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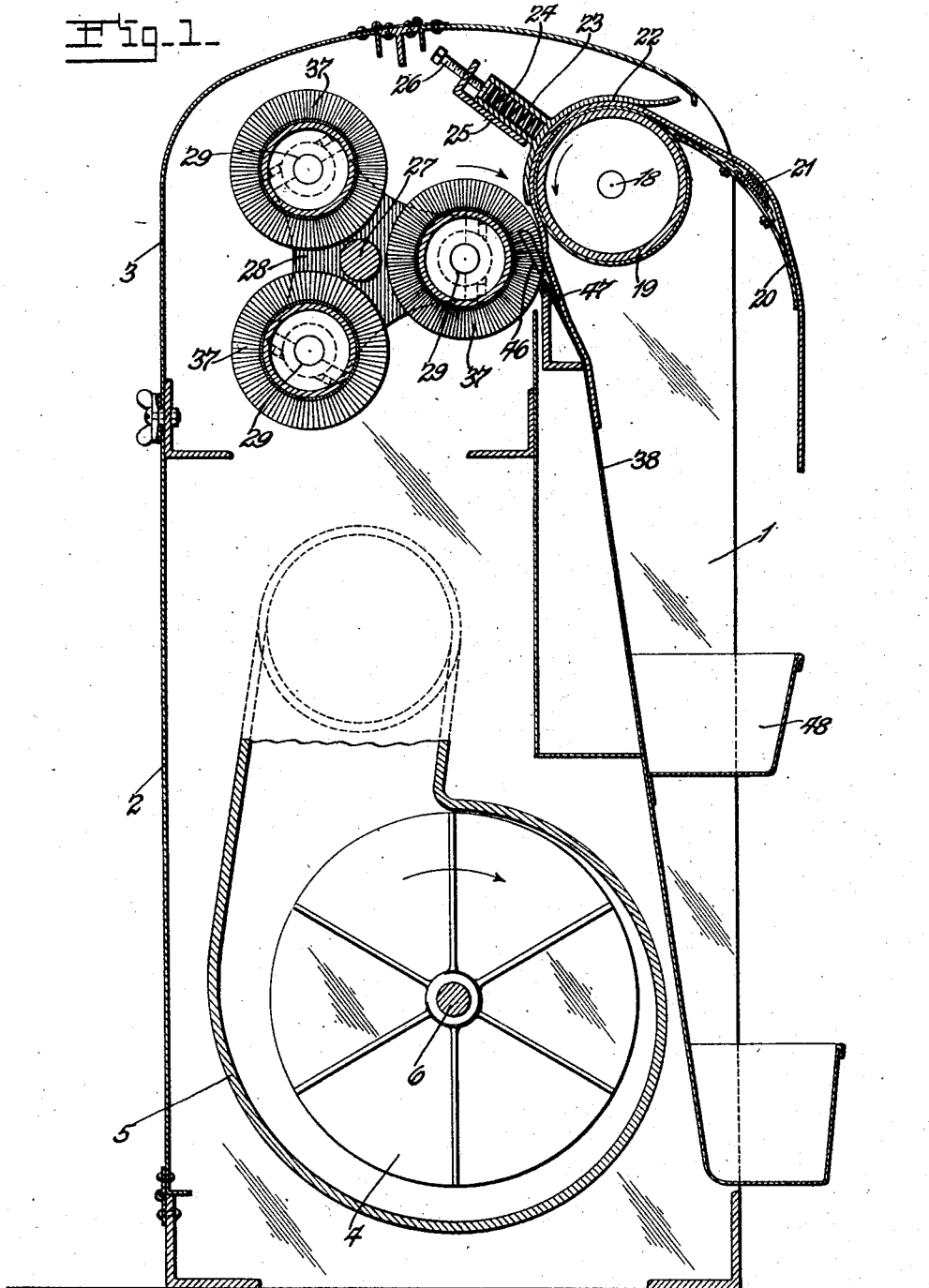
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1,742,829

