

No. 618,784.

Patented Jan. 31, 1899.

J. CORRIGAN.

APPARATUS FOR SUPPLYING COTTON TO OPENERS.

(Application filed Dec. 21, 1897.)

(No Model.)

3 Sheets—Sheet 1.

Fig: 1.

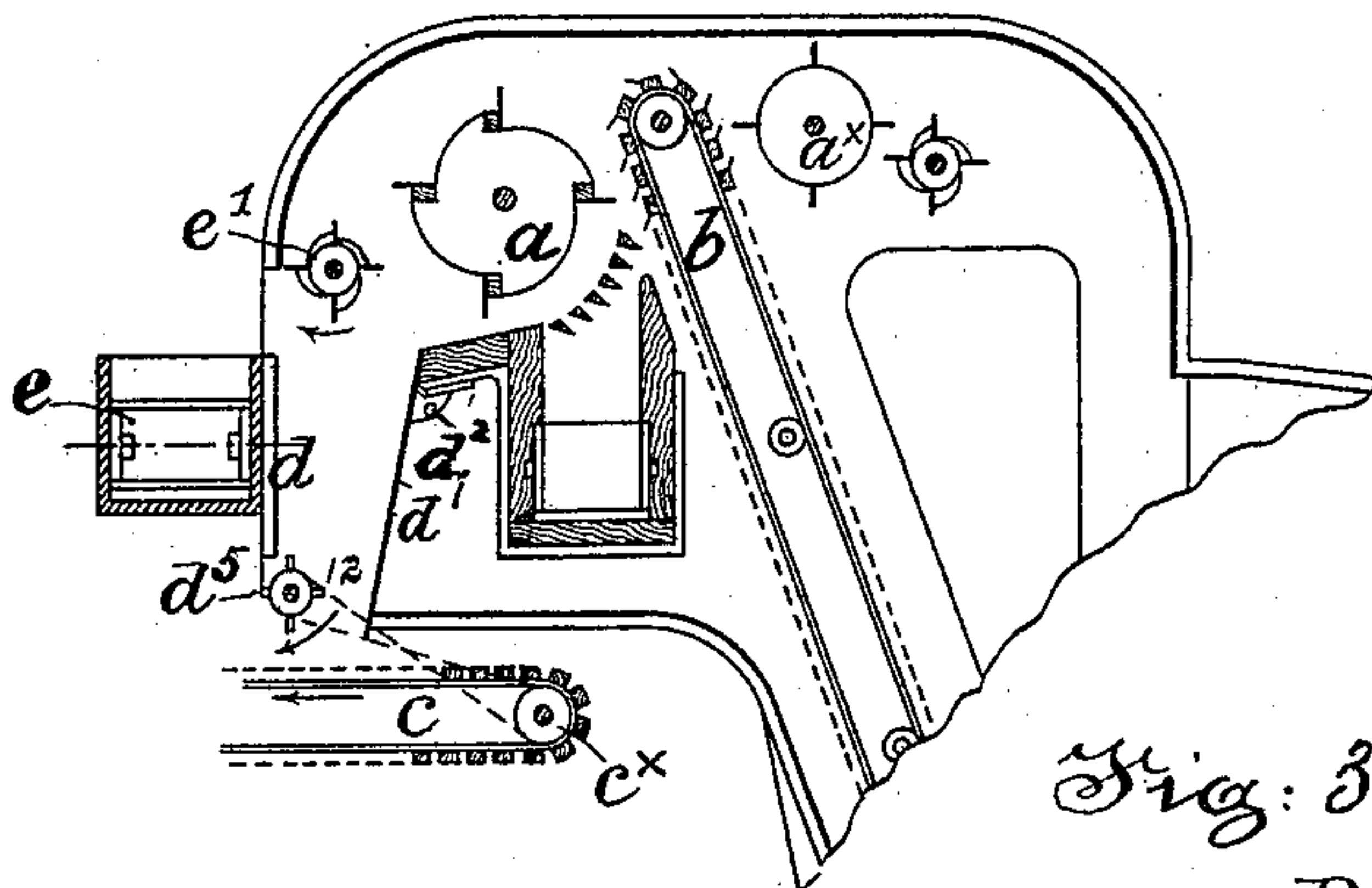


Fig: 3.

