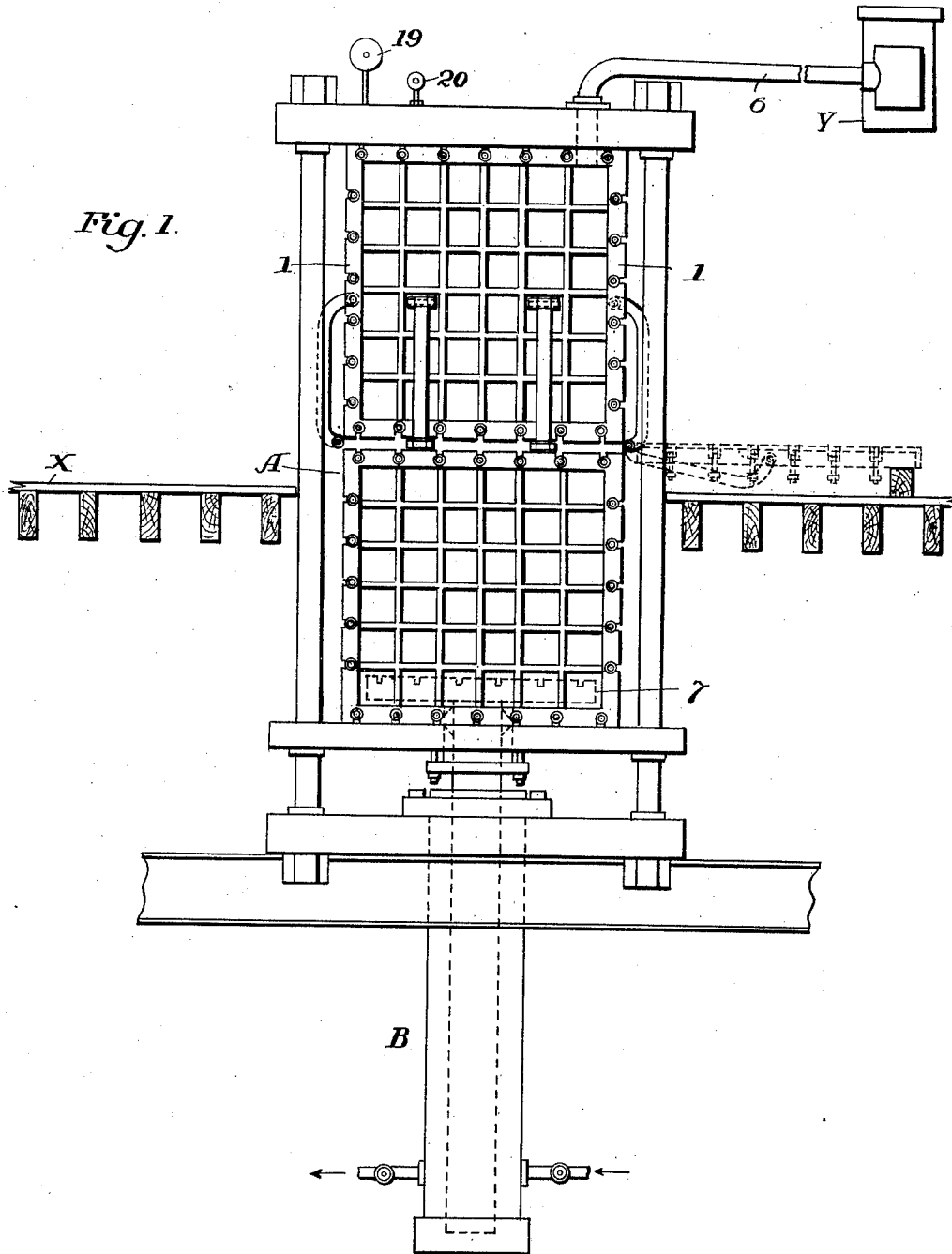


J. W. KIRCHHOFF.
METHOD OF COMPRESSING OR BALING COTTON, WOOL, SILK, &c.
APPLICATION FILED JULY 5, 1906.

1,003,114.

Patented Sept. 12, 1911.

2 SHEETS—SHEET 1.



Witnesses
Arthur L. Bryant
J. J. McElroy

Inventor
James W. Kirchhoff
By his Attorneys,
Ester, Freeman & Watson.