MACHINE FOR RAISING NAP ON TEXTILES AND THE LIKE

Filed Sept. 19, 1928

3 Sheets-Sheet 1



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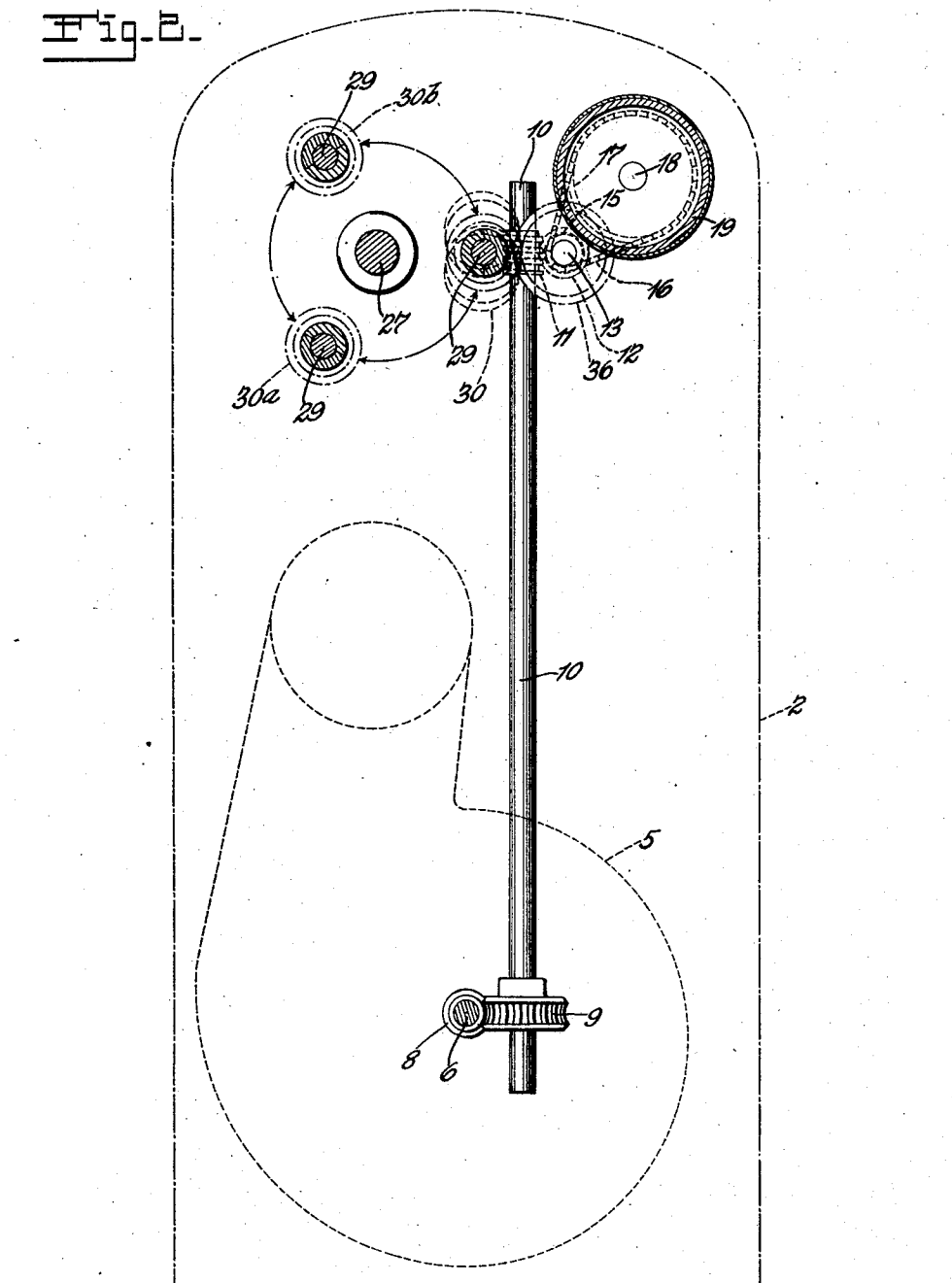
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Fig. 2.