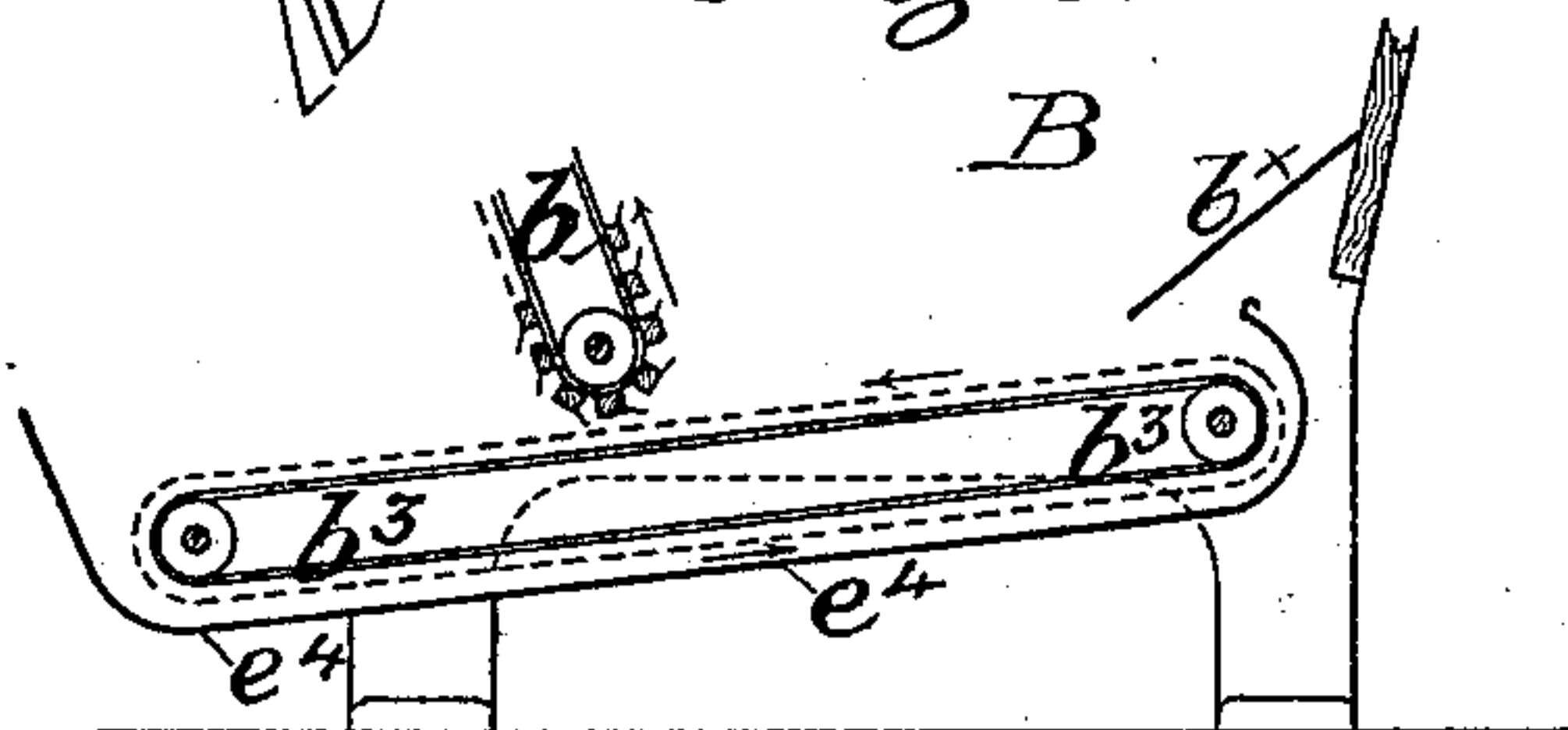
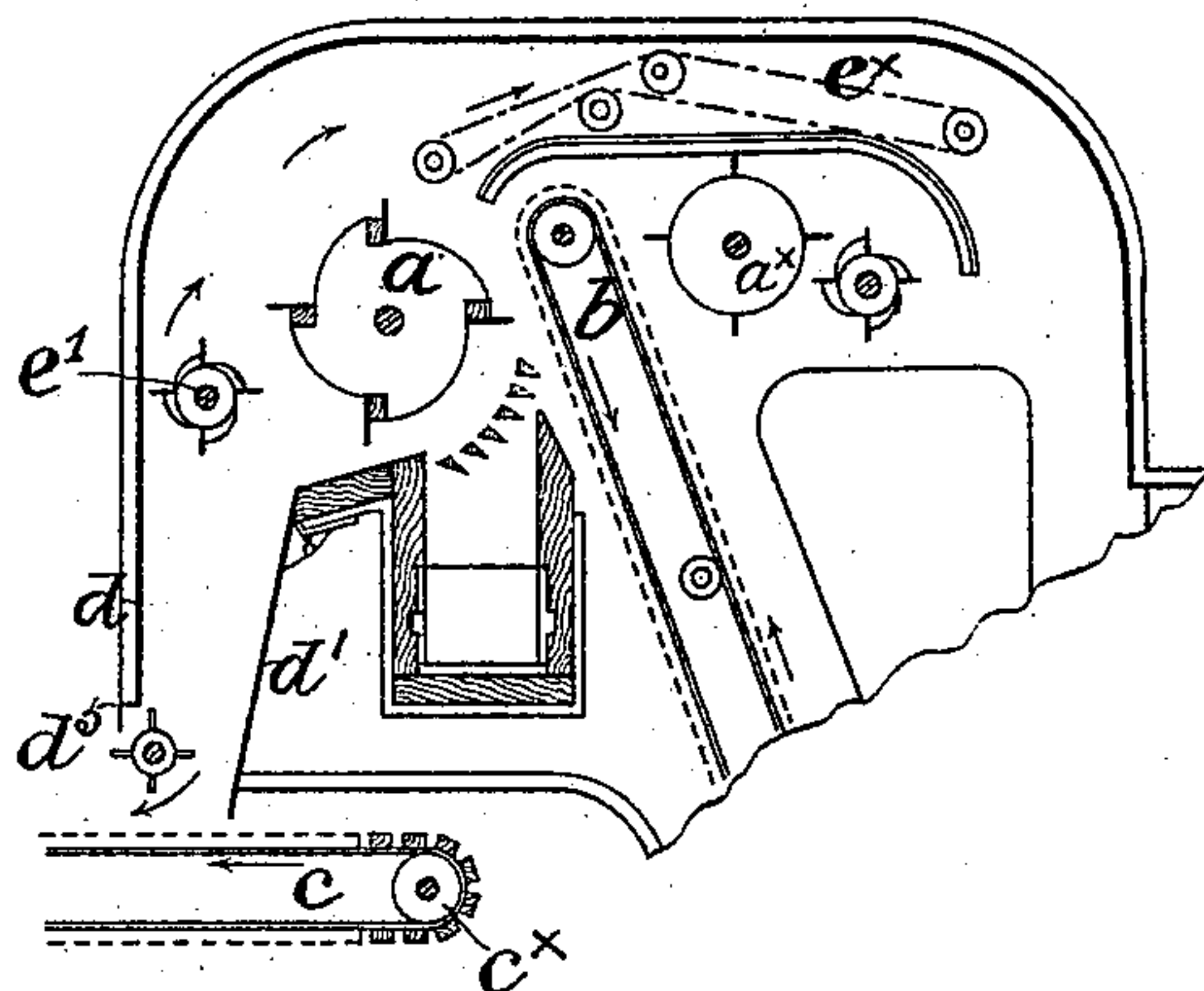


