

No. 754,759.

PATENTED MAR. 15, 1904.

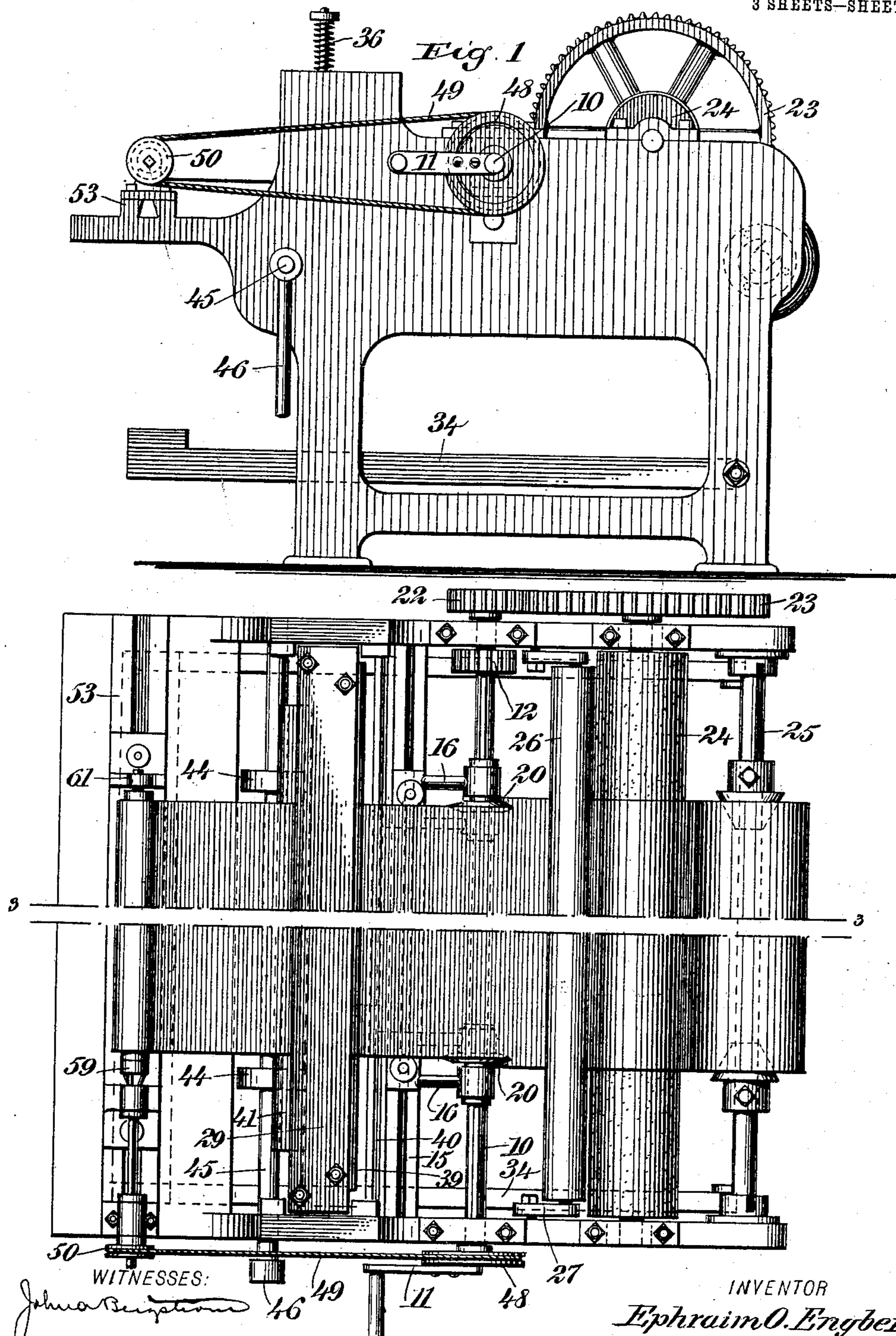
E. O. ENGBERG.

# MACHINE FOR TRIMMING AND APPLYING SHADE GOODS.

APPLICATION FILED MAY 12, 1903.

NO MODEL.

3 SHEETS—SHEET 1.



Isaac B. Owens.

*Fig. 2*

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*Ephraim O. Engberg*

BY *Munn*  
ATTORNEYS.

