

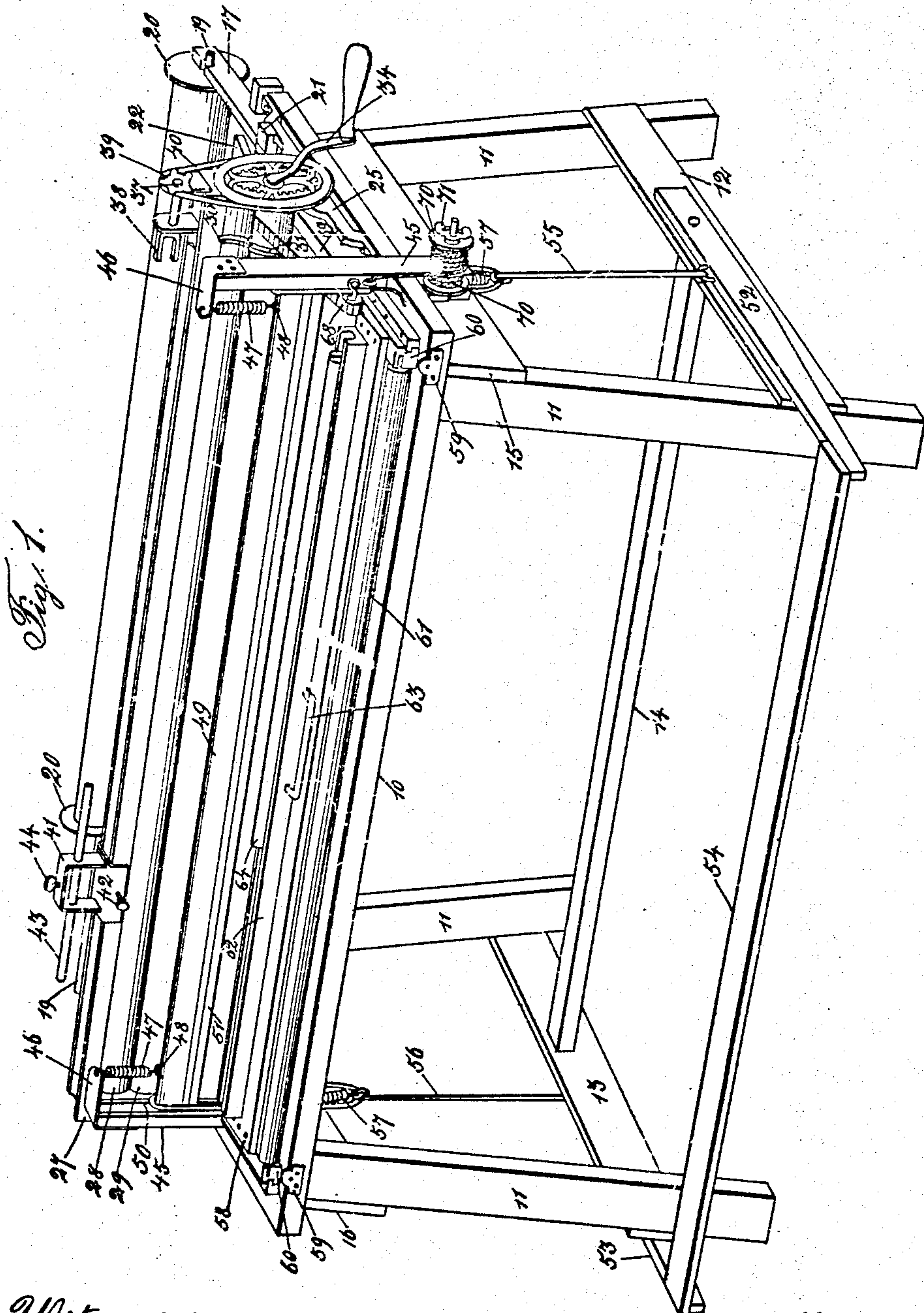
No. 758,999.

PATENTED MAY 3, 1904.

M. F. MILLER.
WINDOW SHADE MACHINE.
APPLICATION FILED SEPT. 17, 1902.

NO MODEL.

4 SHEETS—SHEET 1.



Witnesses:
Henry Manger.
L. L. Leibach.

Inventor: Merrick F. Miller.
by Owig & Lane Attys.

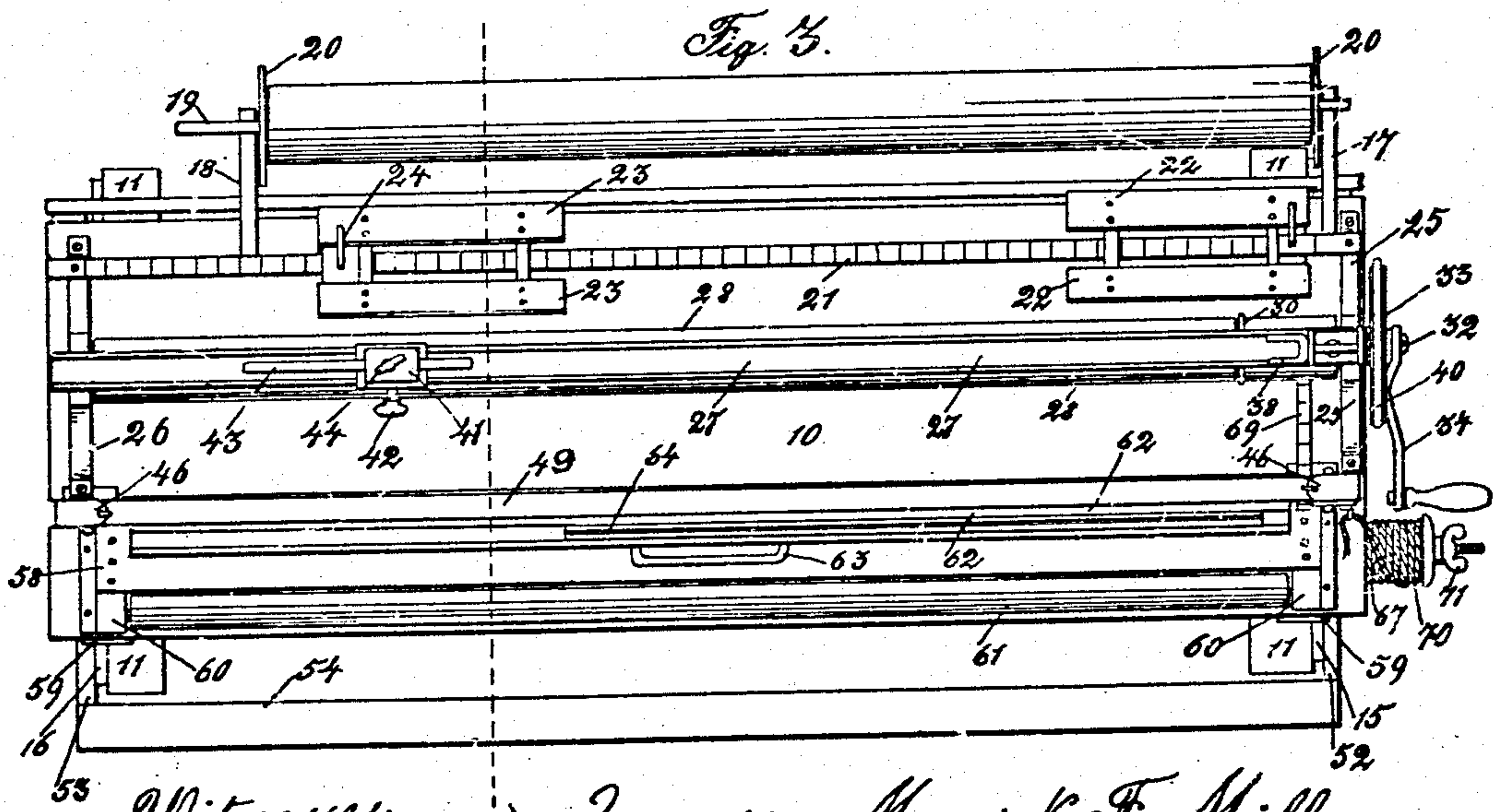
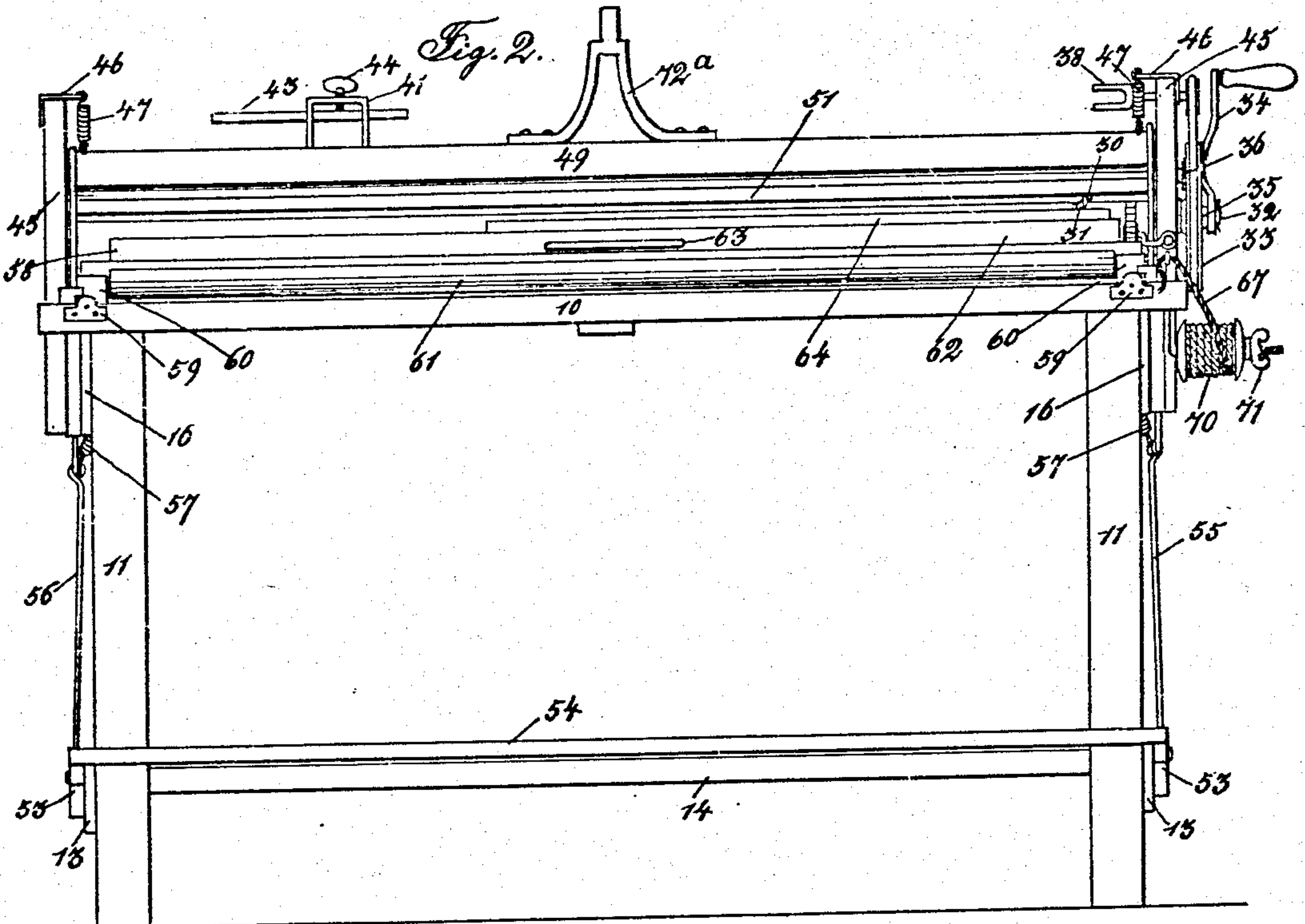
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4 SHEETS—SHEET 2.



