No. 686,563. Patented Nov. 12, 1901.

A. V. WALKER.

WEB FOLDING MACHINE.

(Application filed Jan. 11, 1901.)

(No Model.) 3 Sheets—Sheet 1.

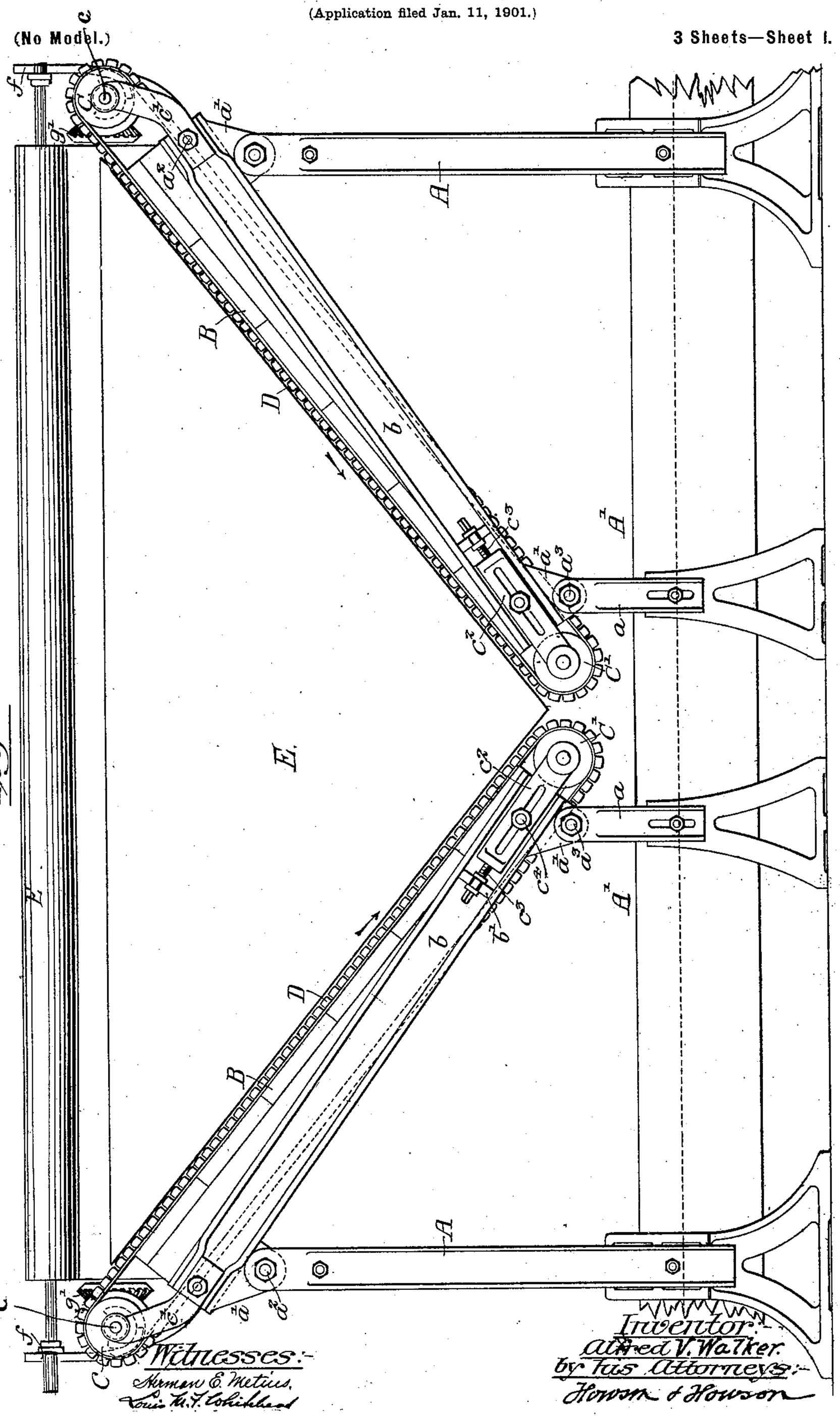

Fig. 1.

