

(No Model.)

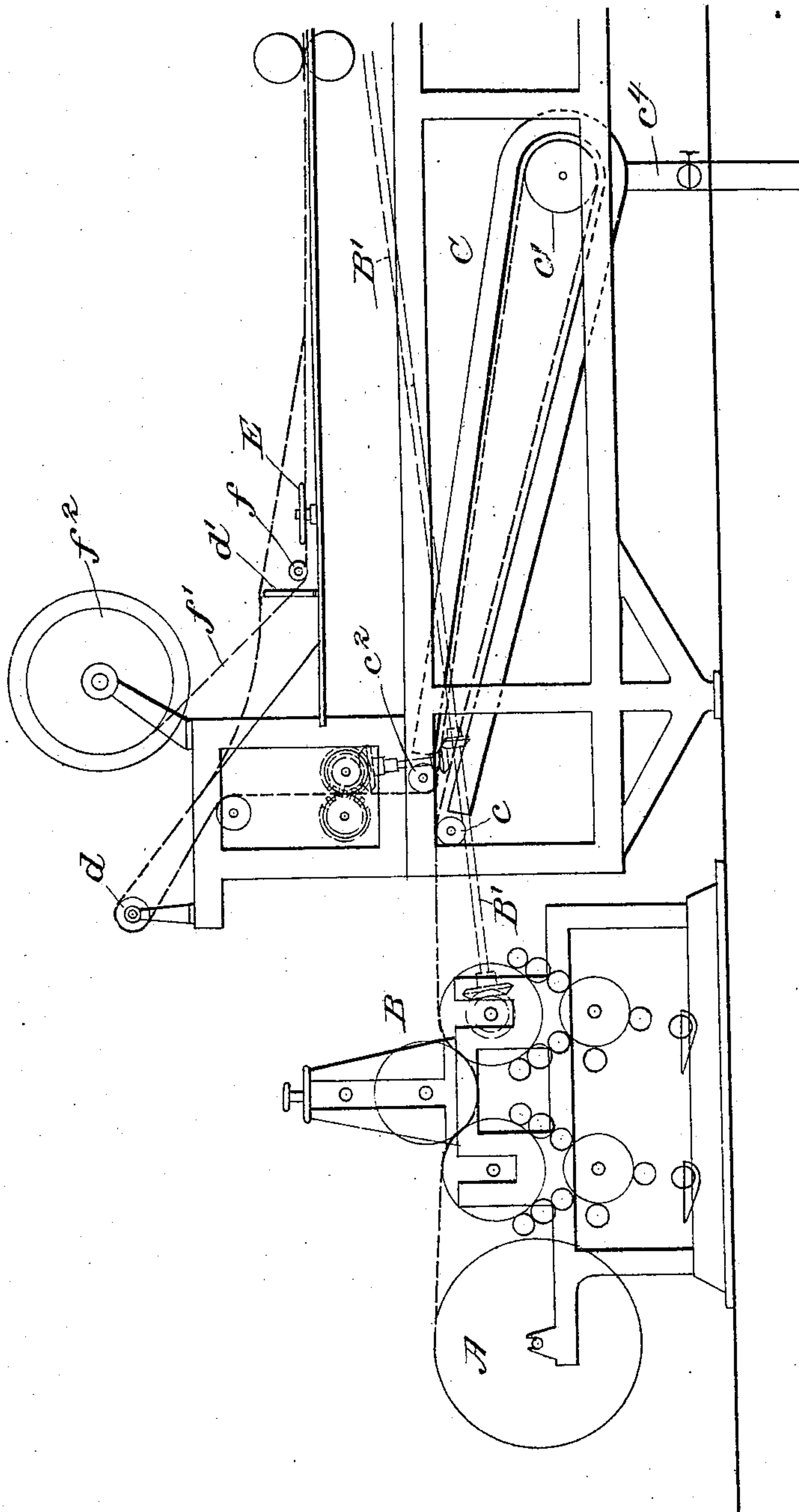
5 Sheets—Sheet 1.

A. C. GETTEN.
PAPER BAG MACHINE.

No. 575,062.

Patented Jan. 12, 1897.

Fig. 1.



WITNESSES:

W. H. Humphrey,
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INVENTOR

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(No Model.)