Witnesses:
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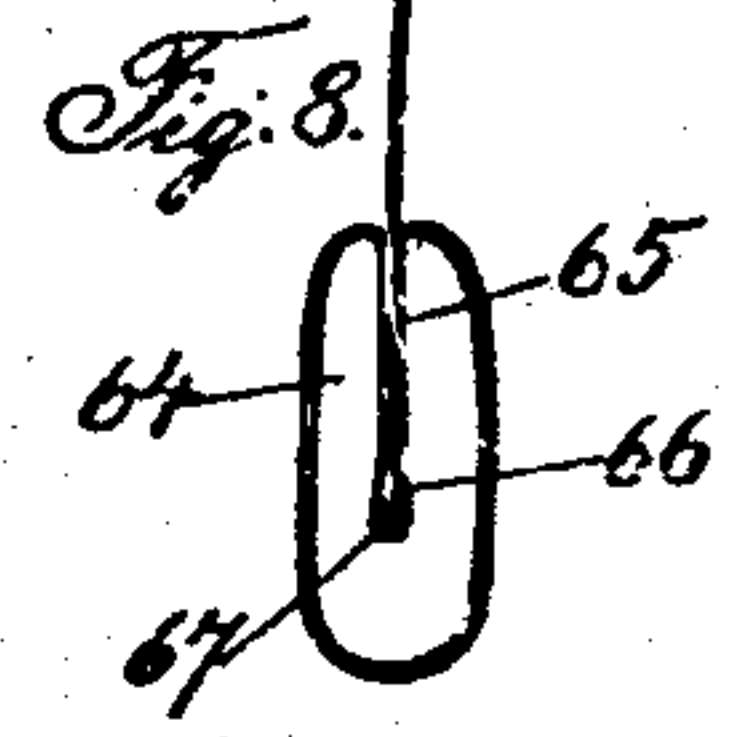
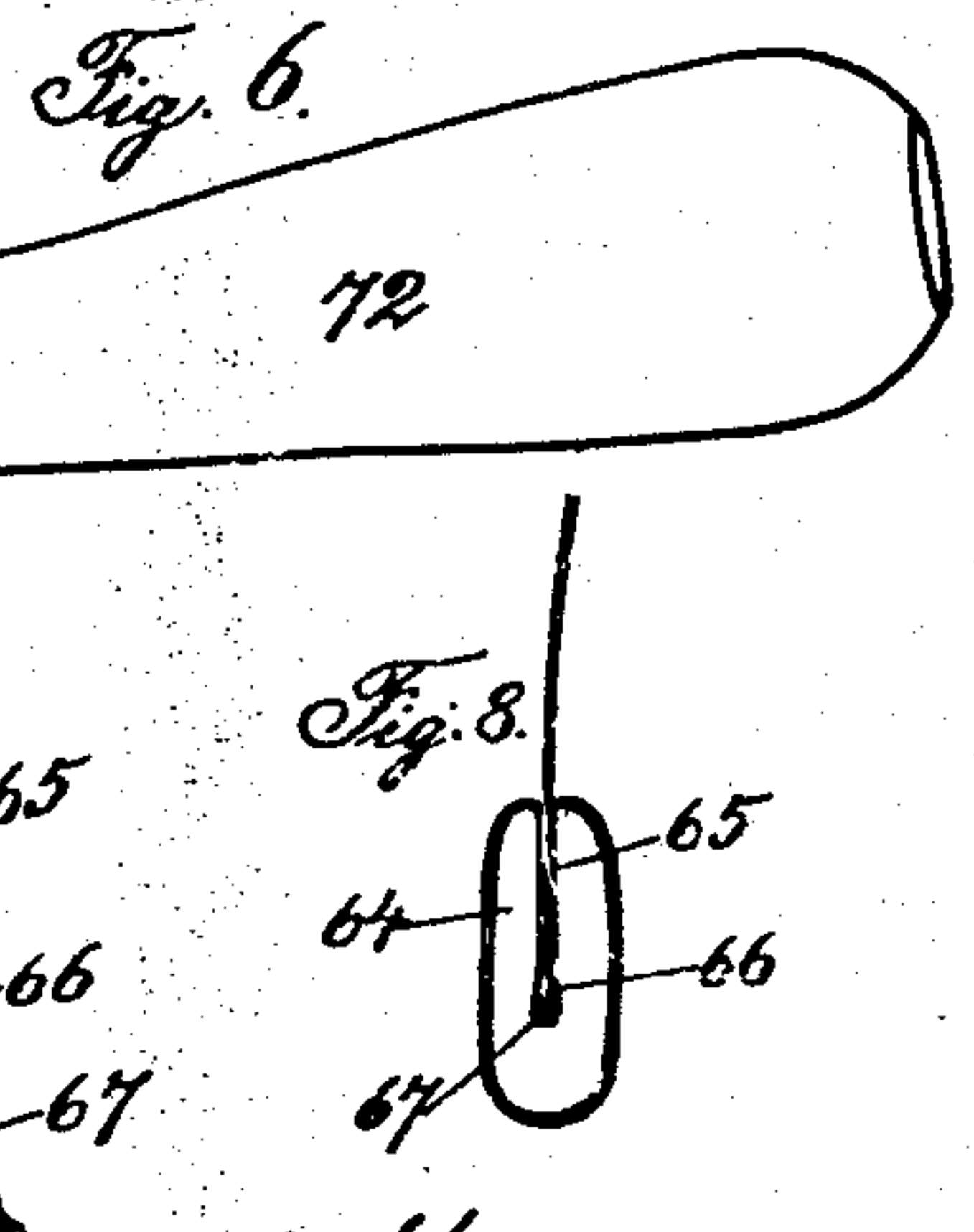
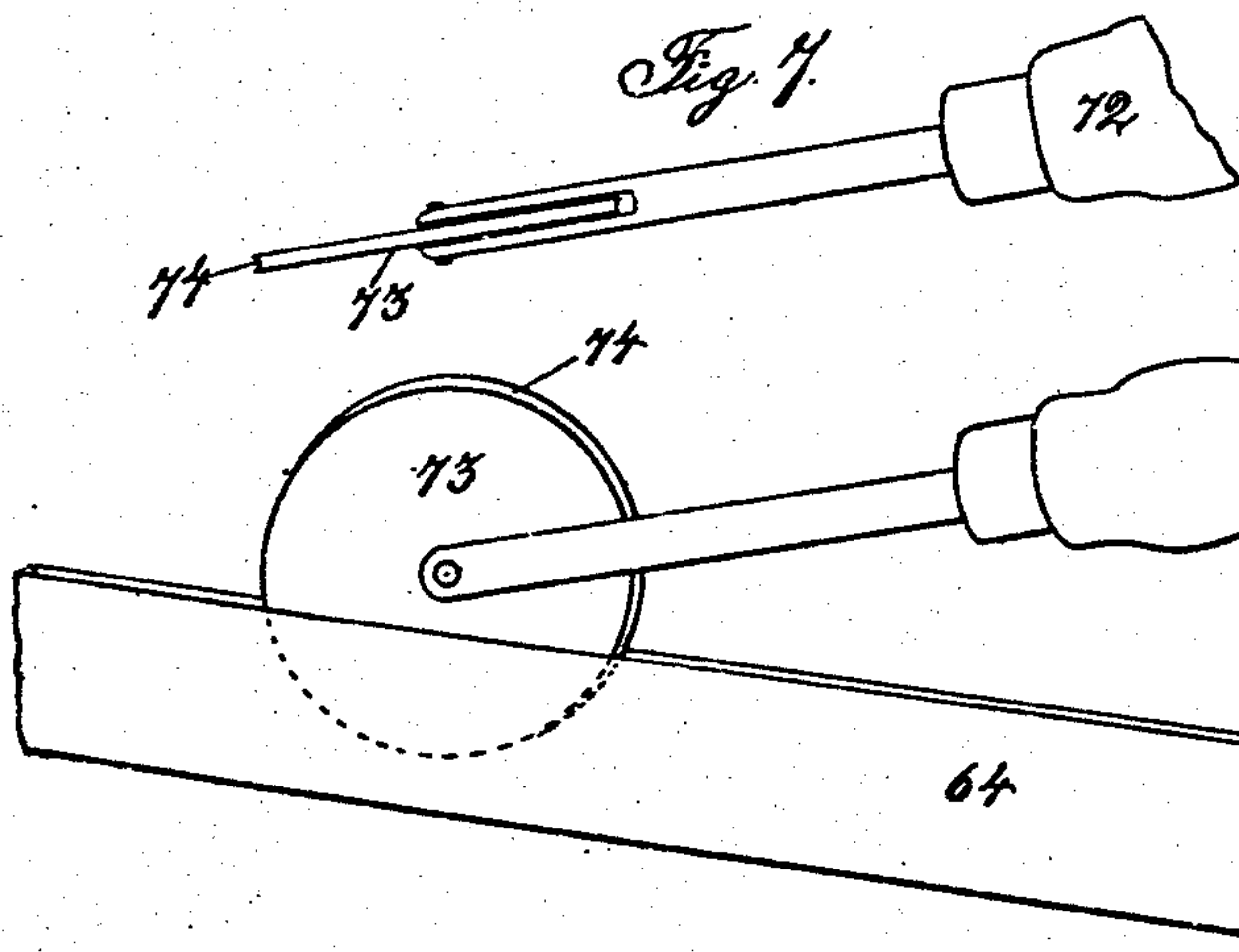
