

**No. 692,887.**

**Patented Feb. 11, 1902.**

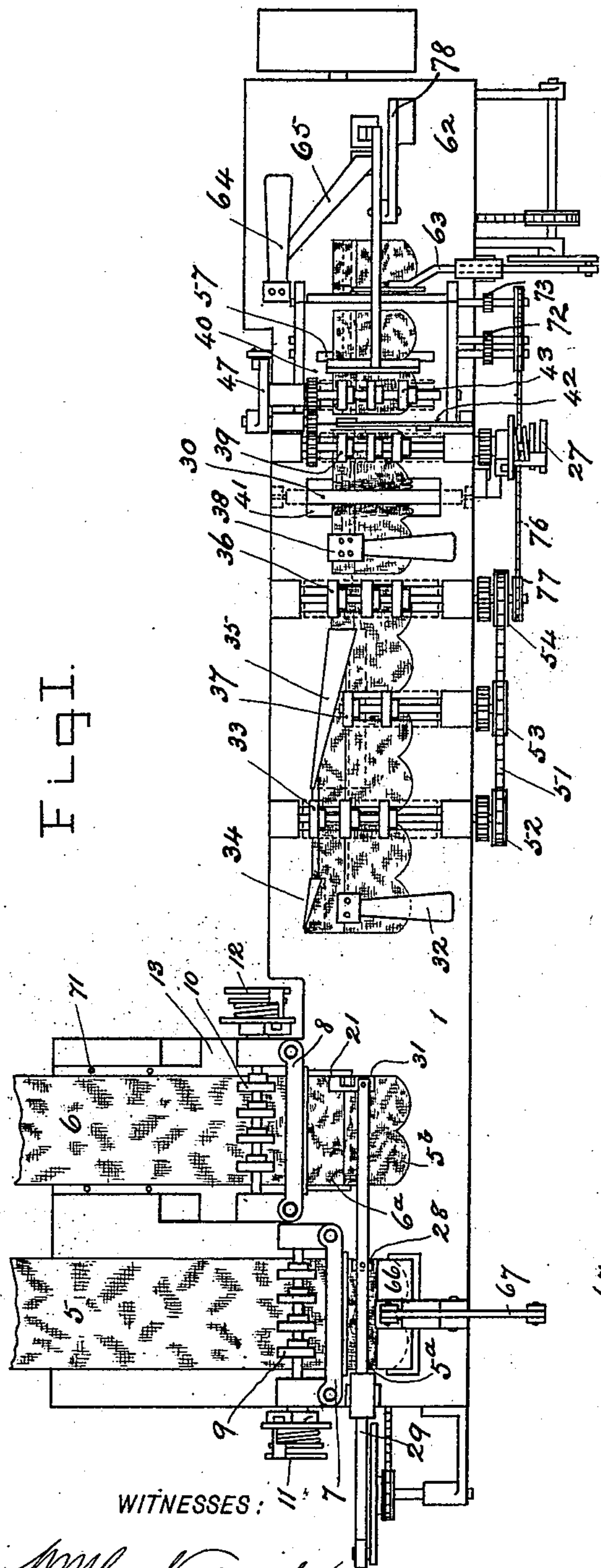
**C. MILLHISER & C. L. A. DOEPPE.**

## POUCH MAKING MACHINE.

(Application filed Dec. 8, 1899.)

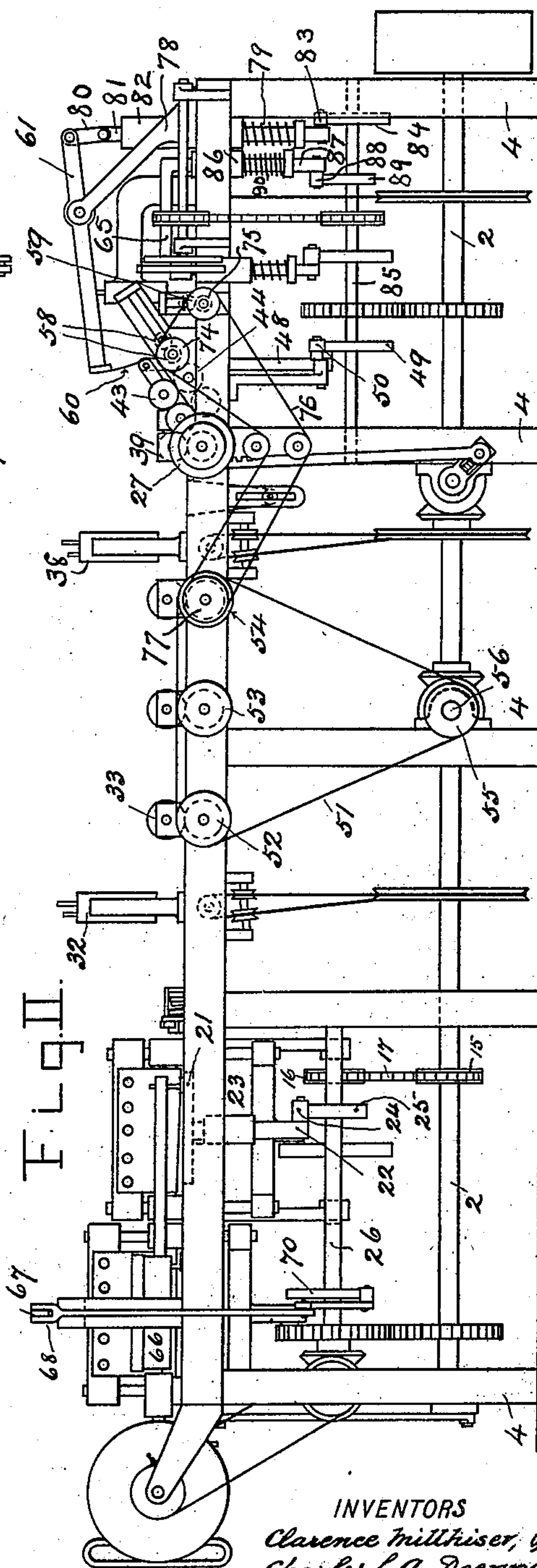
(No Model.)

