

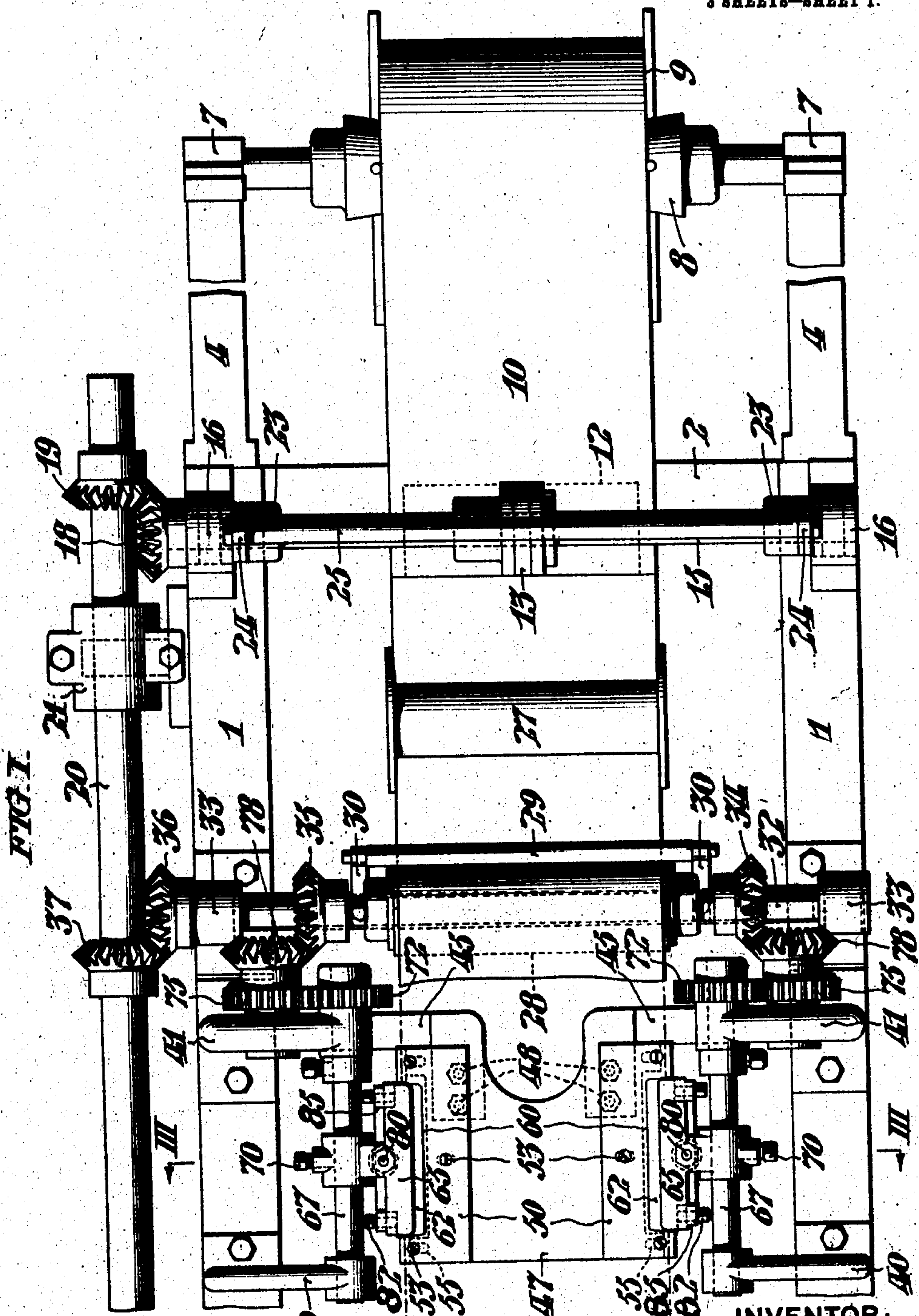
No. 814,813.

PATENTED MAR. 13, 1906.