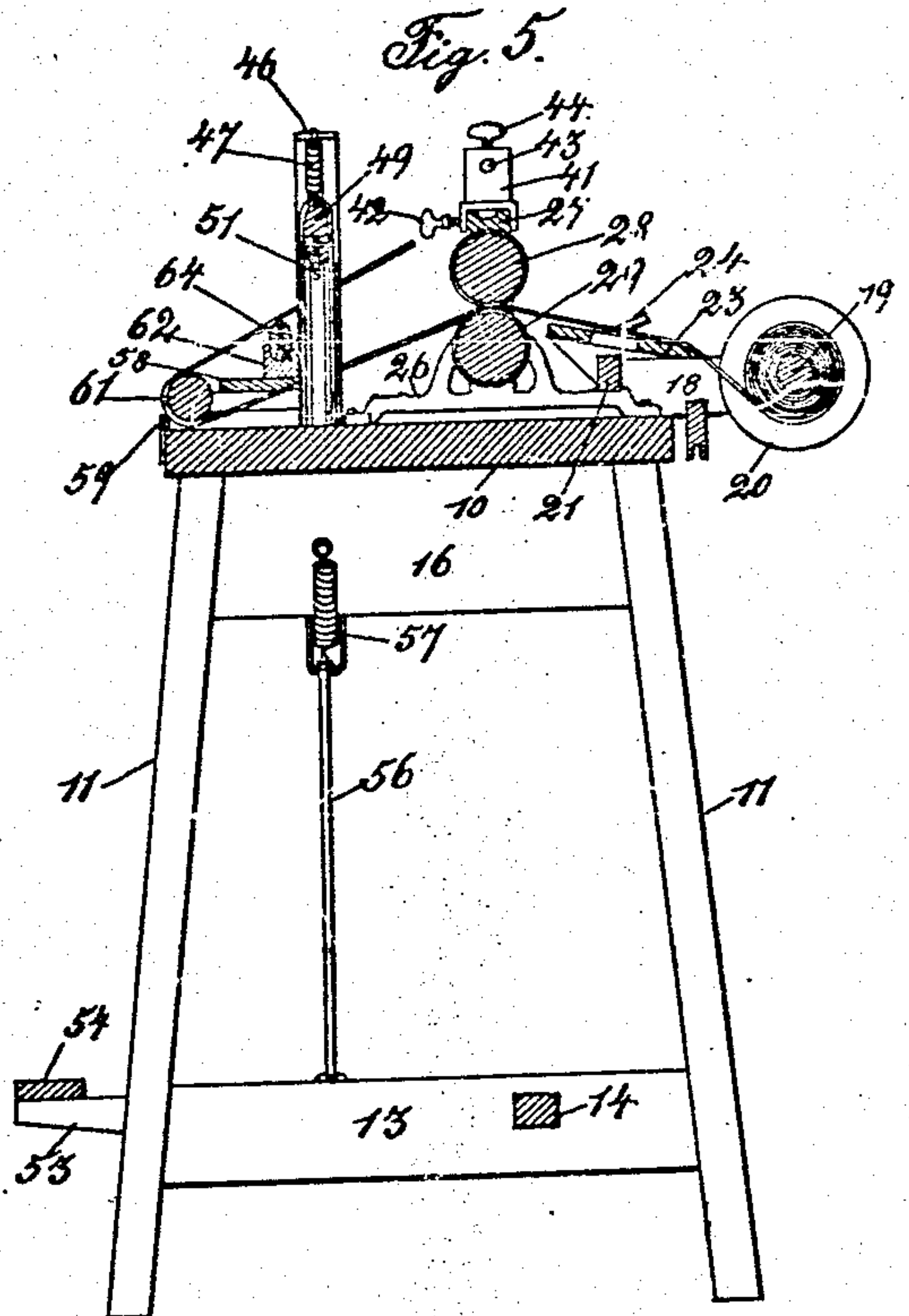
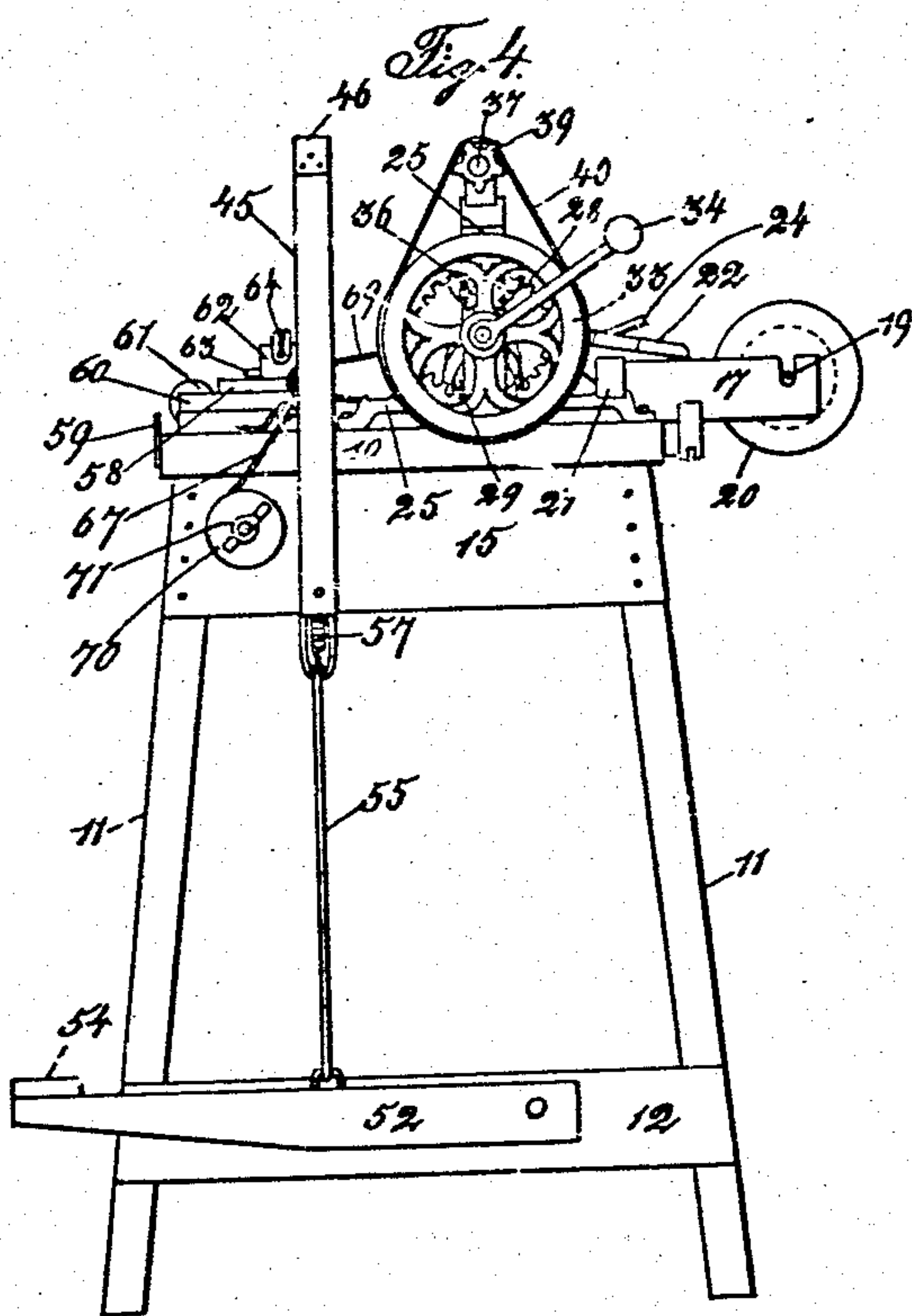
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4 SHEETS—SHEET 3.

