

June 8, 1943.

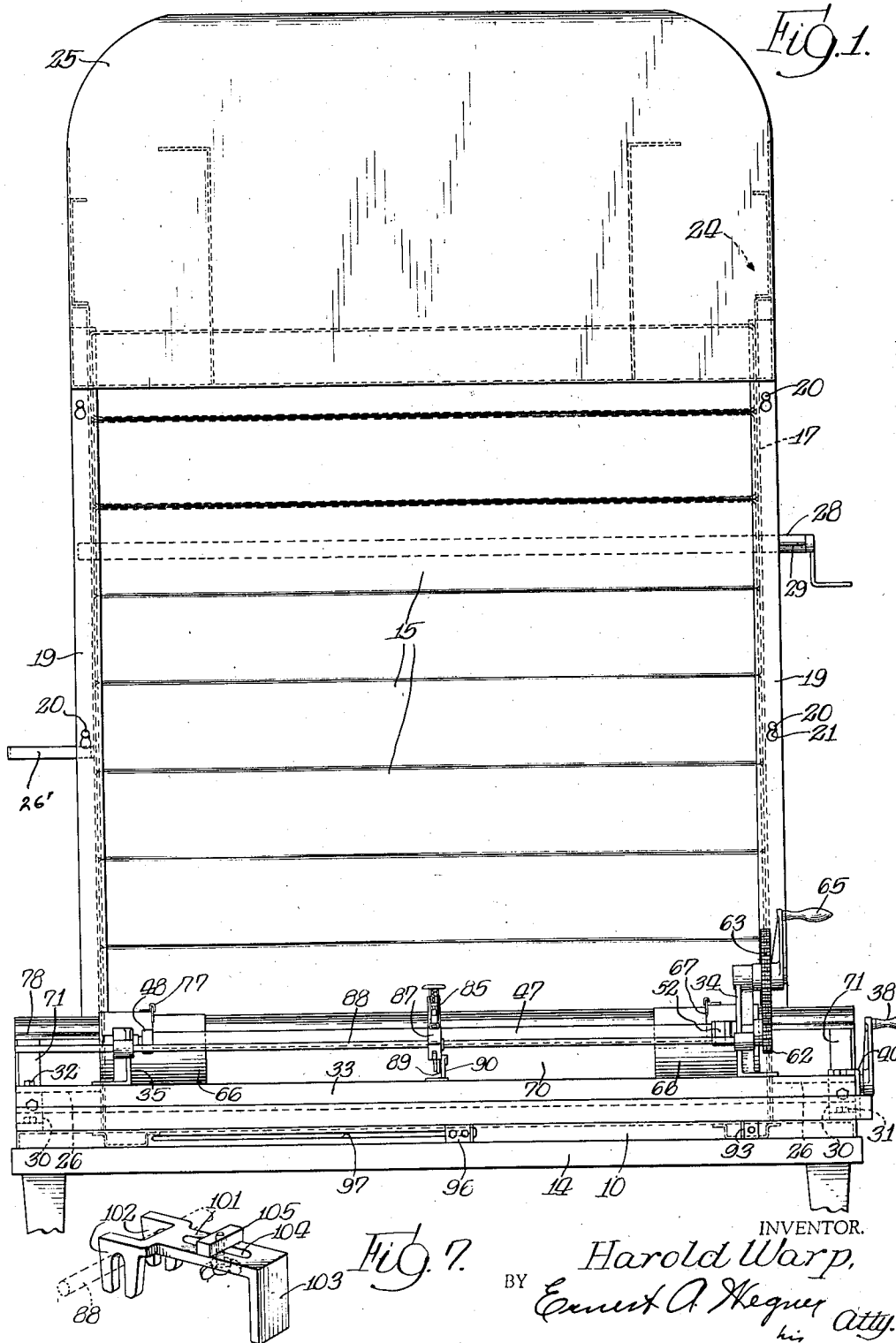
H. WARP

2,321,055

WINDOW SHADE MACHINE

Filed Aug. 10, 1940

3 Sheets-Sheet 1



June 8, 1943.

