No. 697,978. Patented Apr. 22, 1902.

J. A. CAMERON.

MACHINE FOR CUTTING BLANKS FROM FABRICS.

(Application filed June 29, 1901.)

(No Model.) 2 Sheets—Sheet 1.

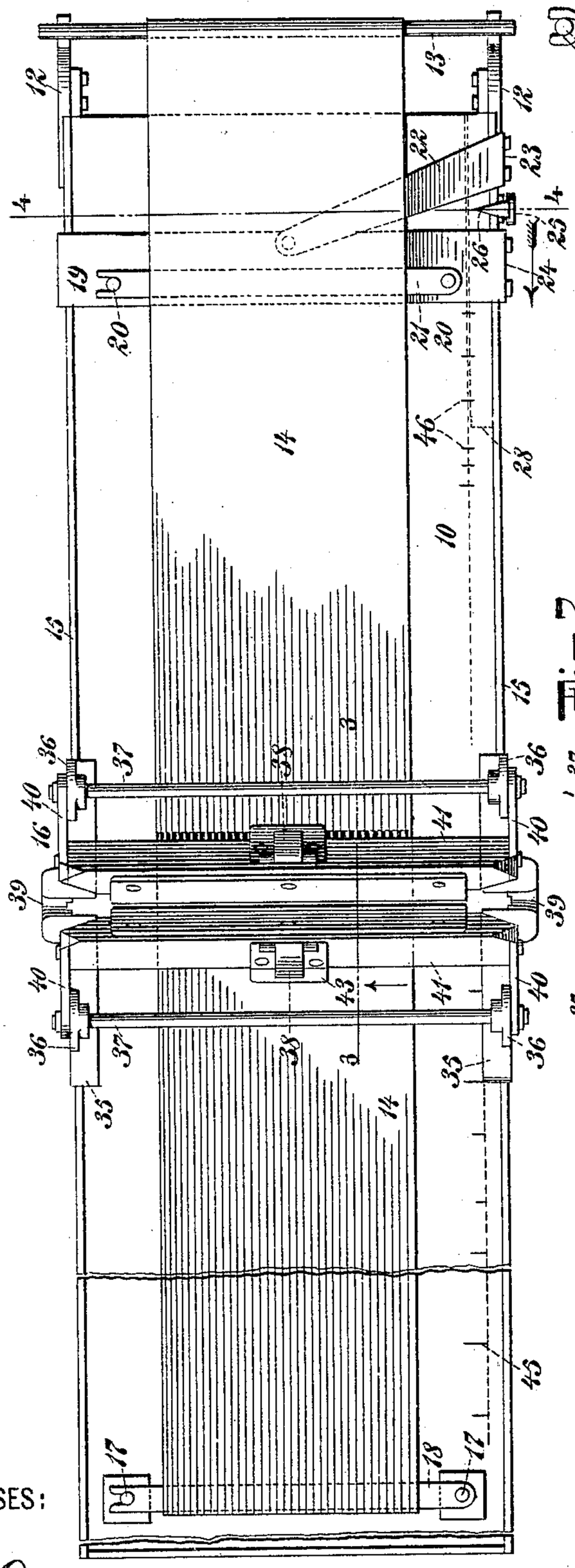

Fig. 1.