NO MODEL.



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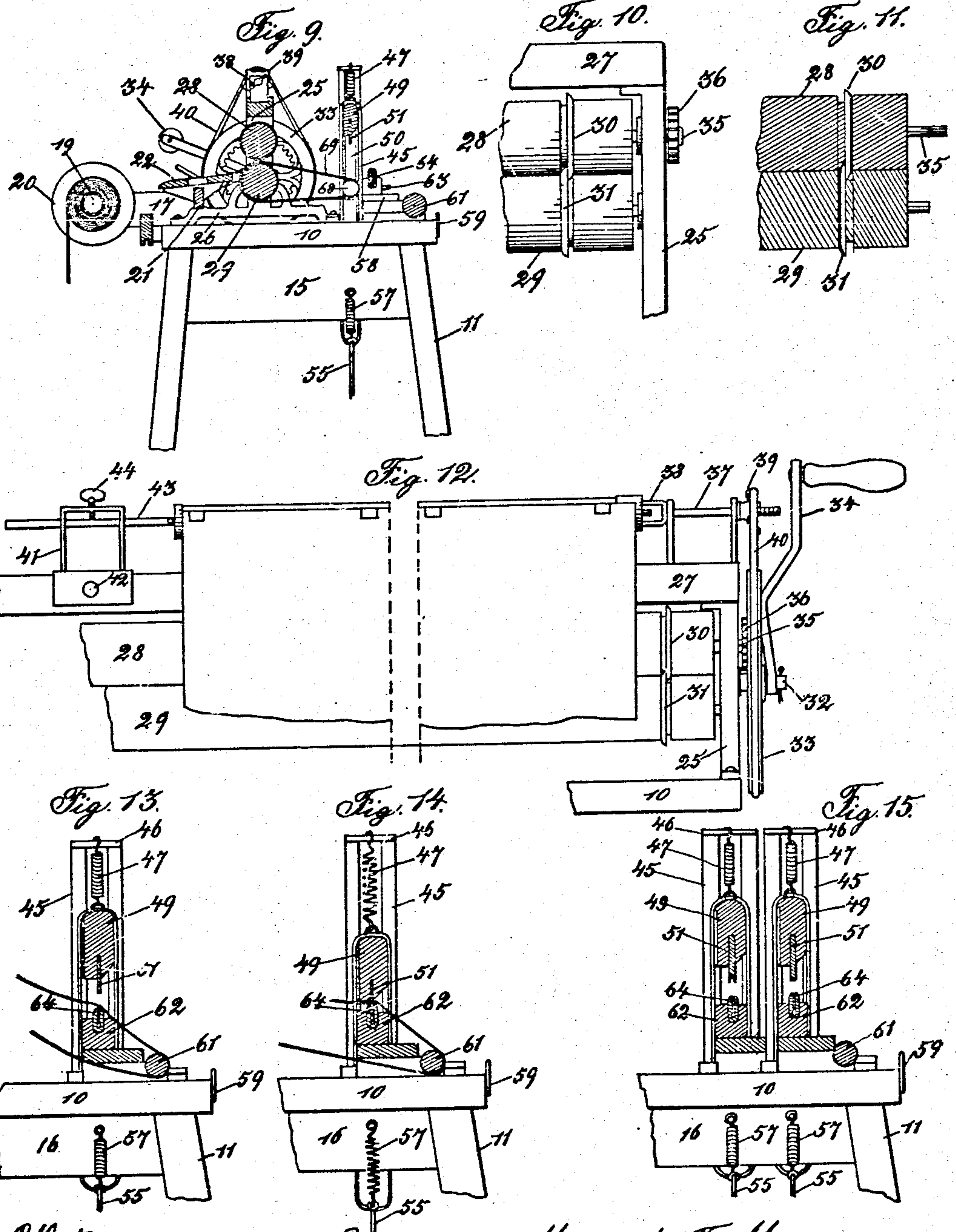
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4 SHEETS—SHEET 4.