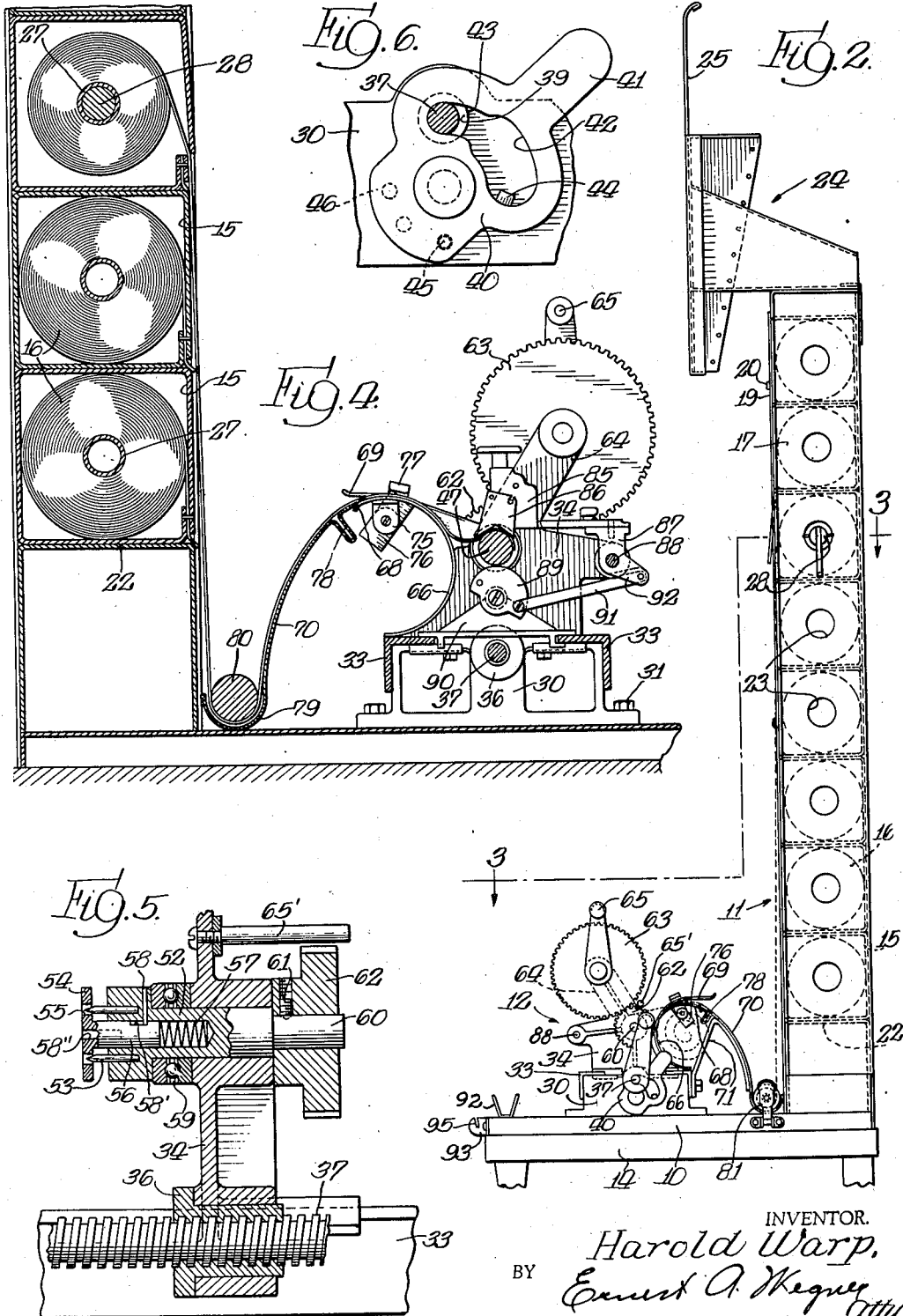
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3 Sheets-Sheet 3

