

(No Model.)

4 Sheets—Sheet 2.

H. H. CUMMINGS.
BAG HOLDING MECHANISM.

No. 574,137.

Patented Dec. 29, 1896.

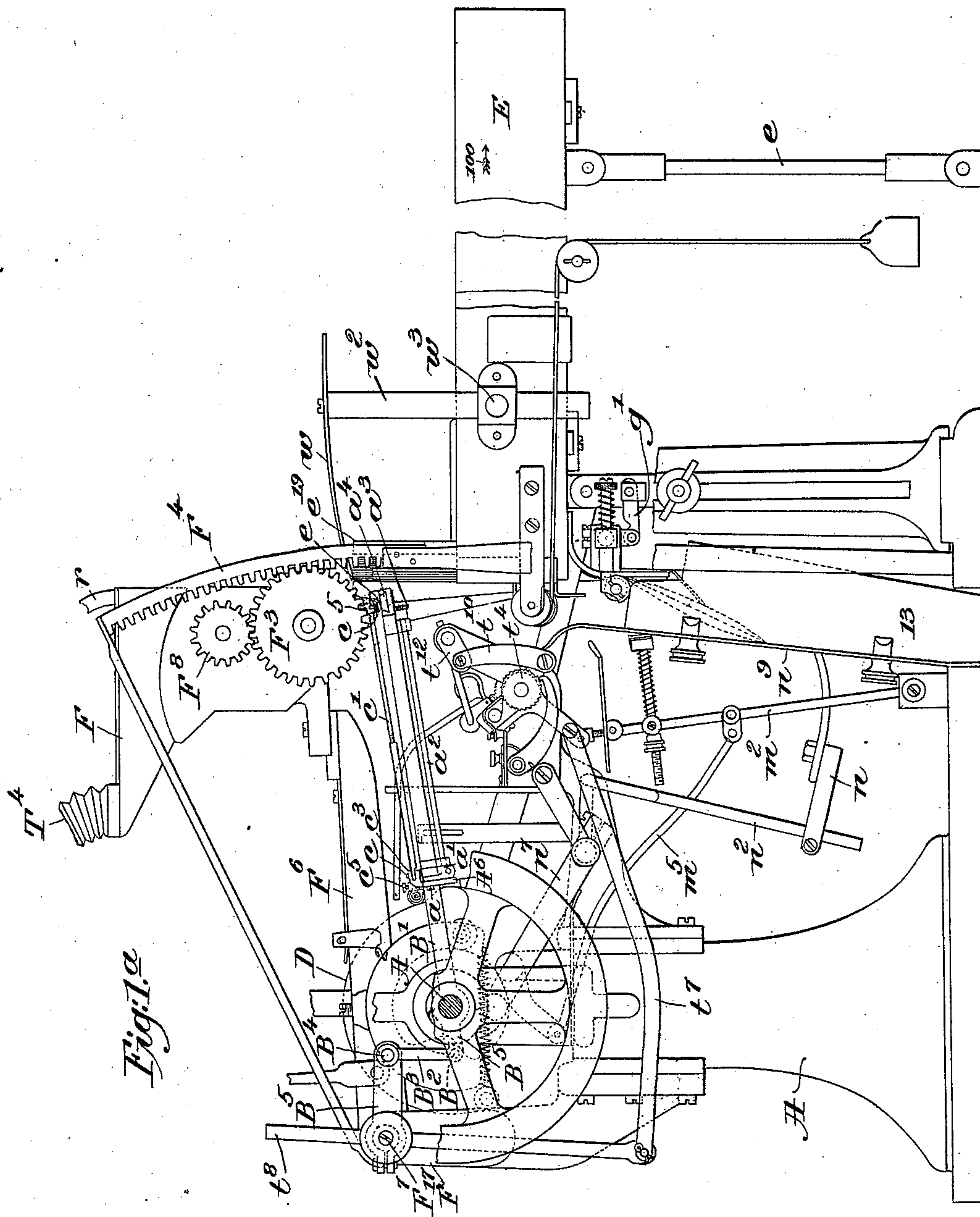


Fig. 1a

Witnesses.

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Thomas J. Spummond

Inventor.

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attys.