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Fig. 3.

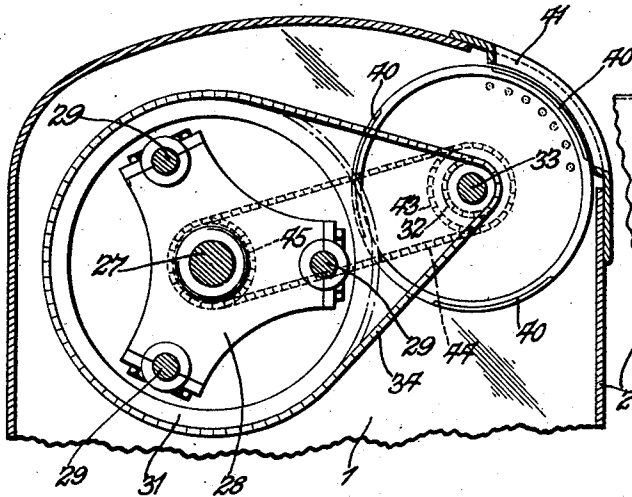


Fig. 5.

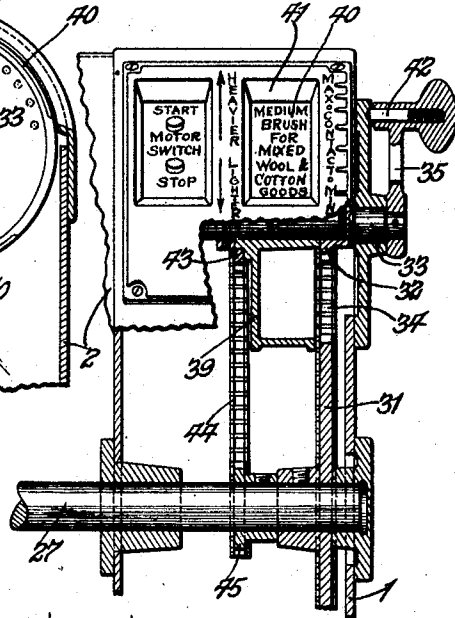


Fig. 4.

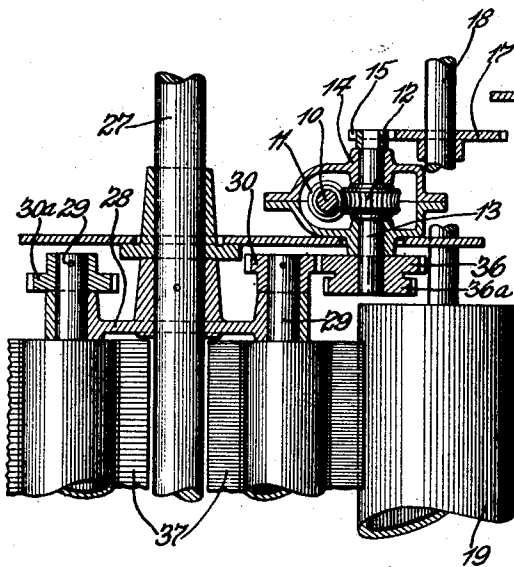
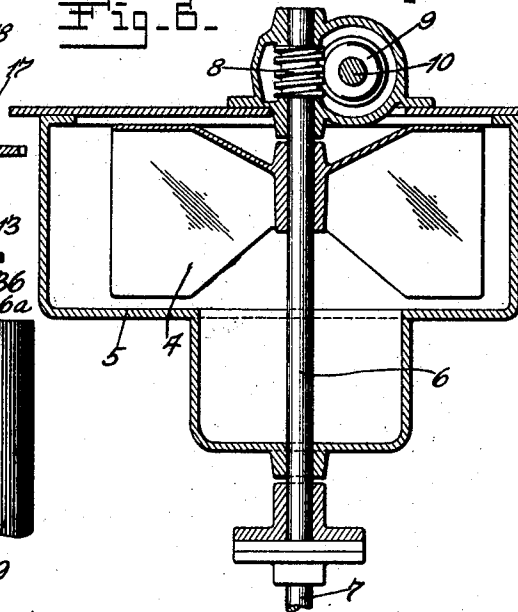


Fig. 6.