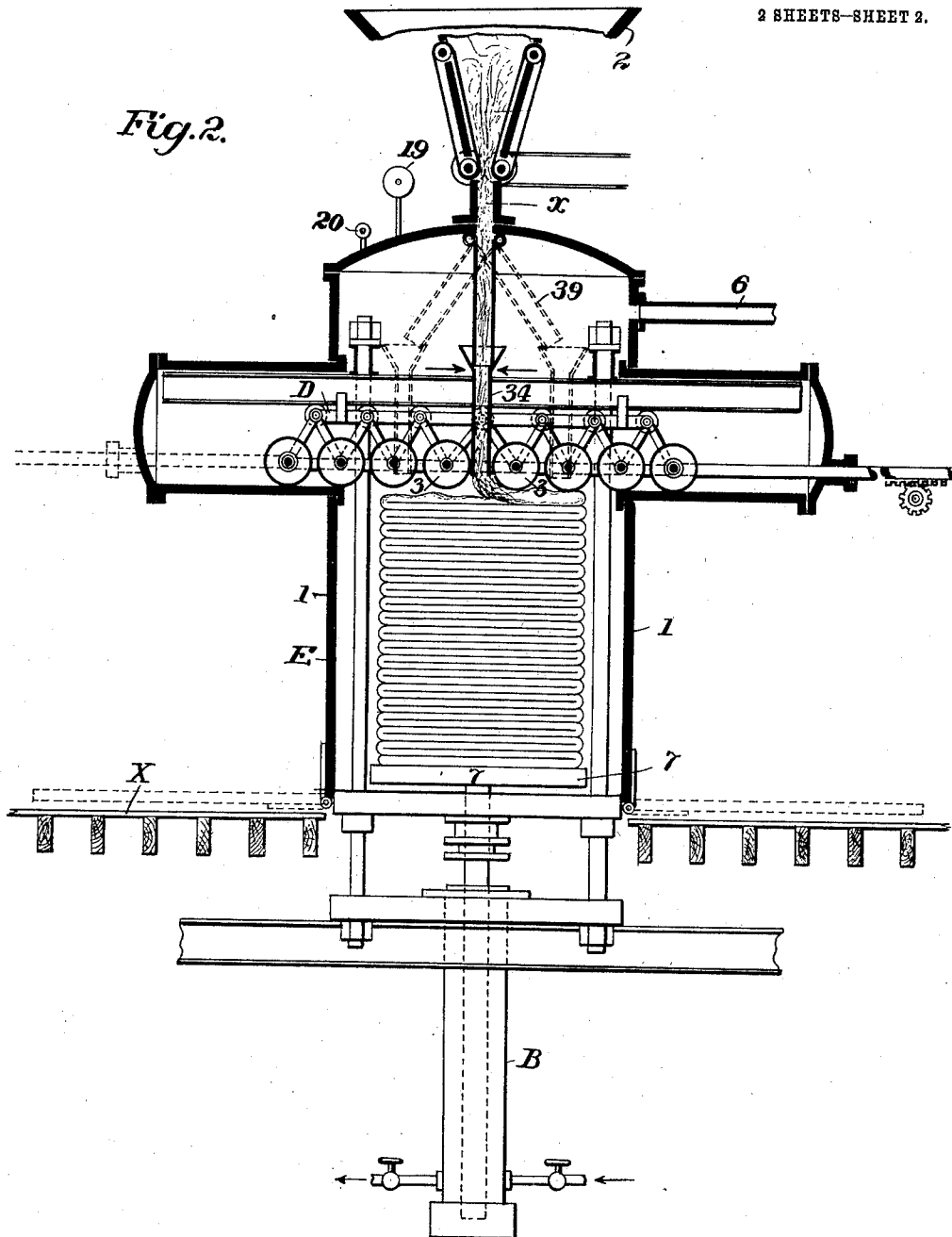
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Fig. 2.



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UNITED STATES PATENT OFFICE.

JAMES W. KIRCHHOFF, OF NEW ORLEANS, LOUISIANA.

METHOD OF COMPRESSING OR BALING COTTON, WOOL, SILK, &c.

1,003,114.

Specification of Letters Patent.

Patented Sept. 12, 1911.

Application filed July 5, 1906. Serial No. 324,787.

To all whom it may concern:

Be it known that I, JAMES W. KIRCHHOFF, a citizen of the United States, and resident of New Orleans, in the parish of Orleans and State of Louisiana, have invented certain new and useful Improvements in Methods of Compressing or Baling Cotton, Wool, Silk, &c., of which the following is a specification.