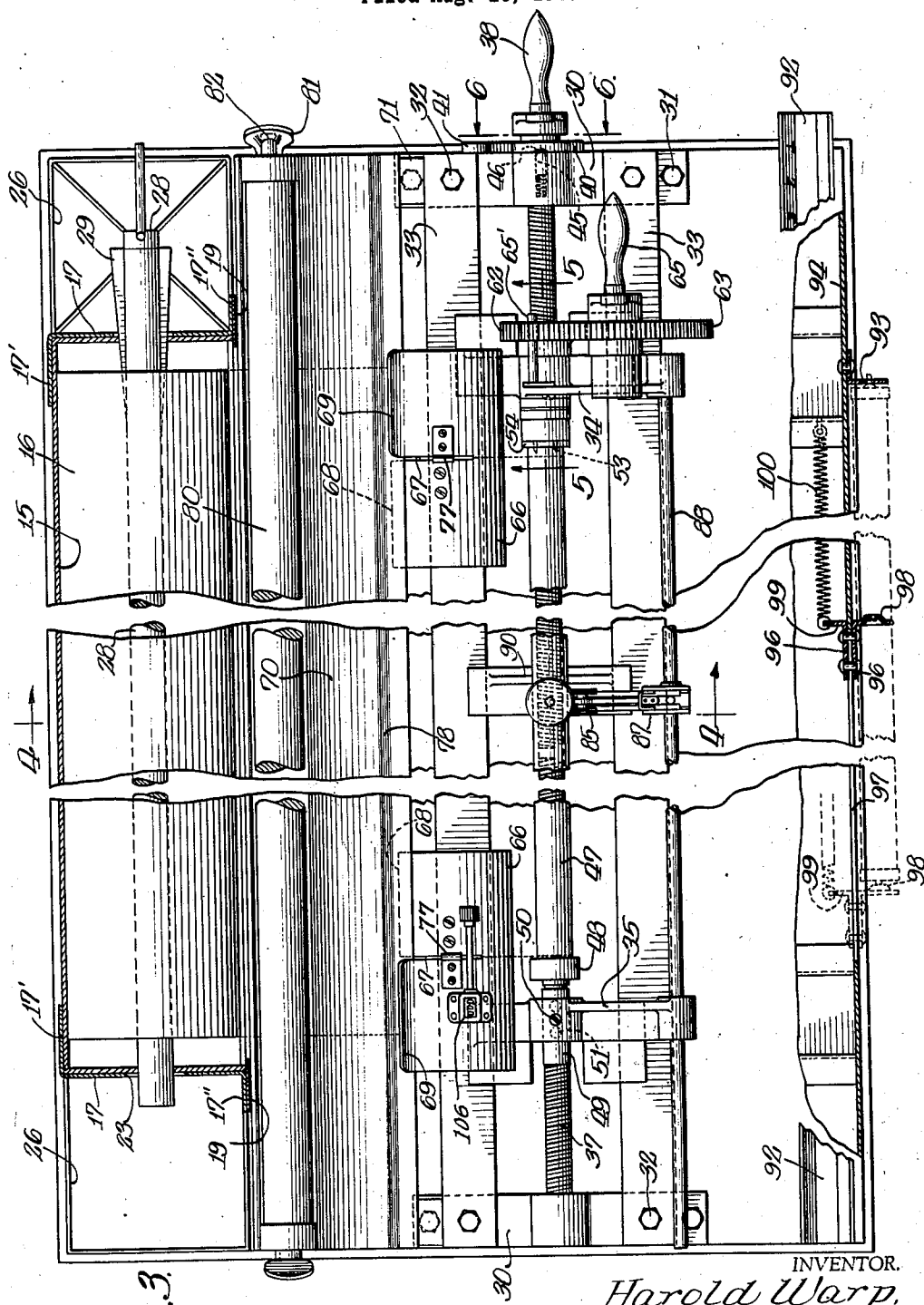


FIG. 3.

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2,321,055

WINDOW SHADE MACHINE

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Application August 10, 1940, Serial No. 352,129

17 Claims. (Cl. 1—3)

The invention relates generally to a sheet material dispensing apparatus, and more particularly to an apparatus for dispensing window shade material made into completed window shades.

At the present time it is necessary for a merchant handling window shades, in order to meet the requirements which his customers may have, to stock a large number of shades of varying widths and also of varying length. This large number of shades of varying width and varying length must be carried in a variety of grades of the shade material, as well as in a variety of colors of the shade material. The result is that a complete stock is so large and, therefore, involves such a large investment that the average merchant is not in a position to carry the same. Furthermore, even with a complete range of widths and lengths of shade in all grades and colors of material, frequently demand still arises for some unusual and unconventional width of shade, which demand still cannot be fulfilled from among the more or less standard widths of shade carried in stock.

It is a primary object of the invention, therefore, to provide an apparatus of a size capable of use in the average store and operable to make up a complete window shade of any desired length and width.

Another object is to provide an apparatus of the character described having means for storing shade material in rolls, and means for rotatably supporting a shade roller onto which the shade material is wound directly.

Another object is to provide an apparatus of the character described in which shade material may be wound directly from its roll onto a shade roller, the apparatus having means, adjustable as desired, which severs the material along one or both edges as the same is wound onto the shade roller to reduce the shade material to the desired width.

Still another object is to provide a shade making apparatus having means for rotatably supporting a shade roller and means for cutting the shade material along one or both edges as it is wound onto the shade roller in which the opposite end parts of each means are relatively adjustable to obtain different widths of shade, and in which both means are also adjustable as a unit relative to the remainder of the apparatus.

A further object is to provide a shade making machine having means for rotatably supporting a shade roller at each end and means for cutting the shade material along one or both edges, in which one of the roller supports is adjustable relative to the cutting means to make possible the obtaining of different margins from the end of the roller to the material.

Yet another object is to provide a stapling device used to secure the end of the shade material

to the roller, having an anvil or base automatically compensating for changes in the diameter or a roller.

Still another object is to provide a severing means so constructed and positioned as to be substantially free of clogging.

Yet another object is to provide a shade material dispensing apparatus having cutting means of new and improved construction, assuring easy and uniform cutting of the shade material.

Other objects and advantages will become apparent from the following detailed description, taken in connection with the accompanying drawings, in which:

Fig. 1 is a front elevational view of a machine embodying the features of this invention.

Fig. 2 is an end elevational view of the machine shown in Fig. 1.

Fig. 3 is a view partially in plan and partially in section, taken along the line 3—3 of Fig. 2. The figure is greatly enlarged over Fig. 2, and has portions broken out, in order to show the elements as large as possible.

Fig. 4 is a transverse vertical sectional view taken approximately along the line 4—4 of Fig. 3.

Fig. 5 is an enlarged fragmentary sectional view taken approximately along the line 5—5 of Fig. 3.

Fig. 6 is an enlarged fragmentary view taken approximately along the line 6—6 of Fig. 3.

Fig. 7 is a perspective view of an auxiliary detachable stapler anvil.

While the invention is susceptible of various modifications and alternative constructions, it is shown in the drawings and will hereinafter be described in a preferred embodiment. It is not intended, however, that the invention is to be limited thereby to the specific construction shown. On the contrary it is intended to cover all modifications and alternative constructions falling within the spirit and scope of the invention as defined in the appended claims.

As above stated in the primary object, it is the intent of this invention to provide a machine of such dimensions that it may be readily set up in the average store and of such construction that it may be operated by the average clerk or employee, and which will be operable to make up quickly from a roll of shade material a complete shade of any desired width and length. To that end, the machine comprises generally a base or bed 10 which is intended to be disposed at about waist height and which supports along its rear a rack 11, and in front of the rack supports operating mechanism 12. This operating mechanism includes means for rotatably supporting and rotating a shade roller, means for securing an end of the shade material to the roller, and means for cutting the shade material to the desired width as the same is rolled onto the shade roller. The base 10

and the rack 11 are preferably made of sheet metal and as a unitary structure, so that it may be set on a table or counter 14. Upstanding from the rear of the base 10 is the rack 11 which is here shown as accommodating approximately eight cartons 15, each containing a roll 16 of shade material. These rolls are all of the same width but vary in grade and color so as to provide the necessary range in choice of color and quality of material.