Fig: 2



WITNESSES:

WITNESSES:
F. W. Wright.
S. F. Connor

S. C. Connor

INVENTOR

JOHN CORRIGAN

BY

Howson and Howson
HIS ATTORNEYS

HIS ATTORNEYS

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Fig. 4.

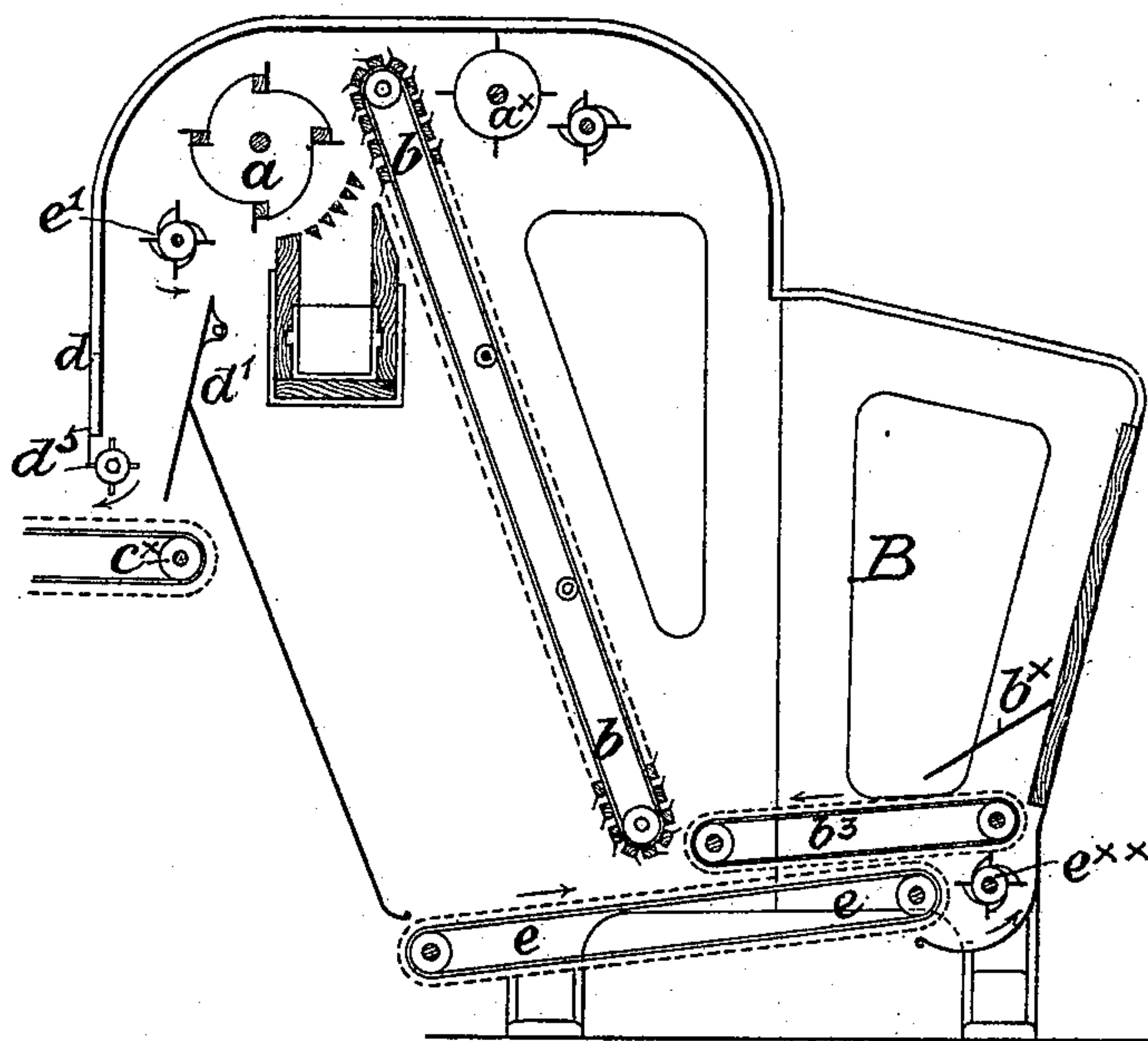
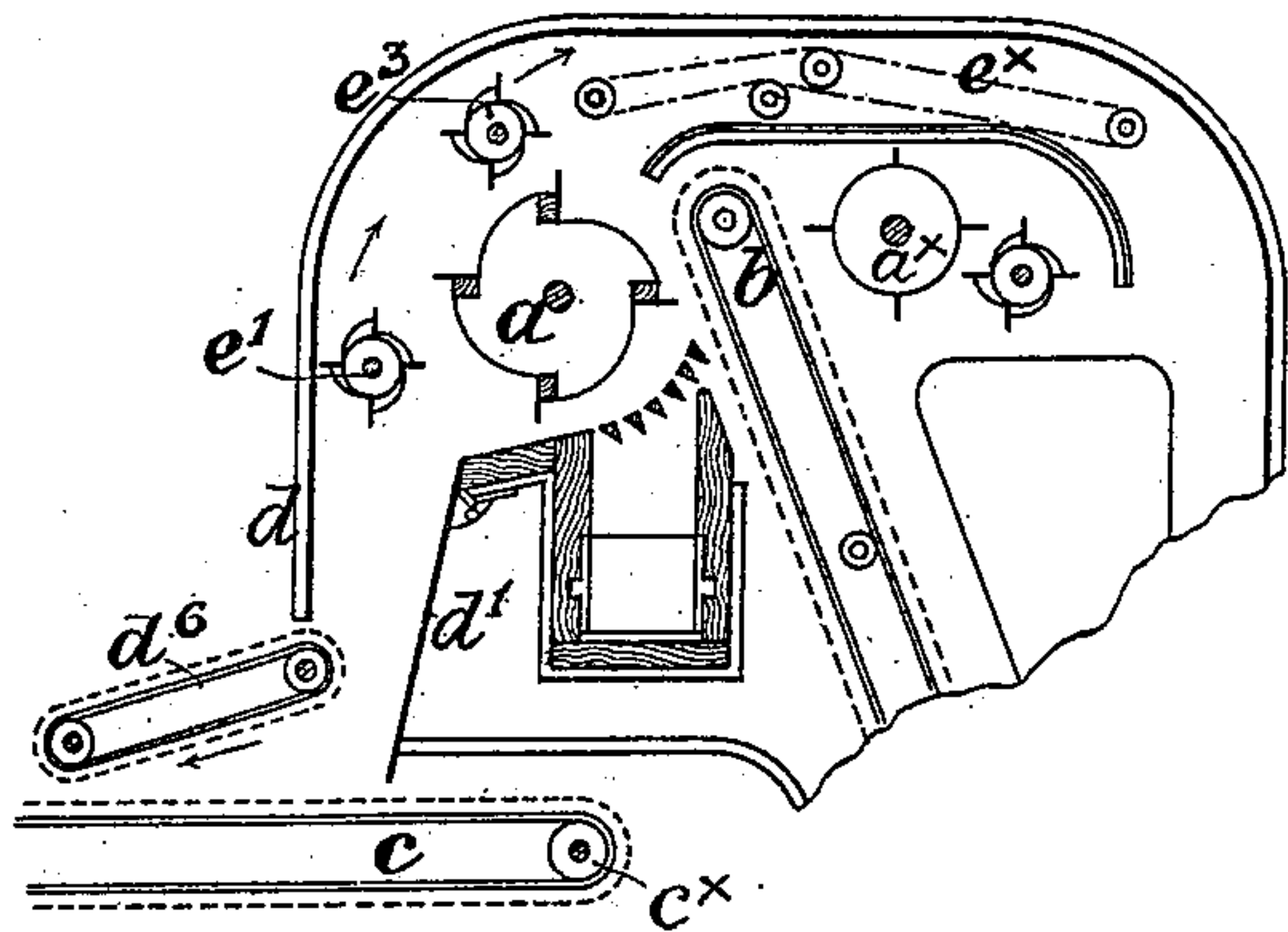