In carrying out my invention I make use of any known or suitable means of collecting and condensing the cotton fibers or other material in a bale or package of any suitable form, two means only being illustrated in the accompanying drawing in which,—

Figure 1 is a side elevation of a form of box press with which my improvement may be used; Fig. 2 illustrates in vertical section a press in which a continuous bat is deposited in successive layers and also embodying my invention.

In Fig. 1 the press chamber is contained within a rectangular box A, the bottom of which is a platen 7 which may be raised and lowered by a motor B of any suitable character, as a screw, or hydrostatic press, the latter being shown. The box has movable hinged sides 1 which may be swung open to receive the cotton or to remove the package, after banding as usual, and a platform X is suitably arranged to facilitate operations. With the box at any suitable point communicates an exhaust pipe 6 leading to an exhaust pump Y or other suitable means of creating a vacuum or reducing the pressure within the box to a pressure lower than that of the atmosphere, the box being provided with a suitable vacuum gage 19. The material is deposited in the box and compressed as usual except that the exhausting means is so actuated as to produce a greater or less degree of vacuum within the box during the compressing operation, and until the required density is secured in the bale. A valve 20 is then opened to admit air to the box, the latter is opened and the bale banded and removed. It will of course be understood that prior to depositing the cotton in the box the sections of bale covering are placed and secured in position on the platen and at the top of the chamber.

In Fig. 2 is illustrated a well known character of press in which a continuous bat is formed from cotton deposited in a hopper 2, and is carried by a swinging chute 39 to

the chute 34 of a reciprocating carriage D and between the inner rolls 3, 3, of a series of rolls carried by the carriage and by which the bat is pressed down in successive layers forming the bale upon a gradually descending platen 7. These features are those of well known presses and need not be described in detail. The entire compressing means, however, is arranged within a substantially air tight casing or box E, from which the air may be exhausted through a pipe 6 as before described in connection with the apparatus of Fig. 1, and this casing has a hinged door 1 which may be opened to remove the bale.

If the bale is compressed by means for forcing it into a cylinder or "round bale", or a "round lap bale" from ribbons or bands, the apparatus in such case is also inclosed in a chamber with means of exhausting the air therefrom.

Whatever forming and compressing means may be used the condensing of the fibers in a chamber exhausted to a greater or less extent of air, reduces to a great degree the compression heretofore employed with the purpose of expelling the air entwined with the fibers. It prevents the formation of air pockets in the mass of fibers, and which interfere with the close packing of the fibers together, constituting cushions, and which owing to the compression of the air result in heating the fibers, and practically limiting the degree of density which may be imparted to the bale without breaking down the fibers. As a result of forming the bale under a greater or less degree of vacuum I can therefore not only bring the fibers, without any obstruction, into the closest possible relation without injury, but I also avoid heating the mass and prevent "spontaneous combustion," and reduce the rate of insurance; the power required to condense the fibers to the greatest possible degree is but a fraction of that required where compression is depended upon to force the air from the mass and less extensive pressing apparatus is needed, the bales are produced of a greater density; there is less tendency to expand after banding, and the weight and number of the bands decreased, and with the same weight of cotton the size is reduced and a proportionately smaller amount of covering is required.

It will of course be evident that the im-

proved mode of baling may be effected in connection with the baling of rags, jute fibers and other materials.

Without limiting myself to the use of any special apparatus, I claim as my invention:—

1. The within-described improvement in baling cotton, consisting in first compressing the same mechanically, and then forming the bale of the compressed material under a vacuum.

2. The within described improvement in baling cotton, which consists in continuously feeding the cotton to form a bale into a closed baling chamber and pressing the cotton into a bale therein under a vacuum.

3. In the baling of cotton, feeding the cotton in a continuous compressed sheet into a chamber having a partial vacuum, and forming the sheet into a bale within said chamber.

4. The within described improvement in baling cotton, the same consisting in mechanically compressing the cotton, forming

the same into a bundle, and then mechanically compressing the bundle, all under less than atmospheric pressure.

5. The within-described process of baling cotton, consisting in forming the cotton into a mechanically-compressed bat, depositing the said bat in superposed layers under a vacuum, and subjecting the same as deposited to additional mechanical pressure.

6. The within described improvement in baling cotton, the same consisting in mechanically compressing the cotton, depositing the compressed cotton within a bale covering to form a bundle, and then mechanically compressing the bundle upon said covering, all under less than atmospheric pressure.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES W. KIRCHHOFF.

Witnesses:

ALPHONSE DESSION,

WILLIAM MANSEVICH.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."