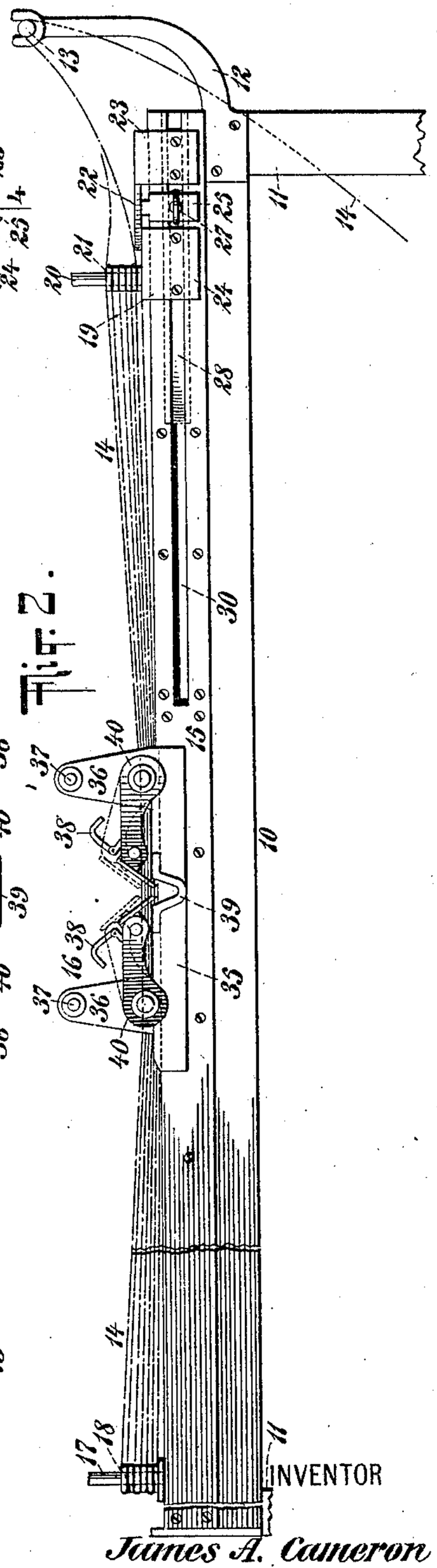

Fig. 2.

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Fig. 3.

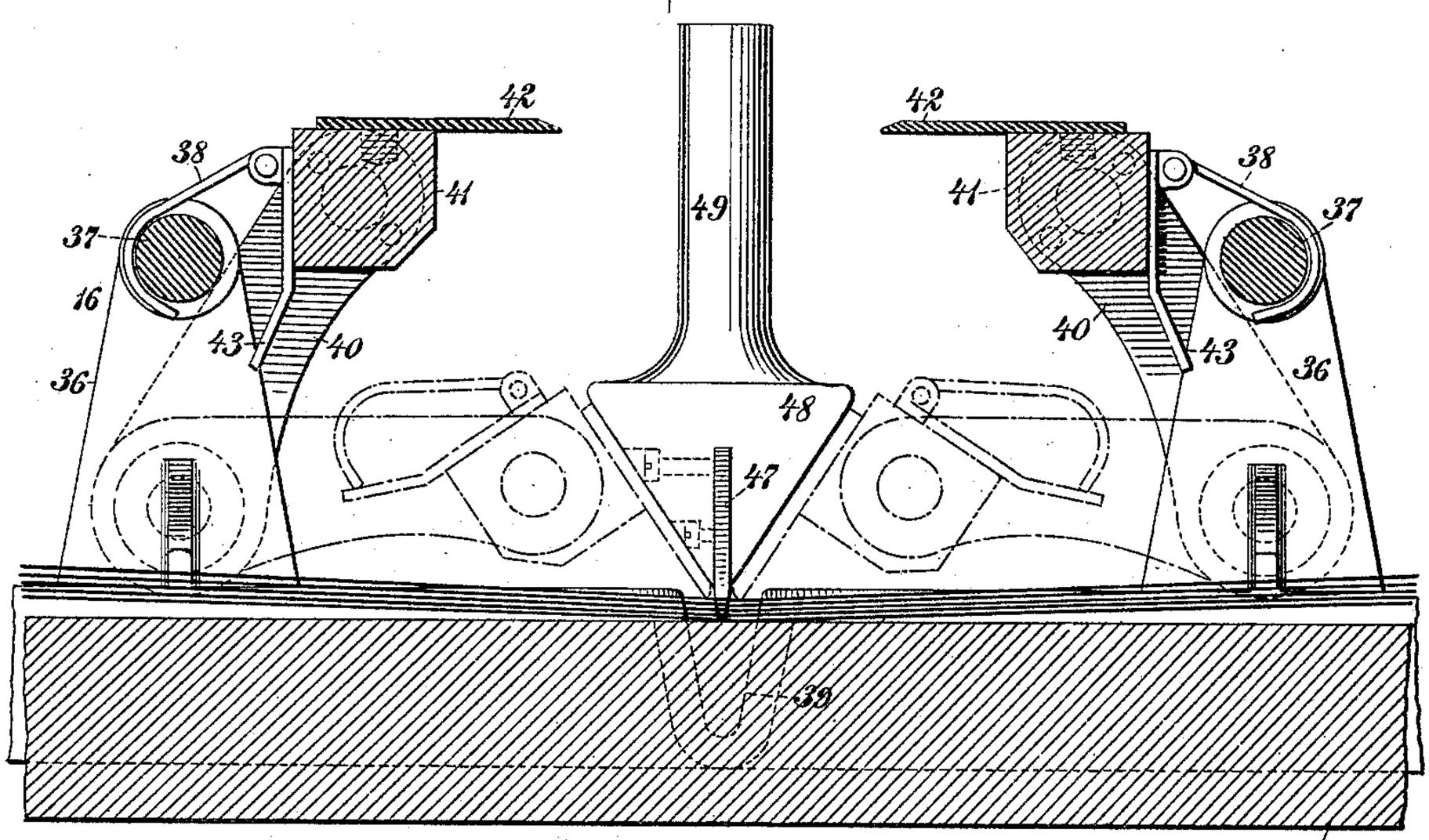


Fig. 4.