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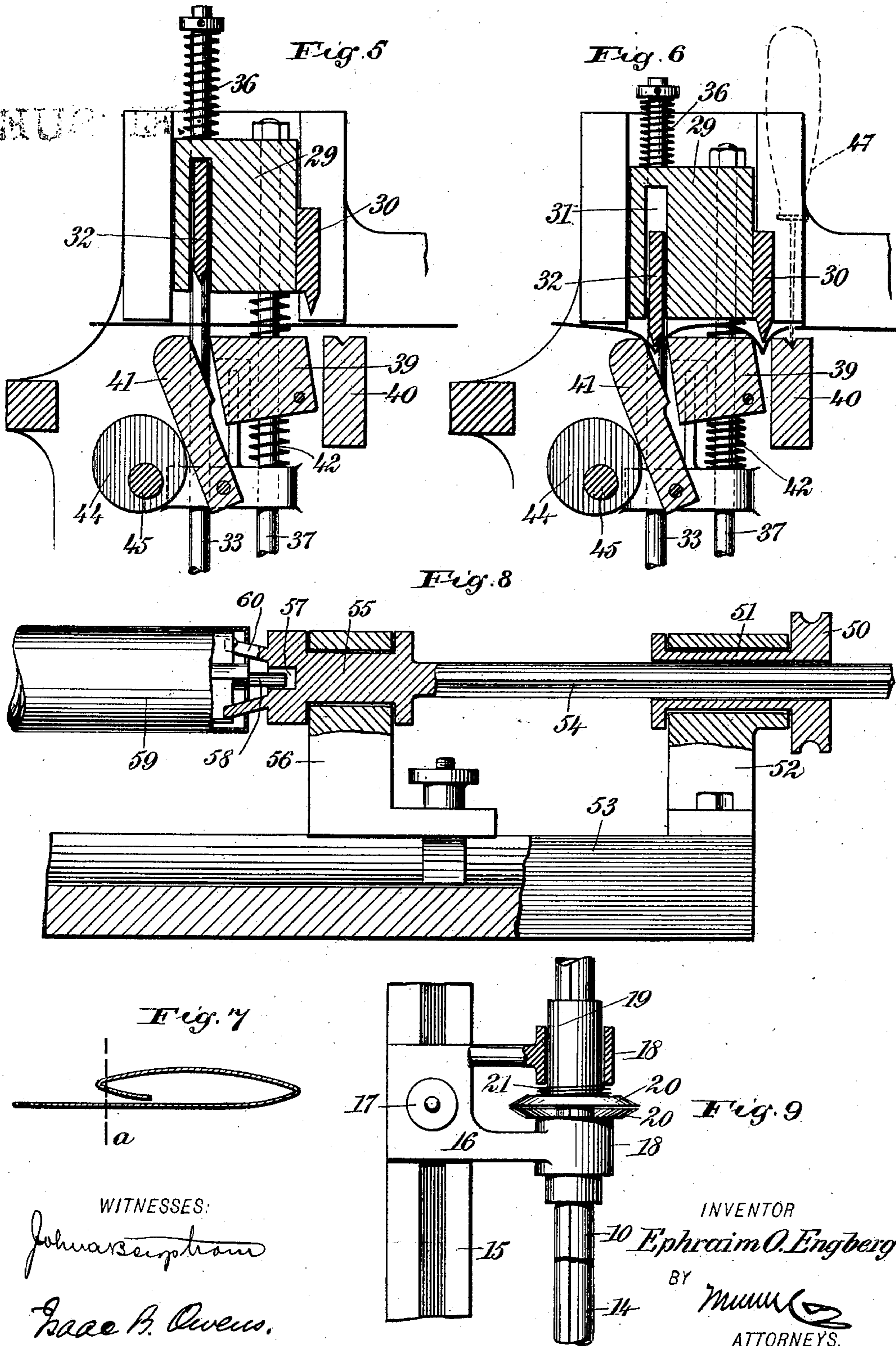
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3 SHEETS—SHEET 3.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

EPHRAIM O. ENGBERG, OF SALT LAKE CITY, UTAH.

## MACHINE FOR TRIMMING AND APPLYING SHADE GOODS.

SPECIFICATION forming part of Letters Patent No. 754,759, dated March 15, 1904.