Witnesses:
Henry Manger
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Inventor: Merrick F. Miller.
by Orrig & Lane Attys.

UNITED STATES PATENT OFFICE.

MERRICK F. MILLER, OF INDIANOLA, IOWA.

WINDOW-SHADE MACHINE.

SPECIFICATION forming part of Letters Patent No. 758,999, dated May 3, 1904.

Application filed September 17, 1902. Serial No. 123,796. (No model.)

To all whom it may concern:

Be it known that I, MERRICK F. MILLER, a citizen of the United States, residing at Indianola, in the county of Warren and State of Iowa, have invented a certain new and useful Window-Shade Machine, of which the following is a specification.

The objects of my invention are to provide a window-shade machine which can be operated to readily and easily attach the shade material to the roller and to the strip which is designed to be attached to the lower end of the shade.

A further object is to provide a window-shade machine with which a window-shade can be easily and readily put together, and on account of the peculiar construction of my machine the shade will be so attached to the roller that it will always roll up evenly on the roller to which the shade material is attached.

A further object is to provide a window-shade machine in which there are cutting-knives so arranged that one of these knives can be adjusted so that the material may be cut at any predetermined width when my machine is operated.

A further object is to provide a measuring device for determining the width of the material in which one of the cutting-knives are adjustable and also to provide a measuring device by which the length of the shade material can be determined as the machine is operated.

A further and very material object of my invention is to provide means for attaching the window-shade strip to the lower end of the shade material and to attach this strip firmly at the lower end of the window-shade material without stitching it, as is customary at the present time.

A further object is to provide a machine of the class mentioned which can be operated wholly from the front of the machine after the roll of material has been adjusted at the rear thereof.

A further object is to provide means for rolling the shade fabric upon the roller to which the front end of it is attached and to accomplish this result at the same time and

by operating the same parts of the device as when cutting and measuring the shade fabric.

A further object is to provide a plunger in my machine which can be operated to force that portion of the fabric which is beneath its lower edge into the particular form of window-shade strip which is used by me.

For the purpose of making the description more clear it will be well to state that the front side of the machine is the front as shown in Figure 1 of the drawings and the side at which the operator does his work.

My invention consists in certain details in the construction, arrangement, and combination of the various parts of the device whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which—

Fig. 1 is a perspective view of the complete window-shade machine. Fig. 2 is a front elevation of the device with an attachment on top of the plunger to which machine-power can be applied to operate the plunger when desired by the operator. This attachment is a modification simply of the means by which the plunger is forced downwardly. Fig. 3 is a plan view of my device. Fig. 4 is an end elevation of the device, this view showing the end to which the wheel by which my device is operated is attached. Fig. 5 is a cross-sectional view of my device, cut through the line 3 3 of Fig. 3, showing the interior mechanism at the opposite end of the machine from which is referred to in the description of Fig. 4. Fig. 6 shows in perspective the particular form of window-shade strip which is used when using my machine and shows the wheel device which is used in adjusting the cord at the lower portion of the slot in said strip. Fig. 7 is a detail view of the lower end of the wheel device shown in Fig. 6 with a portion of the handle broken away. Fig. 8 is an end view of the particular form of strip to which the window fabric is attached and a piece of the fabric attached to said strip. Fig. 9 is a cross-sectional view of the upper portion of my machine, cut through the line 3 3 of Fig. 3 looking toward that end of

the device to which the wheel for operating a portion of the mechanism is attached. Fig. 10 is a detail view of the cutting mechanism attached near one end of the main rollers which cuts one end of the shade fabric and shows the way in which the main rollers are supported in the frame. Fig. 11 is a cross-sectional view of the main rollers, showing the same portion of these rollers as is illustrated in Fig. 10, also showing the cutting-knives on said rollers. Fig. 12 is a front elevation of the main rollers and the means of attaching them to the frame with the end away from the wheel for operating the device broken away. This figure is designed to show the way in which the shade-roller is mounted above the frame after the shade fabric has been attached to it so that the shade fabric can be rolled upon the roller. Fig. 13 is a cross-sectional view of my plunger and the sliding platform which supports the window-strip beneath the plunger. This view shows the position of the fabric before the plunger has been moved downwardly. This view also shows the way in which the plunger is mounted on the frame of my device, and Fig. 14 shows the same mechanism as Fig. 13 with the plunger at its lower limit of movement and a portion of the fabric pushed into the longitudinal slot in the window-shade strip. Fig. 15 is a detail view of the plunger, showing an attachment with which a power machine may be connected for operating said plunger.

Referring to the accompanying drawings, I have used the reference-numeral 10 to indicate the platform to which my machine is attached. This platform is supported by the legs 11 on its under surface. Two of these legs 11 are attached at one end of the platform 10 and the opposite sides thereof, and the other two of these legs are attached at the other end of my platform and the opposite sides thereof. Attached to the legs 11 at one end of the frame is the connecting-strip 13, extending longitudinally of the machine. Beneath the platform 10 and attached to the connecting-strips 12 and 13 is the longitudinal brace 14. The legs 11 at one end of the frame are connected at their top portion by means of the brace 15, which is also attached to the lower surface of the platform 10. I have provided a corresponding brace 16 at the opposite end of the platform, connecting the legs 11 attached thereto. Firmly mounted to the top of the platform 10 and at the rear side thereof is the rod-support 17. This rod-support 17 is near that end of the frame to which the brace 15 is attached. Adjustably mounted on the platform 10 and parallel with the rod-support 17 is the rod-support 18, which is designed to support the opposite end of the rod from that which is supported by the support 17. This support 18 is made adjustable, so that any desirable length rod can be placed on

the supports 17 and 18. Detachably mounted in the rod-supports 17 and 18 is the rod 19, having the disks 20 thereon. These disks 20 are detachably connected with the rod 19, so that they can be removed from the rod and allow the operator to slip a roll of shade fabric on the rod 19, and when the fabric has been placed upon the rod 19 the disks are readjusted on this rod and keep the fabric in position on it when being unrolled. Attached to the top of the platform 10 and immediately in front of the rod-supports 17 and 18 is the measuring-strip 21, and mounted on said measuring-strip and near the rod-support 17 is the fabric-guide 22. Adjustably mounted on the measuring-strip 21 is the knife-bearing guide 23, said knife-bearing guide having the knife 24 mounted at one end thereof and extending upwardly and rearwardly from its point of attachment, so that the cutting edge thereof is nearest the rod 19. It will be seen that by adjusting the knife-bearing guide 24 in position so that the cutting edge of the knife engages the fabric as it is drawn forwardly above the platform the knife 24 will cut the material as it engages said knife.

Mounted at one end of the platform 10 and in front of the measuring-strip 21 is the roller-support 25. At the opposite end of the platform 10 from that to which the support 25 is attached is the roller-support 26. The roller-supports 25 and 26 are substantially parallel with each other and extend upwardly from and at right angles to the platform 10. Connecting the top portion of the supports 25 and 26 is the connecting-piece 27, having a semicircular groove extending longitudinally of it. Mounted between the roller-supports 25 and 26 are the rollers 28 and 29, said rollers being in engagement with each other and covered throughout their length by felt or other material of a similar character. Near one end of the rollers 28 and 29, with their cutting edges in engagement with each other, are the disk knives 30 and 31, said disk knife 30 encircling the roller 28 and the disk knife 31 encircling the roller 29. The disk knives 30 and 31 are so arranged that the cutting edges will be constantly in engagement with each other as the rollers are rotated. When a piece of fabric is passed between the rollers and between the cutting edges of the disk knives 30 and 31, the fabric will be cut when the rollers 28 and 29, bearing the disk knives, are rotated. These knives are designed to cut one edge of the fabric while the knife 24 is cutting the opposite edge of the fabric. It will be seen that as the fabric is moved toward the front of the machine and over the platform 10 between the rollers 28 and 29 the material will be cut at any desirable width after having adjusted the knife-bearing guide 23 before the fabric is passed between the rollers 28 and 29.

