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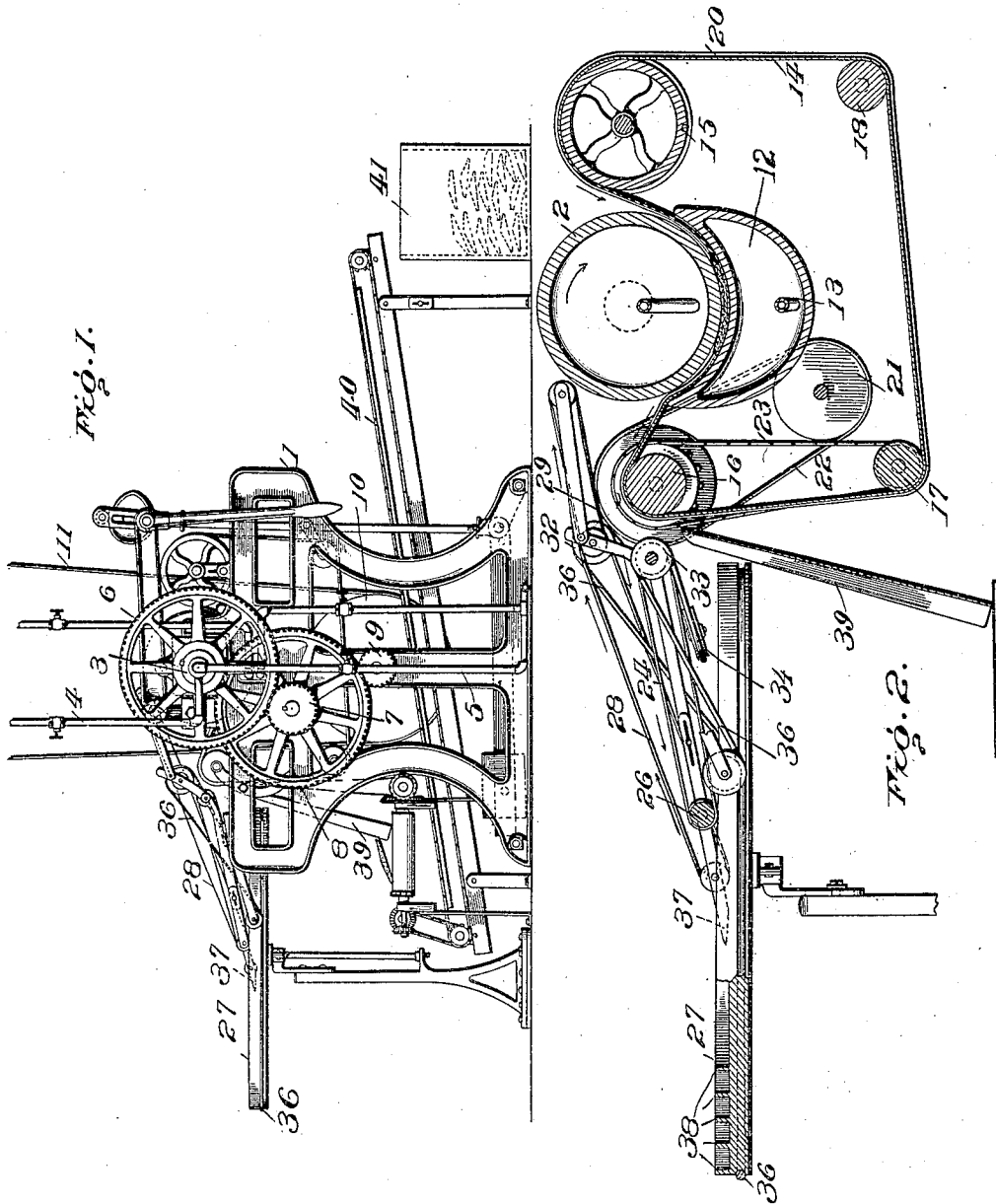
PATENTED DEC. 18, 1906.

G. GOLDMAN.

MACHINE FOR FINISHING GARMENT PADS OF MATTED OR FELTED FIBERS.