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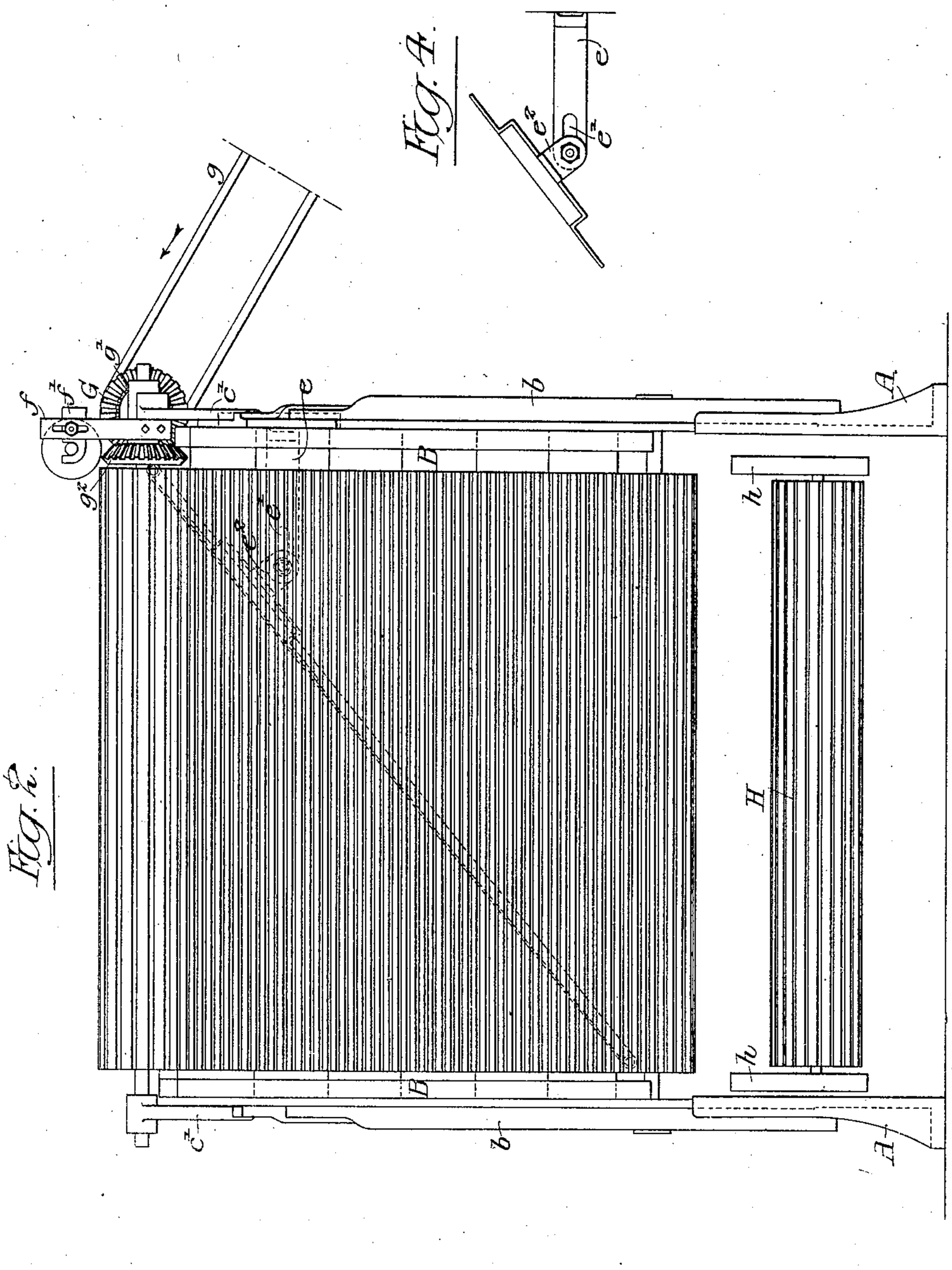

FIG. 2.

FIG. 4.

Witnesses:-
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Inventor:-
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(No Model.) 3 Sheets—Sheet 3.