**2 Sheets—Sheet 1.**



**WITNESSES:**

M. Lee Talmond  
R. L. Packard



## INVENTORS

Clarence Millhiser, &  
Charles L. A. Doeppe

BY

Stewart & Stewart.  
their ATTORNEYS

No. 692,887.

Patented Feb. 11, 1902.

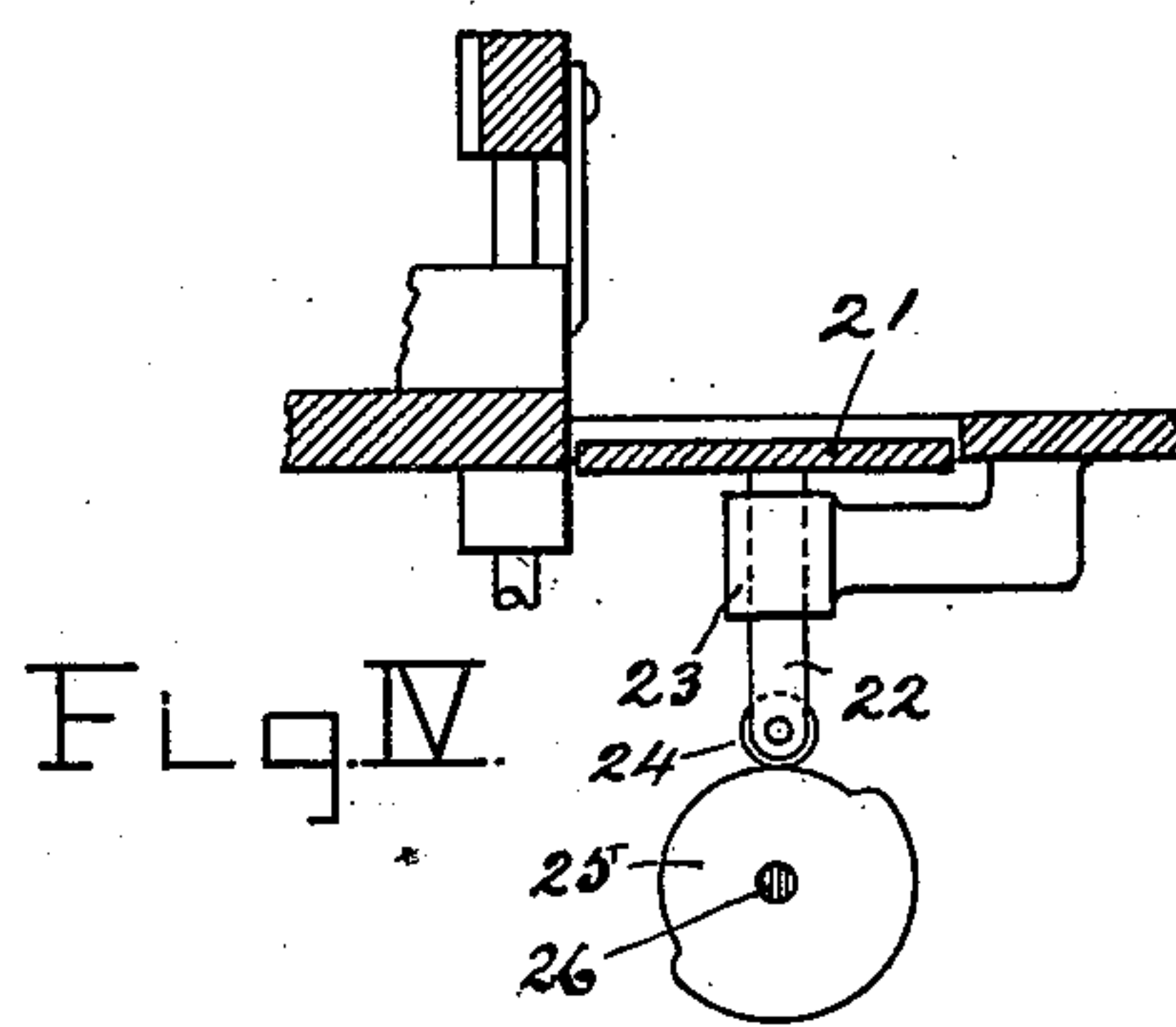
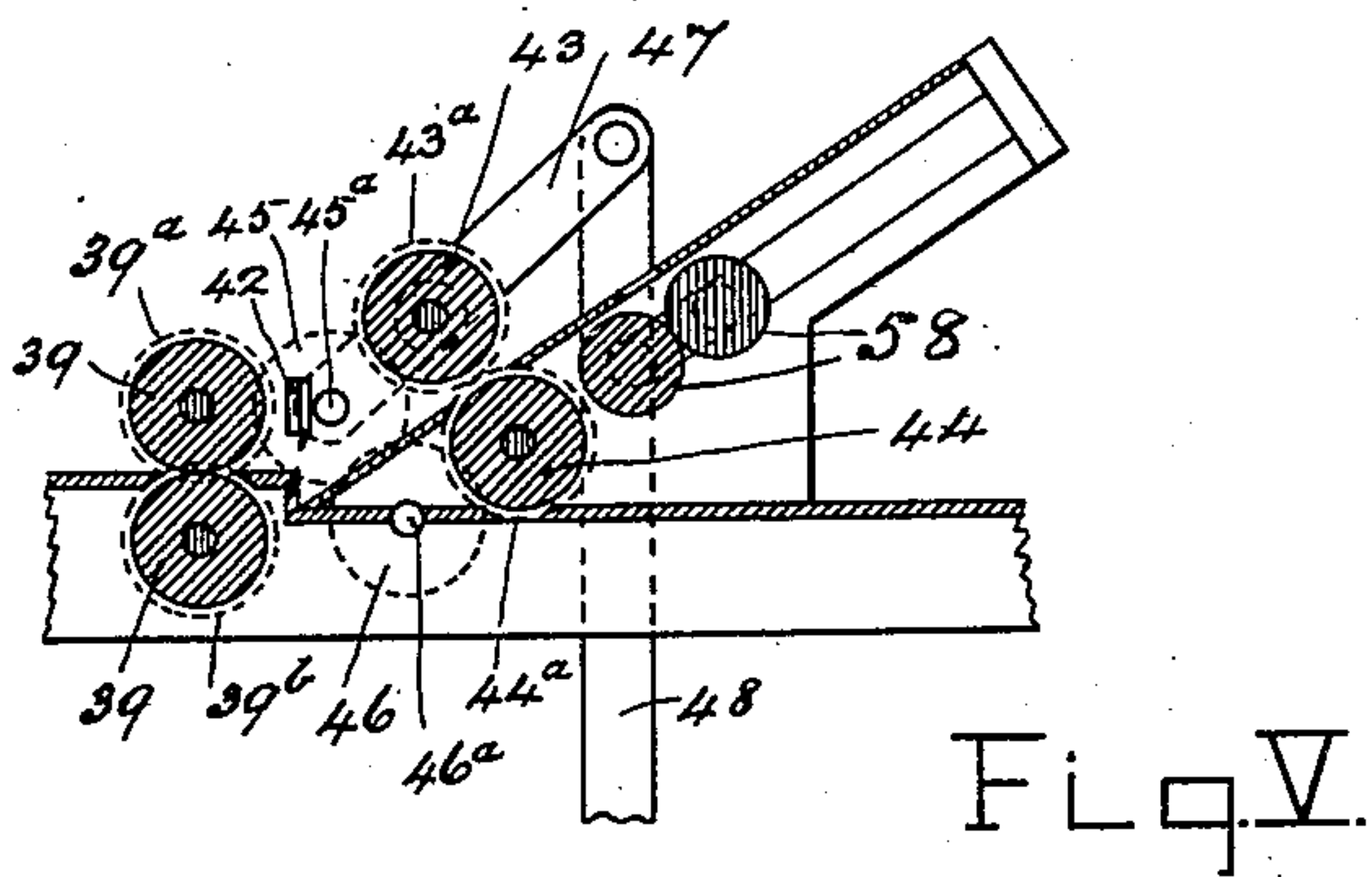
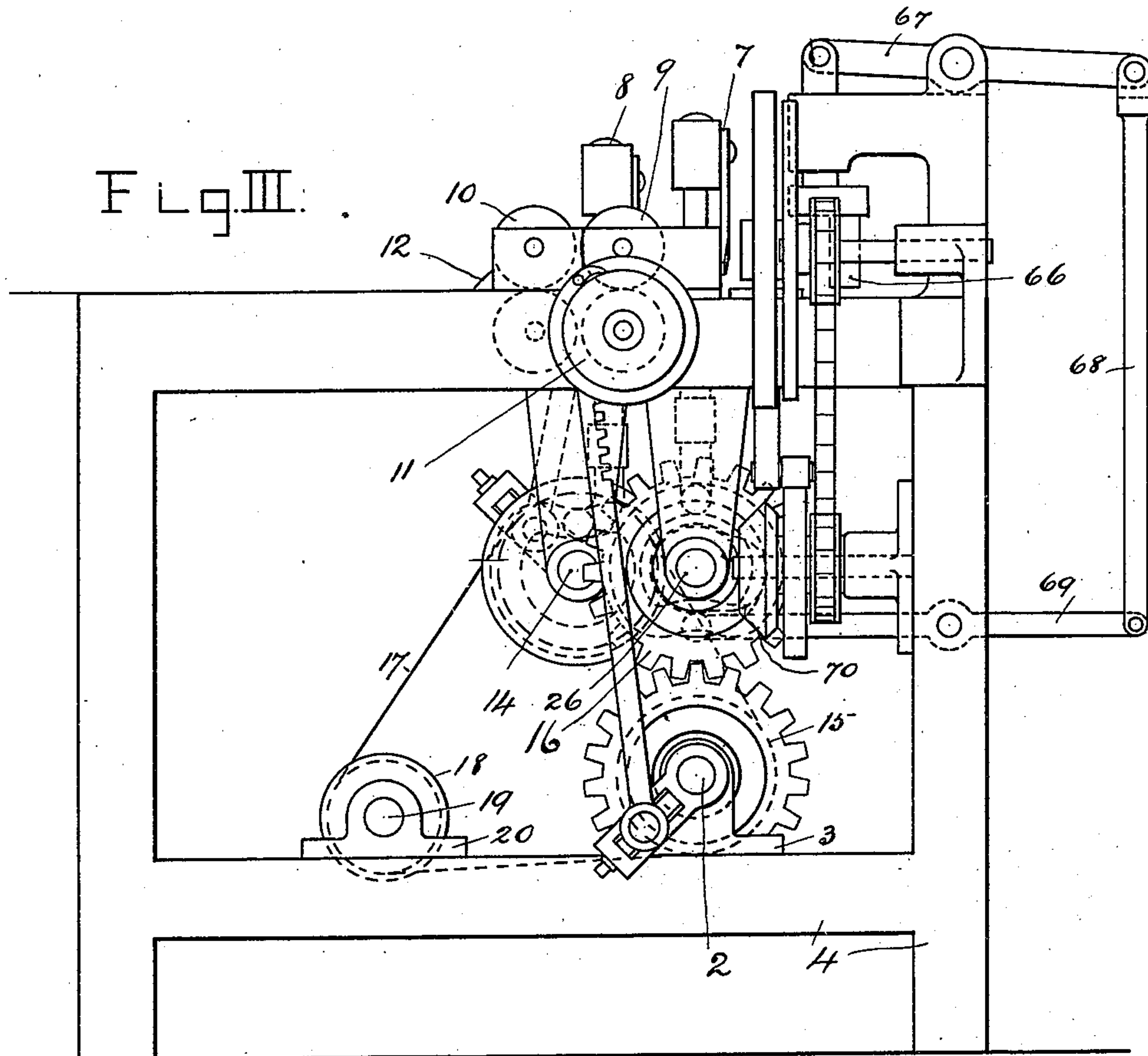
C. MILLHISER & C. L. A. DOEPPE.