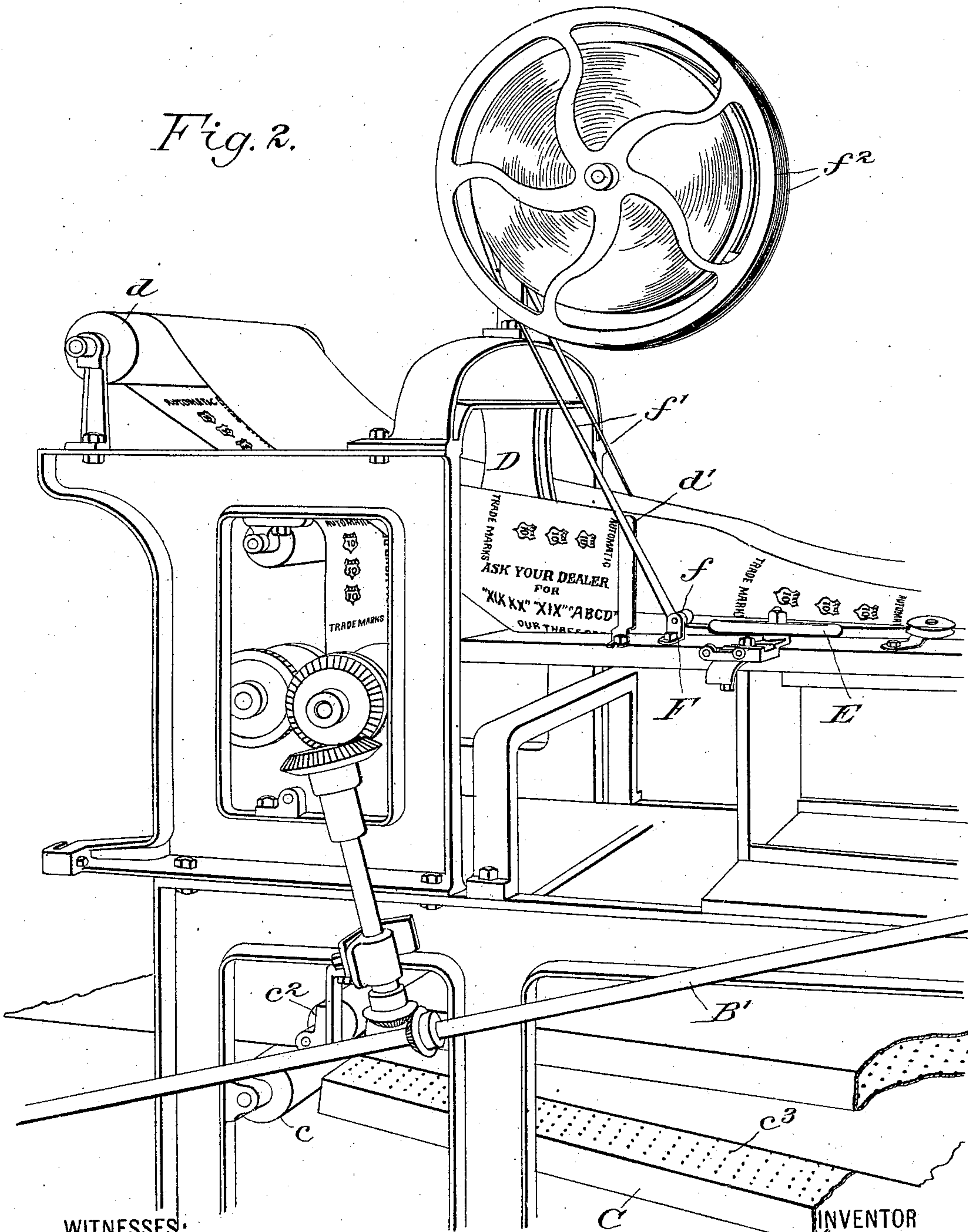
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Fig. 2.



WITNESSES:

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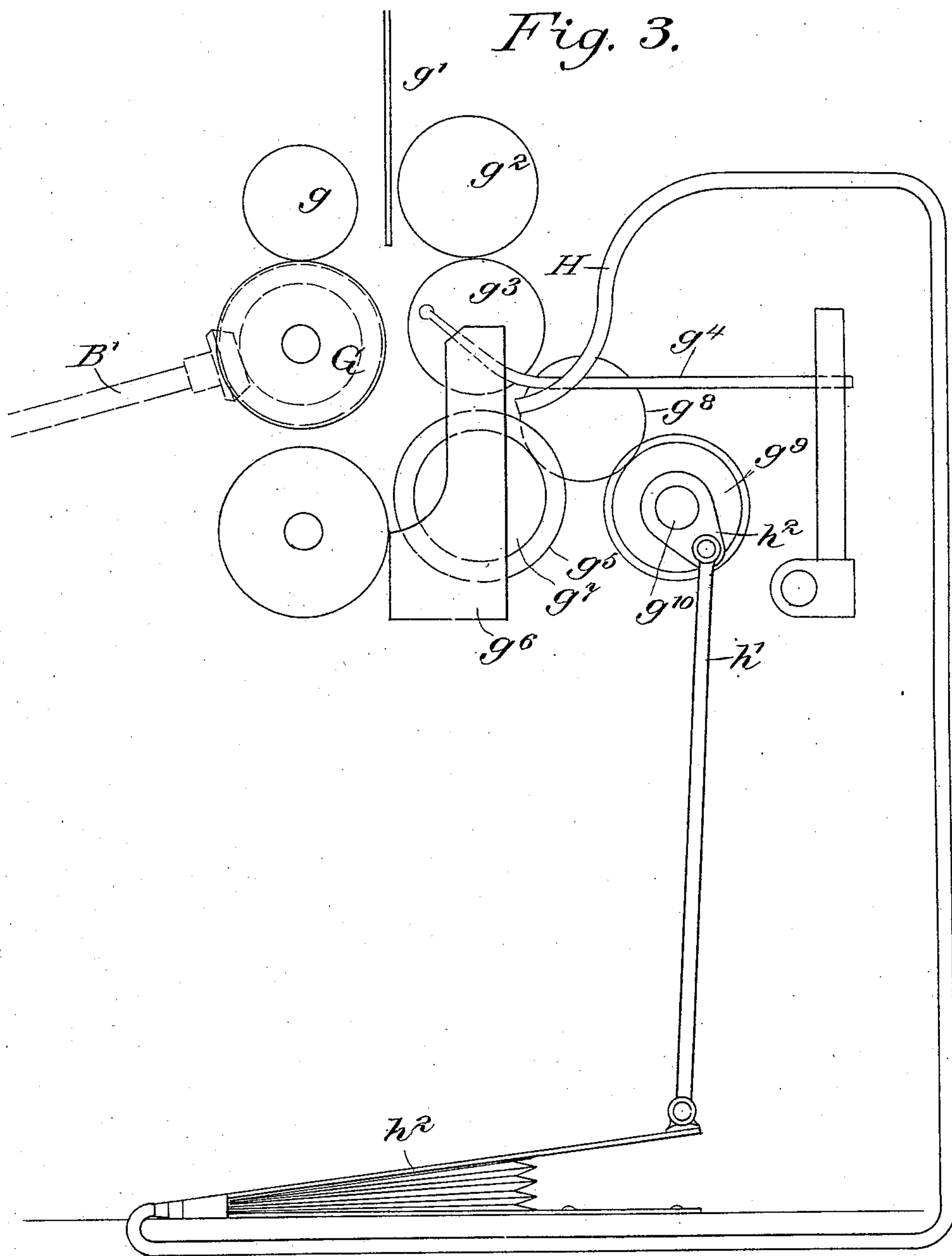
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(No Model.)

