

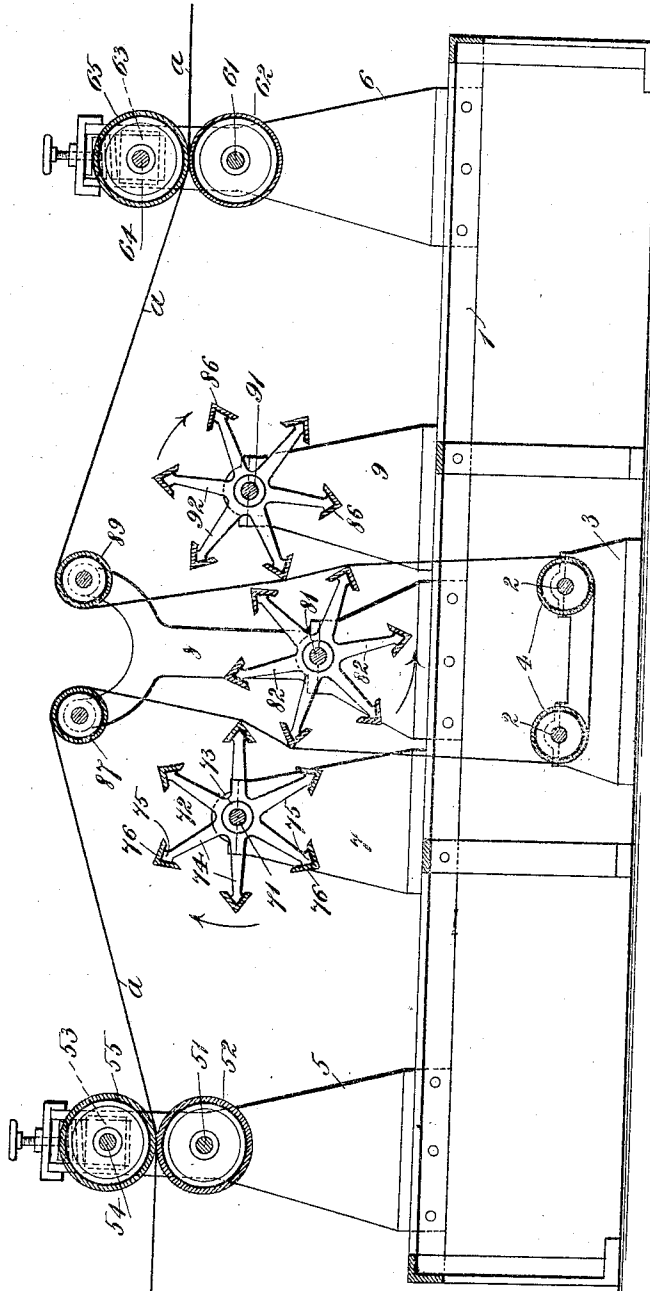
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POLISHING MACHINE

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POLISHING MACHINE.

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To all whom it may concern:

Be it known that I, THOMAS McCONNELL, of Easthampton, in the county of Hampshire and State of Massachusetts, a subject of George V, King of England, have invented a new and useful Improvement in Polishing Machines, of which the following is a specification.

My invention relates to a machine whereby yarn or cloth may be softened and at the same time polished so that the product becomes of a soft silky texture. According to my invention the material is passed progressively between a series of polishers which may be rubbers or brushes and which moving faster than the feed of the material and preferably arranged to stretch the material by pushing it out of its normal line of travel, rub its surface in such a manner that it acquires a sheen which gives it the desired silk-like appearance.

My invention will be understood by reference to the drawings in which it is shown in longitudinal section and somewhat diagrammatically. It will be understood that the rotating parts are supported at each end by similar supports.

1 is a frame upon which the machine is supported. 2, 2 are shafts supported at each end by suitable bearings 3 and carrying guide rolls 4, 4.

5 and 6 are supports located near each end of the frame 1, one on each end of the machine which may be as wide as is convenient. They carry shafts 51 and 61, respectively, running across the machine and on them are mounted rolls 52 and 62, respectively.

Power is so applied to these shafts that they will be rotated with equal speed. On the frames 5 and 6 are also mounted adjustable bearings 53 and 63 which carry shafts 54 and 64 each of which carries a roll 55 and 65 which rests upon the rolls 52 and 62 or upon the material *a* resting upon these rolls.