The rack 11 is simply a frame structure composed of Z-shaped end members or columns 17 so disposed that the inwardly projecting flanges 17' are at the rear to form the rear corners of the frame. The opposite flanges 17'' will therefore extend outwardly. Each front corner is completed by a strip 19 which is detachably secured to the outwardly projecting flange 17'' of the column 17 with a portion projecting inwardly thereof. The strips 19 are made removable in order to facilitate the insertion or removal of cartons from the rack. To that end, each flange 17'' is provided on its front face with rivets 20 (see Fig. 1) whose heads are spaced therefrom, while each strip 19 is formed with key slots 21 which are adapted to slip over and engage the heads of the rivets releasably to retain the strip in well known manner. The rack 11 has a false bottom 22 spaced upwardly about the height of a carton 15, so as to elevate the lowermost carton in the rack. The space so formed provides a convenient storage space. Each member 17 is formed with openings 23 with the lowermost opening spaced from the bottom 22 and successive openings spaced from one another to register with the centers of the ends of the cartons piled in the rack. At its very top the rack 11 carries a frame 24 supporting a board 25 for the mounting thereon of advertising material. As best seen in Figs. 1 and 3, the rack 11 is narrower than the bed 10 and thus leaves at each end of the rack a pocket 26, which pockets are used to store shade rollers or staples, caps, pins and the like, used in the making of a completed shade. A bracket 26' aids in the upright storing of shade rollers in one of the pockets.

It will be apparent from the foregoing that the cartons of shade material are readily stacked in or removed from the rack simply by removing one or both of the strips 19. When first placed in this rack, the roll 16 of each carton is, of course, a full roll so that the hollow core 27 on which the material is wound registers with an opening 23. The ends of the carton, moreover, are made so that holes registering with the core 27 may be readily punched or otherwise formed in the ends of the carton. A crank 28 may thus be and preferably is inserted completely through the rack and the core of each roll to provide a rotatable support for the roll (Fig. 1). Near the handle, the crank 28 is provided with inwardly tapering fins 29 which, when the crank is inserted, wedge themselves in the core 27 and prevent relative rotation. Thus, the roll may be rotated by the crank 28 to rewind thereon and thus protect from dirt and sunlight material unwound from the roll but not used. The handle of each crank should be short enough not to interfere with the crank of an adjacent roll. As best seen in Fig. 4, the free end of the material of each roll is secured in the carton in such manner as to project therefrom to indicate how the carton is to be placed in the rack and where it is to be opened.

The operating mechanism 12 supported on the base 10 in front of the rack 11 comprises a pair of blocks or castings 30, one secured as by means of bolts 31 on top of the base 10 at each end thereof. In turn secured as by bolts 32 to the castings 30 are two parallel angle irons 33 forming parallel transverse guideways. Mounted for sliding movement along the guideways formed by the angle irons 33 is a head 34 and a head 35. Each the head 34 and the head 35 has rigidly secured therein a nut 36 (see Fig. 5) which engages a threaded screw 37. The screw 37 is of the double type being threaded reversely at opposite ends. This screw 37 is adapted to be loosely supported at its ends in the castings 30 and at one end has fixed rigidly thereon a crank 38 by means of which the screw is rotated.

At the end adjacent the crank 38, screw 37 is formed with an annular groove 39 (see Fig. 6), and pivotally mounted on the adjacent casting 30 is a dog 40 having a projecting finger 41 by means of which it is actuated and being formed with means cooperating with the screw 37 to effect different modes of operation thereof. This latter means includes an arcuate slot 42 having one end 43 just large enough to receive the reduced portion of the screw 37 formed by the annular groove 39. The remainder of the groove 42 is enlarged to such extent that the screw 37 may pass therethrough, but carried at the end of this enlarged portion of the slot 42 is a lug 44 which is adapted to engage in the threads of the screw 37. It is believed apparent from the foregoing that when the dog is in the position shown in Fig. 6, that is, engaged in the annular groove 39, the screw 37 is held against longitudinal movement and thus rotation of the screw by the crank 38 will cause the heads 34 and 35 to move inwardly or outwardly at the same rate, depending upon the direction of rotation of the screw 37. When the dog 40 is swung in a counterclockwise direction, as viewed in Fig. 6, to its intermediate position, that is, with the screw 37 just in the enlarged portion of the slot 42, the screw is entirely free and may be shifted axially and, in such shifting will, of course, carry the heads 34 and 35 with it. When the dog is swung still further in a counterclockwise direction, as viewed in Fig. 6, to cause engagement of the lug 44 with the screw, rotation of the screw will, of course, cause axial movement thereof. Under such circumstances, rotation of the screw will cause the head 35 to move at twice its normal rate, while the head 34 remains stationary. Though the heads have this changed rate of movement relative to the base, it is to be noted that they remain equal distances from the center point of the screw 37, so that the center point may, if desired, be employed as an indication of the center of any curtain regardless of its width, and also regardless of the fact that the screw and both heads may have been shifted toward one end of the base. The dog 40 is releasably retained in its various positions by a spring pressed detent 45 engaging in depressions 46 formed in the dog 40.