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UNITED STATES PATENT OFFICE

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MACHINE FOR RAISING NAP ON TEXTILES AND THE LIKE

Application filed September 19, 1928. Serial No. 306,942.

This invention relates to machines for raising nap on textiles and the like.

An object of the invention is to provide a machine for use in brushing fabrics and comprising a number of brushing devices for brushing fabrics of different texture with brushes constructed and operated specially for the fabrics of different texture; so that a brush of maximum coarseness and stiffness may be used on heavier fabrics, a brush of medium coarseness and stiffness may be used on fabrics of corresponding texture, and a light and flexible brush may be used upon the lighter fabrics.

Another object of the invention is to provide a machine embodying different types of brushes for the different purposes mentioned, in combination with means for adjusting each brush selectively in different positions for operation so as to operate with a different degree of brushing effect upon the fabrics passing through the machine.

Other objects will appear from the following description, reference being made to the drawings in which

Fig. 1 is a vertical front to rear sectional view of a machine embodying the present invention.

Fig. 2 is a diagrammatic view showing the driving mechanism of the machine.

Fig. 3 is a view showing the device for placing the respective brushes in operative position and changing the operative adjustments of the brushes that are in operative position.

Fig. 4 is a view showing the gearing for operating the feed roll and the brush that is in operative position.

Fig. 5 is a front view of the mechanism shown in Fig. 3.

Fig. 6 is a sectional view of the fan casing showing the motor driven operating shaft.

The operating mechanism of the machine is supported by a pair of end supports 1 and is enclosed within a casing 2, the upper rear portion of which comprises a hinged part 3 which may be raised to open position to afford access to the brushes.

A fan 4 is mounted in a casing 5 in the lower portion of the machine, said fan being supported on a shaft 6 driven from a motor

shaft 7. The shaft 6 has a worm 8 thereon meshing with a worm gear 9 on a vertical shaft 10. Thus, the fan shaft 6 is driven by the motor and the vertical shaft 10 is driven by the fan shaft.

The upper end of the vertical shaft 10 has fixed thereon a worm 11 which meshes with a worm gear 12 on a shaft 13 mounted for rotation in fixed bearings 14. One end of the shaft 13 has a sprocket pinion 15 thereon which drives a chain 16 passing over a sprocket wheel 17 attached to the shaft 18 of the feed roll 19.

An appropriately shaped table 20 (Fig. 1) is mounted on the upper front portion of the machine and supports on its front upper side a strip of carding cloth 21 which is designed and adapted to engage with the fabric to be passed through the machine and to support the fabric until the edge of the fabric is properly engaged with the feeding roll. This strip 21 operates on the under side of the fabric as the fabric is drawn into and passed through the machine and prevents the fabric from moving backwardly while the fabric moves to engagement with the feeding roll. There are a plurality of arcuate shoes 22 disposed across the feeding roll. Each shoe 22 has a number of spring sockets 23 enclosing coil springs 24. These spring sockets extend from the upper side of the shoe 22 adjacent to a rigid guide 25 through which pass tensioning screws 26. These tensioning screws 26 have heads extending into the sockets 23 serving as abutments for the outer ends of the springs 24 and are adjustable to vary the tension of said springs. The fabric to be fed through the machine is engaged between the shoe 22 and the feed roll 19, so that when said feed roll rotates in the direction of the arrow (Fig. 1) the fabric will be moved by the roller inwardly and downwardly for engagement by the brush.