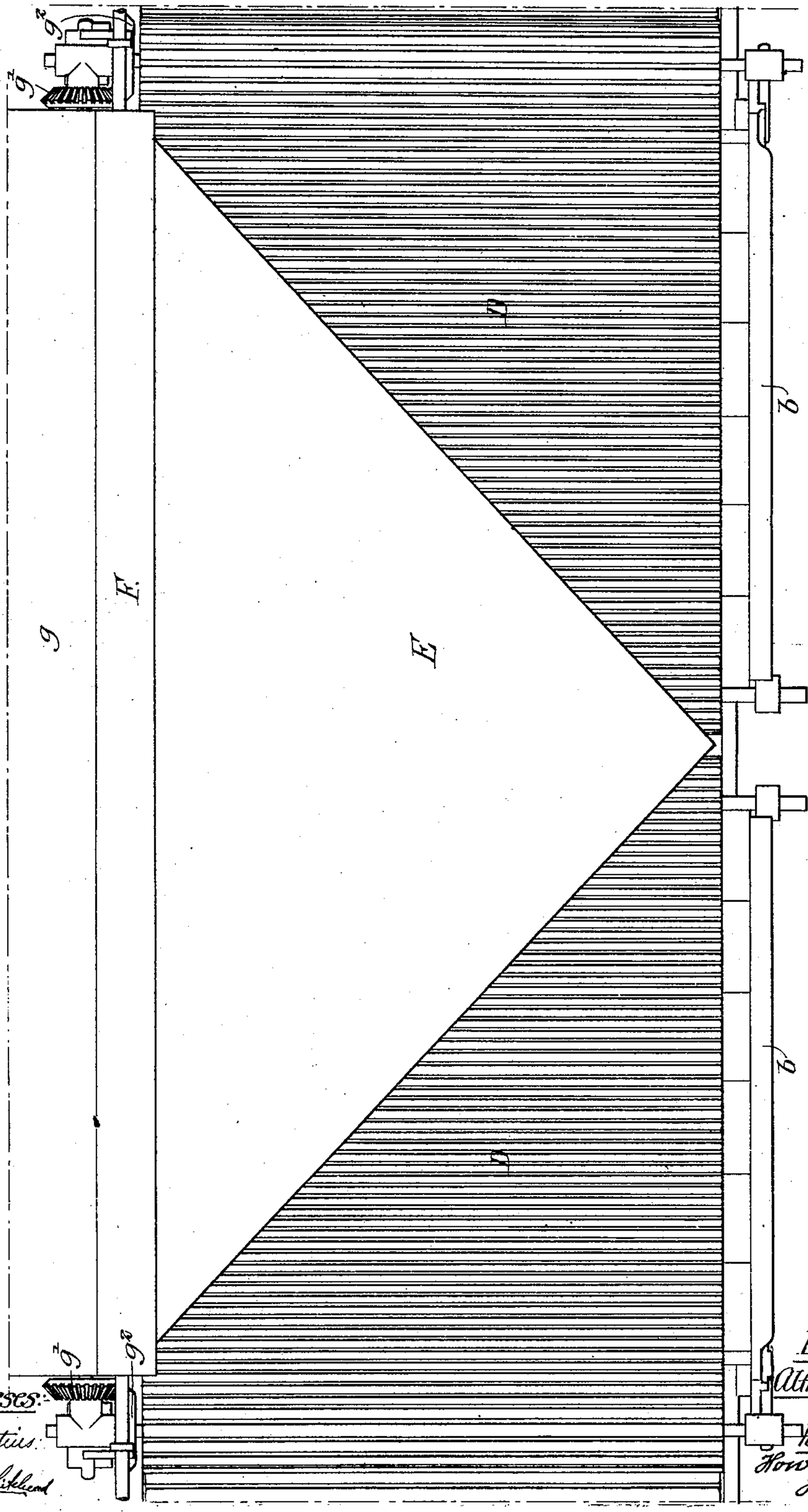

Fig. 3.

Witnesses:
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UNITED STATES PATENT OFFICE.

ALFRED V. WALKER, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO JAMES SMITH WOOLEN MACHINERY COMPANY, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

WEB-FOLDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 686,563, dated November 12, 1901.

Application filed January 11, 1901. Serial No. 42,936. (No model.)

To all whom it may concern:

Be it known that I, ALFRED V. WALKER, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Web-Folding Machines, of which the following is a specification.

My invention relates to certain improvements in web-folding machines, particularly as applied to the manufacture of cotton-batting, having for its object the provision of mechanism for receiving and folding a web of cotton fiber as it is delivered from a carding or Garnett machine, thereby forming a continuous piece of batting double the thickness and one-half the width of the original web. This object I attain as hereinafter explained, reference being had to the accompanying drawings, in which—

Figure 1 is an elevation of my improved web-folding machine. Fig. 2 is a side view of the same. Fig. 3 is a plan view, and Fig. 4 is a sectional view of a detail.