POUCH MAKING MACHINE.

(Application filed Dec. 8, 1899.)

(No Model.)

2 Sheets—Sheet 2.



WITNESSES:

*Wm. C. Noland*  
*R. L. Packard*

INVENTORS

*Clarence Millhiser, &*  
*Charles L. A. Doeppe*

BY

*Stewart & Stewart*  
their ATTORNEYS



# UNITED STATES PATENT OFFICE.

CLARENCE MILLHISER AND CHARLES L. A. DOEPPE, OF RICHMOND, VIRGINIA, ASSIGNORS TO THE MILLHISER MANUFACTURING COMPANY, OF RICHMOND, VIRGINIA.

## POUCH-MAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 692,887, dated February 11, 1902.

Application filed December 8, 1899. Serial No. 739,599. (No model.)

*To all whom it may concern:*

Be it known that we, CLARENCE MILLHISER and CHARLES L. A. DOEPPE, citizens of the United States of America, and residents of Richmond city, State of Virginia, have invented certain new and useful Improvements in Pouch-Machines, of which the following is a specification.

Our invention relates to pouch-machines, and particularly to machines for making pouches which consist of more than one piece of fabric. In the following specification we shall describe a machine for making pouches of two different fabrics, such as are commonly used for tobacco, but which machine can with slight modifications be used for the manufacture of pouches of more than two different fabrics.

In pouches made of two different fabrics the said fabrics are usually so arranged that one forms the "upper" and the other the "bottom" of the pouch. This is the usual form of two-piece pouches, though they may be constructed so that one fabric forms one side and the other fabric the other side of the pouch. We will first treat of the manufacture of pouches in which one fabric forms the upper and the other the bottom of the pouch and also in which the upper is double.

There are two distinct ways in which fabric may be cut for the manufacture of pouches, bags, or, in fact, anything. The first is that in which the warp of the fabric lies in the length of the portion cut, and the second is that in which the weft of the fabric lies in the length of the portion cut. Taking two portions of fabric, one cut according to the first-named and the other cut according to the second-named manner, the first will stretch in its width, but not in its length, and the second will stretch in its length, but not in its width. This is a most important point. The length of these severed portions runs around the pouches. Consequently if the fabric is cut by the first method the pouch will stretch lengthwise and not sidewise, and if the portion is cut by the second method the pouch will stretch sidewise but not lengthwise. Now a pouch made by this second method,

so that it will stretch sidewise, is to be preferred for the following reason: The finished pouch is used as a receptacle for some substance—such as tobacco, grain, flour, &c.—and in order that the pouch may be easily and rapidly filled it is usually slipped mouth foremost over a "former," the substance with which the pouch is to be filled being passed through the former into the extended pouch. In order that the pouch may stay on the former while it is being filled, it is necessary that the pouch should be a neat and tight fit on the said former. Now if the pouch will not stretch sidewise it will be extremely difficult to slip it on the former and still have it make a close fit; but if the pouch will stretch sidewise it will be more or less elastic in that direction and will easily slip over the former and will yet make a close fit.

