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ROLLER SUPPORT FOR CLOTH CUTTING MACHINES.

APPLICATION FILED JAN. 16, 1917.

1,287,723. Patented Dec. 17, 1918.

Fig. 1.

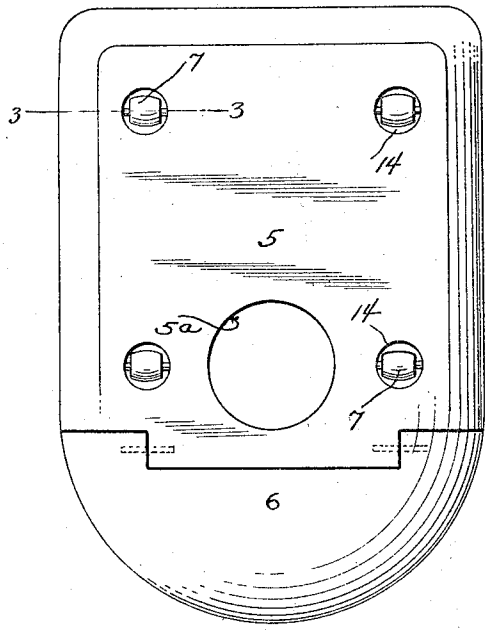
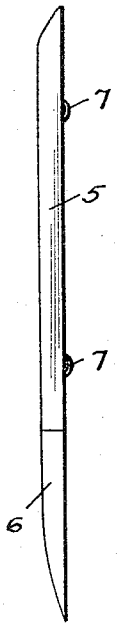


Fig. 2.



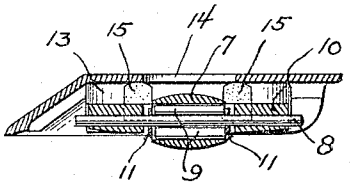
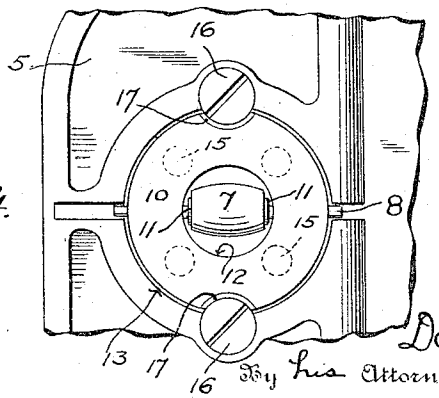


Fig. 3.

Fig. 4.



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UNITED STATES PATENT OFFICE.

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ROLLER-SUPPORT FOR CLOTH-CUTTING MACHINES.

1,287,723. Specification of Letters Patent. Patented Dec. 17, 1918.

Application filed January 16, 1917. Serial No. 142,726.

To all whom it may concern:

Be it known that I, DAVID S. MAIMIN, a citizen of the United States, residing at 97 Ft. Washington avenue, city of New York, State of New York, have invented certain new and useful Improvements in Roller-Supports for Cloth-Cutting 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 broadly to cloth cutting machines of the familiar kind having a base-plate which supports the cutter, the cutter-actuating means and a handle, the handle being grasped by an operator so that the base-plate may be freely moved about on the cutting table during operation of the cutter relative to a pile of fabric.

More particularly, the invention involves the provision of improved roller supports for a cloth cutting machine, these improved rollers being adapted to be mounted on the base-plate and being so constituted as to facilitate rapid and convenient employment of the cutter and at the same time to minimize the danger of ruining a piece of cloth due to too great or too small a tendency of the base-plate to respond to the hand of the operator in being guided over the table top during cutting.

In previous cloth cutting machines of the type specified, the spaced roller supports have commonly been cylindrical rollers revolubly mounted in suitable anti-friction bearings carried by the base-plate or cutter support. Ball casters are impracticable for several reasons. In the first place each ball must be of a certain minimum diameter, so as not to raise the upper surface of the bed-plate too high above the table top to permit efficient cutting, but this results in a deficiency of what may be termed the "effective tread" of the roller supports. When ball casters or the like are employed the cloth cutting machine has too great a tendency to respond to slight surface irregularities of the table top and slight inequalities of pressure on the directing handle, with the result that the bed-plate is likely to wabble unexpectedly and thereby render rapid cutting impracticable. On the other hand cylindrical rollers are subject to the disadvantage that the operator can not readily direct the base-plate over the table top so as to rapidly apply the cutter to follow the sharp corners or curvatures of small radius in a pattern.