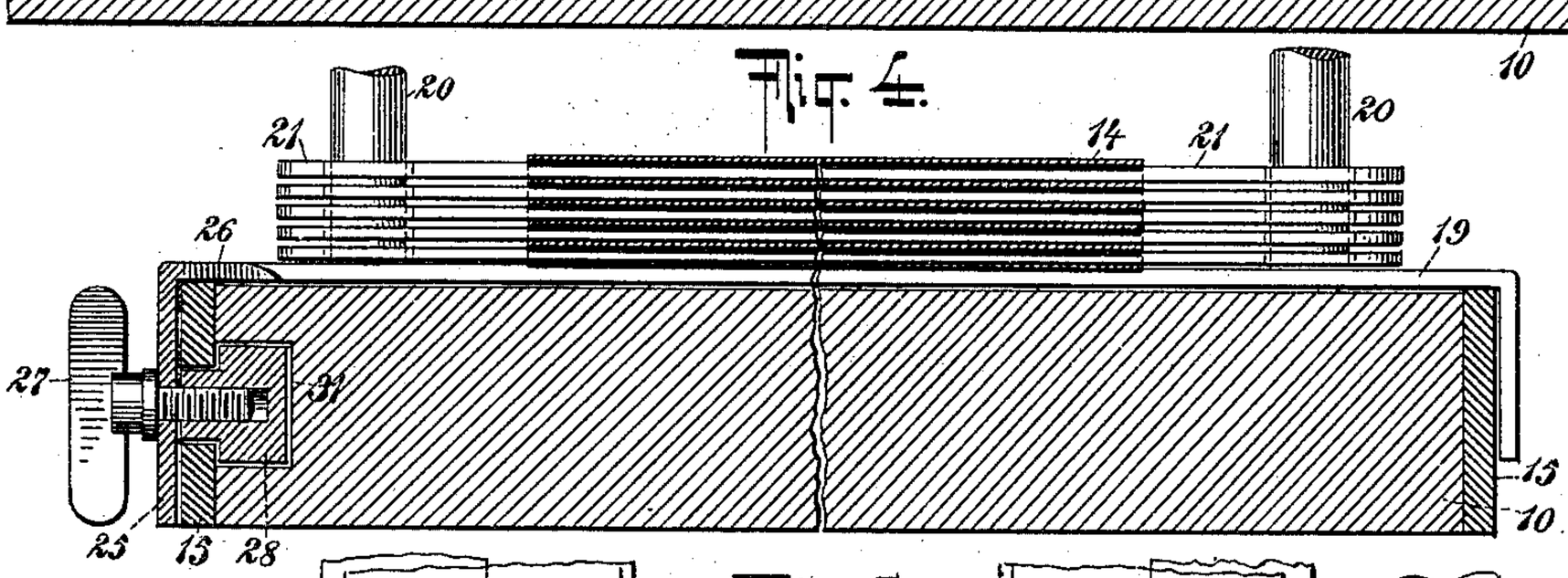


Fig. 5.