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Fig. 4.

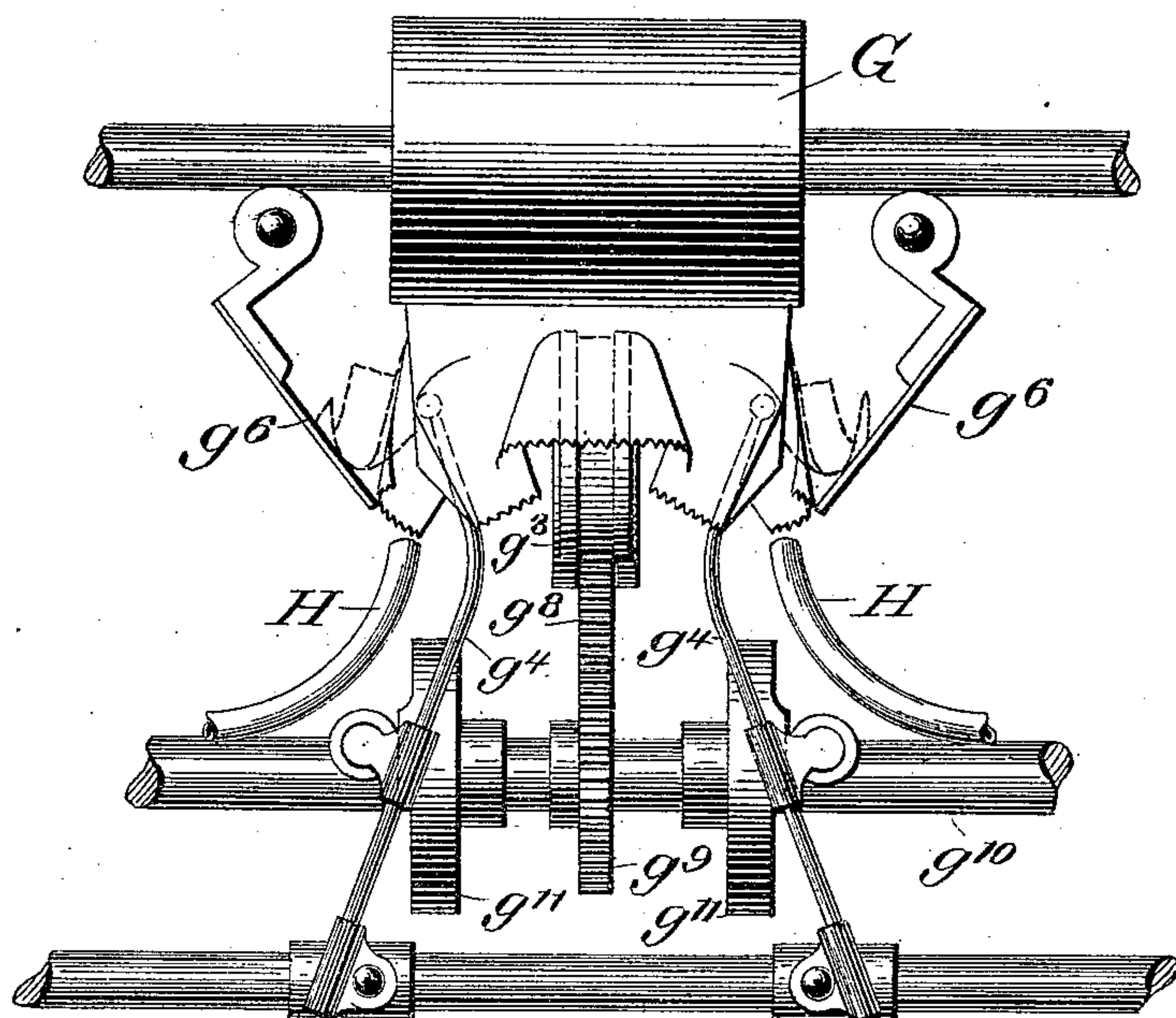
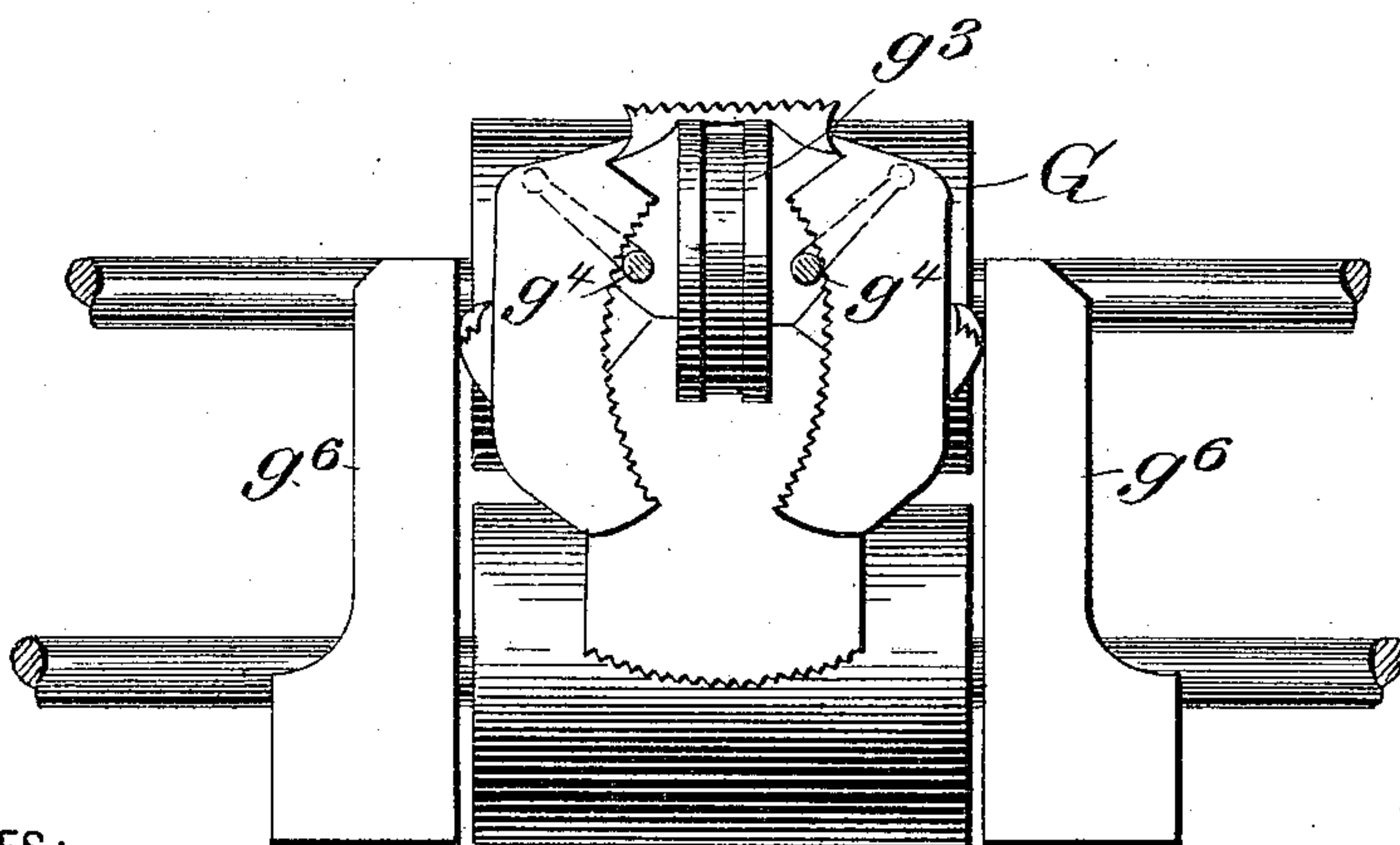