A rotary shaft 27 supports a pair of bearing blocks 28 which support three parallel rotary shafts 29 having fixed thereon pinions 30, 30^a and 30^b which are of different diameter. The shaft 27 has fixed thereon a large sprocket wheel 31 (Fig. 3) which is connected with a small sprocket wheel 32 on a shaft

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33 by a sprocket chain 34. The shaft 33 is equipped with a crank 35 whereby said shaft 33 and thereby the shaft 27 may be rotated to mesh the gear 30 with a gear 36 carried on the shaft 13, and to mesh the gears 30^a and 30^b with a gear 36^a on the shaft 13 (Fig. 4). The respective shafts 29 are equipped with brushes 37 which are selectively brought into cooperative relationship to the feed roller 19 so as to operate upon and against the fabric passing downwardly from said feed roller against the front side of the fabric guide 38 (Fig. 1). By operating the handle 35 it is apparent that through the connections described the shaft 27 may be turned to bring the end of the brushes 37 into operation as desired. This is effected by turning the shaft 27 until the pinion 30 is in mesh with the gear 36, or one of the pinions 30^a or 30^b is in mesh with the gear 36^a. The teeth of these gears are relatively long so that the gear 30, 30^a and 30^b of the selected brush will be operated when the gears are only partly in mesh or entirely in mesh. Thus, the brush will be operated against the fabric with any desired degree of brushing force from a very light brushing force to a strong brushing force.

It is apparent also that the brushes may be adjusted so that the contacting surface of the brushes with the fabric may be varied. This is accomplished by setting the brush for a full or partial segmental contact, depending upon the position of the brush carrier.

Another important feature of providing for the adjustment of the brushes is that a selected brush may be moved from contact position to an inoperative position, in which latter position the selected brush will be accessible for repair or removal.

In order to indicate properly to the operator which brush should be selected and used for various fabrics and to indicate when the selected brush is in operative position I provide a dial comprising a drum 39 having on its periphery as many indicating dials 40 (Figs. 3 and 5) as there are brushes 37. Thus, in the present machine there are three such indicating dials 40, each of said dials being marked to describe properly the brush with which it corresponds. These dials which constitute selecting and indicating devices are visible through a window 41 mounted in connection with the casing.

The crank 35 which constitutes means for adjusting the selected brushes in operative positions and in different positions for operation is provided with an escapement latch 42 of familiar construction and operation so that it will hold the crank 35 and thereby the shaft 33 and its connections from accidental operation, but will permit comparatively easy manual operation of said crank. The hub of the drum 39 has a sprocket 43 thereon which is connected by a chain 44 with a sprocket

45 on the shaft 27. In this way the dial 40 is operated coordinately with the shaft 27.

The fan 4 is preferably of the suction type so as to withdraw lint and other detached particles and fragments from the machine. I provide in cooperative relationship with the brushes 37 a series of rake teeth 46 (Fig. 1) projecting from a support 47 into the mass of brush bristles on the operating brush so as to withdraw adhering particles from the brush and also to prevent any fabric from adhering to the brushes and to cause the fabric to pass downwardly against the outer side of the guide 38 to the receptacle 48 provided to receive the fabric.

From the foregoing it must be apparent that my improved machine is of highly simplified construction and is very efficient in operation and obtains all of its intended objects and purposes in an entirely satisfactory manner. By this machine I am enabled to brush fabrics of various textures and thus treat the fabrics in such a way as to raise the nap and to obtain all other desired advantageous results. The construction and arrangement of the machine may be varied within equivalent limits without departure from the nature and principle of the invention.

I do not restrict myself in any unessential respects, but what I claim and desire to secure by Letters Patent is:—

1. A machine of the character described comprising a feeding roll, an arcuate shoe cooperating with said roll to press the fabric against the roll, means for varying the degree of pressure of said shoe, a series of brushes, and means for bringing said brushes selectively into operation to operate upon the fabrics passing from said roll.

2. A machine of the character described comprising a feeding roll, an arcuate shoe cooperating with said roll to press the fabric against the roll, means for varying the degree of pressure of said shoe, a series of brushes, means for bringing said brushes selectively into operation to operate upon the fabrics passing from said roll, and means for holding the selected brush in different operative positions in conformity with the texture of the fabric being operated upon thereby.