In my preferred construction, as shown in the drawings, the machine is supported on two sets of standards A A and A′ A′, the two latter being made with movable sections *a a*, allowing vertical adjustment of their height. Pieces *a′ a′* on each standard support the frame B B of the machine, the said frame having channel-pieces *b b* held to its front and back edges by bolts or screws. (Not shown.) These channels are pivoted to the standards A through the pieces *a′*, the bolts a^2 acting as the hinges or pivots. A similar connection is made between the pieces A′, connected to the lower end of the channel, and the adjustable piece *a* on the standard A′. Rollers C C have supporting-shafts *c c* operating in bearings on bars *c′ c′*, these latter being bolted to the upper ends of the channel-pieces *b b*, as shown in Fig. 1. Longitudinally-slotted bars c^2 c^2 are held to the lower ends of the said channels by bolts passing through the slots. One end of each bar c^2 has a bearing for the shaft of a roller C′. The other end of the bar has a lug, and projecting from the lug is a screw c^3. This screw extends through a threaded bushing which is held in a rib *b′* of the channel-piece *b*, the said screw having its end squared to receive a wrench. An apron D, preferably of the construction shown in the drawings, passes over each set of rollers C C′, the upper drum of the apron being supported by the frame B of the machine. A triangular guiding-surface E is adjustably held in an inclined position between the aprons D D, as shown, and is preferably made of tin or other material capable of having given to it a high polish. An arm *e* (shown in dotted lines in Fig. 2) extends forward from the back framework of the machine and is constructed, as shown, with a slot *e′* in its end. The guide E, which is hung or pivoted at its upper edge to the frame of the machine, has an arm e^2 projecting from its under surface, which is adjustably bolted to the arm *e*. A roller F, having a shaft extending through it, is supported in bearings in the pieces *f f*, bolted, as shown, to the bearings for the rollers C C at the back of the machine. There are slots in these pieces *f*, which receive bolts for holding the actual bearing-pieces *f′* to them, thus allowing a vertical adjustment of the roller F. The bearing-pieces *c′* at the back of the machine are made with bearings for an apron-roller G. An apron *g*, leading from a carding or Garnett machine, runs over this and transmits power from a suitable driving-wheel to the said roller. Although it will be understood that I may, if desired, drive the aprons from a separate counter-shaft, the above-described arrangement is preferably used. Beveled gear-wheels *g′ g′* are keyed to the shaft of this roller G and mesh with corresponding gears g^2 g^2, keyed to the shaft of the rollers C, these rollers, with the aprons D D, being thereby moved whenever the apron *g* is moved. An apron H, running over suitable rollers supported in side pieces held to the frame of the machine by bolts, (not shown,) is made to run underneath and parallel with the aprons D D, and it may lead to a machine for rolling the batting or to another machine.

The operation of my device is as follows: A thin web of cotton fiber is delivered on the apron *g* from a carding-machine and is carried by it in the direction of the arrow to the top part of the web-folding machine. From

here it passes up over the roller F and down onto the guide E. It will be understood that the apron structure is preferably as wide as the roller F is long. Its corners are immediately engaged by the aprons D D and drawn under the inclined guide-surface E. The edges of this guiding-surface are made rounded, and as the aprons D D travel downwardly, as indicated by the arrows, they constantly engage and turn under more of the web as it is fed over the roller F. This operation continues until the two halves of the original front edge of the web meet at the lowest point of the inclined surface of the aprons D, when they are delivered parallel onto the moving apron H. It will be seen that by this means the web is doubled in thickness, while being one-half of its original width, and this operation may be repeated in similar machines until the batting of the desired thickness has been obtained.

If from any cause the aprons D D should become slack, the excess of length may be taken up by the adjustable mechanism c^2 c^3, for by backing off the retaining-nuts c^4 c^4 and turning the screws c^3 in the proper direction the bar c^2 may be moved outwardly and the distance between the rollers C and C′ increased. This would naturally bring the two rollers C′ C′ together, and this change of distance of these rollers is compensated for by lowering the pieces a a on the standards A′ A′. Any slight variation in the inclination of the guide E may be made by adjusting the arm e^2 on the arm e.

Should it be desired to vary the distance of the roller F above the guide-surface E, this may be done by slackening the necessary nuts and raising or lowering the bearing-piece f' on the pieces f.

In constructing my web-folding machine I preferably use a polished surface of tin for the guide E, as it will be understood by those skilled in the art that the web must be allowed to slide down this incline by its own weight on account of its delicacy. Further, in regard to the use of aprons, it is important that the web be supported at all points of its surface, as it is not self-sustaining and could not be manipulated by the use of bands, and therefore I employ a guide which presents a smooth surface throughout its superficial area, and such guide also presents substantially a continuous surface.

I claim as my invention—

1. The combination in a web-folding machine, of a delivery-apron an inclined triangular guide presenting a smooth surface throughout its superficial area, and arranged to receive the web from the delivery-apron, and inclined aprons mounted upon rollers which are parallel to each other traveling under the guide and toward each other whereby the web is folded, substantially as described.

2. The combination in a web-folding machine, of a delivery-apron two aprons arranged to travel at right angles to the travel of the delivery-apron, and arranged on an incline and spaced apart for the passage of the folded web, with an inclined triangular guide presenting a smooth surface throughout its superficial area, and mounted in the space above the two aprons and arranged to receive the web from the delivery-apron, substantially as described.

3. The combination in a web-folding machine, of a frame, an inclined guide-surface thereon presenting a smooth surface throughout its superficial area, a set of rollers on each side of said guide, and a continuous apron on each set of said rollers, whereby a web of material may be received from the guide-surface and folded, substantially as described.

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

ALFRED V. WALKER.

Witnesses:
JAMES C. KRAYER,
JOS. H. KLEIN.