Fig. 5.



WITNESSES:

P. W. Wright.
S. C. Connor

INVENTOR
JOHN CORRIGAN

BY

Horton and Horton
HIS ATTORNEYS.

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3 Sheets—Sheet 3.

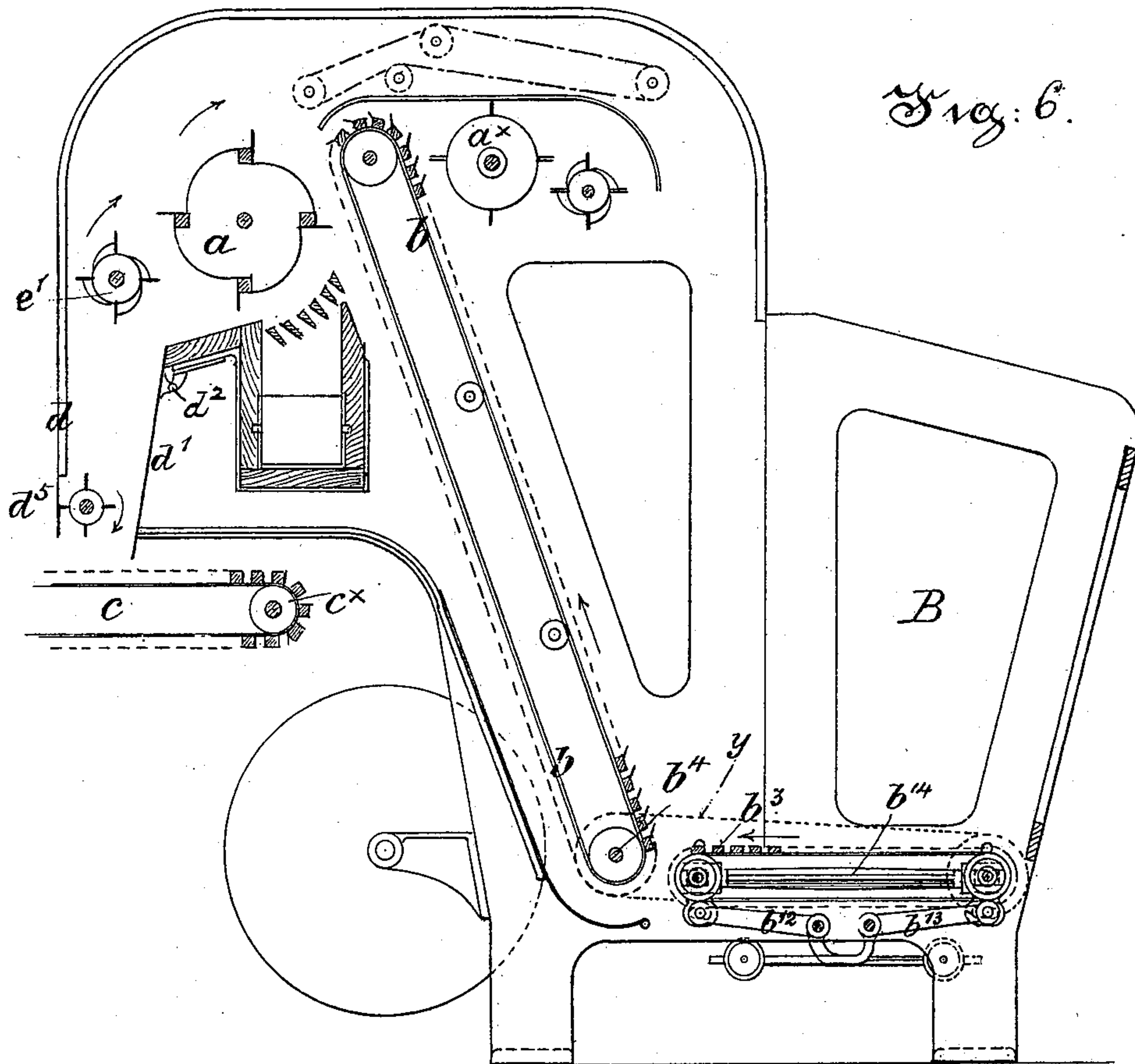


Fig. 6.

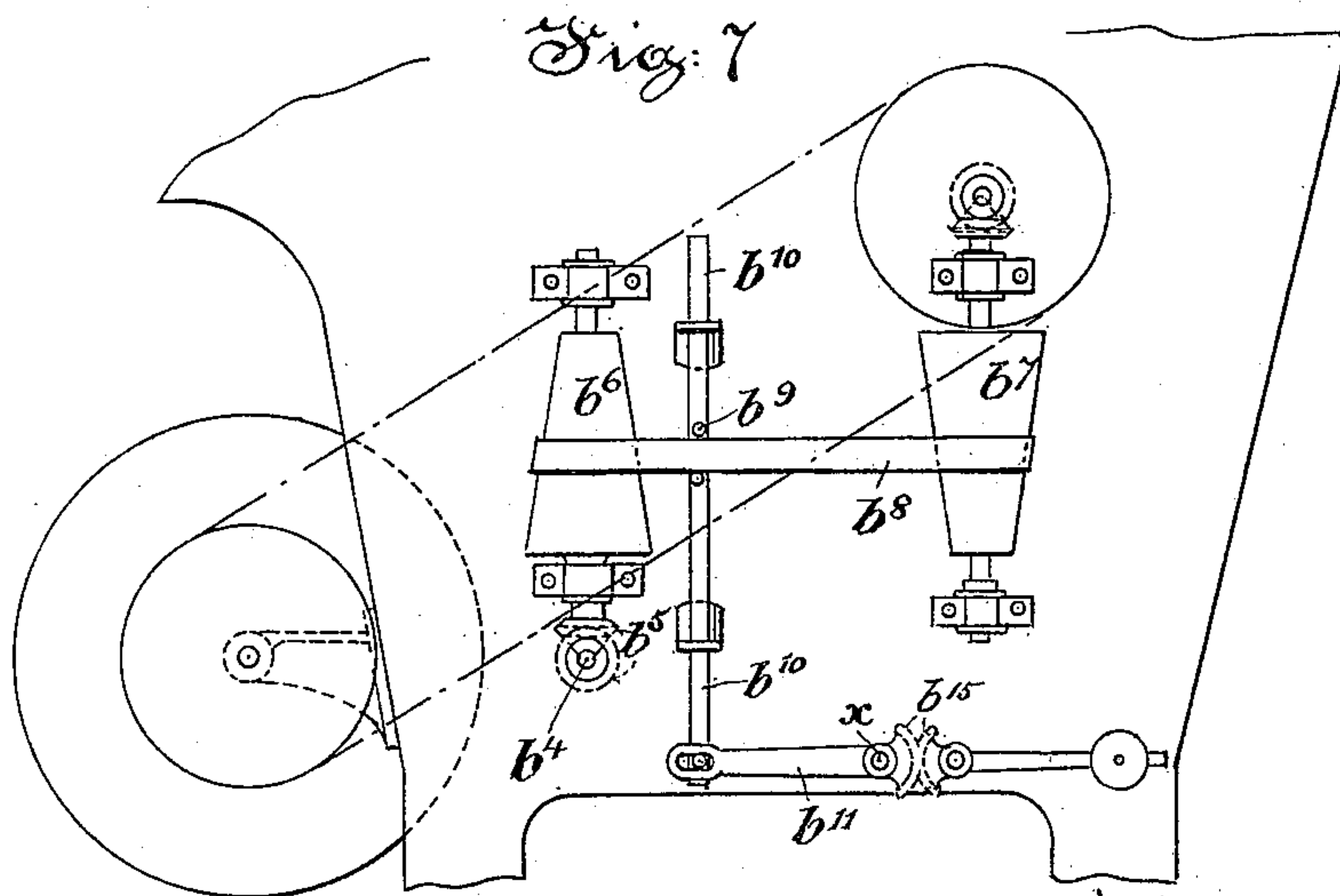


Fig. 7.