In an application bearing the serial number 739,598 and filed on the same date with this application we have described and claimed machinery for making pouches in which the warp of the fabric runs with the width of the pouch. This application includes machinery for making pouches in which the weft of the fabric runs with the width of the pouch. It will be seen that in making pouches in which the weft of the fabric runs with the width of the pouch it is impossible to feed the continuous strips of fabric having their inner edges overlapping to a sewing mechanism which will sew the two strips together, pouch portions being subsequently severed from the united strips of fabric if pouches having their uppers formed of one fabric and their bottoms formed of the other fabric are desired.

In the drawings which accompany and form a part of this specification and in which like numerals indicate like parts in the different views, Figure I is a plan of the machine. Fig. II is a side elevation of the same. Fig. III is an end elevation of the same. Fig. IV is a broken view in section of one of the cutters and the rising table. Fig. V is a broken view, partly in section, of the doubling-table and mechanism.

In Figs. I, II, and III, 1 is the main table of the machine. 2 is the main driving-shaft,



which is supported in brackets 3, attached to the frame 4. 5 and 6 are two strips of fabric, which are fed to the cutters 7 and 8, respectively, by means of the intermittent-feed rolls 9 and 10. The said feed-rolls are respectively operated in the usual manner by means of the intermittent silent feed mechanisms 11 and 12, which in their turn may be driven by the usual rack-rod and crank operated by one of the shafts of the machine. We have not described or illustrated the said feed-rolls and cutters and their operating mechanisms in detail, as they are so described and illustrated in the application which, as stated hereinbefore, we have filed on the same date with this application. The intermittent-feed rolls 10, the cutters 8, and their operating mechanisms are attached to an adjustable table 13, which slides in the main frame of the machine. The object of this is to enable one to make pouches of different sizes in the same machine, as will be explained more fully hereinafter. The shaft 14, (see Fig. III,) from which the feed-rolls 10 and the cutters 8 are driven, receives its motion from the shaft 2 by means of the sprocket-wheels 15 16 and the chain 17. The latter also passes around a tightening-pulley 18, mounted on a shaft 19, which is carried by adjustable bearings 20, attached to the frame of the machine. When the table 13 is adjusted to suit a different size of pouch, the tightening-sprocket 18, and consequently the chain 17, are adjusted by simply shifting the bearings 20.

Located immediately after the cutters 8 and forming a table upon which portions of fabric severed from the strip 6 may fall is a plate 21, (see Fig. IV,) carried by a rod 22, which slides in a sleeve 23. At the lower end of the rod 22 is a roller 24, which bears upon the cam 25, mounted on the shaft 26. The cam 25 raises the plate 21 at certain intervals, the plate falling of its own weight to its original position. When the end of the strip of fabric 6 is on the plate 21 and when the cutters 8 are about to sever a portion from the said strip, the top surface of the said plate 21 is a little below the surface of the table 1. The cutters 7 having severed a portion of fabric 5<sup>a</sup> from the strip 5, the finger 28 of the transferring device 29 carries the portion of fabric to the position shown at 5<sup>b</sup>. The edge of the portion of fabric now overhangs the plate 21 by an amount sufficient for a seam. While the transferring device is returning to its original position the portion of fabric 6<sup>a</sup> is fed onto the plate 21 and is severed from the strip of fabric 6 by the cutters 8. The width of the plate 21 is such that the forward edge of the portion of fabric 6<sup>a</sup> will about touch the abutting edge of the table 1. Consequently that edge of the portion of fabric 5<sup>b</sup> which overhangs the plate 21 will also overhang the forward edge of the portion of fabric 6<sup>a</sup>. The plate 21, operated by the cam 25, now rises until its surface is flush with the surface of the table 1, bringing the over-

lapping edges of the two portions of fabric together. The finger 31 of the transferring device 29 now carries the two overlapped portions of fabric to the sewing mechanism 32, which sews their overlapped edges together. Between the sewing mechanism 32 and the continuous-feed rolls 33, which feed the united portions of fabric onward, is placed a hem-turner 34, which turns the edge of the portion of fabric 6<sup>a</sup> as the latter moves forward, the turn being creased by the feed-rolls 33. Beyond the feed-rolls 33 is placed a folder 35, which folds the turned edge of the portion of fabric 6<sup>a</sup> upon the overlapping and united edges of the two portions of fabric, the fold being creased and the fabric being fed onward by the continuous-feed rolls 36. We prefer to place a set of continuous-feed rolls 37 abreast of the folder 35 in order to assist the fabric through the said folder. Beyond the continuous-feed rolls 36 is a double-headed sewing mechanism 38, one needle of which sews the turned edge of the portion of fabric 6<sup>a</sup> to the overlapped edges of the two portions of fabric, the other needle running a line of stitches at a short distance from the fold in the portion of fabric 6<sup>a</sup> to provide a narrow channel for the draw-string. After leaving the sewing mechanism 38 the portions of fabric are fed by the intermittent-feed rolls 39 toward the doubling-table 40; but before the portions of fabric are engaged by the intermittent-feed rolls 39 they pass downward through a slot 41 in the table and, rising again, form a bight in which a "take-up" roll 30 rides, in order to take up the slack between the continuously-feeding sewing mechanism 38 and the intermittent-feed rolls 39. It should be noted that the successive compound portions of fabric practically form a connected train, since they are connected together by the sewing-threads. After the compound portions of fabric leave the intermittent-feed-rolls 39 they pass under a clipper 42, which severs the threads connecting the compound portions of fabric together; but before the said clipper operates to sever the connecting threads the foremost compound portion of fabric is engaged by the intermittent-feed rolls 43 and 44, one of which lies above and the other below the doubling-table 40, a slot being made in the said table, so that the said rolls may be in contact with one another. (See Fig. V.) These two feed-rolls are not geared directly together, but are connected and operated in the following manner: The intermittent-feed rolls 39 are geared together in the usual manner by means of the gears 39<sup>a</sup> and 39<sup>b</sup>. The gear 39<sup>a</sup> gears with another gear 45, which is loose on a stationary shaft 45<sup>a</sup>. The gear 45 gears with another gear 46, loose on a stationary shaft 46<sup>a</sup>. The gear 45 also gears with the gear 43<sup>a</sup>, which is mounted on the same shaft as the rolls 43, and the gear 46 also gears with a gear 44<sup>a</sup>, which is mounted on the same shaft as the roll 44. Consequently when the intermittent-feed rolls 39