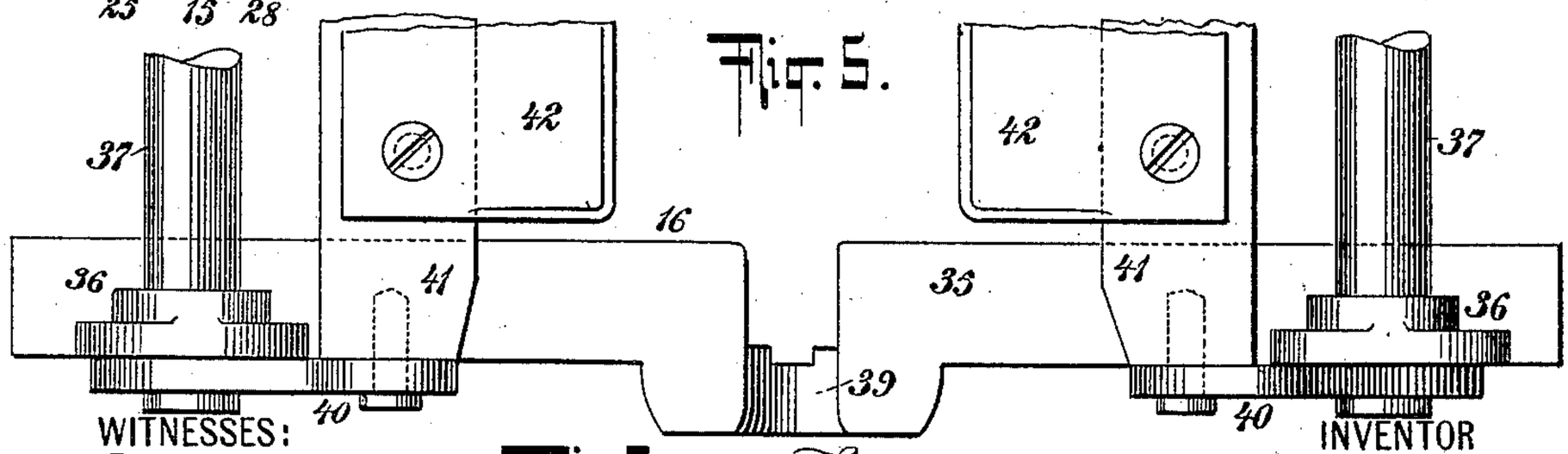
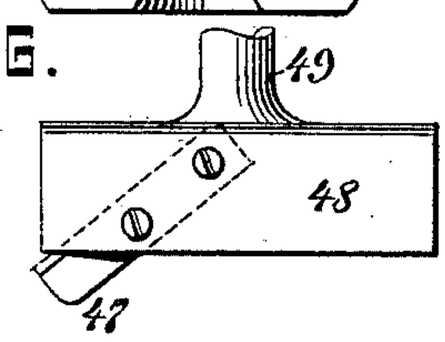


Fig. 6.



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UNITED STATES PATENT OFFICE.

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MACHINE FOR CUTTING BLANKS FROM FABRICS.

SPECIFICATION forming part of Letters Patent No. 697,978, dated April 22, 1902.

Application filed June 29, 1901. Serial No. 66,469. (No model.)

To all whom it may concern:

Be it known that I, JAMES A. CAMERON, a citizen of the United States, and a resident of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Machines for Cutting Blanks from Fabrics, of which the following is a specification.

The invention relates to improvements in machines for cutting blanks from fabrics, and pertains more particularly to machines for cutting a folded length of fabric transversely into sections of proper length for use in the manufacture of handkerchiefs, the sections or blanks cut from the folded fabric being of proper dimensions and in the proper condition to be at once formed into hemstitched handkerchiefs.

I have embodied my invention in the machine illustrated in the accompanying drawings, said machine comprising a table permitting the folding back and forth lengthwise thereon of the long strip of fabric which is to be severed into predetermined lengths or blanks, means for firmly holding the folded sections of the length of fabric on said table, a longitudinally-sliding carriage mounted to travel lengthwise of said table above the folded fabric thereon, and suitable clamps and guides supported by said carriage for engaging the fabric at the point of severance and guiding the knife by which the cutting of the fabric is accomplished.

The invention and satisfactory means for carrying the same into effect will be fully understood from the detailed description hereinafter presented, reference being had to the accompanying drawings, in which—

Figure 1 is a top view, partly broken away, of a machine constructed in accordance with and embodying the invention, the fabric to be severed being illustrated in position on said machine. Fig. 2 is a side elevation, partly broken away, of same. Fig. 3 is an enlarged vertical longitudinal section of a portion of same on the dotted line 3 3 of Fig. 1. Fig. 4 is an enlarged vertical transverse section, partly broken away, of same on the dotted line 4 4 of Fig. 1. Fig. 5 is an enlarged detached top view, partly broken away, of the longitudinally-traveling carriage forming a part of the machine; and Fig. 6 is a side elevation, partly broken away, of the knife for cutting the blanks.

In the drawings, 10 designates an elongated table having a flat upper surface and mounted upon suitable legs or frames 11. At one end of the table 10 is provided the upwardly-extending brackets 12, supporting in their upper bifurcated ends the rod or roller 13, over which the fabric 14 to be severed is fed from the usual roll or bolt, which for convenience may be disposed below the table 10.

Upon opposite sides of the table 10 are provided the metal plates or bars 15 15, which are placed along the edge and extend above the plane of the table 10 to form tramways for the carriage 16, hereinafter fully described.