G. W. SWIFT, JR.  
ROTARY SHEARING MECHANISM.

APPLICATION FILED APR. 13, 1905.

3 SHEETS—SHEET 1.



WITNESSES:  
*Clifton C. Hallenbeck*  
*John C. Bergner*

INVENTOR:  
GEORGE W. SWIFT, JR.,  
*By Craig, Paul & Kelly*  
*Atty.*

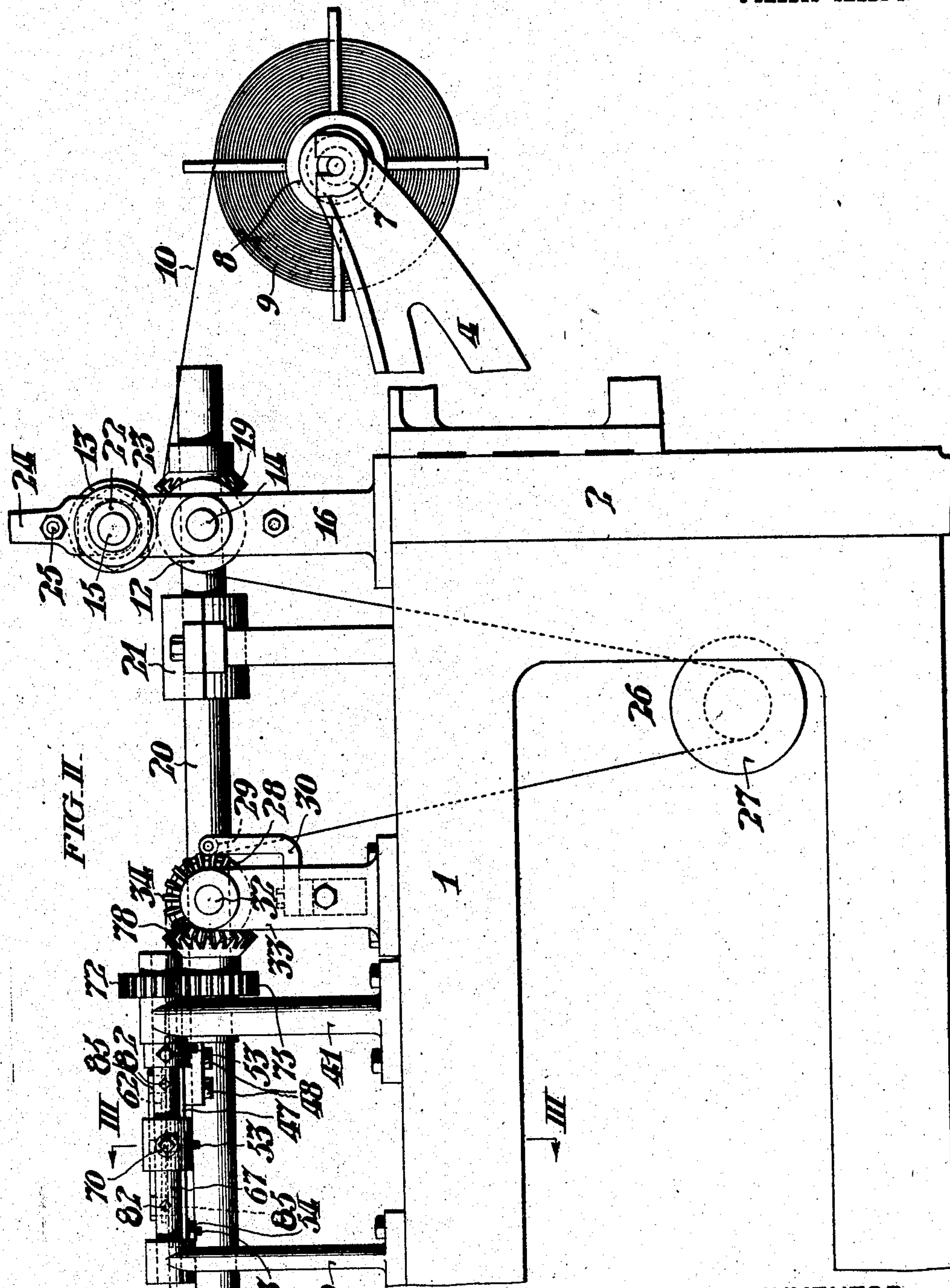
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**3 SHEETS—SHEET 2.**