APPLICATION FILED NOV. 2, 1904.

2 SHEETS—SHEET 1.



Witnesses.
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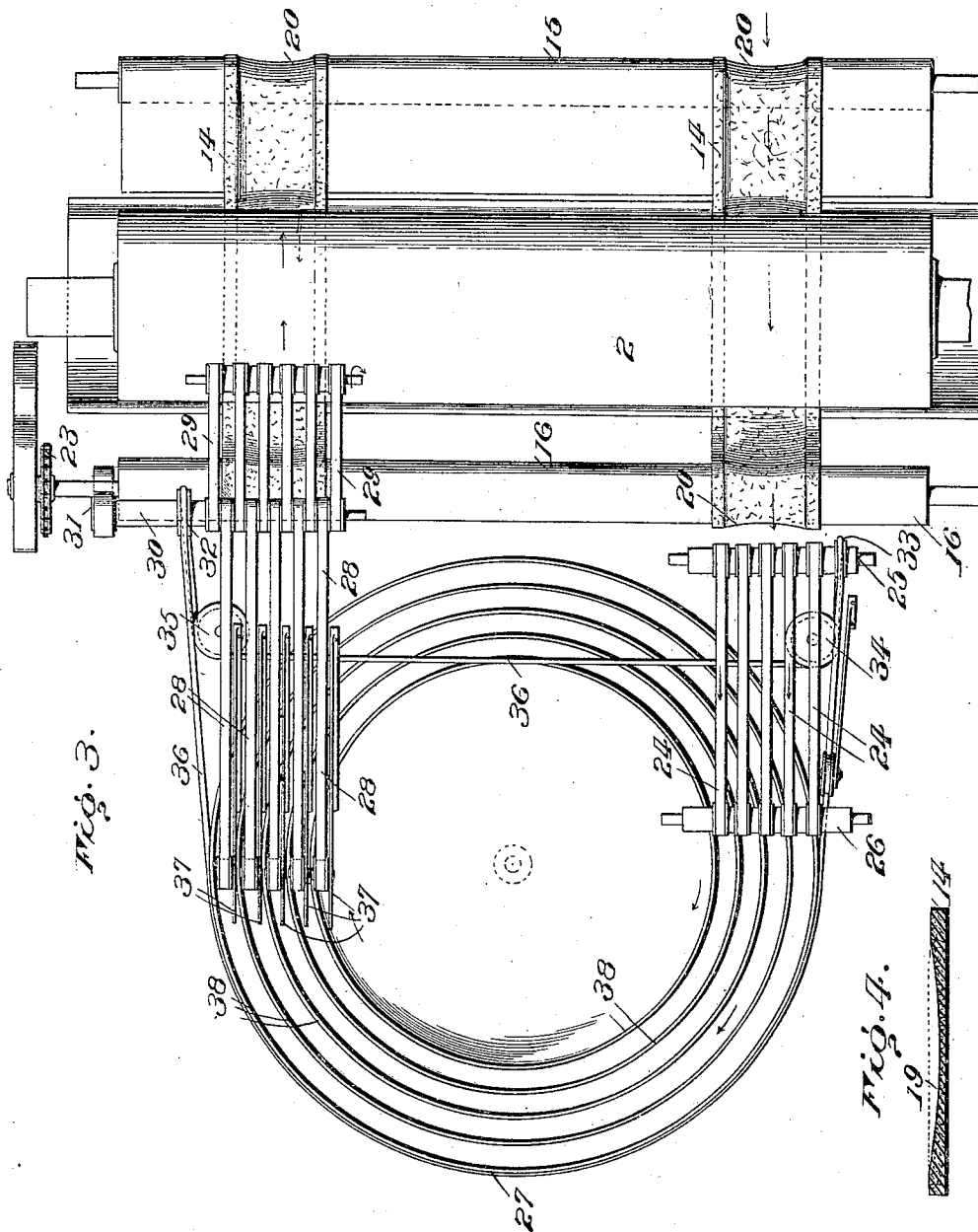
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UNITED STATES PATENT OFFICE.