Upon the table 10 adjacent to its left-hand end are secured the vertical pins or standards 17, which are used for holding in vertical series the bars 18, the latter having an aperture at one end to pass upon one of the pins 17 and at the other end being bifurcated to straddle the other pin 17, as shown in Fig. 1. The bars 18 are utilized as means for holding the left-hand end of the folds of the fabric 14, (which is of the proper width for a handkerchief,) said fabric being folded over said bars 18 and the latter being held stationary against the strain of the fabric by means of the pins 17. The bars 18 are free to be lifted upward from the pins 17 and may be freely removed from or placed upon said pins 17. The method of using the bars 18 will be referred to hereinafter.

Upon the right-hand end of the table 10 is provided a transverse frame 19, upon which pins 20, corresponding with the above-mentioned pins 17, are secured. The frame 19 is longitudinally adjustable, as hereinafter described, so as to carry the pins 20 to the proper predetermined position with respect to the length of the folds it is desired to form in the fabric 14, and upon the said pins 20 are disposed the bars 21, which correspond with the aforesaid bars 18 and are used to retain one end of the folds in the fabric 14, while the bars 18 are employed to hold the other end of said folds.

The frame 19 is in the form of a plate ex-

tending transversely across the table 10 and resting upon the upper edges of the tramways 15, and the ends of the said plate extend downward along the outer sides of said tramways 15, so that said plate may be properly guided upon and by said tramways.

The frame 19 has connected with it the bar 22, one end of which is secured to the frame 19, as shown in Fig. 1, and the other end (numbered 23) of which turns downward along the outer face of one of the tramways 15, as shown in Fig. 2, and corresponds substantially with the downwardly-projecting end (numbered 24) of the frame 19. Intermediate the ends 23 and 24 of the bar 22 and frame 19 is disposed the plate 25, carrying at its upper end the pointer 26 and provided with the set-screw 27, which passes freely through the plate 25 and engages a threaded socket formed in a longitudinally-disposed bar 28, located within a longitudinal groove formed in the edge of the table 10. The bar 28 is fastened by means of screws (shown in Fig. 2) to the downwardly-extending ends 23 24 of the bar 22 and frame 19, and said bar 28 at its outer side rests against the inner face of the tramway 15, which is slotted at 30 to permit the travel of the screws by which the bar 28 is secured to the said ends 23 24 and also to permit the passage of said set-screw 27 during the longitudinal sliding movement or adjustment of the frame 19. When the screw 27 is loosened or turned outward, the bar 28 will be free to slide within the groove (numbered 31) formed in the edge of the table 10; but when the set-screw 27 is turned inward or tightened it will draw the bar 28 forcibly against the inner face of the adjacent tramway 15, and at such time the bar 28 will serve as a clamp for binding the frame 19 in rigid position. When the set-screw 27 is loosened, the frame 19 may be adjusted lengthwise of the table 10 at will, and when the frame 19 has reached its predetermined position the tightening of the set-screw 27 will serve to lock said frame in rigid position. The bar 22, connected with the frame 19, serves to strengthen said frame and furnishes the downwardly-extending end 23 to receive screws for holding the outer end of the clamping-bar 28, the latter being of elongated form, so as to afford efficient clamping-surfaces. The elongation of the bar 28 also aids the bar 22 in resisting any strain which might come upon the frame 19 tending to twist said frame or pull one end of same in advance of the other end thereof.

The carriage 16 comprises the side bars 35 35, adapted to the tramways 15, so as to slide and be guided thereon, the standards 36 36, rising from said bars 35, and the rods 37 37, extending transversely over the table 10 and connecting the standards 36 at one side of the table with the standards 36 at the other side thereof, said rods 37 strengthening and adding rigidity to the carriage structure and serving also to receive the hooks 38 38 at the proper time, as indicated in Fig. 3. At their central portion the side bars 35 are slotted or recessed, as denoted at 39, so that the said bars shall not interfere with the action of the knife, hereinafter described, during the operation of severing the folded fabric. To the standards 36 are pivotally secured the outer ends of the arms 40, whose other ends extend inward toward each other and carry the bars 41 41, which extend transversely above the table 10 and have rigidly secured to them the plates 42, which project toward one another, as more clearly illustrated in Fig. 3. The arms 40, with the parts carried thereby, are adapted to have a pivotal motion from their inoperative position (shown by full lines in Fig. 3) to their operative position, (illustrated by dotted line in Fig. 3,) and when the arms 40, with the parts carried thereby, are in their upper or inoperative position they will be there held by the engagement of the hooks 38 with the rods 37. When it is desired to place the arms 40, with the parts carried thereby, in operative position, the hooks 38 will be released from the rods 37 and the said arms 40 allowed to descend to the position in which they are shown in Fig. 3 by dotted lines, the hooks 38 when the arms 40 are in their lower position being allowed to rest upon the plates 43, as indicated. When the arms 40 are in their lower position, the plates 42 assume the convergent position, (shown by dotted lines in Fig. 3,) the then lower edges of the said plates resting upon the folded fabric and being separated a slight distance from one another, so as to form a passage for the knife during the operation of severing the fabric. The bars 41 are made of substantial weight, so that they may exert their force to firmly press the lower edges of the plates 42 firmly against the folded fabric, the bars 41 and plates 42 then acting as clamps to press the folded fabric firmly against the table 10 and said plates 42 serving as guides for the knife during the operation of severing the several layers of the folded fabric on a line intermediate the adjoining edges of the plates 42.