revolve the intermittent-feed rolls 43 and 44 will also revolve, and since all of the above-mentioned gears are of the same diameter the feed-rolls 43, 44, and 39 will revolve at the same speed. The shaft which carries the feed-rolls 43 revolves in a bearing attached to the lever 47, which lever is fulcrumed on the shaft 45<sup>a</sup>, which carries the gear 45. Consequently though the feed-rolls 43 be lifted from the feed-roll 44 the gear 45 will still remain in gear with the gear 43<sup>a</sup>. The gear 39<sup>b</sup> may be used as the driver of the train, and it may be conveniently operated by attaching to its shaft a silent feed-motion 27, (see Fig. I.)

actuated by the usual rack-rod and crank driven from one of the shafts of the machine. The lever 47, on which the feed-rolls 43 are hung, is operated through the connecting-rod 48 by the cam 49, which bears against the roller 50, attached to the rod 48. As the cam 49 revolves the lever 47 lifts the feed-rolls 43 from contact with the feed-roll 44.

The continuous-feed rolls 33, 37, and 36 may be conveniently driven by mounting sprocket-wheels 52, 53, and 54, respectively, on each of the shafts which carry the lower rolls in each set of rolls and passing a chain 51 over the said sprocket-wheels and also around a driving sprocket-wheel 55, mounted on the counter-shaft 56, which receives its motion from the shaft 2.

40 is the doubling-table, having a slot 57, whose length is a little greater than the width of the compound portions of fabric. Immediately beneath the slot are two rolls 58, and beyond these rolls are two more rolls 59. As soon as the intermittent-feed rolls 43 and 44 have fed the foremost compound portion of fabric onto the doubling-table 40 the clipper 42 operates to clip the threads connecting the said compound portion of fabric with the succeeding one. The center of the disconnected compound portion of fabric will now lie immediately over the slot 57 in the doubling-table 40. The blade 60, which is attached to the lever 61, now descends and pushes the center of the compound portion of fabric into the grip of the rolls 58. As the blade 60 descends and engages the compound portion of fabric the upper feed-rolls 43 are lifted by the cam 49, and so leave the compound portion of fabric free to be pushed by the blade 60 into the grip of the rolls 58. As soon as the said compound portion of fabric is engaged by the rolls 58 the rolls 43 descend to their original position, ready to receive and feed forward the next compound portion of fabric. Now as the compound portion of fabric passes between the rolls 58 the two halves of the said portion of fabric are doubled together, and the doubled portion passing onward is fed by the rolls 59 to the sewing-table 62, where it is engaged by the reciprocating transferring device 63, by which it is advanced to the sewing mechanism 64, and by the latter it is sewed up on one side and the bottom.

The rolls 58 and 59 are operated in the following manner: The shafts on which the rolls 58 are mounted are geared together by means of gears of similar pitch and diameter 72, and the shafts which carry the rolls 59 are geared together in a similar manner by the gears 73. One shaft belonging to each of the sets of rolls is extended and carries a sprocket-wheel. These wheels are numbered 74 and 75, respectively. Over these sprocket-wheels there passes a chain 76, which also passes over and receives its motion from a sprocket-wheel 77, mounted on the lower shaft of the feed-rolls 36.

Above the sewing-table 62 a bracket 78 supports a lever 61, which carries at one end of it the blade 60. The other end of the lever 61 is connected by means of a link 80 to a rod 81, which slides in a vertical sleeve 82, the rod 81 carrying at its lower end the roller 83, which bears upon the cam 84, mounted on the shaft 85. As the cam revolves the rod 81 is given an upward and the blade 60 a downward movement. The return movement of the blade 60 is assisted by the spring 79.

The pivot 65 is operated as follows: Sliding in a vertical sleeve 86 is a rod 87, which has the horizontal extension 65, carrying at its farther end a vertically-set point or needle. The rod 87 carries at its lower end a roller 88, which bears against a cam 89, which cam gives to the rod 87 a vertical motion, the downward movement of the rod being assisted by the spring 90. Now as soon as the sewing-machine 64 has completed the sewing up of the side of the doubled compound portion of fabric the pivot 65 descends and its point piercing the fabric arrests its progress. The feed mechanism of the sewing-machine continues to feed the fabric onward; but since the fabric is held at one point this point becomes a pivot around which the feed mechanism of the sewing-machine turns the portion of fabric. Consequently the portion of fabric turning on a circle whose center is the point of the pivot 65 the sewing mechanism will sew a line of stitches in a curve whose radius is equal to the distance between the point of the pivot and the needle of the sewing mechanism.