WITNESSES:

B. W. Wright
S. C. Connor

INVENTOR.
JOHN CORRIGAN

BY

Howman and Howman

HIS ATTORNEYS

UNITED STATES PATENT OFFICE.

JOHN CORRIGAN, OF MANCHESTER, ENGLAND.

APPARATUS FOR SUPPLYING COTTON TO OPENERS.

SPECIFICATION forming part of Letters Patent No. 618,784, dated January 31, 1899.

Application filed December 21, 1897. Serial No. 662,817. (No model.)

To all whom it may concern:

Be it known that I, JOHN CORRIGAN, a subject of the Queen of Great Britain and Ireland, residing at Charlton-on-Medlock, Manchester, in the county of Lancaster, England, have invented new and useful Improved Apparatus for Supplying Cotton or other Fibrous Substances to Openers or Scutchers, (for which I have obtained British Patent No. 11,996, dated June 19, 1893, and No. 19,573, dated October 18, 1893, and Indian patent, dated December 27, 1894, No. 209 of 1895,) of which the following is a specification.

This invention relates to feeders for cotton-opening machinery and chiefly to the feeder, which consists of a hopper or other receptacle in which works a spiked lattice, the fibers being taken by a doffing-roller from this lattice and fed onto a chute and thence to a creeper leading to the opener or scutcher, superfluous fiber being taken away and returned into the hopper by a spiked roller or lattice at the back of the spiked feeding-lattice and at the upper end thereof.

In the accompanying drawings, Figure 1 shows a sectional elevation of a mechanical feeder constructed according to my invention. Fig. 2 is a partial elevation in section, showing a modification hereinafter referred to. Figs. 3, 4, 5, 6, and 7 are sectional elevations of so much of a mechanical feeder for cotton openers and scutchers as is necessary to illustrate other modifications of my invention.

On the drawings, *a* is the doffing-roller, *b* the spiked lattice, and *c* the scutcher-lattice. Immediately beneath the doffing-roller *a*, which takes the fibers from the spiked lattice *b* and feeds them to the opener or scutcher lattice *c*, I mount an upright feed-box formed by two practically upright plates *d d'* or other equivalent device, one or both of which can be, by preference, adjusted so as to allow more or less cotton to pass between them to the said opener or scutcher lattice.

Fig. 1 shows the plate *d* fixed and the plate *d'* adjustable upon the pivot *d*². As the plates *d d'* require no further adjustment when once set for a certain class of cotton it is evident that in some cases they need not be made adjustable, although it is preferable that at least one of them should be so arranged.

The fibers accumulate between the plates

d d' (see Fig. 1) and become thereby consolidated in some degree between them, as in a kind of column in an upright box, before being delivered at the lower end of such box to the scutcher-lattice *c* in an evenly-consolidated condition. Should more come from the doffer *a* than can or ought to be carried away, the surplus will accumulate between the plates *d d'*.

I provide at the upper part of the feed-box *d d'* a roller *e'* in order to maintain a constant level of the cotton in the said feed-box, and this roller *e'* revolves in such a direction, as seen by the arrows, that it will take off any surplus cotton accumulating above this level and will push it over the edge of the feed-box, either outward, as seen at Fig. 1, or inward, as seen at Fig. 4, upon the lattice or creeper *e*, to be returned to the feeder-hopper, or the roller *e'* may throw up the surplus cotton to a creeper *e*^x, (see Fig. 2,) which will return it to the feeder-hopper, or the cotton may be taken from the said roller *e'* to the returning creeper *e*^x by another roller *e*³ (see Fig. 5) or rollers.

I am aware that it has been attempted to use the roller *a* itself to throw back superfluous cotton to a creeper or the like for returning it to the feed-hopper B; but there are many defects in this arrangement when applied to my feed-box *d d'*. In such case the roller *a* would have to be enlarged considerably to reach over the top of the said box *d d'*, and owing to its size and its speed of revolution it would act like a suction-fan in the box *d d'* and suck the fiber therefrom almost as quickly as it fed it thereto. This, I find, occurs especially in the case of light well-opened fiber, say cotton that has been passed back two or more times to the hopper B. The small additional roller *e'* has no such tendency, but only keeps the level of the fiber in the box *d d'* constant. This level can be adjusted in height much more conveniently when a roller *e'* is used, as the roller *a* cannot be adjusted to any great extent up or down without interfering with its utility as a doffing-roller and with its working over the grid. I also find it better to drive the roller *e'* more quickly than the roller *a* is driven.