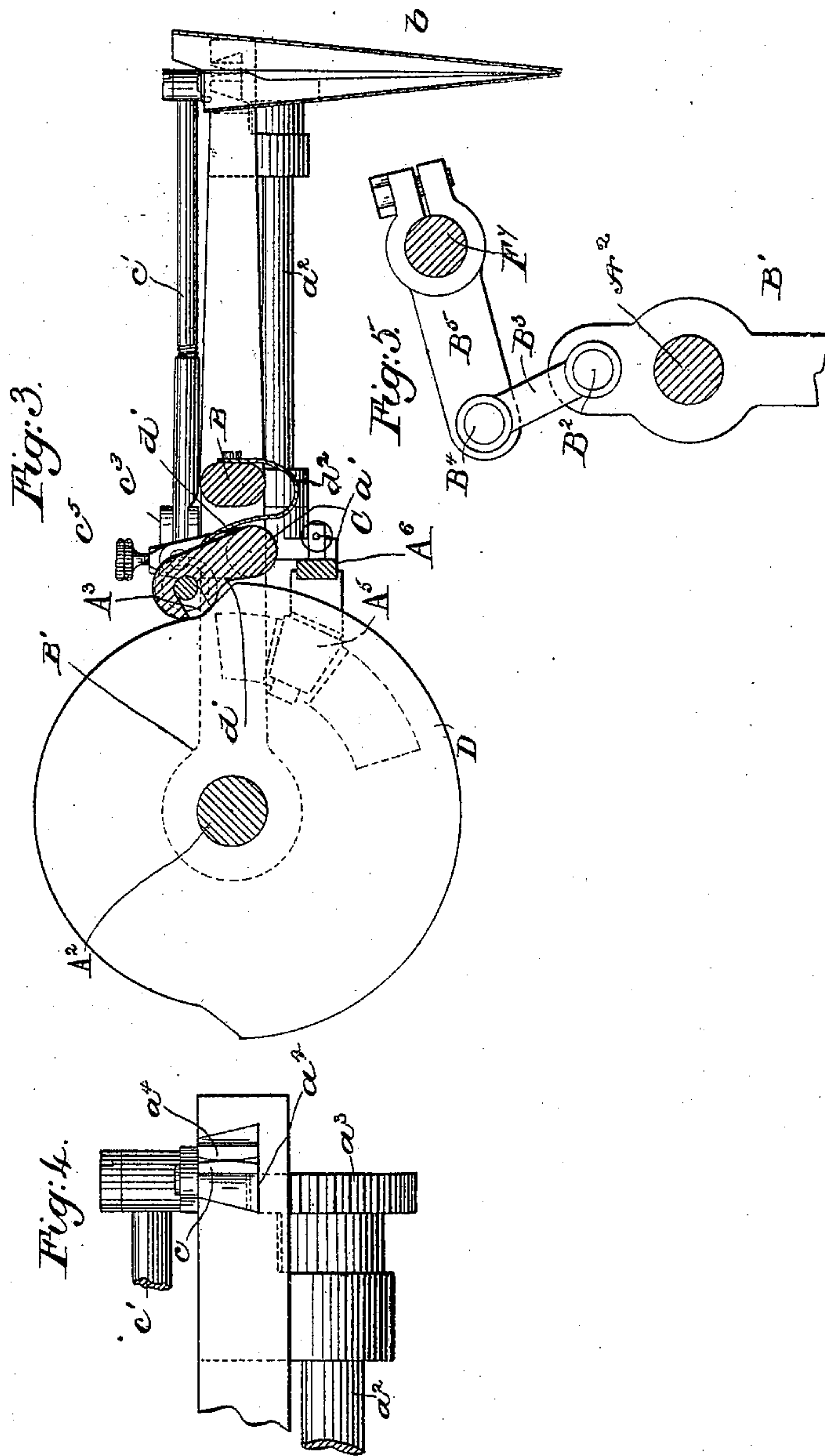
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Witnesses:

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Edward F. Allen.