Fig. 5.



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(No Model.)

5 Sheets—Sheet 5.

A. C. GETTEN.
PAPER BAG MACHINE.

No. 575,062.

Patented Jan. 12, 1897.

Fig. 6.

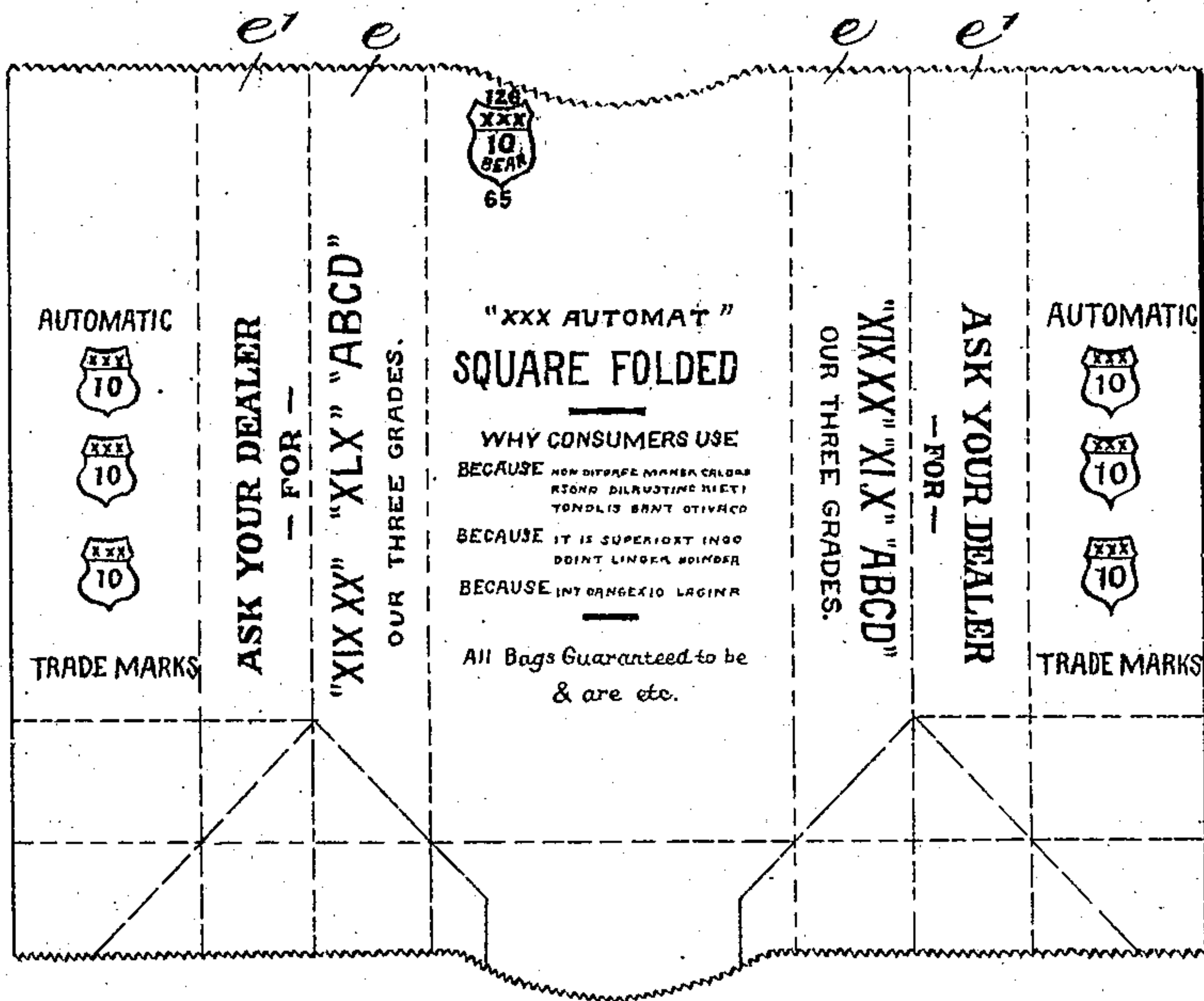


Fig. 7.

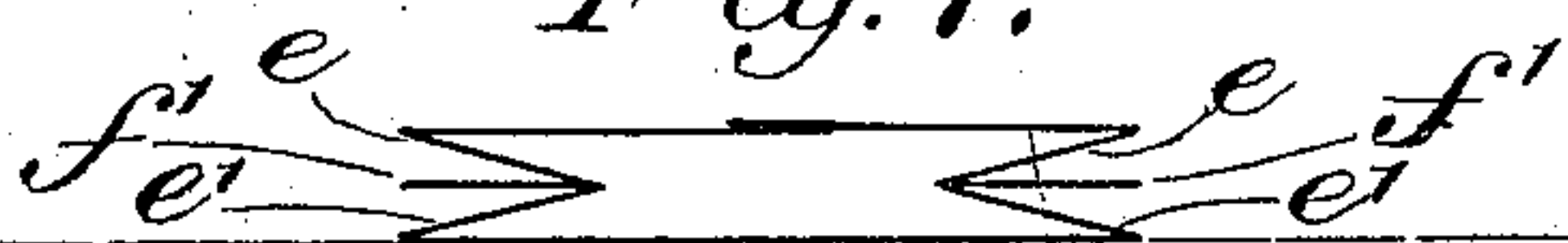


Fig. 10.

Fig. 8.