GUSTAV GOLDMAN, OF BALTIMORE, MARYLAND.

MACHINE FOR FINISHING GARMENT-PADS OF MATTED OR FELTED FIBERS.

No. 838,615.

Specification of Letters Patent.

Patented Dec. 18, 1906.

Application filed November 2, 1904. Serial No. 231,116.

To all whom it may concern:

Be it known that I, GUSTAV GOLDMAN, of Baltimore, Maryland, have invented a new and useful Machine for Finishing Garment-Pads of Matted or Felted Fibers, which invention is fully set forth in the following specification.

This invention relates to machinery for use in making garment and other pads, and more particularly to means for imparting a smooth and slightly finish to said pads. According to one method devised by me for making such pads, a sheet or strip of fibrous material having the fibers united by a suitable binder, as a resinate, is fed to a machine which acts to skive out a portion of said sheet on tapering lines, after which the pads are cut out by a die-press designed for that purpose. The pads, whether made by the above method or otherwise, are liable to present more or less roughened surfaces after they are cut out or otherwise formed, and the present improvement is designed to smoothly finish said surfaces, so as to render the pads more attractive in appearance.

With this object in view the invention consists in a revolving heated roller or cylinder and a carrier-belt, held in close contact with the surface of the cylinder for a portion of its circumference and acting to hold the pad in close contact with the hot surface of the roller or cylinder. In cases where the fibrous material of the pad is united by a binder, which softens under the influence of heat, the hot cylinder acts to soften the binder and to press the projecting fibers on the surface of the pad down to a smooth surface, where they are seized and held by the binder. In other cases, where the binder is one not rendered active or sticky by heat, the pads may be fed to the finishing-press while the binder is only partially dried; or the surfaces of the pad may be subjected to treatment with a solvent of the binder employed before being treated by the finishing-press. Preferably the carrier-belt has a concave surface, the concavity being designed to conform to the taper of the pads to be treated. Moreover, for the purpose of more effectively heating the surfaces of the pads while they are retained between the carrier-belt and the surface of the cylinder a heated concave surface is arranged close to the cylinder, so that the belt carries the pads between two heated surfaces and in

contact with one of them. When the pads emerge from between the cylinder and the belt, it will be found that that surface of the pad which was in contact with the cylinder is smoothly finished, and, for the purpose of finishing the other surface, the pad is then turned over and again passed between the same or a similar belt and the cylinder. Preferably the cylinder and concave heated surface are made long enough to permit two carrier-belts to operate simultaneously in conjunction therewith, and means are provided for receiving the pads from the first belt, turning them over and presenting them to the second belt, by which they are again subjected to the action of the heated cylinder, and then delivered from the machine, preferably to a suitable carrier, which removes them to any desired place of deposit.

The inventive idea involved may receive a great variety of mechanical expressions—one of which is, for the sake of illustration, shown in the accompanying drawings, in which—

Figure 1 is a side elevation, and Fig. 2 is a longitudinal section, of the invention. Fig. 3 is a top plan view, and Fig. 4 is a cross-sectional view, of the carrier-belt.

Referring to the drawings, 1 is the framework of the machine, upon which the hollow closed cylinder 2 is mounted to turn. A heating fluid, as steam, is admitted to said cylinder through its trunnions 3 from pipe 4, as shown in Fig. 1, the condensed steam being drawn off through pipe 5. It will be understood that said pipes 5 and 4 are stationary and do not turn with the trunnions. The cylinder 2 is provided with a gear-wheel 6, which meshes with a gear 7, keyed on the shaft with the gear 8, which in turn meshes with a gear 9 on a shaft to which is keyed driving-pulley 10, driven by a belt 11 from any suitable source of power.

