No. 682,074. Patented Sept. 3, 1901.

E. HETHERINGTON.

WINDOW SHADE MACHINE.

(Application filed July 23, 1900.)

(No Model.)

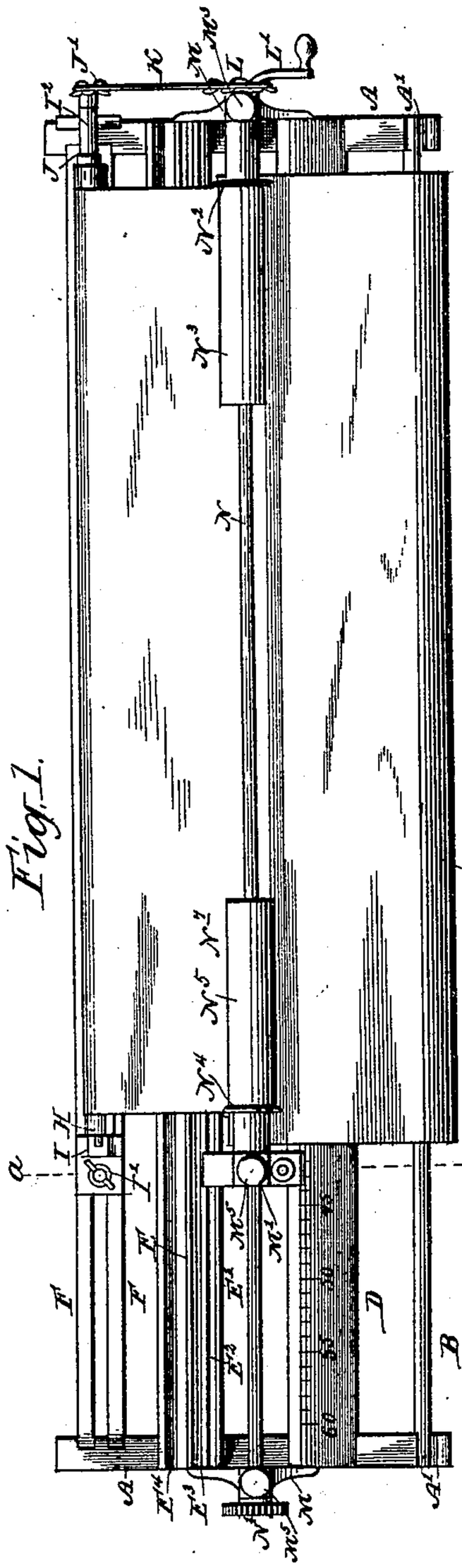

Fig. 1.

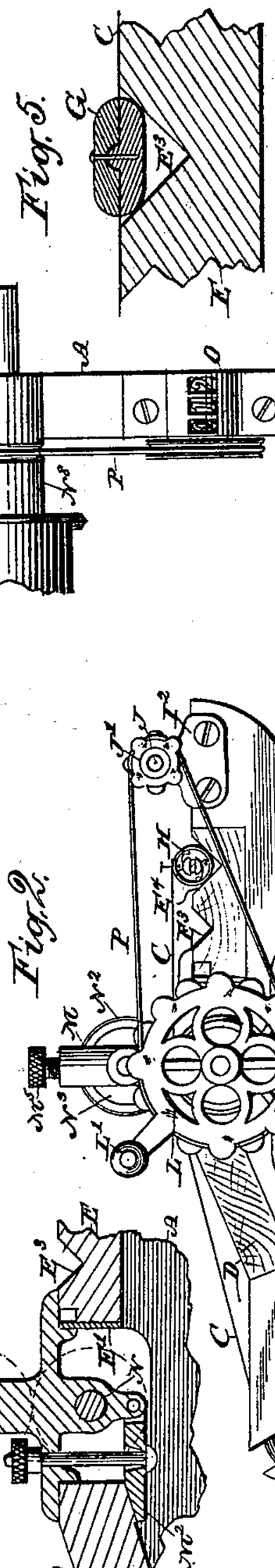

Fig. 4.

Fig. 2.

Fig. 3.

Witnesses.

J. F. Groat.

John C. Heald.

Inventor

Edwin Hetherington.

By J. McSt. Johns

Atty.

UNITED STATES PATENT OFFICE.

EDWIN HETHERINGTON, OF CEDAR RAPIDS, IOWA.

WINDOW-SHADE MACHINE.

SPECIFICATION forming part of Letters Patent No. 682,074, dated September 3, 1901.

Application filed July 23, 1900. Serial No. 24,472. (No model.)

To all whom it may concern:

Be it known that I, EDWIN HETHERINGTON, a citizen of the United States, residing at Cedar Rapids, in the county of Linn and State of Iowa, have invented certain new and useful Improvements in Window-Shade Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to machines used in making window-shades, and the object of the invention is to produce a machine occupying comparatively small space and adapted for the easy, rapid, and accurate mounting of window-shades on their rollers, and the trimming of the lower ends of such shades.