On the outside of the roller-support 25 and projecting outwardly therefrom is the axle 32.

Mounted on said axle 32 is the cog-wheel 33, having the cogs on the interior thereof. Attached to said wheel and outside thereof is the handle 34, by which said wheel 33 can be rotated on its axle. Mounted on the exterior end of the roller-support 35, which supports the roller 28 at one end and projects outside of the roller-support 25, is the cog-wheel 36, the cogs of said wheel being designed to engage the cogs on the interior of the cog-wheel 36 when it is rotated on its axles. The cog-wheel 33 has a groove in its outer periphery for purposes hereinafter made clear. As the cog-wheel 33 is rotated in a direction toward the rear of the machine the roller 28 will be rotated in a direction toward the front end of the machine on account of the change of motion which is effected by means of the cog-wheel 36 acting on the cogs of the wheel 33. Thus as the roller 28 is rotated in a direction toward the front side of the machine the roller 29 will be correspondingly rotated on account of the rough surface of the roller 28 engaging the rough surface of the roller 29, which rough surface is provided by means of felt or substance of a similar nature, and the shade fabric which is placed between these rollers 28 and 29 will be moved toward the front of the machine when these rollers are operated as above designated. If for any reason it should be desirable to move the fabric toward the rear side of the machine, motion of the rollers can be reversed by turning the cog-wheel in the opposite direction from that above indicated.

Mounted above the connecting-piece 27 and immediately above the roller-support 25 is the prong-bearing axle 37, having the prongs 38 on its interior end and the grooved wheel 39 at its exterior end, the groove in said grooved wheel 39 being directly above the groove in the wheel 33. Passed around the wheel 39 and the wheel 33 is the belt 40, said belt being placed in the grooves in said wheels, so that as the wheel 33 is rotated the wheel 39 will be correspondingly rotated and in the same direction, thus turning the prong-bearing axle in the same direction as the wheel 39. This prong-bearing axle forms one end of my device for supporting the roller after the fabric has been attached to it and for rolling the fabric upon said roller. Adjustably mounted upon the connecting-piece 27 is the adjustable support 41, which has the thumb-screw 42 extending through a portion of it, so that the inner end of said thumb-screw engages the forward side of the connecting-piece 27. The said thumb-screw is designed when properly adjusted to hold the support 41 in position relative to the connecting-piece 27.

Adjustably mounted in the top of the support 41 is the hollow rod 43, said rod having the thumb-screw 44 in engagement with it and passing through the top portion of the support 41 to hold the hollow rod 43 in posi-

tion relative to the support 41. Thus the rod 43 can be adjusted relative to the connecting-piece 27 in two ways. This rod 43 is designed to support the opposite end of the roller to which the fabric is to be attached from the pronged axle 37 and hold said roller substantially parallel with the connecting-piece 27. This rod 43 is made hollow, so that the projection on the end of the roller can enter the opening in the central portion of the rod 43. The prongs 36 of the pronged axle 37 engage the mechanism at the opposite end of the roller from that which is held in position by the hollow rod 43. Thus as the roller is rotated by means of the prong-bearing axle and the mechanism by which it is driven the rod in the shade-roller at the opposite end of the shade-roller from that which is engaged by the pronged axle will rotate freely in the rod 43. In the front of the roller-bearing supports 25 and 26 are two plunger-supports 45, said supports being attached at opposite ends of the platform 10, substantially at right angles to said platform and extending upwardly therefrom. To the tops of the plunger-supports 45 and extending at right angles to and inwardly from said supports are the brackets 46, having the coiled springs 47 attached to their inner ends and extending downwardly therefrom to their point of attachment 48 at the ends of the plunger 49. Said plunger is limited to a vertical movement by means of the grooves 50 on the interior of the supports 45. The plunger 49 is quite thick at its top portion and tapers to its minimum in a metal blade 51 at its lower portion, said metal blade 51 extending longitudinally of the plunger and forming part of it.

Pivotaly attached to the connecting-pieces 12 and 13 are the bars 52 and 53, said bars extending forwardly from their points of attachment, so that they extend a slight distance in front of the forward legs 11. Connecting the front ends of the bars 52 and 53 is the bar 54, so that when the pressure is applied on top of the bar 54 the forward end bars 52 and 53 will be moved downwardly. Attached to one end of the plunger 49 and to the bar 52 in front of its pivotal point is the rod 55. Attached to the opposite end of the plunger 49 from that to which the rod 55 is attached is the rod 56, which is attached at its lower end to the bar 53, said point of attachment of the rod 56 to the bar 53 being in front of the pivotal point of the bar 53. The rods 55 and 56 are constantly drawn upwardly by means of springs 57, which are attached to them and to the platform 10. These rods 55 and 56 are also drawn upwardly by means of their being attached to the plunger 49, which is drawn upwardly by the springs 47. Mounted on the platform 10 and near the front edge thereof is the sliding platform 58, said platform being capable of horizontal movement relative to the platform, and the

forward movement of said platform is limited, however, by the stops 59, which are attached to the front of the platform 10. The sliding platform is held against longitudinal movement of the platform 10 by means of the retaining-strips 60, which are at each end of the sliding platform and attached to the platform 10.

Detachably mounted at the front edge of the sliding platform and in its top portion is the roller 61, said roller extending through substantially the entire length of the sliding platform. Mounted on top of the sliding platform and near the rear edge thereof is the grooved retaining-strip 62. Said retaining-strip extends parallel to the roller 61 and substantially the entire length of the sliding platform and is so arranged that the grooved portion is in its upper portion. Near the central portion of the sliding platform is a handle 63, designed to be grasped by the operator in sliding the platform 58 forwardly or rearwardly relative to the platform 10. The groove in the upper portion of the grooved strip 62 is designed to be immediately beneath the blade 51 of the plunger 49 when the sliding platform is at its inner limit of movement. The entire sliding platform aside from the roller is preferably made of metal, so that when the plunger is drawn downwardly the metal will stand the pressure of the plunger. The groove in the grooved strip 62 is designed to receive the window-shade strip which I use for the lower end of the fabric. This window-shade strip is constructed as follows: The body portion is made of wood and is oblong in cross-section. This strip is made of any desirable length, and in its top edge and extending longitudinally of it is a groove, the sides of which are substantially parallel with each other, said groove extending downwardly to the central portion of the strip. Beneath this groove there is an enlarged circular portion designed to receive a cord after the fabric has been passed into the groove, as will be more fully described hereinafter. The particular form of window-shade strip which is used is shown best by the end view shown in Fig. 8 of the drawings, and the way the fabric is put in is shown in Fig. 6 of the drawings, so that from these views it will be seen this strip has the wooden portion 64, which is oblong in cross-section, and it has the groove 65 with parallel sides and also has the longitudinal circular opening 66 beneath the sides, and the said longitudinal circular opening is designed to receive the rope 67 therein. It will be seen that as the fabric is drawn over my particular form of window-shade strip 64, which is placed in the groove in the retaining-strip 62 on the sliding platform 58, and the sliding platform is at its rearward limit of movement, and the groove 65 in the window-shade strip is beneath the blade 51 of the plunger 49

when the plunger is moved downwardly to the position shown in Fig. 14 of the drawings, the fabric will be pushed downwardly into the groove 65 in the window-shade strip, and when the plunger is raised upwardly the fabric will remain in the groove 65. The practical operation, however, of this device is more fully disclosed hereinafter.

Motivated to the plunger-support 45 and on the interior thereof is the idler 68. Passed around the idler 68 and the roller 29 is the measuring-strap 69. This strap is adjusted between the rollers 27 and 28, and on account of these rollers coming in close contact with each other as they are rotated the measuring-strap will measure the length of the fabric which is in the machine and between the rollers 28 and 29. Rotatably and detachably mounted on the brace 15 is the spool 70, containing the rope 67, which is designed to be placed in the circular portion 66 of the groove in the window-shade strip. Proper tension for holding the spool in position is obtained by means of the thumb-screw 71, which is mounted on the support outside of the spool 70.