Supported on the framework of the machine in any suitable way under the cylinder 2 is a steam-box 12, whose upper surface is concave, as shown, and lies in close proximity to the under surface of cylinder 2. Steam is admitted to said steam-box 12 through the steam-pipe 13, Fig. 2. A belt 14 is passed around four cylinders 15, 16, 17, and 18, Fig. 2, and under the cylinder 2, preferably near one end of said cylinder. This belt 14 is hollowed out in cross-section, as shown at 19, Fig. 4, the particular charac-

ter of the hollowed-out or concave surface of the belt being made to correspond to the taper or slope of the pad that is to be treated. The cylinders 15, 16, 17, and 18, around which said belt passes, may be, if desired, and preferably are, slightly concaved at the point where the belt passes around the same, as shown at 20, Fig. 3. Belt 14 may be made of any suitable material, and the concavity may be formed in any suitable way, preferably by building up the belt upon the sides, so as to effect the desired shape thereof in cross-section.

In practice there are two of the belts 14, identical in construction and in manner of mounting, one, however, being located near one end of cylinder 2 and the other near the opposite end thereof. The two belts 14 are driven by means of power applied to a pulley 21, Fig. 2, and transmitted by belt 22 to the cylinder or roller 16, which is geared in any suitable way, as by sprocket-chain 23, to the cylinder or roller 17. The pads are delivered for treatment onto one of the belts 14—say the lower belt of Fig. 3—and are passed in the direction indicated by the arrows in Figs. 2 and 3 downward between the belt and the cylinder 2, the cylinder revolving in the direction indicated by the arrow in Fig. 2. As said pads emerge from between the belt 14 and the cylinder 2 on the left-hand side of said cylinder as viewed in Figs. 2 and 3 it is delivered to a series of continuously-moving belts 24 or other suitable carrier, which travel in the direction indicated by the arrows in Figs. 1 and 2, being propelled by the rollers 25 and 26. The belts 24 deliver the pads to a continuously-revolving table 27, whose surface is composed of raised ribs, preferably annular ribs, the table revolving in the direction indicated by the arrows in Fig. 3. On the opposite side of table 27 from the carrier-belts 24, which act to carry the pads downward, is a similar series of belts 28, which, however, move in the reverse direction from the belts 24—that is, they move in a direction to carry the pads upward from the table to a second series of belts 29. The belts 28 and 29 are passed around suitable rollers, and both of them move in the direction from left to right, as shown in Fig. 3. The belts 28 and 29 serve to lift the pads and deliver them onto the upper surface of the cylinder 2, which revolves in the direction of the full-line arrows shown in Fig. 3, thereby carrying the pad around with the cylinder and delivering it between the upper belt 14 of Fig. 3 and said cylinder. It will be observed that as the pad passes between the first belt 14 and the cylinder 2 the upper surface of the pad is the one that comes in contact with the upper cylinder 2 and is therefore the one that is smoothed by the action of said cylinder. As the pad passes from under the cylinder and is deliv-

ered to the belts 24 and the revolving table 27 and by said table to the belts 28 and 29 the finished or smoothed side of the pad is uppermost, the lower side thereof being the one that has not been effectively finished. As the pad is passed from the belts 29 onto the cylinder 2 it will be observed that it is the lower or unfinished side of said pad which comes in contact with said cylinder and that when it is carried between the second belt and said cylinder it is this side—that is, the side which was formerly the under side—which now becomes the upper side and the one that is in contact with the cylinder, and hence the one that is finished thereby. It will thus be seen that by the time the pad has been passed by the two belts under the cylinder both surfaces thereof have been submitted to the smoothing or finishing action of the cylinder 2.