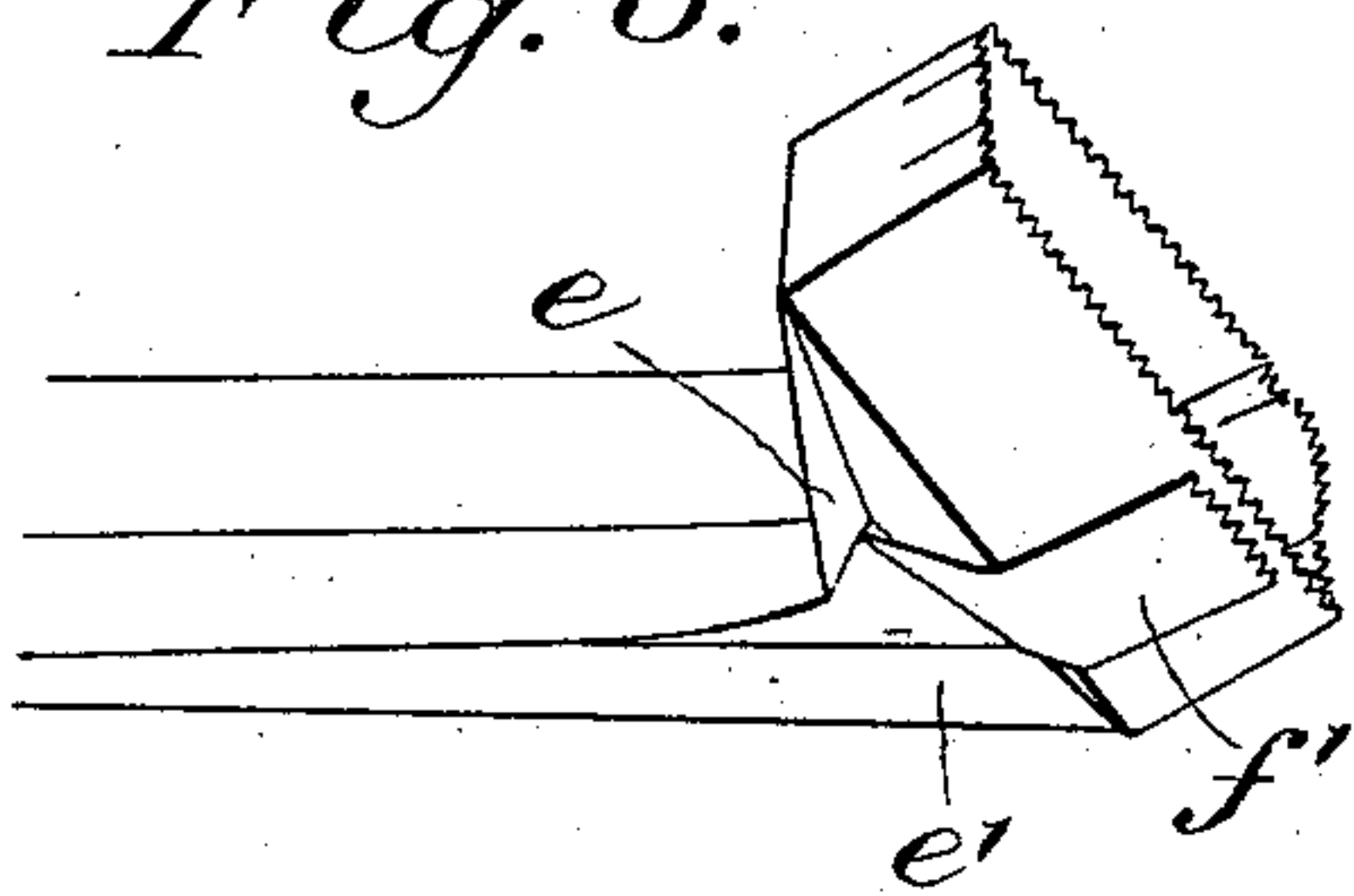
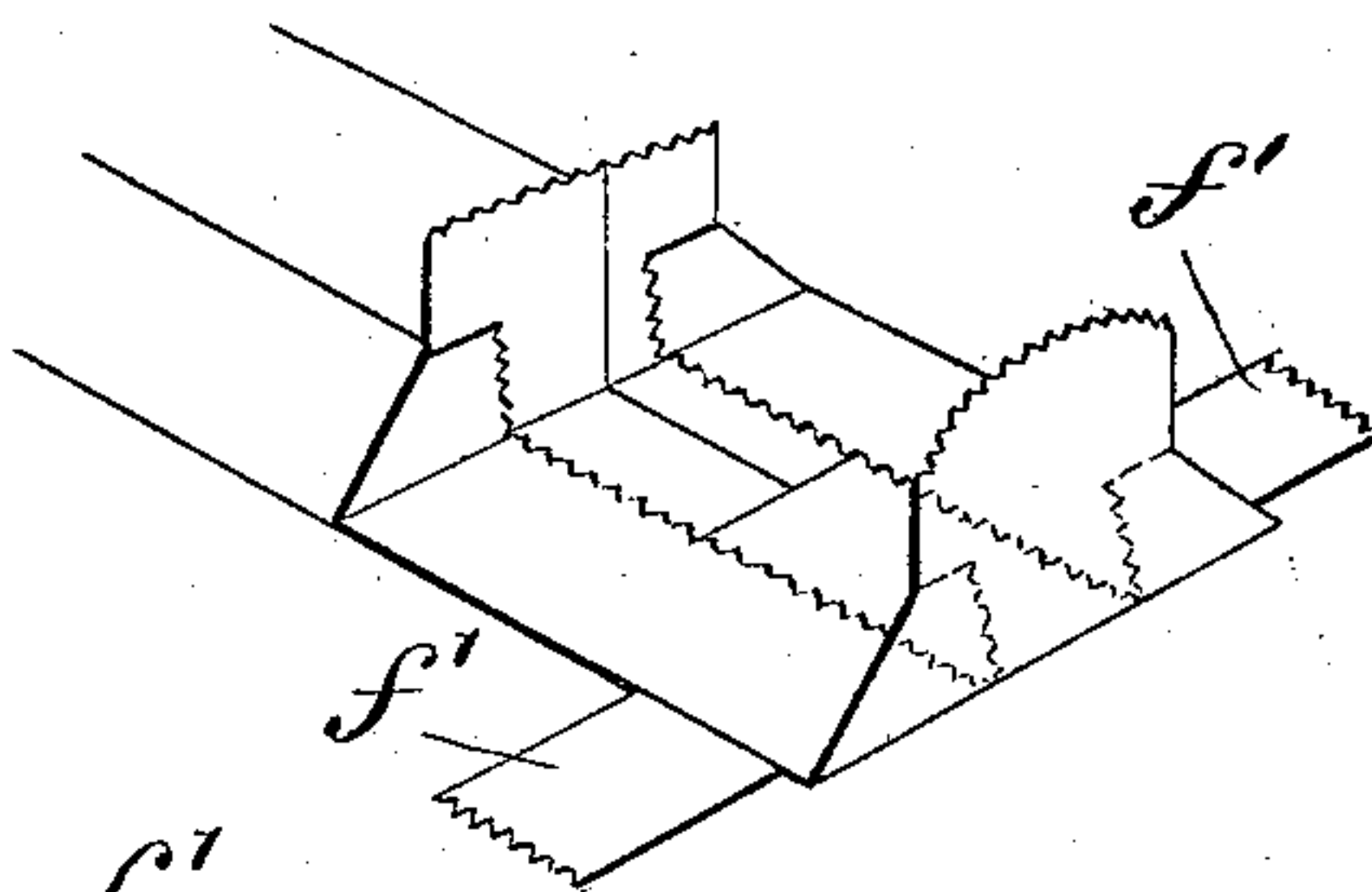


Fig. 9.



WITNESSES:

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UNITED STATES PATENT OFFICE.

ALBERT C. GETTEN, OF SANDY HILL, NEW YORK, ASSIGNOR TO THE UNION
BAG AND PAPER COMPANY, OF CHICAGO, ILLINOIS.