Application filed May 12, 1903. Serial No. 156,766. (No model.)

*To all whom it may concern:*

Be it known that I, EPHRAIM O. ENGBERG, a citizen of the United States, and a resident of Salt Lake City, in the county of Salt Lake and State of Utah, have invented a new and Improved Machine for Trimming and Applying Shade Goods, of which the following is a full, clear, and exact description.

This invention relates to a machine by which the fabric used for window-shades may be conveniently and accurately slit at its edges to produce the proper width and severed into the necessary lengths, the machine simultaneously creasing the stock, so as to facilitate the application to the lower edge thereof of the usual slat, and the machine, further, having means for carrying the shade-roller and for rotating the same during the operation of the machine, whereby automatically to wind the shade on the roller.

This specification is an exact description of one example of my invention, while the claims define the actual scope thereof.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of the invention. Fig. 2 is a plan view thereof. Fig. 3 is a longitudinal section on the line 3 3 of Fig. 2. Fig. 4 is a cross-section on the line 4 4 of Fig. 3. Figs. 5 and 6 are enlarged sectional views of the creasing devices. Fig. 7 is a view showing the manner of folding the end of the stock. Fig. 8 is a sectional detail showing the device for mounting the shade-roller in the machine, and Fig. 9 is an enlarged plan view of a pair of the slitting-knives.

The machine should be provided with a suitable framing, the details of which will not be described.

10 indicates the primary-movement shaft, which is provided with any suitable means for driving it. According to the organism of the hand-machine here illustrated said shaft is provided with a crank 11. This shaft is mounted transversely in the frame and is connected by gears 12 with a shaft 14, which runs parallel therewith immediately below it. A transverse guide 15 is mounted in the frame, and said guide carries two brackets 16, which are

adjustable on the guide by means of screws 17 or the like. Each bracket 16 has two arms, one projecting to the plane of the shaft 10 and the other arm to the plane of the shaft 14 and each being provided with sleeves 18, in which are fitted to turn the hubs 19 of rotary knives 20, said hubs having feathers or keys thereon, which run in corresponding keyways in the shafts 10 and 14, as best shown in Fig. 9. 21 indicates springs bearing between the collars 18 and knives 20 and serving to press said knives into engagement with each other, the knives overlapping, so that the goods when drawn between them in the manner illustrated in Figs. 2 and 3 will be trimmed. The rotation of the shafts 10 and 14 imparts a corresponding movement to the knives. By adjusting the brackets 16 on the guide 15 the machine may be accommodated to any width of stock. The said primary-movement shaft 10 carries a pinion 22, and said pinion is in mesh with a gear 23 in connection with a roller 24, extending transversely in the frame. Over this roller the stock is passed from the roll 25, on which said stock is wound, the roll 25 being mounted loosely in the frame, as shown best in Fig. 3.

26 indicates a friction-roll, which is mounted in swinging arms 27, and said arms are under the tension of springs 28, thus moving the roll 26 to hold the stock between said roll and the roll 24, and thereby giving the roll 24 sufficient hold on the stock to enable it to be drawn from the roll 25. Said roll 26 also serves to bring the stock down into the plane of the meeting edges of the knives 20.

In suitable vertically-disposed guides on the frame is mounted to move vertically a horizontal cross-head 29, this cross-head carrying fixedly a creasing-blade 30 and having a longitudinal cavity 31 therein in which is loosely arranged a second creasing-blade 32. As best shown in Fig. 4, the blade 32 is connected at its ends with downwardly-extending rods 33, passing loosely through a treadle 34 and having nuts or other stops 35 at their lower extremities. Springs 36 are arranged to act between the blade 32 and the cross-head 29 and serve to hold said blade yieldingly in the position shown in Fig. 5. The cross-head is connected at each end to a downwardly-extending