In order to support a shade roller 47 rotatably, there is carried by the head 35 a rotatable center 48 which, however, instead of terminating in a point, terminates in an enlargement having a conical recess so as to receive the end of rollers of various diameters. This center is rotatably journaled in a sleeve 49 retained in the head 35 by a set screw 50. In order to vary the margin between the end of the roller 47 and the edge of

the shade material wound thereon, the sleeve 49 is adjustable axially and, for that purpose, preferably has formed in its outer surface a plurality of, in this instance three, indentations 51 with which the set screw 50 engages to hold the sleeve in a predetermined one of its three positions of adjustment.

Journalled in the head 34 to form a support for the other end of the roller 47 is a chuck-like member 52 (see Fig. 5) carrying a pair of diametrically oppositely disposed projecting prongs 53. Preferably, a shield is provided which covers the prongs 53 when no roller is being supported thereby, in order to prevent injury to a clerk or employee by the prongs 53. This shield herein takes the form of a disk 54 having apertures 55 registering with the prongs 53 and a stem 56 slidable in the chuck-like member 52. A compression spring 57 is interposed between the end of the stem 56 and the member 52 and serves yieldably to urge the disk 54 outwardly to the position shown in Fig. 5. A pin 58 projects radially through the member 52 and into a groove 58' in the stem 56 to permit limited longitudinal movement thereof, but to prevent the same from being forced completely out by spring 57. When the end of a roller is brought up against the disk 54, it, of course, is forced inwardly against the action of the light compression spring 57, causing the prongs 53 to penetrate the end of the roller and thus serve as a positive driving connection between the chuck 52 and the roller. To accommodate the pin which projects from one end of a shade roller, the disk 54 and its stem 56 are formed with a bore 58''. Preferably a thrust ball bearing 59 is interposed between the head 34 and the enlarged head-like portion of the chuck-like member 52.

In order that the roller 47 may be rotated, the member 52 has a reduced portion 60 which projects from the opposite face of the head 34. Non-rotatably secured to this projection, by means of a set screw 61, is a small gear 62. Meshing with the gear 62 is a larger gear 63 which is rotatably journalled in an upstanding arm 64 forming a part of the head 34. Rigid with the gear 63 is a crank 65 by means of which the gear 63 is rotated and through the gear 62 rotates shade roller 47. A short rod 65' projects laterally from the head 34 just in advance of the point of meshing of gears 62 and 63, to act as a guard preventing an operator from getting his finger caught in the gears.

Also carried by each head is the shade material cutting means. Each such means comprises a semi-cylindrical guide shield 66 partially divided by a slot 67 to form lips 68 and 69. The lip 68 continues at the same curvature as the remainder of the guide shield and projects underneath the edge of a curved guide 70 which extends upwardly and forwardly from near the bottom of the rack 11 over the full width of the base 10 and is secured by a bracket 71 to the blocks or castings 30. The other lip 69 continues with less curvature and projects above the edge of the guide 70. Guide 70, particularly near its upper edge, is given such curvature that shade material drawn thereover passes smoothly therefrom onto the lips 68.

Rigid on a lug 75 depending from the lip 68 is a blade 76 which projects into and partially through the slot 67. Preferably a shield 77 overlies the projecting portion of the blade 76 in order to prevent injury to an operator of the machine by the blade. The blade 76 is preferably

disposed in an inclined position, such as that shown in Fig. 4, for this position has been found to prevent clogging of the blade by the lint, small fibres and other material that customarily gather at like points. With the inclination in the direction of movement of the shade material as it is pulled through the cutting means, any lint or other foreign material that tends to collect is carried up and over the end of the blade.

Guide 70 is formed near the edge projecting between the lips of the cutting means with a reinforcing rib 78, and along its opposite edge is reversely bent on a much smaller radius of curvature to form a guide trough 79. Disposed in this trough is a guide roller 80 which is journalled at its ends in bearings 81. Each of these bearings, as best seen in Fig. 2, is pivotally mounted to permit easy and convenient removal of the guide roller 80 for the purpose of threading between it and the trough 79 the end of shade material from some one of the rolls 16 stored in the cartons 15. The bearings are biased to an upright position and terminate in an inclined lip 82 which, when engaged by an end of the roller 80, cam the bearings outwardly and then snap back into place.

The means for securing an end of the shade material to a roller 47 on which the material is to be wound includes a stapling device 85 of more or less conventional construction, save that it has an auxiliary V-shaped jaw 86 which aids in retaining the roller in proper position during the stapling operation. This jaw is mounted to be swung out of position when its presence is not desired. The stapling device 85 is rotatably secured to a bracket 87 which in turn is slidably and pivotally mounted on a rod 88 fixed at one end in the head 34 and slidable through the head 35. The stapling device 85 includes an anvil 89 of unique construction and unique mounting, which automatically compensates for differences in the diameter of the shade roller to which the shade material is being stapled. Herein the anvil takes the form of a disk cam of substantial thickness, having an outer surface of increasing radius. The anvil is pivotally mounted on a carriage 90 which slides along the guideway formed by the angle irons 33, the same as the heads 34 and 35. The position of the anvil 89 is determined by a link 91 which is pivotally connected at one end to the anvil 89 and at the other end to a projecting finger 92 of the bracket 87. The disposition of the anvil 89 and the connection to the bracket 87 is such that as the diameter of the shade roller 47, acted upon by the stapling device 85, decreases the anvil 89 is rotated a correspondingly greater amount to place underneath the roller 47 a portion of larger radius.