The carriage 16, carrying the arms 40, bars 41, and plates 42, is adjustable along the length of the table 10, so that after one section of the folded fabric has been severed the said carriage may be moved to another position along said fabric preparatory to the severing of another section therefrom. The carriage 16 may be moved with reasonable freedom by hand, and hence the said carriage may be moved to any predetermined positions along the table 10 in accordance with the lengths of the fabric to be severed, or, in other words, in accordance with the sizes of the handkerchief-blanks to be produced. Handkerchiefs vary in size, and hence along one edge of the table 10 will be provided a series of indicating-marks 45 to guide the operator in adjusting the carriage 16, so that the sections or blanks cut by the knife, hereinafter described, with the assistance of said carriage

may be uniform. It is desirable also that the frame 19 shall be properly adjusted in its relation to the bars 18 at the left-hand end of the table 10 in order that the lengths of fabric between the bars 21, carried by the frame 19, and the bars 18 shall be just sufficient to produce a given number of handkerchief-blanks of predetermined width without waste of material, and hence the frame 19 will be adjusted toward or from the bars 18 in accordance with the number of handkerchief-blanks, according to their size, it may be desired to produce, so that the distance between the bars 21 and the bars 18 may be such as to be divided into equal parts by a number (for instance, twelve) representing the width of the fabric or the dimension in inches for one handkerchief. In order to aid the operator in thus adjusting the frame 19 and bars 21 toward or from the bars 18, I provide upon the upper surface of the table 10 a scale 46 and utilize the same in connection with the pointer 26, hereinbefore described, so that the operator upon moving the frame 19 may note by the relation of the pointer 26 with the figures of the scale 46 just how many handkerchiefs of a given dimension may be severed from the length of fabric disposed intermediate the bars 21 and 18.

The knife for severing the blanks for the handkerchiefs may vary in form; but I have employed with entire success the character of knife illustrated in the drawings, in which 47 denotes the blade of the knife, 48 the stock thereof, and 49 the handle. The stock 48 is of triangular form to rest against the plates 42 when the latter are in their lower position, (illustrated in Fig. 3,) while the handle 49 merely projects upward a convenient distance to be grasped by the hand of the operator. The blade 47 is a sharpened steel blade placed at an angle, so that it may make a draw cut through the several thicknesses of folded fabric. The blade 47 will project downward below the lower edges of the plates 42 when the opposite inclined sides of the stock 48 are resting against the faces of said plates 42. The form of the stock 48 enables the latter to be guided by the plates 42 when the latter are in their lower position, said plates 42 at such time guiding the blade and compelling the latter to make a true cut through the several thicknesses of folded fabric.

In the employment of the invention the carriage 16, with the plates 42 in their upper inoperative position, will be moved to the left beyond the vertical pins or standards 17, and the frame 19 will be adjusted to the proper predetermined position in accordance with the lengths desired for the folds of the fabric, there being at such time no bars 18 21 upon the machine. The end of the fabric 14 will then be carried upward over the rod or roller 13 at the right-hand end of the machine and drawn over the table 10 to the left of the vertical pins or standards 17, whereupon one of the bars 18 will be placed upon said pins or standards 17 and moved downward upon the fabric then on the table 10 between said pins or standards. The end of the fabric 14 will then be turned over the said bar 18 and drawn toward the right beyond the pins 20, whereupon a bar 21 will be placed on said pins and lowered or permitted to descend upon the fabric, and thereupon the fabric will be folded back and forth as often as desired or until an adequate pile of the fabric in folds has been formed, the bars 18 and 21 being applied in succession at the respective ends of the table as each fold is made, so that the fabric may be turned over the same. During the formation of the folds the fabric is drawn taut over the bars 18 21, so that only a given amount of the fabric shall be allowed to exist in the folded lengths thereof and that the fabric may be smoothed out. By pulling on the end of the fabric the latter will slide over the series of bars 18 21, and this will have the effect of ironing out all of the creases previously existing in the same. The bars 18 21 govern the extent of the folded lengths of fabric and serve to enable the accurate folding of the fabric. The bars 18 21 should be as thin as practicable, so as not to unduly increase the height of the ends of the lengths of fabric folded upon the table 10.