The nature of the invention is fully disclosed in the description and claims following, reference being had to the accompanying drawings, in which—

Figure 1 is a plan view of a machine embodying my invention as in use. Fig. 2 is an end view of the same as seen from the right of Fig. 1. Fig. 3 is a partial section on the line *a b*. Fig. 4 is a top view showing the attachment of an automatic measuring device. Fig. 5 is a section across a pair of the finishing-strips for the bottom of the shade.

In the drawings, A A denote a pair of base blocks or sills, each provided with a notch at A′ to take a rod B, which serves as a support and reel for the roll of shade material C. These base-blocks are connected by bars D, E, and F. The first of these is preferably inclined, and its upper face is graduated, so as to make a scale by which the width of the shade may be readily determined and the trimming-cutters set accordingly. The middle bar is provided with a metal straight-edge E′, adjacent to a rabbet E^2, which straight-edge serves as a guide for a knife in cutting off and squaring the shade at either end. In the top of the bar are formed angular grooves E^3 and E^4, the former being somewhat smaller than the other and serving as a seat for the trimming-strips G in attaching them to the shade, as shown in Fig. 5. The larger groove serves as a corresponding seat for the shade-roller H in the operation of tacking the upper end of the shade thereto, as shown in Fig. 2. At the rear the base-blocks are connected by a pair of parallel bars F, and on these is mounted a bearing I for one end of the shade-roller. This bearing is made adjustable by means of a bolt and thumb-screw I′ in a simple and familiar way. At the right end of the machine, in line with this bearing, is another bearing, I^2, made fast to the base-block and provided with a spindle J, adapted to engage one end of the shade-roller and revolve the same. The outer end of this spindle is provided with a sheave J′, connecting by a belt K with another sheave L, having a crank L′, by which motion is imparted to both sheaves.

At the ends of the machine and about in the middle of the base-blocks are attached bearings M M′, adapted to take a pair of roll-shafts N N. These are geared together at N′ to give positive concurrent motion, and the sheave L is secured to the lower one. Near this same end of the shafts are secured disk cutters N^2, and adjacent to the cutters are friction-rolls N^3, adapted to feed forward the shade material passing between them. A similar pair of cutters N^4 and rolls N^5 are oppositely mounted on the shafts to trim and feed the opposite side of the material. These rolls and cutters are adjustably mounted on the shafts in any convenient way.

Adjacent to the adjustable rolls and cutters is mounted an adjustable bearing M′, adapted to rest on the bars D and E and suitably attached thereto when desired, as by a clamp M^2. All the roll-shaft bearings are provided with adjustable boxes M^3 and means for adjusting them, such as the usual spring M^4 and screw M^5.

By providing a positive feed for the material it is possible to use the feed-rolls for measuring the same. In Fig. 4 is shown a simple measuring device consisting of a counter O of a familiar type connected suitably with the hub N^8 of one of the cutters, as by a belt P.

The operation of the machine is as follows: The bearing M′ and the cutters N^4 are first set to the desired width of the window-shade, as easily determined by the scale on the bar D. A roll of shade material is then mounted on the rod B, and its free end is led between the friction-rolls N^3 and turned forward until

the upper end projects entirely past the straight-edge. It is then squared by means of a sharp knife, and is then fed forward until this end lies directly over a roller previously placed in the groove E^4. Here the shade is tacked to the roller, which is then transferred to the spindle J and bearing I. The operator then turns the crank L′ until the desired length of shade is rolled off, as determined by the measuring device or otherwise, and severs the material at the straight-edge. The bottom end of the shade is then placed on a trimming-strip G, lying in the groove E^3, the other half of the strip is placed over it, and the two are tacked together, completing the mounting and trimming of the shade.

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

1. In a window-shade machine, the combination with feed-rolls and trimming-cutters, of a bar parallel therewith provided with a straight-edge of metal to coact with a knife in squaring the shade, a groove parallel therewith to form a seat for the roller while attaching the shade, and a smaller groove to serve as a seat for the finishing-strips attached to the bottom of the shade.

2. In a window-shade machine, the combination with a pair of shafts and fixed bearings therefor, of feed-rolls and cutters fixed to said shaft near one end, a pair of oppositely-arranged rolls and cutters adjustable on the remainder of said shafts, an intermediate, laterally-adjustable bearing to support and adjust said adjustable rolls with relation to the shade material, and a graduated bar to determine the location of said bearing and the adjacent cutters, substantially as described.

3. In a window-shade machine, the combination with a suitable frame, substantially as described, of a rod to support the roll of shade material, a pair of shafts provided with fixed cutters and feed-rolls near one end, and adjustable cutters and feed-rolls mounted to slide along the remainder of said shafts, a metal straight-edge back of and parallel with said roll-shafts, an adjacent groove parallel with said straight-edge, to form a seat for the shade-roller in the operation of attaching the shade thereto, a spindle adapted to engage one end of the shade-roller and turn it to reel up the shade, an adjustable bearing for the other end of said roller, means for turning the feed-rolls, and a connection thereof with said spindle.

In testimony whereof I affix my signature in presence of two witnesses.

EDWIN HETHERINGTON.

Witnesses:
J. M. ST. JOHN,
J. F. GROAT.