For the purpose of imparting motion to the belts 24, the table 27, and the belts 28 and 29, a roller or shaft 30, around which belts 28 and 29 pass, is geared in any suitable way, as by friction-gears, to the shaft of the roller 16, as shown at 31 in Fig. 3. This shaft 30 carries a pulley 32, and a like pulley 33 is mounted on the shaft of the roller 25 on the opposite side of the machine. Two idler-pulleys 34 and 35 are mounted one on each side of the machine, and a belt 36 is passed over the pulley 32 around the table and in a groove formed in the periphery thereof, over pulley 33 and around pulleys 34 and 35. It will thus be seen that the belts 24, 28, and 29 and the table 27 are all driven by the same belt, and therefore move at the same speed. The lower turns of the belts 28 occur very close to the surface of the table 27, but not near enough thereto to enable the pads carried by said table to readily be picked up by the belts 28, and in order to insure this action rigid fingers 37 project downward from the framework supporting the belts upon which the lower end of the belts 28 turn, said fingers 37 being arranged so that the lower ends thereof project into the grooves formed between the ribs 38 on the table 27, and as said table revolves the contact of the pad with said ribs enables the table to slide the pads up along the fingers 37 until they partially project over or come in contact with the belts 28, when the latter pick them up and carry them onward, as before indicated. When the pads have passed from between the second belt and the cylinder 2, they may be delivered in any suitable way, as by means of a chute 39, Fig. 1, to a carrier 40, by which they are removed to any suitable or desired point and deposited in a receptacle 41 or in a pile to be removed by the workman.

It will be observed that by the mechanism described it is possible to bring the surfaces of each pad into close smoothing contact with

the cylinder 2, no matter what the taper of the pad may be, since the belt can be built up or have the concavity 19 therein formed to suit each form of pad. Moreover, it will be observed that by means of the stationary concave steam-table 12 the pad is subjected to heat on the under side as well as to the heat incident to the cylinder 2 and that therefore the under side of said pad is partially prepared for treatment in the second belt. Moreover, it will be observed that by means of the turn-table 27 and the feed-belts and pulleys connected therewith the pads are delivered to the steam-cylinder for a second treatment but reversed, so that the entire operation of the device is rendered automatic.

It will be apparent to the expert in the art that instead of there being one cylinder 2 there may be two cylinders, each operated in conjunction with a belt 14—that is, the inventive idea would be the same whether the cylinder 2 was in one prolonged cylinder, as shown in Fig. 3, or whether it was divided into two cylinders. Moreover, it will be apparent that instead of a pair of carrier-belts 14 operating in conjunction with the cylinder 2 there may be, if desired, a single wide belt operating in conjunction with said cylinder, the pads being first fed to one side of said belt, by which they would be delivered to the turn-table and from this passed up over the cylinder and delivered to the other side of said belt. Since the two belts 14 are advanced by the same mechanism and at substantially the same speed, it is a matter of indifference whether the two are united into one structure or whether they are separated into two separate belts, as shown in the drawings. Furthermore, it will be apparent that while it is desirable to have the belt provided with a concave surface 19, Fig. 4, nevertheless the belt, if desired, may present a flat surface to the mechanism and still operate to finish the pad, though in a less effective degree. These features are merely noted in order to emphasize the fact that the inventive idea is not confined to the specific construction shown, but may be variously modified without departing from the spirit of the invention.

Having thus described the invention, what is claimed is—

1. In a pad-finishing machine, the combination of a heated revolving surface, and a carrier having a surface conforming to that of the pad and holding the pad in contact with said surface during a portion of its revolution.

2. In a pad-finishing machine, the combination of a heated revolving cylinder, and a carrier-belt having a surface conforming to the pad's taper and holding the pad in contact with the cylinder during a portion of its revolution.

3. In a pad-finishing machine, the combi-

nation of a heated revolving cylinder, a carrier-belt having a concave surface and acting to hold the pad in contact with the cylinder during a portion of its revolution.

4. In a pad-finishing machine, the combination of a steam-heated revolving cylinder, a steam-heated concave surface in close proximity to said cylinder, and a belt having a concave surface and moving the pad between said cylinder and surface.

5. In a pad-finishing machine, the combination of means finishing the pad upon one side, with means reversing the pad and finishing it upon the other side.

6. In a pad-finishing machine, the combination of a heated revolving surface, a carrier holding the pad in contact with said surface for a portion of its revolution whereby one surface of the pad is finished, means reversing said pad, a second carrier holding the other surface of the pad in contact with said heating-surface, whereby the pad is finished upon both sides.