After the fabric has been folded upon the table 10 the carriage 16 will be moved to the right and utilized in connection with the knife for severing the folded lengths of fabric into proper sections or blanks for the formation of handkerchiefs. It is desirable that the sections or blanks for the handkerchiefs be of uniform dimensions, and hence the carriage 16 will be moved along the length of fabric to the predetermined positions, governed by the size desired for the said sections or blanks. The scale 45 is provided as a guide for the operator in adjusting the carriage 16 along the table 10, and the left-hand end of one of the sides 35 of said carriage may be used as an index-finger for coöperation with the scale 45. When the carriage 16 is adjusted to any of its predetermined positions, the hooks 38 will be released and the bars 41 and plates 42 allowed to descend to their lower position, (indicated by dotted lines in Fig. 3,) so that the said plates 42 under the weight of the bars 41 may clamp the lengths of fabric firmly upon the table 10 and serve as guides for the knife, the stock 48 of the latter fitting against the facing sides of the said plates 42, while the blade 47 is manually drawn through the fabric in line with the center of the space intermediate the then lower ends of the said plates 42. After each operation of severing the folded lengths of fabric the bars 41 will be moved to their upper position and there held by means of the engagement of the hooks 38 with the transverse rods 37, and thereupon the carriage will be moved to the next position for the severance of the fabric. If, for illustration, the sections or blanks for the handkerchiefs are to

be sixteen inches long, (the fabric being sixteen inches in width,) the carriage 16 would be moved at steps or intervals of sixteen inches along the length of the folded fabric, care being taken, however, that the first and last cuts made through the folded fabric at the respective ends of the table shall be only eight inches from the end of the pile of folded fabric, since at these points the fabric is doubled, and a cut made eight inches from the end of a pile would form sixteen-inch blanks, while at all intermediate points between the first and last cuts through the fabric the carriage should advance at each interval a space equal to sixteen inches. The scale 45 should provide sufficient marks for handkerchiefs varying in size from, say, twelve inches to twenty-two inches. Any convenient form of scale 45 may be made use of, or, if preferred, the scale 45 may be omitted entirely and the operator depend upon a rule or measure for guiding him in adjusting the carriage 16. The machine thus comprises a table, means thereon for enabling the accurate folding of the fabric into a vertical series of smooth longitudinal lengths of predetermined extent, movable clamping devices for pressing down and holding the fabric at each side of each line of severance, and a knife for severing the fabric and adapted to said clamping devices, so as to be guided along the line of severance thereby.

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

1. In a machine of the character described, the table upon which the fabric to be severed into sections or blanks may be placed, the movable carriage mounted on said table and carrying clamping members to engage and press said fabric down against said table at each side of the line of severance, and tramways for guiding said carriage, combined with a knife for effecting the severance of the fabric on a line intermediate said members and adapted to said members so as to be guided thereby; substantially as set forth.

2. In a machine of the character described, the table upon which the fabric to be severed into sections or blanks may be placed, and the movable carriage mounted on said table and having the pivoted arms and clamping-plates, said plates being carried at the inner ends of said arms, and said arms being of such length that when turned toward one another and to their lower position said plates will press against said fabric at each side of the line of severance, combined with a knife for severing the fabric on a line intermediate the adjoining edges of said plates; substantially as set forth.

3. In a machine of the character described, the table upon which the fabric to be severed into sections or blanks may be placed, and the movable carriage mounted on said table and having the pivoted arms and clamping-plates, said plates being carried at the inner ends of said arms, and said arms being weighted at said inner ends and of such length that when turned toward one another and to their lower position said plates will be firmly held down against said fabric at each side of the line of severance, combined with a knife for severing the fabric on a line intermediate the adjoining edges of said plates; substantially as set forth.

4. In a machine of the character described, the table upon which the fabric to be severed into sections or blanks may be placed, and the movable carriage mounted on said table and having the pivoted arms and clamping-plates, said plates being carried at the inner ends of said arms, and so disposed with respect thereto that when said arms are turned toward one another and to their lower position said plates will stand on downwardly-converging lines with their lower edges pressing against said fabric at each side of the line of severance, combined with a knife for severing the fabric on a line intermediate the adjoining edges of said plates; substantially as set forth.