rod 37, in which rod springs 38 are interposed, these springs being either fastened to or formed integral with the rods and said rods being securely connected at their ends with the aforesaid treadle 34. The rods 33 and 37 pass loosely through guide-lugs on the frame, as shown best in Figs. 3, 5, and 6, and immediately above these guide-lugs is arranged a rocking creaser-bar 39. At one side of said bar is a rigid strip 40, carried by the frame and extending transversely thereof, and at the other side of the creaser-bar 39 is a wall 41, which is mounted on the frame to swing toward and from the bar 39. Between the bar 39 and the said lug of the frame an expansive spring 42 is arranged, this spring tending to throw up the cross-head 29. The normal position of the parts therefore is then as shown in Fig. 5, and when the treadle 34 is depressed the parts 29 and 32 move down bodily until the blade 30 enters between the strip 40 and the creaser-bar 39. Then the movement of the cross-head ceases, the springs 38 give, and as the treadle 34 strikes the nuts 35 the blade 32 moves down independently of the cross-head and enters between the creaser-bar 39 and the wall 41, either of the blades 30 and 32 forming a crease in the stock, as indicated in Fig. 6. Cams 44 are mounted on a rocking shaft 45 and arranged to bear against the swinging wall 41. Said shaft 45, as best shown in Fig. 1, is provided outside the frame with a handle 46, which permits the manual rocking of the shafts. The cams 44 are normally in the position shown in Figs. 5 and 6, and when the parts assume the position shown in Fig. 6 the shaft 45 should be rocked to throw the cams 44 against the swinging wall 41 and rock said wall toward the creaser-bar 39, thus imparting a like rocking movement to said bar and bringing all the other of the parts 39, 40, and 41 up snugly together, thereby finishing the creases, the formation of which was started by the above-described action of the blades 30 and 32. The strip 40 is preferably provided with a longitudinal groove in its upper edge, and said groove is intended to guide a hand cutting-tool, indicated by the broken lines 47, (see Fig. 6,) this tool being run over the strip 40 to sever the stock when the parts assume the position shown in Fig. 6.

On the drive-shaft 10 is a pulley 48, and over this pulley runs a belt 49, said belt also passing over a pulley 50, formed on or fastened to a sleeve 51, arranged to turn freely in a bearing 52, mounted on the end of a transverse guide 53, itself suitably fastened to the frame. (See Fig. 8.) Said sleeve 51 has an angular interior, in which fits a correspondingly angular shaft 54, this shaft sliding in the sleeve, but turning therewith and having at its inner end a head 55, turning loosely in a bearing 56, adjustable longitudinally on the aforesaid guide 53. Said head 55 is provided

with a central orifice 57, receiving the journal 58 of a shade-roller 59, which roller forms no part of my invention, but may be any of the well-known commercial shade-rollers. The head 55 is also provided with one or more prongs 60, which engage with the roller to impart rotary movement thereto. The opposite end of the shade-roller, as shown best in Fig. 2, is mounted in a suitable bearing 61, adjustably held in the guide 53. By this mechanism the bearings 56 and 61 may be adjusted toward and from each other to seat any length of shade-roller which it is desired to employ, and by means of the belt 49 and its pulleys 48 and 50 the said shade-roller will be rotated in time with the other machine-controlled movements of the apparatus.

In using the invention the stock is wound on the roller 25 and then led through the machine, as shown in Fig. 3. The leading edge of the stock should then be fastened to the shade-roller in the usual manner and the rotating parts of the machine started, thus simultaneously trimming off the stock to the desired width and winding the same on the shade-roller. When the necessary amount of stock has been wound on the roller, the treadle 34 should be depressed, thus throwing the creaser-blades into the position shown in Fig. 6 and clamping the stock between the parts 29 and 39. The before-referred-to hand-tool 47 should now be manipulated to cut off the stock and then the cams 44 operated to throw the wall 41 up and finish the creasing operation. After this has been done the treadle should be released and the creasing devices allowed to return to their inactive position. It will be observed that this operation forms two creases in the end of the stock. This facilitates the ready folding of the stock in the manner shown in Fig. 7, after which it is stitched along the broken line, (indicated at *a* in Fig. 7,) and the usual slat should be slipped through the socket thus formed. This finishes the operation on one curtain, and the second operation is begun by placing a new roller in the machine and leading the severed edge of the stock forward into engagement with the roller, as before described.

Various changes in the form, proportions, and minor details of my invention may be resorted to at will without departing from the spirit and scope thereof. Hence I consider myself entitled to all such variations as may lie within the intent of my claims.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination with a frame, of rockably-mounted members, means for rocking said members to crease the fabric between them, and means for moving said fabric into the space between said members prior to the rocking thereof.