3. A machine of the character described comprising mechanism for feeding fabrics of different lengths and widths, a series of brushes for operating on fabrics of different texture being fed by said mechanism, means for bringing said brushes selectively into and out of operation to operate upon the fabrics passing through said mechanism, a latch device for holding said brushes selectively in different operative positions for operating upon fabrics of different texture, and means for indicating the selected adjustment of the brushes.

4. A machine of the character described comprising a feeding roll, a brush carrier, a

brush supported by said carrier for operating on fabrics passing from said feeding roll, a drive shaft, gearing for rotating said feeding roll by said drive shaft, gearing for rotating said brush by said drive shaft, a pinion in connection with said brush, and means for moving said brush carrier to position to engage said pinion with said last named gearing for operation of said brush by said drive shaft or to bring said brush into inoperative position away from said feeding roll to permit access to said brush by the operator, as desired.

5. A machine of the character described comprising a feeding roll, a brush shaft, a brush in connection with said shaft for operating on fabrics passing from said feeding roll, a drive shaft, gearing for rotating said feeding roll by said drive shaft, additional gearing driven by said drive shaft, a pinion on said first named shaft, and mechanism for moving said first named shaft to engage said pinion with said additional gearing or to disengage said pinion from said additional gearing, as desired.

6. A machine of the character described comprising a feeding roll, a brush shaft, a brush in connection with said shaft for operating on fabrics passing from said feeding roll, a drive shaft, gearing for rotating said feeding roll by said drive shaft, additional gearing driven by said drive shaft, a pinion on said first named shaft, and mechanism for moving said first named shaft to engage said pinion with said additional gearing or to disengage said pinion from said additional gearing or to hold said pinion in engagement with said additional gearing in different positions of said first named shaft, as desired.

7. A machine of the character described comprising a series of brushes for operating on fabrics of different texture, mechanism for moving and guiding and discharging the fabrics of different lengths and widths toward any one of said brushes that is in position to operate upon the fabrics, means for operating said mechanism to move and to guide and to discharge fabrics into engagement with the brush that is in position to operate upon the fabrics leaving said mechanism, and means for bringing said brushes selectively into and out of position to operate upon the fabrics leaving said mechanism.

8. A machine of the character described comprising a series of brushes for operating on fabrics of different texture, mechanism for moving and guiding and discharging the fabrics of different lengths and widths toward any one of said brushes that is in position to operate upon the fabrics, means for operating said mechanism to move and to guide and to discharge fabrics into engagement with the brush that is in position to operate upon the fabrics leaving said mechanism, means for bringing said brushes selectively into and out of position to operate upon the

fabrics leaving said mechanism, and a device for holding the brushes selectively in position to operate upon the fabrics leaving said mechanism.

9. A machine of the character described comprising mechanism for feeding and discharging fabrics of different lengths and widths, a series of brushes, means for operating any one of said series of brushes to brush the fabric passing from said mechanism, and a device for separating the fabrics from the brushes to prevent the fabrics from rolling around the brushes.

10. A machine of the character described comprising fabric feeding mechanism for feeding fabrics of different lengths and widths, a series of brushes for operating upon fabrics of different texture after said fabrics are discharged from said feeding mechanism, mechanism for operating said brushes, means for selecting which brush should be operated, and a device for separating the fabrics from the brushes to prevent the fabrics from rolling around the brushes.

11. A machine of the character described comprising mechanism for feeding and discharging fabrics of different lengths and widths, a series of brushes, and means for operating any one of said series of brushes to brush the fabrics passing from said mechanism.

12. A machine of the character described comprising mechanism for feeding and discharging fabrics of different lengths and widths, a series of brushes, means for operating any one of said series of brushes to brush the fabrics passing from said mechanism, and means for indicating which brush should be selected and operated to brush the different fabrics.

13. A machine of the character described comprising fabric feeding mechanism for feeding fabrics of different lengths and widths, a series of brushes for operating upon fabrics of different texture, mechanism for operating said feeding mechanism and any one of said brushes that is in position for operation, means for indicating which brush should be selected and used for operation upon fabrics of different texture, and means for adjusting the selected brush in different positions for operation upon said fabrics of different texture.

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