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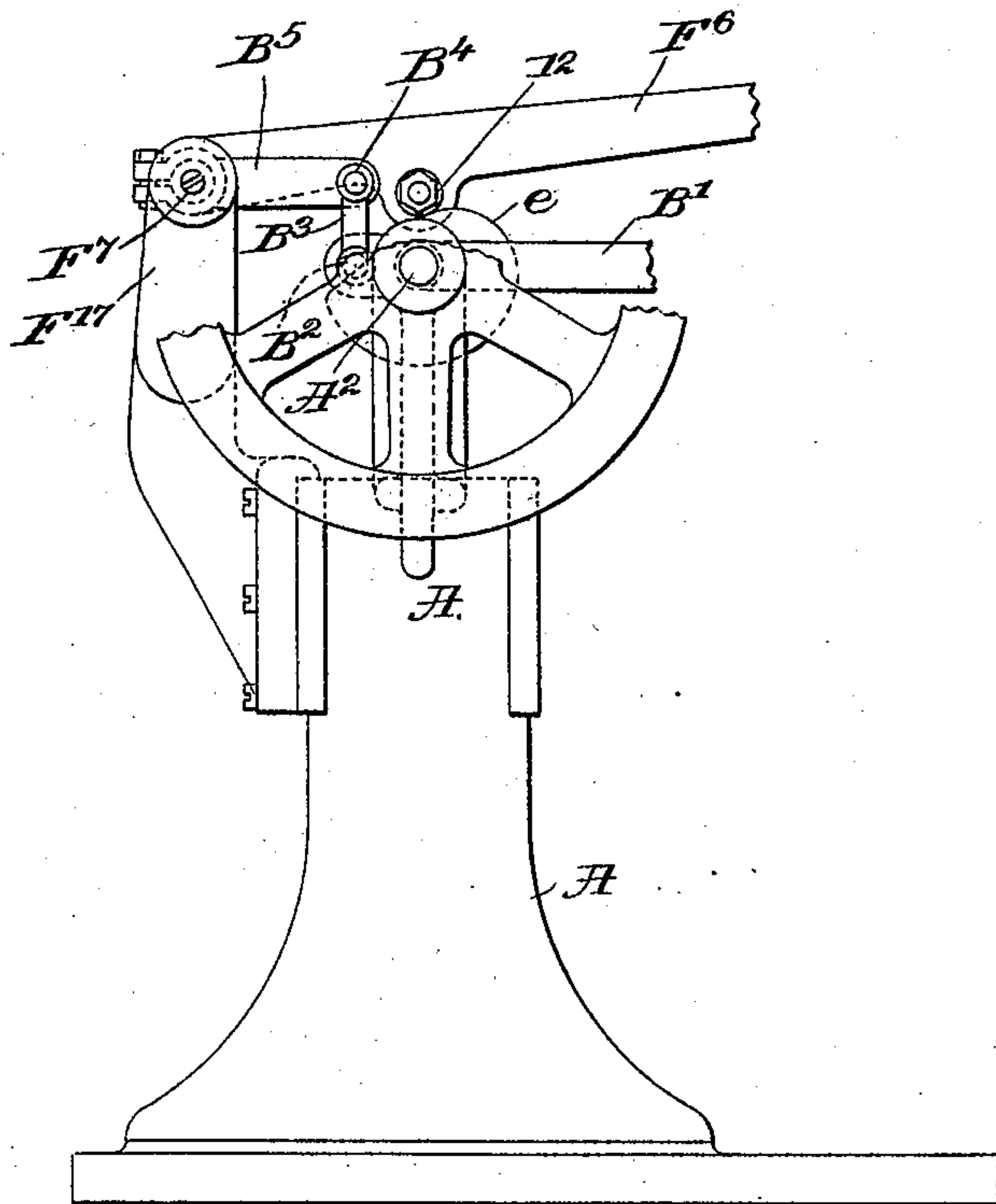
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Fig. 7.



Inventor.

Henry H. Cummings,
by Leroy Gregory *Attys*

Witnesses.

Edward F. Allen.

Thomas Sumner.

UNITED STATES PATENT OFFICE.

HENRY H. CUMMINGS, OF MALDEN, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE BROWN BAG FILLING MACHINE COMPANY, OF FITCHBURG, MASSACHUSETTS.

BAG-HOLDING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 574,137, dated December 29, 1896.

Application filed July 1, 1890. Serial No. 357,347. (No model.)

To all whom it may concern:

Be it known that I, HENRY H. CUMMINGS, of Malden, county of Middlesex, State of Massachusetts, have invented an Improvement in Bag-Holding Mechanism, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

This invention has for its object to provide novel mechanism by which to hold a paper or other bag at its edges when the same has been filled.

My improved mechanism includes a pair of sliding jaws, a movable frame in which the said jaws slide, and means mounted upon the said frame to not only slide but to open and close the said jaws at the proper times.