2. The combination of a stationary member, a movable creaser-bar coacting therewith, a

movable wall coacting with the creaser-bar, said parts serving to form two creases in a section of fabric, and means for operating said parts.

5 3. The combination of a stationary member, a movable creaser-bar coacting therewith, a movable wall coacting with the creaser-bar, said parts serving to form two creases in a section of fabric, means for operating said parts, and means for pressing the fabric between said parts prior to the creasing movement thereof.

4. The combination of a stationary member, a movable creaser-bar coacting therewith, a movable wall coacting with the creaser-bar, said parts serving to form two creases in a section of fabric, means for operating said parts, and two blades serving to press said fabric between said parts prior to the creasing action thereof.

5. The combination of a stationary member, a movable creaser-bar coacting therewith, a movable wall coacting with the creaser-bar, said parts serving to form two creases in a section of fabric, and means for operating said parts, such means comprising a cam bearing against one of the parts and means for mounting and operating the cam.

6. The combination with a frame, of a stationary member, a movable creaser-bar coacting therewith, a movable creaser-wall coacting with the bar, means for operating the bar and wall, a cross-head, a blade carried directly thereby, and a second blade yieldingly mounted on the cross-head, said blade coacting with the creaser bar and wall.

7. The combination with creasing devices, of a cross-head movable toward and from the same, a blade carried directly by the cross-head, and a second blade carried yieldingly thereby.

8. The combination with creasing devices, of a cross-head movable toward and from the same, a blade carried directly thereby, a second blade carried movably on the cross-head, a spring actuating the second blade, a spring actuating the cross-head, and means for operating the cross-head and the second-named blade successively.

9. The combination with creasing devices, of a cross-head movable toward and from the same, a blade carried directly thereby, a second blade carried movably on the cross-head, a spring actuating the second blade, a spring actuating the cross-head, means for operating the cross-head and the second-named blade successively, said means for operating the cross-head and second blade comprising a treadle, an extensive connection between the treadle and cross-head, and a connection between the treadle and second blade, the latter connection permitting a certain independent movement of the treadle.

10. The combination with a frame, of a stationary member, a rocking creaser-bar coact-

ing therewith, a swinging wall coacting with the creaser-bar, means for operating said bar and wall, a cross-head, a blade carried thereby, a rod in connection with the cross-head, a spring bearing between the cross-head and creaser-bar, a second spring bearing between the creaser-bar and frame, a second blade movably mounted on the cross-head, a spring acting between the second blade and cross-head, a rod in connection with the second blade, and means for successively moving the said rods.

11. The combination with a frame having means for carrying and operating on a shade fabric, of a guide, a bearing adjustable thereon, and serving to carry one end of the shade-roller, a second bearing adjustable on the guide, a head revolubly mounted in the bearing and capable of engaging the other end of the shade-roller, and means for revolving the head.

12. The combination with a frame having means for carrying and operating on a shade fabric, of a guide, a bearing adjustable thereon and serving to carry one end of the shade-roller, a second bearing adjustable on the guide, a head revolubly mounted on the bearing and capable of engaging the other end of the shade-roller, means for revolving the head, said means comprising a revolubly-driven sleeve, and a shaft in connection with the head and slidably fitted in the sleeve, said sleeve and shaft being engaged to drive the one from the other.

13. The combination of a framing, two cutting devices mounted at the sides of the framing respectively to trim the edges of a length of fabric, creasing means mounted on the framing to which the fabric is passed, as it moves from the cutting devices, and means for operating the cutting and creasing devices.

14. The combination of a framing, two cutting devices mounted at the sides of the framing respectively to trim the edges of a length of fabric, creasing means mounted on the framing to which the fabric is passed as it moves from the cutting devices, means for operating the cutting and creasing devices, and a strip or bar extending transversely of the framing between the cutting and creasing devices and adapted to have a knife run over it to sever the fabric into lengths.

15. The combination of a framing, a transverse guide thereon, a bracket adjustably mounted on the guide, two coacting rotary cutters carried by the bracket, two shafts on which said cutters are respectively splined, and means for driving the shafts.

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

EPHRAIM O. ENGBERG.

Witnesses:

W. N. B. SHIPHERD,

WM. R. WALLACE.