hence also uniformity in the density throughout the compressed mass and producing a compressed column of symmetrical dimensions and appearance.

In the accompanying drawings I have shown a construction for accomplishing the desired objects and wherein reference-sign 12 designates uprights or standards suitably supported upon the frame of the machine, and upon these standards is suitably supported a fixed annular rack 13. Upon extensions 14 of the standards 12 or otherwise are suitably journaled rollers 15, arranged to form a bearing for and to support a track 17, formed on or supported by an annular ring 16, having rack-teeth. Intermeshing with the teeth of this rack is a pinion 18, arranged to be driven from any suitable or convenient source. In hangers 19, carried by ring 16, are journaled rollers 20 21, arranged to extend parallel to each other and transversely of the ring 16, on opposite sides of the geo-

metric center thereof. Pivotaly connected at one end to the shafts of rollers 20 21 are side bars 22 23, carrying at their other ends the journals of cooperating rollers 24 25. These side bars 22 23 are arranged to extend downwardly and inwardly from the upper rollers 20 21 and are yieldingly connected at their lower ends, as by means of springs 26. Mounted upon the rollers 20 24 is a traveling belt, band, or carrier 27, and a similar belt, band, or carrier 28 is mounted on the rollers 21 25. In order that the material to be fed may be properly presented, the belts, bands, or carriers 27 28 should be actuated in the directions indicated by the arrows in Fig. 1. Any suitable arrangement of gearing may be employed for actuating the carriers 27 28. I have shown a convenient and simple arrangement wherein a pinion 31 is suitably journaled upon a bracket or hanger 29, carried by the ring 16, said pinion being arranged to intermesh with the rack-teeth of ring 13. Suitably connected to the shaft 30 of pinion 31 is a sprocket or other form of gear 32, and said sprocket and a similar sprocket or gear 33 on the shaft of roller 21 are engaged by a sprocket chain or belt 34, whereby said roller 21 is driven. The roller 20 may also be driven and in any suitable manner, but in an opposite direction, as by means of a crossed belt 37, engaging suitable pulleys 35 36 on the shafts of rollers 21 and 20, respectively. A funnel-shaped sheathing 38 may be employed as a hopper to direct the material delivered to the press into the space between the traveling belts 27 28, the spout or chute delivering from the condenser of the gin or other suitable or convenient source being indicated at 39. The operation of this part of my invention is as follows: Rotation is imparted to the shaft of pinion 18. By reason of the engagement of this pinion with the rack 16 said rack is revolved, the track 17 thereof resting and traveling upon the rollers 15. By reason of the rotary movement of rack 16 and the engagement of the gear 31, supported thereon, with the fixed rack 13 said gear 31 is axially revolved, thereby imparting rotation to rollers 21 and 20, and hence effecting, as above described, a travel of the belts, bands, or carriers 28 27 and in opposite directions, as indicated by the arrows in Fig. 1. These belts, bands, or carriers are inclined downwardly and toward each other, as clearly shown, and, as shown, they are of considerable width. Thus they serve to partially condense the loose material delivered to the machine and deposit the same upon the head-plate or cap. By operating pinion 18 at a slower or faster speed than that at which the revolving part of the press operates or by operating said pinion 18 in the opposite direction with respect to that of the revolving part of the press or otherwise varying the relative speeds or

movements thereof it will be seen that the material delivered to the press will be equally and uniformly distributed over the surface of the end of the bale, thereby resulting in the production of a compressed column or bale of uniform density throughout and avoiding crookedness or warping of the compressed bale or column as it leaves the press.

While a construction of feeding device embodying my invention may be adapted for use in connection with a press wherein the head-plate is stationary, it is particularly designed for use in a press of the type described and shown, wherein the head-plate revolves.

It is obvious that many changes and variations in the details of construction and arrangement would readily occur to persons skilled in the art and still fall within the spirit and scope of my invention. I do not desire, therefore, to be limited or restricted to the exact construction and arrangement shown and described; but,

Having now set forth the object and nature of my invention and a construction embodying the principles thereof and having set forth, described, and explained such construction, its function, and mode of operation, what I claim as new and useful and of my own invention, and desire to secure by Letters Patent, is—

1. In a press, compressing devices including a slotted head-plate or cap, in combination with a feed-hopper, revolvably mounted, and means for feeding the material through said hopper and delivering the same in line with the slot in said head-plate or cap, as and for the purpose set forth.

2. In a press, compressing devices, including a slotted head-plate or cap, in combination with a feed-hopper mounted to revolve relatively to said head-plate or cap, feeding-aprons mounted in said hopper and arranged to deliver the material through said hopper and to said head-plate or cap, as and for the purpose set forth.