Between the supports 5 and 6 are supports 7, 8 and 9 also mounted on the frame 1. The supports 7 and 9 are alike. Each support carries a shaft 71 and 91, each of which carries spiders 72 and 92. These spiders are alike so that the detailed description of one will describe the other equally well. The spider 72 comprises a hub 73 attached to the

shaft 71 to turn therewith. From this hub project arms 74, each having an arrowhead 75 at its outer end. These shafts 71 and 91 extend across the machine and are supported at both ends, and at each end of each shaft is a spider 72 and 92. There may be such a number of intermediate spiders on each shaft as will be necessary to make the mechanism stiff.

Each arrowhead 75 has a facing 76 preferably of wood or other good polishing material, this facing extending across the machine and being supported by the spiders so that they form a series of strong firm polishing surfaces which successively engage the surface of the material and stretch and polish it.

The frame 8 carries a shaft 81 on which is mounted spiders 82, in all respects like the spider 72 which has been described in detail, and the frames 7, 8 and 9 are mounted sufficiently near and the shafts are so mounted in them that the arms of the spiders interlock, so to speak, and thus straining the material as it passes between them stretches it so that it breaks down its harshness, making it soft and giving it a silky finish and gloss. The shafts 71, 81 and 91, preferably provided with intermeshing gears by means of which they are rotated in the direction of the arrows, are rotated at the same speed.

The frame 8 is higher than the frames 7 and 9 and is forked at its upper end carrying at its top two guide rolls 87 and 89 so that the material *a* passing in between the rolls 52 and 55 passes over roll 87, down between the facings of spiders 72 and 82, under rolls 4, up between spiders 82 and 92, and out over roll 89 and between the withdrawing rolls 62 and 65. As these rolls and the rolls 52 and 55 run at equal speeds, the material is always under tension and held against the action of the spider facings.

In practice the speed at which the material is carried through the machine is governed by the speed of the rolls 52 and 62 which cooperate with the rolls 53 and 63 to grip the material and feed it positively to and through the machine. The speed of the spiders is somewhat faster than the feed of the material, which is somewhat slow, so that the entire surface of the material is

polished as it travels between the spiders. The speed of the spiders may be regulated in any convenient way according to the material to be treated and the desired result.

5 I do not mean to limit my invention to the construction shown or the material of which the polishers are made, but will state that the embodiment of it described has produced exceedingly good results.

10 What I claim as my invention is:--

1. A polishing machine comprising a feed mechanism, a withdrawing mechanism and a polishing mechanism located between said feed and withdrawing mechanisms to contact with the material being fed, and means for moving said polishing mechanism with relation to said material whereby it will polish said material, said polishing mechanism comprising rotary members each having arms carrying polishing surfaces, said rotary members being located whereby said arms will interlock and engage the material to be polished on both sides thereof and divert the material to be polished out of a straight line whereby it will be held under tension during said polishing process.

2. A polishing machine comprising a feed mechanism and a withdrawing mechanism and a polishing mechanism located between said feed and withdrawing mechanisms and adapted to engage both sides of said material and means for operating said polishing mechanism in a direction opposite to said feed whereby it will move in contact with the surfaces of the material to be polished at a more rapid rate than the feed of said material, said polishing mechanism comprising a plurality of rotating elements having arms, the arms on one rotary element interlocking with the arms on an adjacent rotary element and each arm carrying a polishing surface whereby the material to be polished will be diverted

from a straight path and simultaneously will be polished on both sides thereof. 45

3. A polishing machine comprising a feed mechanism and a withdrawing mechanism and a polishing mechanism located between said feed and withdrawing mechanisms and means for operating said polishing mechanism whereby it will move in contact with the surface of the material to be polished at a more rapid rate than the feed of said material, said polishing mechanism comprising a series of rotary members each having arms, said rotary members being located in close relation whereby their arms will interlock and the material to be polished will be diverted from a straight path. 50

4. A polishing mechanism comprising a series of spiders having arms and polishing surfaces located at the ends of said arms, said spiders being located to engage both sides of the material to be polished and in close relation whereby the arms of one spider will overlap the arms of the next spider, and mechanism for feeding the material to be polished under tension between said spiders. 55

5. In a polishing machine, a polishing element comprising three rotary polishing members, the axis of said polishing members being located out of line and each comprising a series of arms, the axis of said polishing members being located in proximity whereby, when rotated, the arms of one polishing member will interlock with those of the one next to it, and means for feeding the material to be polished between said polishing members at a speed whereby the polishing surfaces of said members will move with relation to said material and said material will be polished on both sides by the contact of said polishing members therewith. 60 65 70 75 80

THOMAS McCONNELL.