The holding mechanism herein shown may be applied to a machine substantially such as represented in United States Patent No. 354,094, dated December 14, 1886, to take the bags from the funnel, or it may be used in connection with a machine substantially such as represented in my Patent No. 539,218, dated May 14, 1895, to engage the bags while held by a bag-opening device substantially as therein shown, the main shaft of the said machine being provided with suitable cams to actuate the devices to be herein described.

Figure 1 is a top or plan view of my improved bag-holder. Fig. 1^a, in side elevation, partially broken out, represents a bag-filling machine forming the subject-matter of United States Letters Patent No. 539,218, dated May 14, 1895, with my present invention applied thereto to more clearly show the mechanism *in situ*; Fig. 2, an end view looking in the direction of arrow 1, Fig. 1, the cam, its shaft, and bearings being omitted. Fig. 3 is a section in the line *x*, Fig. 1. Fig. 4 is a detail to be referred to; Figs. 5 and 6, details to be referred to, and Fig. 7 is a view in elevation of the main-shaft support or bearings and some of the connected mechanism.

Referring to the drawings, and particularly to Figs. 1 and 7, A is supposed to represent suitable bearings forming part of a bag-filling machine, such as shown in my patent hereinbefore referred to, a cam-shaft A² rotating therein and provided with a cam D,

(see Figs. 1 and 3,) the periphery of which is suitably shaped to strike a roll A³, the said cam having a side throw A⁴, which acts upon a roller or other stud A⁵, carried by a link A⁶, 55 jointed at *a* at its opposite ends to like shafts *a*², supported in bearings of a frame B, (see Fig. 1,) said frame having arms B' B', which embrace loosely the main cam-shaft A².

One end of the link A⁶ is offset, as best 60 shown in Fig. 2, the ends of the link thus being on opposite sides of the rock-shafts *a*², for a purpose hereinafter described.

The frame B in practice is vibrated on the shaft A² for a limited distance, and in order 65 to produce such vibration one of the arms B' may be provided with a suitable stud B², (see Figs. 1, 5, and 7,) on which is caught a link B³, which is jointed to a pin B⁴ on an arm B⁵, which may in practice, and as clearly shown 70 in Fig. 7, be secured to a rocking stud or shaft F⁷, common to the said patent and mounted in a bearing F¹⁷, and, as is provided for in the said patent, the stud or shaft F⁷ is rocked by means of a lever F⁶, secured thereto and hav- 75 ing a suitable roller or other stud 12, which is actuated by a cam *e* on the shaft A². In the said patent the hopper is adjustably connected to the lever F⁶, shown herein as broken off in Fig. 7. 80

To more clearly show the mechanism of my present invention *in situ*, I have added to the drawings Fig. 1^a, the same corresponding to Fig. 1 in the United States Patent No. 539,218, 85 hereinbefore referred to, and the said Fig. 1^a shows the relative position of the parts in the two inventions. I have illustrated some of the parts in the said figure to correspond with like letters in the said patent to more clearly identify the two by comparison, while in a 90 number of instances I have omitted the lettering to avoid confusion in consideration of the case and also for the reason that in the preparation of the two cases the same letters have in some instances been used to designate 95 different parts. Each shaft *a*² at its front end is provided with a pinion *a*³, which engages rack-teeth of a bar *a*⁴, the inner end of each of said bars being shaped substantially as shown to form a jaw 2, which is preferably roughened or toothed to better insure 100 the grasp of the jaw on the bag *b*. Each

slide-bar has pivoted upon it at 3 the second member c of the pair of jaws 2^c. The free ends of the jaws are beveled inwardly to facilitate the ready application of the jaws to the edges of the bag b . Each jaw member c has jointed to it a link c' , preferably made in two parts, as shown, one part being screwed into the other to enable the links to be lengthened or shortened to enable the mechanism to be adjusted for bags of different width.

The inner ends of the links are jointed by pins c^2 to blocks or heads c^3 of studs c^4 , held adjustably by set-screws c^5 in bearings c^6 of a rock-shaft C, so that the said studs may be adjusted longitudinally as required, according to the width of the bag.

The rock-shaft C, supported at its ends, as shown, on point-screws d , has a lug d' , on which is mounted the roller-stud A^3 , and as the cam D is rotated it, by contact with the stud A^3 , turns the said rock-shaft, a spring d^2 , connected to the frame and bearing against the said lug d' , normally acting to keep the said roller against the periphery of the said cam.

