(No Model.)

H. F. CAMPBELL.

HOOP DRESSING MACHINE.

No. 519,401. Patented May 8, 1894.

Fig: 1.

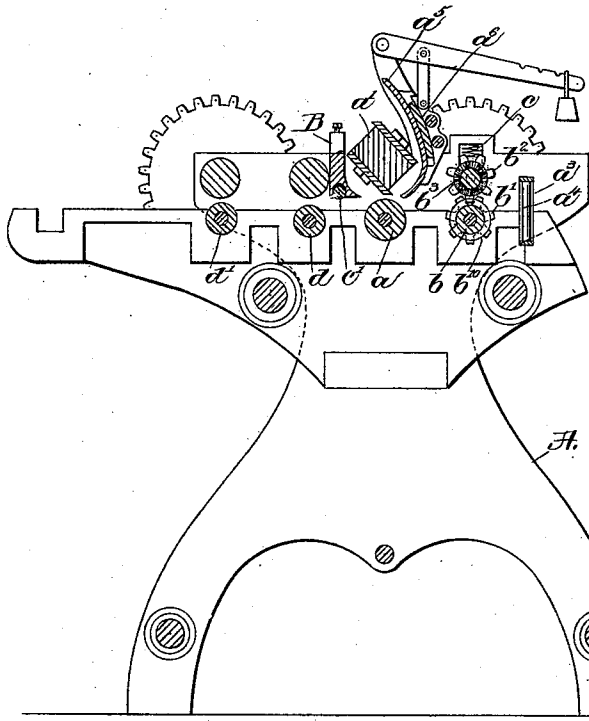


Fig: 2.

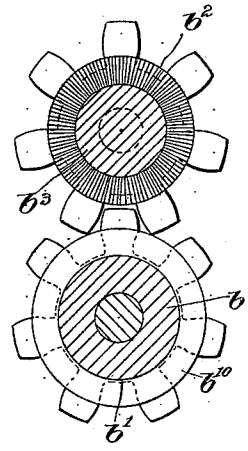


Fig: 3.

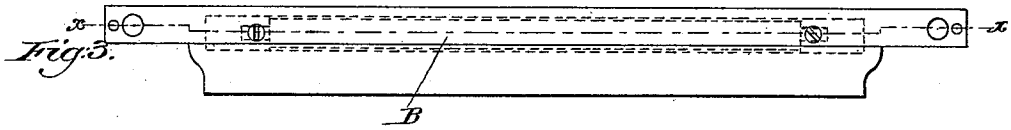


Fig: 4.

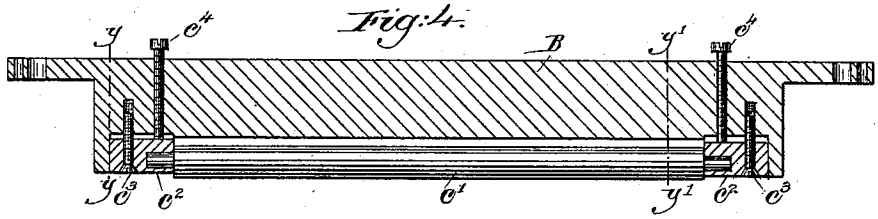


Fig: 5.

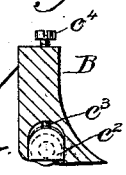
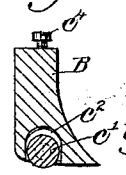


Fig: 6.



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HOOP-DRESSING MACHINE.

SPECIFICATION forming part of Letters Patent No. 519,401, dated May 8, 1894.

Application filed April 3, 1888. Serial No. 269,434. (No model.)

To all whom it may concern:

Be it known that I, HENRY F. CAMPBELL, of Malden, county of Middlesex, State of Massachusetts, have invented an Improvement in Hoop-Dressing Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention relates to hoop dressing machines, and is an improvement upon the class of hoop dressing machines substantially such as shown in United States Patent No. 272,029, granted to me February 13, 1883.

In the class of machines referred to, the hoop to be dressed or operated upon by the knife, is fed toward the said knife by rollers having their axes vertically in line with each other, the lower roller provided with a plastic or yielding surface covering, being independent of the upper roller and revolved by friction, thus forming a friction feed for the machine. In practice it has been demonstrated that a friction feed is inadequate, and especially is this true when a presser bar of ordinary construction is used, that is when the lower face of the presser bar in contact with the board is made flat. Furthermore it has been experienced in practice, that if by some mishap a single hoop becomes impeded on its way through the machine, the feed of all the hoops is stopped, and as a result the suction between the said hoops and presser bar is so great (especially when the said hoops are moist, sappy, or contain pitch) that a very considerable force is required to pull the hoops by hand through the machine, to again start it in operation.

It is the object of this invention to obviate the stopping of the progress of the hoop through the machine while the latter is in operation, and I accomplish my object by providing the machine with a positive feed adapted to adjust itself to hoops of varying thickness, and by means of a presser bar constructed as will be described, whereby the friction between the hoop and presser bar is reduced to a minimum.