At its front edge the base 10 has mounted thereon a trough 92 which is marked in inches, beginning from the right (see Fig. 3), and in which a shade roller is intended to be placed in order to be cut off to the desired length. The edges of the trough 92, as best seen in Fig. 2, are rounded so that the edge of the trough may be used as a means for inserting the free edge of the material after being wound on a shade roller into a binding strip which may be employed to complete the shade roller. This strip per se forms no part of this invention. Also mounted at the front of the base 10 is a means for conveniently supporting any length of shade roller while testing the same for checking the operation of the torsion spring and the holding dog. This means comprises simply a bracket 93 riveted to the vertical front wall 94 of the base 10, this

bracket being provided with a slot 95 for the reception of the pin at one end of a shade roller. A double bracket 96 is mounted in a longitudinal slot 97 (see Fig. 1) in the front wall 94, and has one arm 98 adapted non-rotatably to receive the torsion pin of a shade roller. The bracket 96 has a second arm 99 which has connected thereto one end of a tension spring 100, the other end of which is anchored to the base 10 near the bracket 93 so as to urge the double bracket 96 toward the bracket 93 and thereby cause the brackets to support between them a shade roller placed therein.

At times it may be desirable to staple the free edge of a completed shade, either to a reinforcing stick directly, or to form a hem into which the stick may be inserted. To that end the stapling device 85 is pivoted to the bracket 87 in order that it may be swung from the position shown in Fig. 4 180° so as to extend in a diametrically opposite direction. An auxiliary anvil is provided for use under those circumstances and comprises a Y-shaped plate 101 which is formed at its yoke end with depending hooks 102 for engaging the rod 88 with the plate straddle of the bracket 87. At its other end, the plate is formed with a depending leg 103 of sufficient length to support the plate in horizontal position while the leg rests on the base 10. Preferably, the plate is provided with a longitudinal slot 104 and adjustably secured in this slot is a block 105. This block serves as a limit stop and guide in obtaining a hem of uniform width.

It is contemplated in this invention that the shade material contained in the cartons 15 will have marked along one edge suitable indicia indicating feet and inches, so that the amount of material wound on any shade roller may be readily determined. Such marking along one edge of the material is made possible without rendering the material useless, because of the fact that with the machine disclosed herein the edge of the material is cut off. However, should the material not be so marked to indicate feet and inches, a measuring device 106 is mounted on the head 35 adjacent the cutting means so that all material rolled onto a shade roller will pass the measuring device and thus indicate the number of feet and inches of material wound on the shade roller.

It is believed apparent from the foregoing that I have provided a unique machine which fills a long felt need of the average store. By the use of this machine which is sufficiently compact to be set up in even the smallest stores, the necessity of stocking a large quantity of shades of different quality and color of material and of different width is entirely eliminated. At the same time, the machine is so constructed that any clerk or employee can operate the same to produce a completed shade in almost as short a time as would be required to locate a shade of the right width and quality.

Thus, to produce a completed shade of any desired width equal to or less than the width of the shade material, a shade roller which can be purchased with the torsion pin and spring already installed is placed in the trough 92 and cut off to the desired length. Thereafter the end of the roller having the torsion pin is inserted in the center 40, while the other end of the shade roller is held in line with the chuck-like member 52 in the head 34. A journal-forming pin for this latter end of the shade roller is then inserted in the recess 58'' provided for that purpose and

over the pin is mounted a cap for the end of the shade roller. Upon rotation of the crank 30, the heads 34 and 35 will be moved toward one another and in such movement the pin carried by the member 52 will be forced into the end of the shade roller and the cap will also be forced thereon, so that this operation is performed as an incident to adjusting the heads 34 and 35 to support the shade roller and to adjust the cutting means to result in the desired width of shade material.

Next a shade material of suitable quality and color is selected from the rolls of material mounted in the rack 11, and the end of the material threaded around the guide rod 80 and through the cutting means on the heads 34 and 35 to the shade roller mounted between the heads. Material is easily and conveniently secured to the roller 47 through the medium of the stapling device 85 which is slidable along the rod 88 so as to be capable of acting upon either end of the shade roller. When the material is permanently secured to the shade roller, the crank 65 is actuated to rotate the shade roller and thereby wind thereon a suitable quantity of shade material. As such winding proceeds, the cutting means mounted on both heads is operative to reduce the material to the desired width. Should the desired width of the completed shade be approximately that of the shade material, the heads are retained in the position shown in Fig. 3 to keep the shade roller more or less centered with respect to the shade material. However, should the desired width of shade be so small as to cause undue waste if cut from the center of the shade material, it is only necessary to adjust the dog 40 first to its intermediate position and thereafter to the position opposite to that shown in Fig. 6. When the dog 40 is in its intermediate position, the screw 37 is free for longitudinal movement and thus the entire mechanism may be shifted toward the right end of the machine. When the dog 40 is in such position that the lug 44 engages the threads of the screw 37, rotation of the screw 37 will again be effective to adjust the heads toward or away from one another to accommodate shade rollers of different length, but the head 34 will remain stationary while the head 35 has double its normal rate of movement. When sufficient material has been wound on a shade roller 47, which is indicated either from the markings along one edge of the material or from the measuring device 106, the shade material is cut off along the line passing through the shade material cutting devices. This free end of the material is then either secured directly to a removable shade bottom stiffener or is formed with a hem in which a reinforcing or stiffening stick is received. For this purpose, the stapling device is again effective because it is capable of pivoting through 180° so that it is possible to staple means positioned in the forward portion of the machine. With this operation, the shade is complete and is preferably inserted in the brackets 93 and 98 for testing the operation thereof.