It should be mentioned that when the fabric of which the pouches are to be made has not the stiffness necessary to enable it to be fed past the cutters 7 and 8 without wrinkling presenting-rolls may be placed in advance of the said cutters to assist in the keeping of the fabric smooth. Such presenting-rolls and the method of operating them are fully illustrated and described in Patent No. 623,411 of the United States issued to us on April 18, 1899.

When it is desired that the pouches shall have rounded bottoms, we employ the punch 66, which is similar in construction to the punch illustrated and described in the above-mentioned application for patent on a pouch-



machine filed by us on the same date with this application. The said punch 66 is given a reciprocating motion in a vertical direction by means of the lever 67 and the rod 68, the latter being connected to a lever 69, which is operated by a cam 70, mounted on the shaft 26. (See Fig. III.) The punching of the fabric may be effected at almost any stage in the manufacture of the pouches; but we prefer to locate the punch in the position shown in Fig. I, punching the end of the strip of fabric 5 before the portion is severed from the said strip.

The manner of operating the transferring devices 29 and 63 is fully described in an application for patent on a bag-machine filed by us on October 11, 1899, and bearing the serial number 733,260.

When it is desired to adjust the machine to make a different size of pouch—say a larger one—the driving mechanism of the intermittent-feed rolls 9 is adjusted so as to feed a greater length of the strip of fabric 5 past the cutters 7, the position of the punch 66 being altered to suit. The adjustable table 3 is slid back from the table 1 the necessary distance and is secured by the nuts 71. The driving mechanism of the intermittent-feed rolls 10 is adjusted so as to feed a greater length of the strip of fabric 6 past the cutters 8. The rising table 21 is removed and is replaced by another of larger size sufficient to fill the gap left in the table 1 in advance of the cutters 8. It will be seen that no matter what may be the size of the pouch the overlapping edges of the portions of fabric forming the pouch portions will always be in the same position and will always travel along the same line. Consequently all of the rest of the parts of the machine may be left in their original positions, with the exception of the edgeturner 34 and the folder 35. These are placed at the proper distance from the center line of the machine to suit the width of the portions of fabric 6<sup>a</sup>.

By using a folder such as we have illustrated, described, and claimed in an application for patent for a bag-machine filed by us on October 11, 1899, and bearing the Serial No. 733,260, instead of the doubling mechanism illustrated and described in this specification we can before separating the foremost compound portion of fabric from the train of compound portions of fabric fold the said foremost compound portion of fabric and then clip it free from the said train of portions of fabric. This would simply reverse the order of the operations of clipping and folding.

If pouches are to be made of pieces of fabric which have more than one edge hem turned, it is only necessary to use a corresponding number of hem-turners, and, further, if it is desired that the pouches shall be formed of more than two pieces of fabric—that is, of more than two different kinds or colors of fabric—it will only be necessary to increase accordingly the number of strips of fabric

and the number of the devices necessary for manipulating them.

Having now described our invention, what we claim, and desire to secure by United States Letters Patent, is—

1. In a pouch-machine, the combination of mechanism for uniting by their edges two or more independent sections of fabric, the said section being sufficient when united for the formation of one pouch, mechanism for clipping the compound sections apart, mechanism for doubling the separated compound section of fabric so that the fold will form a side of the finished pouch, and mechanism for sewing two adjacent open edges of the doubled compound sections.

2. In a pouch-machine, the combination of mechanism for uniting by their edges two or more independent sections of fabric, the said sections being sufficient when united for the formation of one pouch, mechanism for doubling the compound section so that the fold will form a side of the finished pouch, mechanism for clipping the doubled compound section from the next succeeding compound section, and mechanism for sewing two adjacent open edges of the doubled compound sections.

3. In a pouch-machine, the combination of mechanism for uniting by their edges two or more independent sections of fabric, the said sections being sufficient when united for the formation of one pouch, mechanism to fold the free edge of one of the outer sections onto the adjoining section, mechanism to secure the said free edge to the adjoining section, mechanism for clipping the compound sections apart, mechanism for doubling the separated compound section of fabric so that the fold will form a side of the finished pouch, and mechanism for sewing two adjacent open edges of the doubled compound sections.

4. In a pouch-machine, the combination of mechanism for uniting by their edges two or more independent sections of fabric, the said sections being sufficient when united for the formation of one pouch, mechanism to fold the free edge of one of the outer sections onto the adjoining section, mechanism to secure the said free edge to the adjoining section, mechanism for doubling the compound section so that the fold will form a side of the finished pouch, mechanism for clipping the doubled compound section from the next succeeding section, and mechanism for sewing two adjacent open edges of the doubled compound sections.

5. In a pouch-machine, the combination of mechanism for uniting by their edges two or more independent sections of fabric, the said sections being sufficient when united for the formation of one pouch, mechanism to turn the free edge of one of the outer sections and to fold the turned free edge of the said outer section onto the adjoining section, mechanism to secure the said turned free edge to the adjoining section, mechanism for clipping the compound sections apart, mechanism for



doubling the separated compound section of fabric so that the fold will form a side of the finished pouch, and mechanism for sewing two adjacent open edges of the doubled compound sections.