According to the present invention, a roller is provided which has been found to have all the advantages of a ball caster and also of a cylindrical roller, and yet none of their disadvantages, at least so far as observed in actual practice, especially when the new roller is employed in combination with the rockingly and yieldingly mounted roller-support common in such machines. In carrying out the invention, each of the rollers is formed so as to be of prolate spheroid form relative to its axis of rotation, that is, to be of circular cross-section from end to end while gradually tapering toward each end from a point adjacent to its middle.

The present invention will be clearly understood from the following description when taken in connection with the accompanying drawing illustrating the same, of which

Figure 1 is a top plan view of a cutter support or bed-plate equipped with the improved rollers; Fig. 2 is a side elevation thereof; Fig. 3 is an enlarged detail view being a section on the line 3—3 of Fig. 1; and Fig. 4 is a bottom plan view of a part of the bed-plate showing the parts indicated in Fig. 3.

Referring to these drawings the base-plate or cutter support comprises a main portion 5 and a ramp 6 hingedly connected to the main portion and adapted to be advanced ahead of the cutter. The cutter is not shown, but as is well known this cutter may be mounted upon a standard the lower end of which is suitably secured in a recess 5^a in the main portion of the bed-plate.

The reference 7 indicates the improved roller, best shown in Figs. 3 and 4. It will be noted that the essential characteristic of the roller is a rolling surface which has as its generating element a line substantially coincident with an arc drawn on a radius many times the radius of a sphere having a diameter equal to the greatest diameter of the new roller; that is, the radius of this arc is many times the radius of the largest ball caster which could be substituted for the new roller and yet not elevate the base-plate higher than it is elevated by the roller above the table top. By "many times" is meant at least five or six times, ideal results having been obtained in tests where the arc

radius was about ten or twelve times the radius of the ball-caster which would have to be substituted for the roller in order to keep the base-plate at the same low height above the table top.

The rollers 7 are preferably employed, as is common in the art, in connection with means whereby each roller is journaled in its own independent rockable mounting carried by the base-plate 6, as shown clearly in Figs. 3 and 4, which illustrate one of the mountings for a roller 7. Each roller 7 is loosely hung on a shaft 8, small anti-friction rollers 9 being interposed between the roller 7 and its shaft 8. This shaft 8 is set in an annular member 10, washers 11 being loosely hung on the shaft to center the roller 7 relative to the opening 12 in the annular member. These parts 8, 9, 10 and 11 form a self-contained mounting or journal for a roller 7 which permits the roller to freely revolve at all times. Each of the four roller-journals is seated loosely in a suitable recess 13 formed below and concentric with an aperture 14 cut transversely through the base-plate 5. A plurality of yielding elements 15 of rubber or the like are interposed between the member 10 and the roof of the recess 13, and set-screws 16 loosely engage diametrically opposite shelves 17 formed in the annular member 10; the member 10 being thus rockingly and yieldingly mounted in its recess 13. As a result, roller 7 is freely revoluble on its shaft 9, is permanently secured to the base-plate, and at the same time is rockingly and yieldingly mounted on the base-plate. Each roller 7 may therefore act independently of the other rollers 7 to momentarily displace its axis from the horizontal, to compensate for even very slight irregularities in the table top. It will be observed that the "tread" characteristic of the present invention will be preserved at all times and irrespective of axial deviations of the various rollers; which is not the case when cylindrical rollers are used in connection with mounting means adapted to permit any one roller to tilt its axis relative to the axes of the other rollers.

I claim:

1. In a cloth cutting machine as described, a cutter-support, and a plurality of horizontally elongated rollers carried by the cutter-support for supporting the latter, the rollers being spaced laterally of the cutter-support and being of prolate spheroid form with their axes substantially parallel.

2. In a cloth cutting machine as described, a cutter-support, and a plurality of horizontally elongated rollers arranged on the cutter-support with their axes substantially parallel for rolling friction with a table-top while spacing the cutter-support above the table-top, the generating element of the rolling surface of each roller being substantially an arc on a radius many times the radius of a sphere having a diameter equal to the greatest diameter of the roller.

3. In a cloth cutting machine as described, the combination with the bed-plate of a plurality of rockingly and yieldingly arranged roller-journals, and a roller revolubly carried by each of such journals, the rollers being of prolate spheroid form with their axes substantially parallel.

In testimony whereof I affix my signature.

DAVID S. MAIMIN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."