It is to be noted that my machine inherently guards against improper operation which is very important when a machine is to be operated by unskilled workers. Most important is the fact that the shade roller cannot be rotated until the cutting means is properly adjusted to cut the shade material to the desired width. This follows since there is no driving connection between the chuck 52 and the shade roller until the prongs 53 pierce the shade roller and this

does not take place until the heads and the cutting means carried thereby are properly positioned, that is, moved inwardly toward one another to the extent permitted by the shade roller disposed therebetween.

An advantage of this machine which is otherwise absolutely unattainable is that customers may bring in old shade rollers and have new shade material wound thereon. This not only saves the customers the cost of new shade rollers, which usually far outlast the shade material, but also eliminates the necessity of making measurements and the trouble caused by errors which usually result in taking the measurements.

I claim as my invention:

1. A window shade machine comprising, in combination, means for supporting a roll of shade material, and means for completing a shade of any width equal to or less than the width of the material comprising a pair of heads each having means for rotatably supporting an end of a shade roller upon which the material is to be wound, means mounted on one of said heads for rotating the shade roller supporting means, means for adjusting said heads toward or away from one another to accommodate shade rollers of varying length, and cutting means through which the material passes as it is wound onto the shade roller adjustable in unison with said heads to automatically reduce the material to the desired width as an incident to adjustment of said heads to accommodate the shade roller.

2. A window shade machine comprising, in combination, means for supporting a roll of shade material, and means for completing a shade of any width equal to or less than the width of the material comprising guideways extending transversely of the machine, a pair of heads slidably mounted in said guideways, a center mounted in one of said heads for receiving and rotatably supporting one end of a shade roller upon which the material is to be wound, chuck-like means mounted in the other head for engaging and rotatably supporting the remaining end of a shade roller, means for rotating said chuck-like means, means for securing the end of the material to the shade roller, cutting means mounted on each head through which the material passes in being wound onto the shade roller, and means for adjusting said heads toward or away from one another to accommodate shade rollers of varying length and at the same time to position the cutting means to reduce the shade material to the desired width.

3. A window shade making machine for use in a store comprising, in combination, a unitary frame capable of resting on a counter or the like comprising a base and a rack for supporting a plurality of rolls of shade material upstanding from the rear of the base, and shade winding and forming mechanism mounted on the base in front of said rack comprising means for supporting and rotating a shade roller, said means being adjustable to accommodate rollers of varying length, and shade material cutting means operable to reduce the material to the desired width as the same is wound onto a shade roller from one of the rolls in said rack, said cutting means being adjustable to determine the width of the shade as an incident to adjustment of said supporting means.

4. A window shade machine comprising, in combination, means for supporting a roll of shade material, and means for completing a

shade of any width equal to or less than the width of the material comprising guideways extending transversely of the machine, a pair of heads slidably mounted in said guideways, each of said heads carrying means for rotatably supporting an end of a shade roller upon which the material is to be wound, and cutting means through which the material passes in being wound upon the roller, and a screw reversely threaded over opposite halves of its length and having threaded engagement with said heads to adjust the same toward or away from one another to accommodate shade rollers of different length.

5. In a window shade machine, means forming a guideway, a pair of heads slidable in said guideway, each carrying means for rotatably supporting a shade roller upon which shade material is to be wound and shade material cutting means, a screw extending parallel of said guideways having opposite halves thereof reversely threaded and having a threaded engagement with said heads, and means mounted on a stationary portion of the machine and cooperating with said screw to effect different operations of said heads upon adjustment of said last mentioned means to different positions.

6. In a window shade machine, means forming a guideway, a pair of heads slidable in said guideway, each carrying means for rotatably supporting a shade roller upon which shade material is to be wound and shade material cutting means, a screw extending parallel of said guideways having opposite halves thereof reversely threaded and having a threaded engagement with said heads, and means mounted on a stationary portion of the machine and cooperating with said screw to effect different operations of said heads upon adjustment of said last mentioned means to different positions, said last mentioned means having a first position in which said screw is held against longitudinal movement, a second position in which the threads of the screw are engaged to effect movement of said screw axially, and a third position in which the screw is freed for longitudinal movement independently of any rotation thereof.

7. A window shade machine comprising, in combination, means for supporting a roll of shade material, means forming a guideway extending transversely of the machine, a pair of heads slidably mounted in said guideways, a support in each head for rotatably supporting one end of a shade roller upon which the material is to be wound, cutting means associated with each of said heads comprising a curved shield having a slot formed therein to form lips, one of which is bent slightly outwardly, and a blade stationarily mounted with its cutting edge projecting into and through said slot to engage and sever shade material as it is drawn over the inner lip and under the outwardly bent lip and wound on the shade roller.