I have shown one of the jaw members c as provided with a stud 5, on which bears a spring e' , which aids in keeping the said jaw member closed, and by slotting the inner end of the link c' , as at 8, (see Fig. 6,) connected to the said jaw member and block, the said spring enables the pair of jaws with which it coöperates to be self-adapting to variations in thickness of the bag.

When the roller A^3 is not acted upon by the side throw A^4 , a spring f , to be described, draws the link A^6 in the opposite direction, and by reason of the location of the ends of the link with relation to the rock-shafts a^2 the pinions a^3 are turned in opposite directions, the bars a^4 thereby being separated, and also the jaws carried thereby.

When the stud A^5 is lifted by the side throw, the link is moved against the action of the spring and the jaws are made to approach each other.

The frame B has a stud 9 and the link A^6 has a stud 10, and the said studs are connected with a spiral spring f , which normally acts to keep the jaws separated, so that when the jaws grasp the edges of a bag they will pull thereon in the direction of the width of the bag to normally close its plies, so that the usual lip of the bag may be readily folded down or over to close the mouth of the bag, the jaws in practice grasping the bag as closely as possible to its open end and yet leaving sufficient space for the bag-lip to be pasted to the shorter ply of the bag.

The operation of my improvements, as used in connection with the patented machine heretofore referred to, and illustrated in Fig. 1^a, is as follows: The stack of bags is fed along the guide E by the follower e^{19} and are caught one by one by the bag opener and holder and filled from the hopper F. Just as a bag is filled the frame B is swung up on its

pivot-shaft A^2 by means of the link connection B³ with lever F⁶. At the moment that the jaws 2 2, carried at the free end of the frame B, (see Fig. 1,) get opposite the upper edges of the filled bag, below the closing-flap thereof, (see Fig. 2,) the roll A^3 reaches the reduced portion of cam D as the latter is revolved by shaft A^2 , as shown in Fig. 3, and this at once permits the jaws, under the action of spring d^2 , to close against the said edges of the bag, the jaws having been previously moved inwardly toward each other and toward the bag by means of the side throw A^4 acting on the stud A^5 to swing the link A^6 up, Fig. 2. Having grasped the filled bag firmly on either side, as stated, the stud A^5 runs off from the side throw A^4 , Fig. 3, and permits the spring f to separate the pairs of jaws. Frame B is then moved downwardly by the cam e and mechanism shown in detail in Fig. 7 in the opposite direction to its previous movement, carrying the filled bag, which has been properly pasted by the paste device operated by lever t^{12} , away from the filling mechanism and down under the folder. As the folder seizes the pasted lip of the bag the enlarged portion of cam D raises roll A^3 , thereby opening the jaws 2 2, which thereupon move away from the bag a short distance under the influence of spring f or other separating means, the extent of this movement depending upon the distance previously taken up by the above-mentioned stretching apart of the edges of the bag, the two movements together equaling the opposite or inward movement due to the side throw A^4 . The open and separated jaws are now swung up again to grasp the next bag, which has in the meantime been filled, and this they do by being moved inwardly, then closed against the bag, and finally allowed, preferably, to spring away from each other, stretching the bag at its sides until the opposite plies are brought together for subsequent closing and sealing, as before explained. This cycle of movements is repeated with each bag.

While I have thus described the operation of my bag-holding mechanism in connection with my patented bag-filling machine, I wish to have it understood that I have done so solely for the purpose of illustration, and do not intend to be limited in any way thereby, inasmuch as my invention may be used alone or in connection with any other machine.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a bag-holder, a frame, two pairs of jaws therein, means to open and close the said jaws, and means to bodily move said pairs of jaws in opposite directions, substantially as described.

2. In a bag-machine, a frame, two pairs of jaws carried thereby, and means to reciprocate the said jaws in opposite directions to stretch the bag in the direction of its width, substantially as described.

3. The shaft A², the rocking frame thereon,
and two pairs of jaws, combined with means
to open and close the said jaws, and means to
reciprocate the same to stretch the bag in the
5 direction of its width, substantially as de-
scribed.

4. In a bag-holder, a frame, two pairs of
jaws therein, means to open and close the said
jaws, a spring to act upon both pairs of jaws
10 in closing, and an auxiliary spring to render

one of the said pairs of jaws self-adapting to
varying thicknesses of paper independently
of the other pair, substantially as described.

In testimony whereof I have signed my
name to this specification in the presence of 15
two subscribing witnesses.

HENRY H. CUMMINGS.

Witnesses:

GEORGE W. GREGORY,
EMMA J. BENNETT.