In practical use, and assuming that the sliding platform is at its forward limit of movement, the operator slips the roll of the window-shade fabric on the rod 19 and adjusts the disks 20 in position on said rod and then places the rod 19 in position on the rod-supports 17 and 18. The operator then places a shade-roller in the semicircular groove at the top of the connecting-piece 27. He then adjusts the knife-bearing guide 23 so that the distance between the cutting-point of the disk knives 30 and 31 and the cutting edge of the knife 24 is the width of the window-shade which is to be made. He then unrolls the fabric a slight distance and starts the roll in such a way that one end of the material will be cut by the knife 24 and the other end will be cut by the disk knives 30 and 31 when the material is passed between the rollers 28 and 29, and the fabric is moved forwardly, as set forth heretofore. The fabric is then passed beneath the sliding platform 58 and underneath the roller 61. Then as it passes outside of this roller 61 the fabric is drawn rearwardly by the operator and passed over the sliding platform and beneath the plunger 49 until the fabric reaches the roller which is placed in the semicircular groove at the top of the connecting-piece 27. The operator then tacks the fabric to the roller. When the fabric has been attached to the roller, the operator places the roller between the pronged axle 37 and the adjustable hollow rod 43. He then turns the crank 34, which causes the cog-wheel 33 to be rotated, the axle 37 to be rotated, and the rollers 28 and 29 also to be rotated, thus causing the fabric to be rolled upon the shade-roller. As the rollers 28 and 29 are rotated the length of the fabric can be determined by watching the measuring-strap

69, which passes between said rollers. When the operator has sufficient fabric on the shade-roller, he moves the sliding platform to its inner limit of movement and adjusts the window-shade strip in the slot at the top of the retaining-strip 62 in such a way that the groove 65 in said window-shade strip will come directly beneath the blade 51 of the plunger 49. He then places his foot upon the bar 47, which causes the blade 51 of the plunger 49 to be drawn downwardly against the fabric, so that the fabric will be forced into the groove 65 in the window-shade strip. He then allows the plunger to be drawn by the springs 47, 55, and 56 to its upper limit of movement. He then draws the sliding platform to its forward limit of movement and runs a knife throughout the entire length of the groove 65 in the retaining-strip, so that he severs the fabric which is now attached to the roller and in the groove 65 from that fabric which is attached to the supply-roll. He then rotates the window-shade strip in a direction toward the front of the machine after having removed it from the groove at the top of the retaining-strip 62. When he has given it a complete revolution, he again places the window-shade strip in the groove at the top of the retaining-strip 62 and after having moved the sliding platform 58 to its inner limit of movement draws down the plunger 49 again and causes the blade 51 thereon to force the fabric into the groove 65 in the window-shade strip. He then moves the sliding platform to its forward limit of movement. He then draws the cord 67 upwardly and places it above the groove 65 in the window-shade strip and forces the cord 67 into the circular opening 66 at the bottom of the groove 65 by means of the wheel-bearing device 72. Said wheel-bearing device has the wheel 73 thereon, said wheel having a groove in its outer periphery and has sharp edges on its sides, so that the rope will enter this groove 74 when the wheel 73 is rotated over it. He then severs the end of the cord which is nearest the supply-spool and at the end of the window-shade strip. The window-shade strip is then removed from the groove at the top of the retaining-strip 62, and the shade-roller is removed from the machine, and the window-shade is in condition for use. As soon as these are removed the machine is in readiness for use in making another window-shade. The way in which the material passes over the parts of the machine is best illustrated in Fig. 5 of the drawings. The way in which the plunger forces the fabric into the groove 65 of the window-shade strip is best shown in Fig. 8 of the drawings. This shows the exact position of the fabric relative to the window-shade strip. I have provided an attachment 72^a, which is designed to be mounted at the top of the plunger 49, to which power can readily be applied, and thus

obviate the necessity of manually operating the plunger. This is simply a modified form of my device, however, and this attachment is shown only in Fig. 2 of the drawings.

Fig. 15 shows a modified form of the front portion of my device, in which I show a second plunger, the blade of which has a semi-circular groove in its lower portion so arranged that when the sliding platform is moved beneath this second plunger the cord after it has been placed above the window-shade strip can be inserted into the longitudinal groove by means of this plunger. This plunger is attached to the machine in the same way as the plunger referred to in the short description of Figs. 13 and 14.

It will be clearly seen that by the use of this device the necessity of using the grooved roller will be obviated. Thus by simply adjusting the sliding platform and moving it horizontally the second plunger can be readily and easily used to insert the cord into the longitudinal groove of the window-shade strip which is used by me when attaching the window-shade fabric with my device.

It is obvious that the machine can be used for making more than one shade at a time when the fabric is of sufficient width to guarantee doing this by simply placing two window-shade rollers at the top of my device and having two strips for the lower end of my window-shade fabric.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States therefor, is—

1. In a device of the class described, the combination of a sliding platform capable of horizontal movement, a roller detachably connected with the front of said platform, a grooved retaining-strip mounted at the rear top portion of said platform for holding in position a window-shade strip, a plunger capable of vertical movement and above the grooved retaining-strip when the sliding platform is at its inner limit of movement, means for supporting the plunger above said platform and means for drawing said plunger toward said platform, for the purposes stated.

2. In a device of the class described, the combination of a sliding platform capable of horizontal movement, a roller detachably connected at the front of said platform, a grooved retaining-strip mounted at the rear top portion of said platform for holding in position a window-shade strip, a plunger capable of vertical movement and above the grooved retaining-strip when the sliding platform is at its inner limit of movement, means for supporting the plunger above said platform and means for drawing said plunger toward said platform, means for limiting the outward and inward movement of the sliding platform, for the purposes stated.

3. In a device of the class described, the combination of a sliding platform capable of

horizontal movement, a roller detachably connected at the front of said platform, a grooved retaining-strip mounted at the rear top portion of said platform for holding in position
 5 a window-shade strip, a plunger capable of vertical movement and above the grooved retaining-strip when the sliding platform is at its inner limit of movement, a thin metal blade firmly attached to and forming the lower portion
 10 of the plunger, for the purposes stated.

4. In a device of the class described, the combination of a cutting mechanism, means for drawing the fabric against the cutting means, a sliding platform mounted in front of the cutting mechanism, a roller mounted at the front
 15 of said platform, a plunger capable of being drawn against the upper surface of said platform, for the purposes stated.

5. In a device of the class described, the combination of a fabric-supporting rod, a cutting-knife adjustably mounted in front of said fabric-supporting rod, rollers mounted in front of said adjustable knife, said rollers being parallel with the fabric-supporting rod
 20 and in engagement with each other, a disk-knife on each of said rollers, the cutting edges of said disk knives coming in contact with each other so that as the fabric is passed between the rollers and the cutting edges of the
 25 disk knife one end thereof will be cut as the rollers are rotated, means for manually operating said rollers, a sliding platform mounted in front of the cutting mechanism, a grooved retaining-strip extending longitudinally of
 30 said sliding platform and near the rear upper surface thereof, means for limiting the forward and rearward movement of said sliding platform, a plunger capable of vertical movement relative to the sliding platform, means for
 35 supporting said plunger above the sliding platform, means for forcing the plunger toward the grooved retaining-strip when the sliding platform is at its inner limit of movement, substantially as and for the purposes stated.

45 6. In a device of the class described, the combination of a frame, a fabric-bearing rod mounted at the rear of said frame, disks adjustably mounted on said rod, a knife-bearing guide adjustably mounted on said frame in
 50 front of the fabric-bearing rod, a knife on said guide, two rollers mounted in front of said knife-bearing guide and parallel with the fabric rod, disk knives mounted on said rollers, a platform mounted on said frame and in front
 55 of said rollers, a plunger springingly supported above said frame, means for drawing said plunger downwardly, substantially as and for the purposes stated.

7. In a device of the class described, the combination of a frame, a fabric-bearing rod
 60 mounted at the rear of said frame, disks adjustably mounted on said rod, a knife-bearing guide adjustably mounted on said frame in front of the fabric-bearing rod, a knife on said
 65 guide, two rollers mounted in front of said

knife-bearing guide and parallel with the fabric rod, disk knives mounted on said rollers, a platform mounted on said frame and in front of said rollers, a plunger springingly supported above said frame, means for drawing
 70 said plunger downwardly, a measuring-strap passing around the lower of said rollers and over an idler which is mounted above the frame and means for rotating said rollers, substantially as and for the purposes stated.