**WITNESSES:**

Clifton C. Hallowell  
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**INVENTOR:**

**GEORGE W. SWIFT, JR.,**

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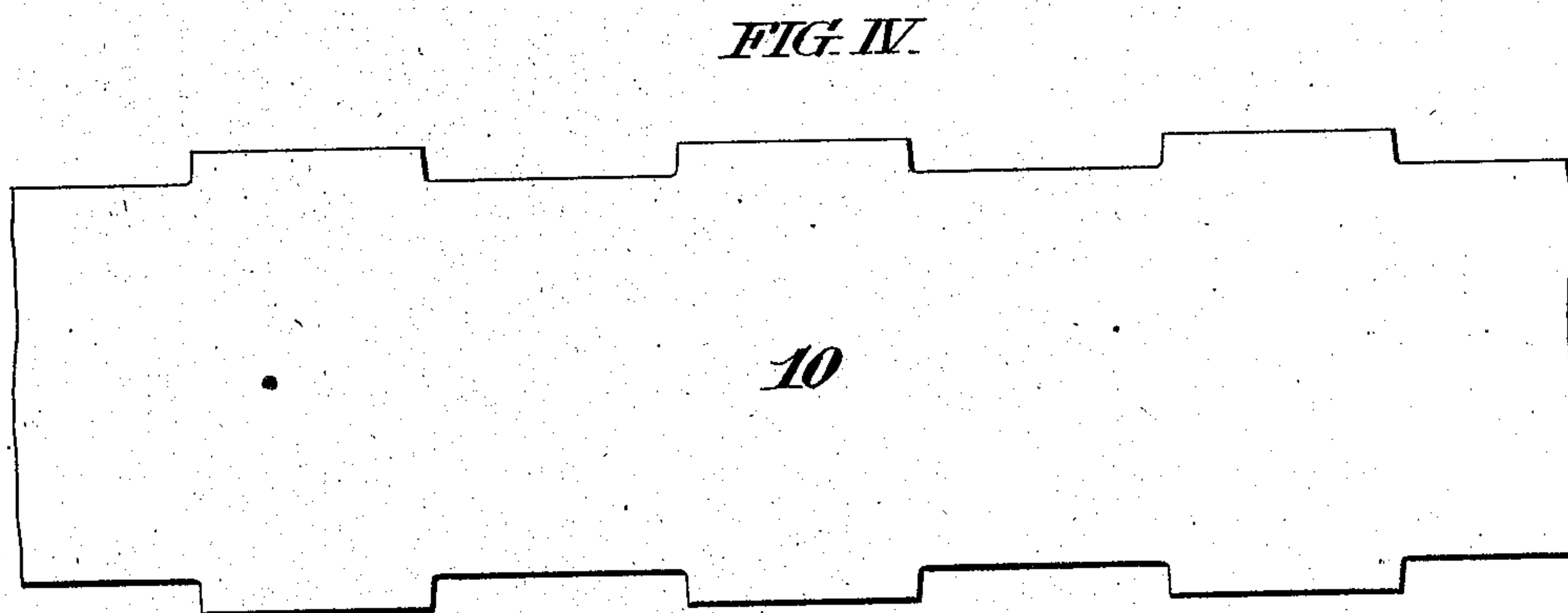
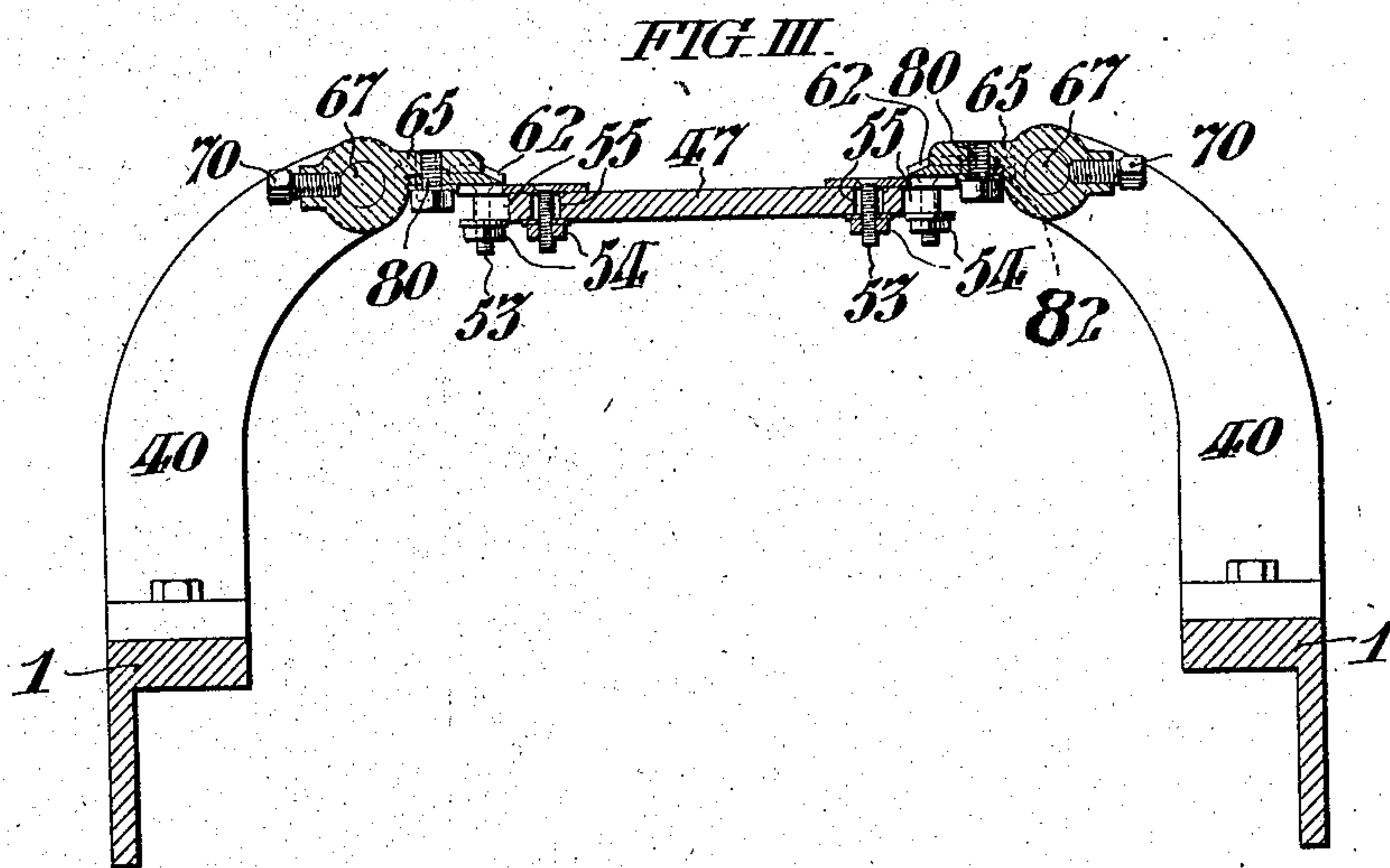
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3 SHEETS—SHEET 3.