In some cases I mount a small delivery-roller *d*⁵ (see Figs. 1, 2, and 3) or a pair of roll-

ers at the lower part of the feed-box $d d'$ to deliver the cotton at a constant speed to the opener-lattice c , or instead of a roller a short creeper d^6 , Fig. 5, may be used, by preference
 5 inclining gradually toward the opener-lattice in the direction of its motion, so as to still further consolidate the cotton as it is delivered to the said lattice. Thus by adjusting the outlet formed by the above means or by
 10 altering the speed of the delivery roller or rollers and the opener-lattice either automatically (by actuating it or them by a belt 12, Fig. 1, from the differentially-driven scutcher-lattice roller c^x) or otherwise the feed of the
 15 cotton by the latter to the opener or scutcher may be regulated without adjustment of the sides of the feed-box d or d' .

In the modification shown at Fig. 4 I sometimes prefer to use a roller e^{xx} to assist the
 20 passage of the cotton from the lattice e to the lattice b^3 at the bottom of the hopper B.

B^+ is a protecting-plate to keep the weight of cotton in the hopper B from preventing the return of the surplus cotton from the lattice
 25 e into the said hopper, or the lattice e may be dispensed with and the lattice b^3 slightly lowered and continued beyond the spiked lattice b , so that the surplus cotton can fall therein. In this case the bottom of the ap-
 30 paratus would be provided with a plate e^4 or its equivalent, upon which the cotton would be moved to the feed-hopper, as shown at Fig. 3.

In order to still further equalize the delivery of the cotton to and from the feed-box $d d'$, I propose to drive the lattice b quicker or slower, according to the weight of cotton in the hopper B in order that the heavier the weight of cotton in the hopper B the more
 40 slowly will the lattice b deliver the fibers to the roller a , and hence to the feed-box d , because when the hopper B is first filled with cotton the latter is generally in a somewhat compressed or condensed condition and com-
 45 paratively heavy, and the lattice b will carry more of such fibers up on its spikes and will not require to be driven so rapidly as when the fibers in the hopper B are more open, say after having passed one or more times between
 50 the spiked roller and the lattice b . For this purpose I actuate the lower shaft b^4 of the lattice b , as seen at Figs. 6 and 7, by gearing

b^5 from cone-pulleys $b^6 b^7$, the driving-pulley b^7 being driven from any suitable shaft and the strap b^8 , driving the pulley b^6 from b^7 , being
 55 moved, as desired, by a strap-fork b^9 on a rod b^{10} , actuated by a lever b^{11} . This lever b^{11} is fitted on the shaft x of levers $b^{12} b^{13}$, which support one end of side frames b^{14} , which carry the bearing-blocks of the rollers of the lattice
 60 b^3 , so that the lattice b , upon which the weight of fiber rests, can rise, according as the weight of the fiber in the hopper B decreases and cause the lattice b to be driven more quickly.

The lattice b^3 can be driven from the shaft
 65 b^4 by a chain y . (Shown dotted at Fig. 6.)

I am aware that it is not new to stop or start the feeding of the cotton to the hopper B by mounting the lattice b^3 on a counterbalanced
 70 frame; but such arrangement has not had the same effect of regulating the density of the fiber delivered to and from the feed-box.

I claim as my invention—

1. The combination with the scutcher-lattice of an upright feed-box over the latter, a
 75 feed-lattice b , doffing-roller a and a roller for maintaining the level of the cotton in the feed-box and urging the surplus cotton over one of the sides or plates forming the said box, substantially as hereinbefore described. 80

2. The combination with the feed-hopper, feed-lattice and roller a , scutcher-lattice c and upright feed-box $d d'$ over the scutcher-lattice of a second roller e' over said feed-box to throw
 85 up the surplus cotton from the top of the said feed-box, and means for returning such surplus to the feed-hopper, substantially as hereinbefore described.

3. A hopper B, lattice b and feed-box $d d'$, and a lattice b^3 in the bottom of the hopper,
 90 a counterbalanced frame carrying the lattice, and a lever acted on by the frame, in combination with a strap and coned driving-pulleys acting on the driving-wheel of the lattice b and a shifting-fork for the strap connected to
 95 said lever, as and for the purpose described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN CORRIGAN.

Witnesses:

CHARLES A. DAVIES,
 JNO. HUGHES.