8. In a device of the class described, the combination of a frame, a fabric-bearing rod mounted at the rear of said frame, disks adjustably mounted on said rod, a measuring-strip extending longitudinally of said frame,
 80 a knife-bearing guide adjustably mounted on said measuring-strip, a knife on said guide, two rollers mounted in front of said knife-bearing guide and parallel with the fabric-bearing rod, disk knives mounted on said rollers, a platform mounted on said frame and in front of said rollers, a plunger springingly supported above said frame, means for drawing
 85 said plunger downwardly, substantially as and for the purposes stated.

9. In a device of the class described, the combination of a frame, a fabric-bearing rod mounted at the rear of said frame, disks adjustably mounted on said rod, a knife-bearing guide adjustably mounted on said frame in front of the fabric-bearing rod, a knife on said
 95 guide, two rollers mounted in front of said knife-bearing guide and parallel with the fabric-bearing rod, disk knives mounted on said rollers, a platform mounted on said frame and in front of said rollers, a plunger springingly supported above said frame, means for drawing
 100 said plunger downwardly, a measuring-strap passing around the lower of said rollers and over an idler which is mounted above the frame and means for rotating said rollers, substantially as and for the purposes stated.

10. In a device of the class described, the combination of a frame, a fabric-bearing rod
 110 mounted at the rear of said frame, supports adjustably attached to the frame for supporting said fabric-bearing rod, a measuring-strip mounted on said frame in front of said fabric-bearing rod and parallel with it, a guide
 115 mounted on said measuring-strip, a knife-bearing guide adjustably mounted on said strip, a knife on said knife-bearing guide whose cutting edge extends upwardly and rearwardly from its point of attachment on
 120 said knife-bearing guide, two rollers mounted on said frame and in front of said knife-bearing guide, said rollers being also parallel with said fabric-bearing rod, means for rotating said rollers, a disk knife on each of said rollers having their cutting edges in engagement
 125 with each other, a plunger springingly supported above the frame having a blade at its lower edge, said plunger being capable of vertical movement, means for forcing the plunger
 130

downwardly toward the frame, a sliding frame mounted on said frame and capable of horizontal movement relative to it, a roller detachably connected with the sliding platform and at its front portion, a grooved retaining-strip mounted on the top portion of said sliding platform and near the rear edge thereof, the groove in said retaining-strip being designed to receive a longitudinally-grooved window-shade strip, said sliding platform being capable of rearward movement to a position where the grooved retaining-strip will be directly beneath the blade in the plunger, means for limiting the forward and rearward movement of the sliding platform, a measuring-strap passed between said rollers and around one of them for measuring the length of the fabric as it passes between the rollers, a spool rotatably mounted near one end of the frame for supporting a cord which is designed to be forced into the groove in a window-shade strip, substantially as and for the purposes stated.

11. In a device of the class described, the combination of a frame, a fabric-bearing rod mounted at the rear of said frame, supports adjustably attached to the frame for supporting said fabric-bearing rod, a measuring-strip mounted on said frame in front of said fabric-bearing rod and parallel with it, a guide mounted on said measuring-strip, a knife-bearing guide adjustably mounted on said strip, a knife on said knife-bearing guide whose cutting edge extends upwardly and rearwardly from its point of attachment on said knife-bearing guide, two rollers mounted on said frame and in front of said knife-bearing guide, said rollers being also parallel with said fabric-bearing rod, means for rotating said rollers, a disk knife on each of said rollers having their cutting edges in engagement with each other, a plunger springingly supported above the frame having a blade at its lower edge, said plunger being capable of vertical movement, means for forcing the plunger downwardly toward the frame, a sliding frame mounted on said frame and capable of horizontal movement relative to it, a roller detachably connected with the sliding platform and at its front portion, a grooved retaining-strip mounted on the top portion of said sliding platform and near the rear edge thereof, the groove in said retaining-strip being designed to receive a longitudinally-grooved window-shade strip, said sliding platform being capable of rearward movement to a position where the grooved retaining-strip will be directly beneath the blade in the plunger, means for limiting the forward and rearward movement of the sliding platform, a measuring-strap passed between said rollers and around one of them for measuring the length of the fabric as it passes between the rollers, a spool rotatably mounted near one end of the

frame for supporting a cord which is designed to be forced into the groove in a window-shade strip, a connecting-piece between the top portion of the supports and said rollers having a semicircular groove extending longitudinally of it, said groove being designed to support the window-shade roller when the fabric is being attached to it, means attached to said connecting-piece for rotatably mounting said roller, means for mounting said window-shade roller rotatably and the means for rotating said rollers so that both of said means can be operated at the same time, substantially as and for the purposes stated.

12. In a device of the class described, the combination of a cutting mechanism, means for drawing the fabric against the cutting mechanism, a sliding platform mounted in front of the cutting mechanism, a detachably-mounted roller at the front edge of said platform, and a plunger designed to be drawn against the upper surface of the platform for pushing the material into a grooved stick.

13. In a device of the class described, the combination of a cutting mechanism, rollers for drawing a piece of fabric against the cutting mechanism so that said fabric will be severed at both edges as it is drawn forwardly, a sliding platform mounted in front of said rollers, a plunger, springs for maintaining the plunger normally at its upper limit of movement, and means for forcing the plunger against the upper surface of the sliding platform.

14. In a device of the class described, the combination of a platform, a fabric-bearing roller mounted on said platform, a cutting mechanism mounted in front of the fabric-bearing roller, means for drawing the fabric against the cutting mechanism, a sliding platform mounted on said platform, a roller at the front edge of said sliding platform, a plunger designed to coact with the sliding platform, for the purposes stated.

15. In a device of the class described, the combination of a platform, a fabric-bearing roller mounted on said platform, a cutting mechanism mounted in front of the fabric-bearing roller, means for drawing the fabric against the cutting mechanism, a sliding platform mounted on said platform, a roller at the front edge of said sliding platform, a plunger designed to coact with the sliding platform, springs for supporting the plunger at its upper limit of movement, and means for drawing the plunger to its lower limit of movement.

16. In a device of the class described, the combination of a cutting mechanism, rollers for drawing a piece of fabric in engagement with the cutting mechanism, a slidingly-mounted platform in front of said rollers, a grooved retaining-strip mounted on said platform, a plunger designed to coact with the

retaining-strip for attaching the fabric to a window-shade strip which is mounted in said retaining-strip.

17. In a device of the class described, the
5 combination of a cutting mechanism, rollers for drawing a piece of fabric in engagement with the cutting mechanism, a slidingly-mounted platform in front of said rollers, a grooved retaining-strip mounted on said plat-
10 form, a plunger designed to coact with the retaining-strip for attaching the fabric to a window-shade strip which is mounted in said retaining-strip, springs for maintaining the plunger at its upper limit of movement, and
15 means for drawing the plunger downwardly.

18. In a device of the class described, the combination of a cutting mechanism, means for drawing the fabric against the cutting mechanism, a sliding platform, a plunger,
20 means for normally holding the plunger at its upper limit of movement and means for drawing the plunger downwardly against the sliding platform when said platform is at its inner limit of movement.

25 19. In a device of the class described, the

combination of a frame having a platform forming its top portion, a fabric-bearing roller mounted in said frame, a sliding platform mounted adjacent to said platform, a plunger designed to coact with the sliding platform, 30 means for drawing the fabric from the fabric-bearing roller between the plunger and the sliding platform for the purposes stated.

20. In a device of the class described, the combination of a frame having a platform 35 forming its top portion, a fabric-bearing roller mounted in said frame, a sliding platform mounted adjacent to said platform, a plunger designed to coact with the sliding platform, means for drawing the fabric from the fabric- 40 bearing roller between the plunger and the sliding platform, means for maintaining the plunger normally at its upper limit of movement and means for forcing the plunger against the upper surface of the sliding plat- 45 form.

MERRICK F. MILLER.

Witnesses:

HAZEL WEDGWOOD,

L. L. LEIBROCK.