6. In a pouch-machine, the combination of mechanism for uniting by their edges two or more independent sections of fabric, the said sections being sufficient when united for the formation of one pouch, mechanism to turn the free edge of one of the outer sections and to fold the turned free edge of the said outer section onto the adjoining section, mechanism to secure the said turned free edge to the adjoining section, mechanism for doubling the compound section so that the fold will form a side of the finished pouch, mechanism for clipping the doubled compound section from the next succeeding section, and mechanism for sewing two adjacent open edges of the doubled compound sections.

7. In a pouch-machine, the combination of mechanism for uniting by their edges two or more independent sections of fabric, the said sections being sufficient when united for the formation of one pouch, mechanism to fold the free edge of one of the outer sections onto the adjoining section, mechanism to secure the said free edge to the adjoining section, mechanism for sewing a hem in the fold of the said outer section, mechanism for clipping the compound sections apart, mechanism for doubling the separated compound section of fabric so that the fold will form a side of the finished pouch, and mechanism for sewing two adjacent open edges of the doubled compound sections.

8. In a pouch-machine, the combination of mechanism for uniting by their edges two or more independent sections of fabric, the said sections being sufficient when united for the formation of one pouch, mechanism to fold the free edge of one of the outer sections onto the adjoining section, mechanism to secure the said free edge to the adjoining section, mechanism for sewing a hem in the fold of the said outer section, mechanism for doubling the compound section so that the fold will form a side of the finished pouch, mechanism for clipping the doubled compound section from the next succeeding section, and mechanism for sewing two adjacent open edges of the doubled compound sections.

9. In a pouch-machine, the combination of mechanism for uniting by their edges two or more independent sections of fabric, the said sections being sufficient when united for the formation of one pouch, mechanism to turn the free edge of one of the outer sections and to fold the turned free edge of the said outer section onto the adjoining section, mechanism to secure the said turned free edge to the adjoining section, mechanism for sewing a hem in the fold of the said outer section, mechanism for clipping the compound sections apart, mechanism for doubling the separated compound section of fabric so that the fold will

form a side of the finished pouch, and mechanism for sewing two adjacent open edges of the doubled compound sections.

10. In a pouch-machine, the combination of mechanism for uniting by their edges two or more independent sections of fabric, the said sections being sufficient when united for the formation of one pouch, mechanism to turn the free edge of one of the outer sections and to fold the turned free edge of the said outer section onto the adjoining section, mechanism to secure the said turned free edge to the adjoining section, mechanism for sewing a hem in the fold of the said outer section, mechanism for doubling the compound section so that the fold will form a side of the finished pouch, mechanism for clipping the doubled compound section from the next succeeding section, and mechanism for sewing two adjacent open edges of the doubled compound sections.

11. In a pouch-machine, the combination of mechanism for severing portions of fabric from two or more independent continuous strips of fabric, means for bringing the severed portions of fabric together so that an edge of each portion of fabric laps an edge of the adjacent portion or portions, sewing mechanism to sew together the lapped edges of the portions of fabric, clipping mechanism to separate the foremost compound section of fabric from the succeeding one, mechanism for doubling the separated compound section of fabric so that the fold will form a side of the finished pouch, and mechanism for sewing two adjacent open edges of the doubled compound sections.

12. In a pouch-machine, the combination of mechanism for severing portions of fabric from two or more independent continuous strips of fabric, means for bringing the severed portions of fabric together so that an edge of each portion of fabric laps an edge of the adjacent portion or portions, sewing mechanism to sew together the lapped edges of the portions of fabric, mechanism for doubling the compound section so that the fold will form a side of the finished pouch, clipping mechanism to separate the doubled compound section of fabric from the succeeding one, and mechanism for sewing two adjacent open edges of the doubled compound sections.

13. In a pouch-machine, the combination of mechanism for uniting by their edges two or more independent portions of fabric the said portions being sufficient when united to form a pouch, a feeding device for feeding the compound section of fabric onto a doubling-table, the said feeding device being adapted to be raised from the said compound section of fabric after it has fed the latter onto the doubling-table, means for operating the feeding device, clipping mechanism to separate the foremost compound section of fabric from the succeeding one, mechanism for doubling the separated compound section of fabric so that the fold will form a side of the finished pouch, and mechanism for sewing two



adjacent open edges of the doubled compound sections.

14. In a pouch-machine, the combination of feeding mechanism to feed two independent continuous strips of fabric to cutters, cutting mechanism to sever from the continuous strips of fabric portions which when united will be sufficient for the formation of one pouch, a rising and falling table to receive one of the severed portions of fabric and arranged to be operated to lower the said portion of fabric which lies upon it so that the other severed portion of fabric may be adjusted with one of its edges overhanging an edge of the said portion of fabric, and then to raise the said portion of fabric to the level of the sewing-table, means for operating the rising and falling table, a transferring device to transfer the other portion of fabric to such a position that one of its edges will overhang

one of the edges of the said lowered portion of fabric and, when the last-named portion of fabric has been raised to the level of the sewing-table, to transfer the overlapped portions of fabric to a sewing mechanism, sewing mechanism to sew together the lapped edges of the portions of fabric, clipping mechanism to clip the compound sections apart, mechanism for doubling the separated compound section of fabric so that the fold will form a side of the finished pouch, and mechanism for sewing two adjacent open edges of the doubled compound sections.

Signed by us at Richmond this 9th day of November, 1899.

CLARENCE MILLHISER.  
CHARLES L. A. DOEPPE.

Witnesses:

EUGENE JONES,  
ARTHUR SCRIVENOR.