WITNESSES:  
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# UNITED STATES PATENT OFFICE.

GEORGE W. SWIFT, JR., OF BORDENTOWN, NEW JERSEY.

## ROTARY SHEARING MECHANISM.

No. 814,813.

Specification of Letters Patent.

Patented March 13, 1906.

Application filed April 13, 1905. Serial No. 255,350.

*To all whom it may concern:*

Be it known that I, GEORGE W. SWIFT, Jr., of Bordentown, in the State of New Jersey, have invented certain new and useful Improvements in Rotary Shearing Mechanism, whereof the following is a specification, reference being had to the accompanying drawings.

My invention relates to rotary shearing mechanism arranged to shape the edges of a web of fabric—for instance, paper—progressed in operative relation therewith, and my invention may be employed in a machine for making envelops.

The form of my invention hereinafter described comprises adjustable stationary blades, adjustable rotary blades carried by shafts whose axes are substantially parallel to the line of travel of the web to be trimmed, and means whereby said shafts may be rotated in definite relation to the traverse of said web.

My invention comprises the various novel features of construction and arrangement hereinafter more definitely specified.

In the accompanying drawings, Figure I is a plan view of a portion of an envelop-machine conveniently embodying my improvements. Fig. II is a side elevation of that portion of the machine which is shown in Fig. I. Fig. III is a transverse sectional view of the shearing mechanism, taken on the line III III in Figs. I and II. Fig. IV is a plan view of the trimmed web.

In the accompanying drawings the frame comprises the side rails 1, supported by the end standard 2. To the standard 2 is secured the brackets 4, having suitable bearings 7 for the reel 8, carrying the roll 9 of web 10. Said web 10 is drawn from the roll 9 by the feeding-rollers 12 and 13, respectively carried by the shafts 14 and 15. The shaft 14 is journaled in the bearing-standards 16 and is provided with the miter-gear 18, arranged to mesh with the miter-gear 19 on the continuously-driven counter-shaft 20, which is journaled in the bearings 21. The shaft 15 is journaled eccentrically in the trunnions 22 of the frames 23, having the handles 24, connected by the tie-rod 25. The trunnions 22, which are journaled in the standards 16, may be oscillated by shifting the handles 24 to cause the roller 13 to engage or disengage the roller 12, as desired, to progress the web 10 between them.

The web 10 extends from the rollers 12 and

13 to the bight 26, in which the take-up roller 27 is suspended. Said take-up roller is arranged to remove the normal curl from the web 10, which then passes between the guide-rollers 28 and 29. Said roller 29 is journaled in the brackets 30 and arranged to hold the web 10 in contact with the roller 28, which is carried by the shaft 32, journaled in bearings 33. The shaft 32 is provided with the miter-gears 34, 35, and 36, the latter being arranged to mesh with the miter-gear 37 on the counter-shaft 20.

The web 10 passes from the guide-roller 28 horizontally across the rotary cutting mechanism, which comprises the brackets 40 and 41, said brackets 41 having inwardly-projecting arms 45, arranged to support the frame 47, which is conveniently secured thereto by the bolts 48. The frame 47 is provided with the stationary cutting-blades 50, adjustably secured thereto by bolts 53, which extend through the transverse slots 55 in the frame 47, beneath which said bolts 53 are provided with nuts 54, arranged to secure said blades in adjusted position. The stationary cutting-blades 50 are each provided with a recess 60 of the contour which it is desired to serrate the edges of the web, and said blades are arranged to be engaged by the rotary cutting-blades 62, which are complementary to the recesses 60 and which are adjustably secured to the frames 65 and arranged to cooperate with said stationary blade in shaping the web. The frames 65 are secured to the respective shafts 67 by the set-screws 70, and said shafts are journaled in suitable bearings in the brackets 40 and 41. Said shafts 67 are provided with the gears 72, arranged to mesh with the gears 75, which are journaled in the brackets 41 and provided with the miter-gears 78, arranged to be respectively driven by the miter-gears 34 and 35 on the shaft 32.

The rotary cutting-blades 62 are secured intermediate of their lengths to the frames 65 by the tap-bolts 80, which serve as pivots, and said blades may be adjusted by the set-screws 82, which are in threaded engagement with the lugs 85 on the frames 65 and arranged to engage the opposite ends of said blades 62.

As best shown in Fig. II, the rotary blades 62 are slightly inclined with respect to the stationary blades 50, thereby cutting the web 10 by a shearing action.