7. In a pad-finishing machine, the combination of a heated cylindrical roller, and a plurality of carriers moving in contact with said revolving surface during a portion of its revolution, with means receiving the pad from one of said carriers, reversing it and presenting it to the other carrier, whereby the pad is finished on both sides.

8. In a pad-finishing machine, the combination of a heated cylinder, a pair of carrier-belts each of which moves in contact with a portion of the surface of said cylinder, with means receiving the pad from one of said carrier-belts and presenting it to the other belt in a reverse position, whereby the pad is finished upon both sides.

9. In a pad-finishing machine, the combination of a heated revolving cylinder, a pair of carrier-belts moving in contact with a portion of the surface of said cylinder, each of which belts being provided with a concave surface, with means receiving the pad from one of said belts and presenting it in a reverse position to the other belt, whereby the pads are finished upon both sides.

10. In a pad-finishing machine, the combination of a stationary concave heated surface, a heated cylinder revolving with its periphery in close proximity to said concave surface, a plurality of carrier-belts in contact with said cylinder between the latter and said concave surface, with means receiving the pad from one of the carrier-belts and presenting it to the other, whereby the pads are finished upon both sides.

11. In a pad-finishing machine, the combination of a heated revolving cylinder, a plurality of belts moving in contact with a portion of the surface of said cylinder, a turn-table, means receiving the pad from one of said belts and depositing it upon said table, and means receiving the pad from said table

and depositing it upon the top of said roller, whereby it is presented to the other belt in a reverse position.

12. In a pad-finishing machine, the combination of a heated revolving cylinder, a heated stationary concave surface in proximity to the periphery of said cylinder, a pair of belts moving in contact with the surface of said cylinder and between the same and said stationary surface, each of said belts acting to carry the pad beneath said cylinder, means receiving the pad from one of said belts after it has passed beneath the cylinder and depositing it upon the top of the cylinder, whereby it is presented to the other belt in a reverse position and again carried by said belt beneath the cylinder.

13. In a pad-finishing machine, the combination of a heated revolving cylinder, a stationary heated concave surface in proximity to the surface of said cylinder, a plurality of belts passing under said cylinder and between the same and said concave surface, a turn-table, means receiving a pad after it has been carried under the cylinder by one of the belts and depositing it upon said turn-table, and means receiving the pad from said turn-table and depositing it upon the top of the cylinder, whereby it is carried to said second belt and presented thereto in a reversed position.

14. In a pad-finishing machine, the combination of a heated revolving cylinder, a stationary heated concave surface in proximity to the surface of said cylinder, a plurality of carrier-belts passing beneath said cylinder and between it and said concave surface, a turn-table, a continuously-operating carrier receiving the pad from one of said belts and presenting it to said turn-table, a second continuously-operating carrier receiving the pads from said turn-table and depositing them upon the top of said

revolving cylinder by which said pad is deposited upon the second belt in a reversed position.

15. In a pad-finishing machine, the combination of a heated cylinder, a heated stationary concave surface under said cylinder and in close proximity thereto, two carrier-belts moving under and in contact with said cylinder and between the same and said concave surface, a turn-table, means receiving a pad from one of said carrier-belts and depositing it upon the table, and means receiving said pad from the turn-table and depositing it upon the upper surface of said cylinder, and a driving device operating both said sets of means and said turn-table at the same speed.

16. In a pad-finishing machine, the combination of a heated cylinder, a stationary heated concave surface in close proximity to said cylinder, a plurality of carrier-belts passing under said cylinder and between it and said concave surface, a turn-table, a carrier receiving the pad from one of said belts and depositing it upon said table, a second carrier receiving the pad from said table and depositing it upon the upper surface of the said cylinder by which it is inverted and delivered to the second carrier-belt, and means simultaneously driving the turn-table and the two carriers connected therewith.

17. In a pad-finishing machine, the combination of a heated traveling surface, and an endless carrier for applying and momentarily returning the pads to said traveling surface.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

GUSTAV GOLDMAN.

Witnesses:

S. T. CAMERON,

GUSTAVE R. THOMPSON.