3. In a press, a feeding device comprising a feed-hopper, a rack connected thereto, a pinion for revolving said rack, a stationary rack, a pinion carried by said hopper and engaging said stationary rack, and means actuated by said last-mentioned pinion for feeding the material through said feed-hopper, as and for the purpose set forth.

4. In a press, a feed-hopper, feeding-aprons carried thereby, means for rotating said hopper, and means for actuating said feeding-aprons, as and for the purpose set forth.

5. In a press, a feed-hopper, feeding-aprons carried thereby, means for rotating said hopper, and means operated by the rotating movement of said hopper for actuating said feeding-aprons, as and for the purpose set forth.

6. In a press, a feed-hopper, means for ro-

tating the same, feeding-aprons carried by said hopper, said aprons being inclined downwardly and toward each other, and means for actuating said aprons, as and for the purpose set forth.

7. In a press, a feed-hopper, means for rotating the same, rollers journaled upon said hopper, and carrying-arms, cooperating rollers carried by said arms, feeding-aprons carried by said rollers, and means for actuating said rollers, as and for the purpose set forth.

8. In a press, a feed-hopper, means for rotating the same, rollers journaled upon said hopper and carrying-arms, cooperating rollers carried by said arms, means for yieldingly holding said cooperating rolls in proximity to each other, feeding-aprons carried by said rollers, and means for actuating said rollers, as and for the purpose set forth.

9. In a press, a feed-hopper, means for rotating the same, feeding-aprons carried by said hopper, a pinion also carried by said hopper, a stationary rack engaged by said pinion, and gearing actuated by said pinion for operating said feeding-aprons, as and for the purpose set forth.

10. In a press, means to hold the compressed material, including a moving feeding-abutment at one end of the material, said abutment having passages therethrough for the uncompressed material; in combination with means to deliver the uncompressed material to the feeding-abutment and distribute it with respect to the end of the mass of compressed material.

11. In a press, means to hold the compressed material, including a moving feeding-abutment at one end of the material, said abutment having passages therethrough for the uncompressed material; in combination with a movable condensing device arranged to deliver the uncompressed material to the feeding-abutment; means to actuate the condensing device and means to move the delivery end thereof relatively to the compressed mass, to distribute the uncompressed material toward different parts of the adjacent surface of said mass of compressed material.

12. In a press, means to hold the compressed material, including a moving feeding-abutment at one end of the material, said abutment having passages therethrough for the uncompressed material; in combination with a feeding device movably mounted adjacent to the feeding-abutment and arranged to traverse near to all parts of said end of the mass of compressed material in succession, and means to actuate the same.

13. In a press, means to hold the compressed material, including a moving feeding-abutment at one end of the material, said abutment having passages therethrough for the uncompressed material; in combination with a feeding device movably mounted ad-

5 jacent to the feeding-abutment, said feeding device being arranged to concentrate its delivery upon a limited area of the feeding-abutment, and means to shift the line of delivery to positions adjacent successively to different portions of the end of the mass of compressed material.

10 14. In a press, means to hold the compressed material, including a moving feeding-abutment at one end of the material, said abutment having passages therethrough for the uncompressed material; in combination with a pair of converging feeding-aprons arranged to deliver material to the feeding-
15 abutment at their converging end, and means to shift the position of said feeding-aprons with respect to the adjacent surface of compressed material.

20 15. In a press, means to hold the compressed material, including a moving feeding-abutment at one end of the material, said abutment having passages therethrough for the uncompressed material; in combination with a pair of converging feeding-aprons ro-
25 tatively mounted with respect to the compressed mass and arranged to deliver material to the feeding-abutment, and means to actuate the feeding-aprons and to rotate the pair of them with respect to the adjacent sur-
30 face of compressed material.

16. In a press, means to hold the compressed material, including a moving feeding-abutment at one end of the material, said

abutment having passages therethrough for the uncompressed material, said compressed material being held in a stationary position; 35 in combination with a traveling feeding device arranged to deliver the uncompressed material to the feeding-abutment at positions successively adjacent to different portions of the surface of the mass of compressed material on the other side of the abutment, and means to drive the feeding device in its path. 40

17. In a press, means to hold the compressed material, including a moving feeding- 45 abutment at one end of the material said abutment having passages therethrough for the uncompressed material, said compressed material being held in a stationary position; 50 in combination with a feeding device arranged to deliver uncompressed material to the feeding-abutment, said feeding device being rotatively mounted with respect to the mass of compressed material, and means to 55 rotate the feeding device to bring the delivery of the same successively to different portions of the adjacent surface of said mass.

In witness whereof I have hereunto set my hand, this 27th day of January, 1900, in the presence of the subscribing witnesses. 60

WATSON M. HOLMES.

Witnesses:

D. W. HOWLAND,
WM. M. RHEEM.