5. In a machine of the character described, the table upon which the fabric to be severed into sections or blanks may be placed, and the movable carriage mounted on said table and having the pivoted arms and clamping-plates, said plates being carried at the inner ends of said arms and so disposed with respect thereto that when said arms are turned toward one another and to their lower position said plates will stand on downwardly-converging lines with their lower edges pressing against said fabric at each side of the line of severance, combined with a knife for severing the fabric on a line intermediate of the adjoining edges of said plates, said knife having the blade, stock and handle, and said stock having downwardly-converging sides to fit against the facing surfaces of the said plates when the latter are in their lower position; substantially as set forth.

6. In a machine of the character described, the table upon which the fabric to be severed into sections or blanks may be placed, and the movable carriage mounted on said table and comprising the side bars 35, the standards 36 connected with said bars, the rods 37 connecting said standards, the pivoted arms 40, the bars 41 connecting said arms in pairs, the plates 42 secured to said bars 41, and the hooks for detachably holding said bars, plates and arms in their inoperative position, said arms being of such length that when turned toward one another and to their lower position said plates will press against said fabric at each side of the line of severance, combined with a knife for severing the fabric on a line intermediate the adjoining edges of said plates; substantially as set forth.

7. In a machine of the character described, the table upon which the fabric to be severed into sections or blanks may be placed, the bars at the ends of said table over which the said fabric may be folded into a vertical se-

ries of longitudinal lengths, and means for restraining said bars against displacement under the strain of the folded fabric, combined with the movable carriage for said table, the tramways for guiding said carriage longitudinally of said table, clamping means carried by said carriage transversely over and adapted to bind down upon said vertical series of lengths of fabric along the predetermined transverse lines of severance, and a knife for cutting through said series of lengths of fabric along the line of said clamping means; substantially as set forth.

8. In a machine of the character described, the table upon which the fabric to be severed into sections or blanks may be placed, the pins or standards 17, 20, at the ends of said table, and the bars 18, 21, perforated at one end and slotted at the other end to engage said pins or standards, said bars serving to permit the folding back and forth on said table of said fabric and to determine the length of the folds in said fabric by being confined within the ends of said lengths, combined with the movable carriage for said table, the tramways for guiding said carriage longitudinally of said table, clamping means carried by said carriage transversely over and adapted to bind down upon said vertical series of lengths of fabric along the predetermined transverse lines of severance, and a knife for cutting through said series of lengths of fabric along the line of said clamping means; substantially as set forth.

9. In a machine of the character described, the table upon which the fabric to be severed into sections or blanks may be folded into a vertical series of longitudinal lengths, the bars at one end of said table over which the fabric may be folded, the sliding frame at the other end of said table, means for securing said frame in a predetermined position, and the bars for said frame and over which the fabric may be folded, the adjustment of said frame being for the purpose of determining the length of the pile of folded fabric, combined with means for severing the folded fabric into sections or blanks; substantially as set forth.

10. In a machine of the character described, the table upon which the fabric to be severed into sections or blanks may be folded into a vertical series of longitudinal lengths, the series of bars for one end of said table over which the fabric may be folded, the sliding frame 19 at the other end of said table, the bars for said sliding frame and over which the fabric may be folded, the bar 22 connected at one end with said frame and at the other end extending downward along the side of the table, the sliding bar 28 mounted in a groove in said table and connected with said bar 22 and said sliding frame, the plate 25 having the set-screw 27, the latter engaging said bar 28, and the slotted plate 15 confining said bar 28 in its groove and affording surfaces against which said bar 28 may be clamped by the action of said set-screw, combined with means for severing the folded fabric into sections or blanks; substantially as set forth.

11. In a machine of the character described, the table, means for enabling the folding thereon of the fabric into a vertical series of smooth longitudinal lengths of predetermined extent, movable clamping devices for pressing down and holding the fabric at each side of each predetermined line of severance, and a knife for severing the fabric and adapted to said clamping devices so as to be guided along the line of severance thereby; substantially as set forth.

12. In a machine of the character described, the table, means thereon for enabling the accurate folding of the fabric into a vertical series of smooth longitudinal lengths of predetermined extent, the traveling carriage having the clamping-plates 42 for pressing down and holding the fabric at each side of each predetermined line of severance, said plates when in their lower position being on lines converging downward toward one another, combined with the knife for severing the fabric and having the stock whose opposite sides are adapted to the converging faces of said plates so as to be guided thereby; substantially as set forth.

Signed at New York, in the county of New York and State of New York, this 26th day of June, A. D. 1901.

JAMES A. CAMERON.

Witnesses:
CHAS. C. GILL,
GUNDER GUNDERSON.