PAPER-BAG MACHINE.

SPECIFICATION forming part of Letters Patent No. 575,062, dated January 12, 1897.

Application filed March 19, 1896. Serial No. 583,881. (No model.)

To all whom it may concern:

Be it known that I, ALBERT C. GETTEN, a citizen of the United States, residing at Sandy Hill, in the county of Washington, State of New York, have invented certain new and useful Improvements in Paper-Bag Machines, of which the following is a specification, reference being had to the accompanying drawings, forming a part hereof.

This invention relates more especially to the printing of letters, figures, characters, or ornamental or distinctive marks of any character whatsoever upon paper bags. Ordinarily paper bags are printed after they have been finished, which involves a separate operation and a consequent increase in cost. The desirability of printing the paper before the bags are formed therefrom is obvious, but hitherto there have been certain obstacles or difficulties in the way which have rendered this impracticable. If the roll of paper is printed and dried, so that there shall be no possibility of the transferring of the ink from the printed surface, or "offsetting," as it is technically
- 5 termed, and the paper is then rewound in a roll and brought to the bag-machine, there is inevitably so much change in the length of the paper that in running off a long roll the printed matter and the bags as formed fail to
30 register. It therefore becomes necessary that the printing and the forming of the bag shall be done in one continuous operation without rewinding the paper between the printing and the formation of the bags. Hitherto this has
35 been impracticable on account of the offsetting of the ink from the freshly-printed surface upon the rolls of the bag-machine, quickly causing the blurring and smutching of the unprinted surfaces of the bag. Even if the
40 offsetting of the ink upon the rolls of the bag-machine could be overcome, it would still be impracticable, under present methods of manufacture of satchel-bottom bags with bellows-folded sides, to print upon all sides of the bag
45 because of the practical impossibility of preventing the offsetting between the bellows folds, as the bag after being folded is subjected to great pressure between the rolls of the machine. I have sought to meet all of
50 these objections and to overcome all of these

difficulties, printing the paper and forming the bag in one continuous operation and enabling the printing to be done upon any and every part of the bag's surface without any offsetting whatsoever. I have accomplished
55 this result by the means described hereinafter.

In the accompanying drawings, in which I have illustrated an embodiment of my invention, Figure 1 is a side elevation in outline of a bag printing and forming machine, only
60 a portion of the bag-forming mechanism being represented. Fig. 2 is a perspective view of a portion of the mechanism shown in Fig. 1 to illustrate more clearly the relations of some of the parts thereof. Fig. 3 is a side eleva-
65 tion in outline of that portion of the bag-forming mechanism which completes the folding of the bag and which is not represented in Fig. 1. Fig. 4 is a plan view of a portion of the mechanism represented in Fig. 3. Fig.
70 5 is a front elevation, partly in section, of some of the parts shown in Fig. 4. Figs. 6, 7, 8, 9, and 10 are detail views representing a bag at various stages of its formation to enable the following description to be more
75 readily understood.

My invention is not concerned with the particular construction of the printing mechanism nor with the particular construction of the bag-forming mechanism, and my improve-
80 ments may be employed with any ordinary form of either mechanism. Accordingly I have not sought to represent completely and in detail the construction of either of these mechanisms, but have indicated enough of
85 both to enable my invention to be clearly understood, and I shall not hereinafter refer to the details of construction or operation of these mechanisms except so far as it may be necessary to explain more clearly the nature
90 and operation of my improvement.

As represented in Fig. 1, the paper to be printed and thereafter to be formed into bags is supplied from a roll A, which may be suitably supported upon or in proximity to the
95 printing mechanism B, which is represented in said figure as a two-color-printing mechanism, although it may be a single-color-printing mechanism or a printing mechanism of any desired construction. The said mech-
100

anism is set immediately in front of the bag-forming mechanism and is operated therewith by a shaft B', (shown in Figs. 1, 2, and 3,) so that the printed matter for each bag shall be placed upon the web of paper in a position to register exactly with that portion of the web which is thereafter formed by the bag mechanism into a single bag, the shaft being shown as geared to the printing-roll and to one of the forming-rolls. The printing mechanism and the bag mechanism consequently form, virtually, parts of a single machine in which, as will hereinafter more clearly appear, the printing and the formation of the bag are effected in one continuous operation.

It is of course desirable that the freshly-printed surface of the paper shall be dried as rapidly and as thoroughly as possible before it reaches the bag-forming devices. To accomplish this, it is desirable to extend the path of the paper between the printing mechanism and the first folding devices as much as possible within reasonable limit, for which purpose suitable guide-rolls c , c' , and c^2 are provided, over which the paper is led back and forth while its printed surface is subjected to the action of dry and heated air. To supply the air in sufficient volume and in the most effective manner, I prefer to provide an air-distributor of the general form of that represented in Fig. 1, that is to say, of a form which shall correspond with the path of the paper. As represented in Figs. 1 and 2, the distributor C is substantially U-shaped or horseshoe-shaped, embracing the roll c' . It consists of a flat tube of sheet metal, which is perforated, as at c^3 , on the side adjacent to the path of the paper. At a convenient point it has connected thereto a supply-pipe c^4 , through which the previously dried and heated air is forced from any convenient source. As the air issues through the perforations of the distributor it impinges upon the printed surface of the paper, whereby the ink is subjected to the action of the dried and heated air continuously from the time it enters the drier until it leaves the same and is thereby thoroughly dried, so that there is no danger of offsetting upon the rolls of the machine. Nevertheless, even with this precaution taken, there might be offsetting between the folds of the bag if there is printing thereon by reason of the pressure to which the bag is subjected after it is folded.