8. A window shade machine comprising, in combination, means for supporting a roll of shade material, means forming a guideway extending transversely of the machine, a pair of heads slidably mounted in said guideways, a support in each head for rotatably supporting one end of a shade roller upon which the material is to be wound, cutting means carried by each of said heads comprising a curved shield having a slot formed therein to form lips, one of which is bent slightly outwardly, a blade stationarily mounted with its cutting edge project-

ing into and through said slot to engage and sever shade material as it is drawn over the inner lip and under the outwardly bent lip and wound on the shade roller, and a curved guide extending the full width of the machine having its free edge projecting between the lips of said shields.

9. In a window shade machine, means for rotatably supporting a shade roller, and means for securing shade material to the roller comprising a stapler head disposed above the shade roller and a supporting anvil beneath the shade roller, and means extending longitudinally of the machine providing a support for the stapler head and anvil, said stapler head and anvil being mounted for movement longitudinally of said support means.

10. In a window shade machine, means for rotatably supporting a shade roller, and means for securing shade material to the roller comprising a stapler head disposed above the shade roller and a supporting anvil beneath the shade roller, a connection between the stapler head and the anvil for swinging the anvil into supporting position beneath the shade roller as the stapler head is actuated to staple the shade material to the roller, and means extending longitudinally of the machine providing a support for the stapler head and anvil, said stapler head and anvil being mounted for movement longitudinally of said support means.

11. In a window shade machine, means for rotatably supporting a shade roller, and means for securing shade material to the roller comprising a stapler head disposed above the shade roller and a supporting anvil beneath the shade roller, said anvil being pivotally mounted and having an increasing radius, a link connecting said anvil and said stapler head operable to swing said anvil to present a portion of the increasing radius to the shade roller as said stapler head approaches the shade roller, and means extending longitudinally of the machine providing a support for the stapler head and anvil, said stapler head and anvil being mounted for movement longitudinally of said support means.

12. In a window shade machine, a head, a supporting and driving member for an end of a shade roller journaled in said head, prongs projecting from the end of said member for engagement with the end of a shade roller, said member having a bore extending axially thereof and a disk shield for said prongs having a stem slidably received in the bore in said member and urged outwardly by a compression spring in the inner end thereof, said disk having apertures therein registering with said prongs, said disk being operable when in extended position to cover the ends of said prongs and to be pressed inwardly and uncover the ends of said prongs upon contact of the end of a shade roller therewith or with a pin mounted therein.

13. In a window shade machine, a head, a supporting and driving member for an end of a shade roller journaled in said head, prongs projecting from the end of said member for engagement with the end of a shade roller, said member having a bore extending axially thereof and a disk shield for said prongs having a stem slidably received in the bore in said member and urged outwardly by a compression spring in the inner end thereof, said disk having apertures therein registering with said prongs, and a recess opening through the end thereof for

the reception and support of a journal forming pin to be inserted into one end of the shade roller, said disk being operable when in extended position to cover the ends of said prongs and to be pressed inwardly and uncover the ends of said prongs upon contact of the end of a shade roller therewith or with a pin mounted therein.

14. In a window shade machine, a head, a center carried by said head for rotatably supporting one end of a shade roller, cutting means on said head, and means for permitting adjustment of said center relative to said head and the cutting means thereon to vary the margin between the end of a shade roller and the shade material wound thereon.

15. In a window shade machine, means for supporting a roll of shade material, means for rotatably supporting a shade roller upon which the material is to be wound, means for cutting the shade material to reduce the same to the desired width as it is wound onto said shade roller, and driving means for rotating said shade roller inoperative to rotate said roller until said cutting means is properly adjusted for a given length shade roller.

16. A window shade machine comprising, in combination, means for supporting a roll of shade material and means for completing a shade of any width equal to or less than the width of the material comprising means for rotatably supporting a shade roller upon which the material is to be wound, said shade roller supporting means being adjustable to accommodate shade rollers of varying length, laterally adjustable stationary blade cutting means through which the material is drawn as it is wound onto the roller adjustable in unison with said shade roller supporting means, whereby the correct width of shade material for a given length shade roller is automatically obtained, means for securing the end of the material to the shade roller while in said supporting means to enable the roller upon rotation to draw the material through said cutting means, and positive driving means having means for positively engaging said shade roller to rotate said shade roller for drawing the material through said cutting means and winding the same on said roller.

17. A window shade machine comprising, in combination, means for supporting a roll of shade material and means for completing a shade of any width equal to or less than the width of the material comprising means for rotatably supporting a shade roller upon which the material is to be wound, laterally adjustable cutting means through which the material is drawn as it is wound onto the roller, means for securing the end of the material to the shade roller while in said supporting means to enable the roller when rotated to draw the material through said cutting means, said securing means being mounted on the shade machine and movable longitudinally thereof to act on the roller throughout its length and comprising a stapler head and an anvil swingable into supporting position beneath the roller as an incident to a stapling operation, and means for positively engaging said roller to enable the roller to be rotated to draw the material through said cutting means and to wind the same on said roller.