I do not desire to limit myself to the pre-



cise details of construction and arrangement herein set forth, as it is obvious that various modifications may be made therein without departing from the essential features of my invention.

I claim—

1. In mechanism of the class described, the combination with a stationary blade; of means arranged to progress a web of fabric with respect to said blade; a rotary blade having a cutting edge substantially parallel with the direction of travel of the web, arranged to rotate in coöperative relation with said stationary blade in definite relation to the traverse of said web, substantially as set forth.

2. In mechanism of the class described, the combination with a stationary blade; of means arranged to progress a web of fabric with respect to said blade; a rotary blade having a cutting edge extending in the direction of the traverse of the web, arranged to rotate in coöperative relation with said stationary blade; and means arranged to actuate said rotary blade in definite relation to the movement of said web, substantially as set forth.

3. In mechanism of the class described, the combination with a stationary blade; of means arranged to progress a web of fabric with respect to said blade; a straight rotary blade having a cutting edge extending in the direction of the traverse of said web, arranged to rotate in coöperative angular relation with said stationary blade, in definite relation to the traverse of said web, substantially as set forth.

4. In mechanism of the class described, the combination with a frame; of a stationary blade adjustably secured to said frame; means arranged to progress a web of fabric with respect to said blade; a rotary shaft; and a blade adjustably secured to said shaft having a cutting edge extending in the direction of the traverse of said web, and arranged to rotate in coöperative relation with said stationary blade, to shape said fabric, substantially as set forth.

5. In mechanism of the class described, the combination with a frame; of a stationary blade adjustably secured to said frame; means arranged to progress a web of fabric with respect to said blade; and a rotary blade arranged to coöperate with said stationary blade in longitudinal angular relation with respect to the plane of the web, to shape said web, substantially as set forth.

6. In mechanism of the class described, the combination with a frame; of a stationary blade adjustably secured to said frame; means arranged to progress a web of fabric with respect to said blade; a rotary shaft; a frame carried by said shaft; and a blade having a

cutting edge extending in the direction of the traverse of the web, adjustably secured to said frame and arranged to rotate in coöperative relation with said stationary blade to shape said web, substantially as set forth.

7. In mechanism of the class described, the combination with a frame; of a pair of stationary blades adjustably secured to said frame; means arranged to progress a web of fabric with respect to said blades; a pair of rotary shafts having their axes arranged substantially parallel to the line of travel of said web; and a blade carried by each of said shafts having its cutting edge in longitudinal angular relation to the plane of said web, substantially as set forth.

8. In mechanism of the class described, the combination with a frame; of a pair of stationary blades adjustably secured to said frame; means arranged to progress a web of fabric with respect to said blades; a pair of rotary shafts having their axes arranged substantially parallel to the line of travel of said web; a rotary frame adjustably secured to each of said shafts; and a blade adjustably secured to each of said rotary frames in longitudinal angular relation to a plane parallel to the axes of said shafts, substantially as set forth.

9. In mechanism of the class described, the combination with a frame; of a stationary blade adjustably secured to said frame; means arranged to progress a web of fabric with respect to said blade; bolts arranged to extend through slots in said frame to secure said blades in adjusted position; a rotary frame arranged to rotate on an axis substantially parallel to the line of travel of said web; a rotary blade pivotally secured intermediate of its length to said rotary frame; and set-screws in threaded engagement with said rotary frame arranged to adjust said rotary blade, substantially as set forth.

10. In an envelop-machine, the combination with a pair of stationary blades; of means arranged to progress a web of fabric with respect to said blades; of a pair of rotary shafts having their axes arranged substantially parallel to the line of travel of said web; a blade carried by each of said shafts in longitudinal angular relation to a plane parallel to their axes; a guide-roller; a shaft for said roller; and gears arranged to connect said guide-roller shaft with the blade-carrying shafts, substantially as set forth.

In testimony whereof I have hereunto signed my name, at Bordentown, in the State of New Jersey, this 8th day of April, 1905.

GEORGE W. SWIFT, JR.

Witnesses:

R. H. AARONSON,  
H. D. CLEVINGER.