I will presently describe the provisions which I have made to prevent the offsetting of printed matter from one side fold to its opposite. The roll c' is itself preferably a steam-heated roll, so that the paper is dried not only by the hot air, but by contact with a steam-heated surface, which makes the paper less hard and brittle.

The provisions above alluded to comprise means for interposing between the opposite side folds a strip of paper which shall receive the offset as the bag passes through the

forming devices and can afterward be removed, thereby leaving the bag free from disfiguring offsets or blurs.

In the form of folding devices represented in Figs. 1 and 2 the web of paper passes from a guide-roll d beneath the former D, which is shown in part only in Fig. 2, and thence between guides d' , by which the web is formed into a trough. Next in order upon the frame of the machine are secured the brake-wheels, one of which is shown at E in Figs. 1 and 2, which break or bend inward the sides of the paper trough, making the side or bellows folds $e e'$ of the bag. (See Figs. 6, 7, and 8.) From the brake-wheels E E the web of paper passes on between the rolls of the bag-forming mechanism which fix the folds. It is at the time when the side folds are being formed that I introduce the strip which is to receive the offset of the printed matter on such side folds. As a convenient means to feed in the strip at the proper time I secure to the frame of the machine, in proximity to the brake-wheel on each side, a bracket F, which supports a guide-roller f , the latter projecting inward into the folds as it is being formed. Each strip (represented at $f' f'$) is supplied from any convenient source, preferably from a spool or reel f^2 , which is suitably supported upon the frame of the machine, the paper being wound thereon in a roll and drawn forward with the web of paper which forms the bag as it progresses through the machine. The strips are severed as each bag is formed and severed, and as the bags are delivered from the machine the strips lie within the fold and can thereafter be removed readily.

It may sometimes happen that the ends of the strips above referred to may be folded in with the bottom of the bag and pasted down unless means are provided to prevent this. Accordingly I have provided means whereby after the preliminary folds of the bottom have been formed, as indicated in Fig. 8, and the strips between the folds have been folded upon themselves at right angles, whereby their extremities stand out from the folds, as represented in Fig. 9, the ends of said strips are held out during the formation of the final folds, so that they shall not be folded in and pasted down. The means which I prefer for this purpose and their relations to the bag-forming devices are represented in Figs. 3, 4, and 5. As the bag passes from between the nipper-roll G and the overlying presser-roll g the folds of the bottom are formed in succession by the coöperation of the tucker-blade g' , the gripper-roll g^2 , the seam-holder g^3 , the fingers g^4 , the coacher-roll g^5 , and the wings g^6 , the coacher-roll being driven through a gear g^7 and an intermediate gear g^8 from a gear g^9 on the shaft g^{10} , which carries the cams g^{11} for operating the fingers g^4 . As the mechanism just referred to forms no part of my present invention, it is not necessary herein to describe its arrangement and mode of operation in detail, except to say that the

wings g^6 are liable at times to turn in the ends of the strips, so that they shall be caught and pasted down. In order to prevent this, I direct a blast of air through a suitable pipe H against the projecting end of each strip just before and during the action of the wings g^6 , and thereby cause such ends to stand out and away from the wings, so that when the bag is completed, as shown in Fig. 10, the ends of the strips shall stand out at right angles, as there shown, whereby the strips can be easily and completely removed. Any convenient means may be employed for producing the blast of air. I have shown the pipe H as connected to the nozzle of an ordinary bellows h , which is operated by a pitman h' and crank h^2 on the shaft g^{10} , whereby the blast of air is produced only at such times as it is required.

Without further description or explanation it will be understood that the paper is printed in a web and the bag formed therefrom in one continuous operation, that the ink is so thoroughly dried between the printing and the formation of the bag as to prevent offsetting upon the rolls of the machine, and that by the interposition of the strip between the side folds the offsetting from one of said side folds to the other is entirely prevented.

It will be obvious that various changes may be made in the details of construction and

arrangement of the various devices without departing from the spirit of my invention, and particularly that the invention is in no wise limited by anything herein shown or described as to the character of the printing and bag-forming devices.

What I claim, and desire to secure by Letters Patent, is—

1. In a bag-machine, the combination with the former, brake-wheel and pressing-rolls, of a device to introduce a strip between the side folds of the paper.

2. In a machine for forming bags with folded sides, the combination of means to supply a strip of paper and a guide to introduce said strip between the side folds of the web of paper.

3. In a bag-machine provided with means to introduce a strip between the side folds during the formation of the bag, the combination with the devices for folding in the bottom of each bag, of an air-blast to direct a current of air against the end of said strip and prevent the same from being folded with the bottom of the bag.

This specification signed and witnessed this 17th day of March, A. D. 1896.

ALBERT C. GETTEN.

In presence of—

F. WASHBURN,
FRED. E. EARLE.

It is hereby certified that in Letters Patent No. 575,062, granted January 12, 1897, upon the application of Albert C. Getten, of Sandy Hill, New York, for an improvement in "Paper-Bag Machines," errors appear in the printed specification requiring correction as follows: On page 2, in lines 77 and 82, the compound word "brake-wheels" should read *break-wheels*, and on same page, lines 90-1, and on page 3, line 41, the compound word "brake-wheel" should read *break-wheel*; and that the said Letters Patent should be read with these corrections therein to conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 19th day of January, A. D., 1897.

[SEAL.]

JNO. M. REYNOLDS,
Assistant Secretary of the Interior.

Countersigned:

JOHN S. SEYMOUR,
Commissioner of Patents.