The particular features in which my invention consists will be pointed out in the claim at the end of this specification.

Figure 1 is a longitudinal section of a hoop dressing machine embodying my invention. Fig. 2 is a sectional detail on an enlarged scale of the feed rollers and gears operating them; Fig. 3 a top view on an enlarged scale of the presser bar employed in the machine shown in Fig. 1; Fig. 4 a sectional elevation of the presser bar shown in Fig. 3 the presser roller being in elevation, the section being taken on line x—x Fig. 3; Fig. 5 a transverse section of the presser bar shown in Fig. 4 on line y—y, and Fig. 6 a transverse section of Fig. 4 on line y'—y'.

The machine A provided with the plastic or yielding bed roll a, the cutter a', the hoop guide consisting of the frame a^3 and vertical rollers a^4, the presser-foot a^5, and its carrier bar a^6 are all substantially as in the patent referred to.

In accordance with my invention the lower feed-roll b of plastic or yielding material has mounted upon its journal or shaft a toothed wheel or gear b' in mesh with and driven by a toothed wheel or gear b^2 on the shaft of the upper feed roll b^3, which in practice is driven positively in any usual or well known manner as in the patent referred to. The teeth of the wheels or gears b', b^2, are made of considerable size to insure strength and are of considerable length to permit of the said gears being separated and yet remain in mesh, to enable the feed rolls to be separated by uneven thickness of the hoop fed therethrough and yet obtain a positive feed. As herein shown the upper feed roll b^2 is movable and the lower feed roll b' stationary, the roll b^2 having its shaft supported in boxes not shown, but which are fitted in slots or recesses in the frame of the machine, the said roll being maintained in its normal position by springs c pressing upon the boxes of the said shaft, only one of the said springs being shown.

The hoop, not shown, after being fed by the positive feed described, passes under the presser-foot a^5 and beneath the knife a' the hoop being supported on the roll a, which acts as a yielding bed, and after passing beyond the said knife the said hoop passes under the rear presser bar B, grooved at its under face to receive a roller c' having its journals supported in boxes c^2 adjustably secured in the said groove by screws c^3, c^4, the screws c^3 being turned to raise and lower the boxes

and roll c', and the screws c^4 securing the said boxes and roll in adjusted position. The roll c' rests upon the hoop and thereby reduces the friction to a minimum. By means of the slight resistance offered to the passage of the hoop through the machine by the presser bar, the positive feed is rendered effective to overcome resistances offered to the passage of the hoop through the machine, such as might arise from warts and protuberances on the hoop.

It will be seen that the dressing of hoops while filled with sap, presents a substantially new art, or one unlike that hitherto followed with the employment of cylinder machines. The strokes of the knives upon the sappy wood, furnish the occasion for suction between the dressed surface and the flat portion of the presser bar as in no other manufacture known to me, and the irregular surface of the bark on the hoop presenting knots and warts causes the stoppage of the hoop splints by friction with the under rolls upon which the hoop rests, the said friction being enhanced by the weight of the upper feed rolls, which must be lifted bodily so that the knots or warts may pass along. These warts and knots are of such toughness that they are not crushed nor indeed may they be crushed without damage to the hoop. Owing to the warts and knots, ordinary gears were impracticable and it became necessary to depart from the rules laid down for the spacing of gears, and by experiment determine the form of the said gears. It will be seen that the teeth are of unusual length and dimensions as it was found needful in passing certain knots and warts between the feed rolls, that said rolls should be separated in some cases for the space of an inch and the said gears still remaining in mesh with one another.

By providing the lower feed roll with a yielding surface differences in the thickness of the hoops can frequently be accommodated without forcing the upper feed roll bodily away from the lower roll, the yielding surface also giving a firmer hold upon the hoop to feed it.

Were both rolls provided with unyielding surfaces the upper roll would be lifted bodily for every wart or excrescence on either side of the hoop, which would be objectionable in the extreme, as the more the feed rolls are separated beyond the normal distance the greater the strain upon the gears. Furthermore it was found necessary to strengthen the teeth of the gears by means of collars b^{10} Fig. 2 as in all cases where ordinary gears were used, the said gears were broken even when made of hard or bell metal.

I have herein shown the gears b', b^2, as applied to the feed rolls only, but in practice they will be applied to the drawing rollers d, d', at the rear of the machine.

The gears b', b^2, are herein shown as located inside the frame of the machine, but in practice they will preferably be located on the outside thereof.

I do not herein claim broadly the adjustable presser bar B, as it forms the subject matter of United States Patent No. 295,380, granted to me January 1, 1889.

I claim—

In a hoop dressing machine a yielding bed, upper and lower feed rolls, one of which is automatically adjustable vertically to accommodate stock of varying thickness, and gears to drive said rolls positively, combined with a cutter, and a presser bar B having a roller c' resting upon the stock, said roller being adjustable independently of the said presser bar substantially as and for the purpose specified.

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

HENRY F. CAMPBELL.

Witnesses:
JAS. H. CHURCHILL,
J. C. SEARS.