

(No Model.)

2 Sheets—Sheet 1.

F. HOUSER & W. H. CLARKSON.
DEVICE FOR CLOTHING GROOVED CYLINDERS WITH TOOTHED STRIPS
OF METAL.

No. 381,473.

Patented Apr. 17, 1888.

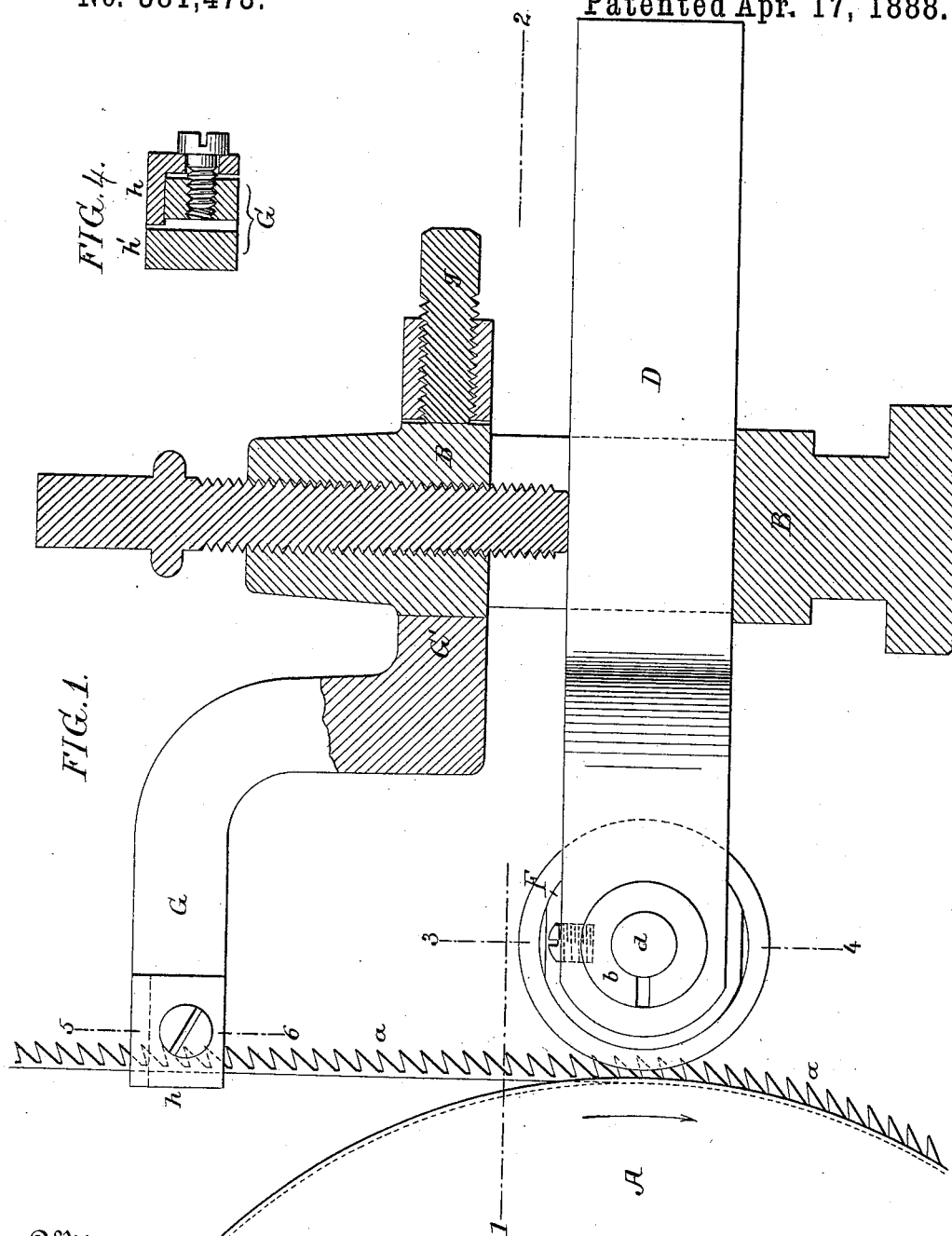


FIG. 4.

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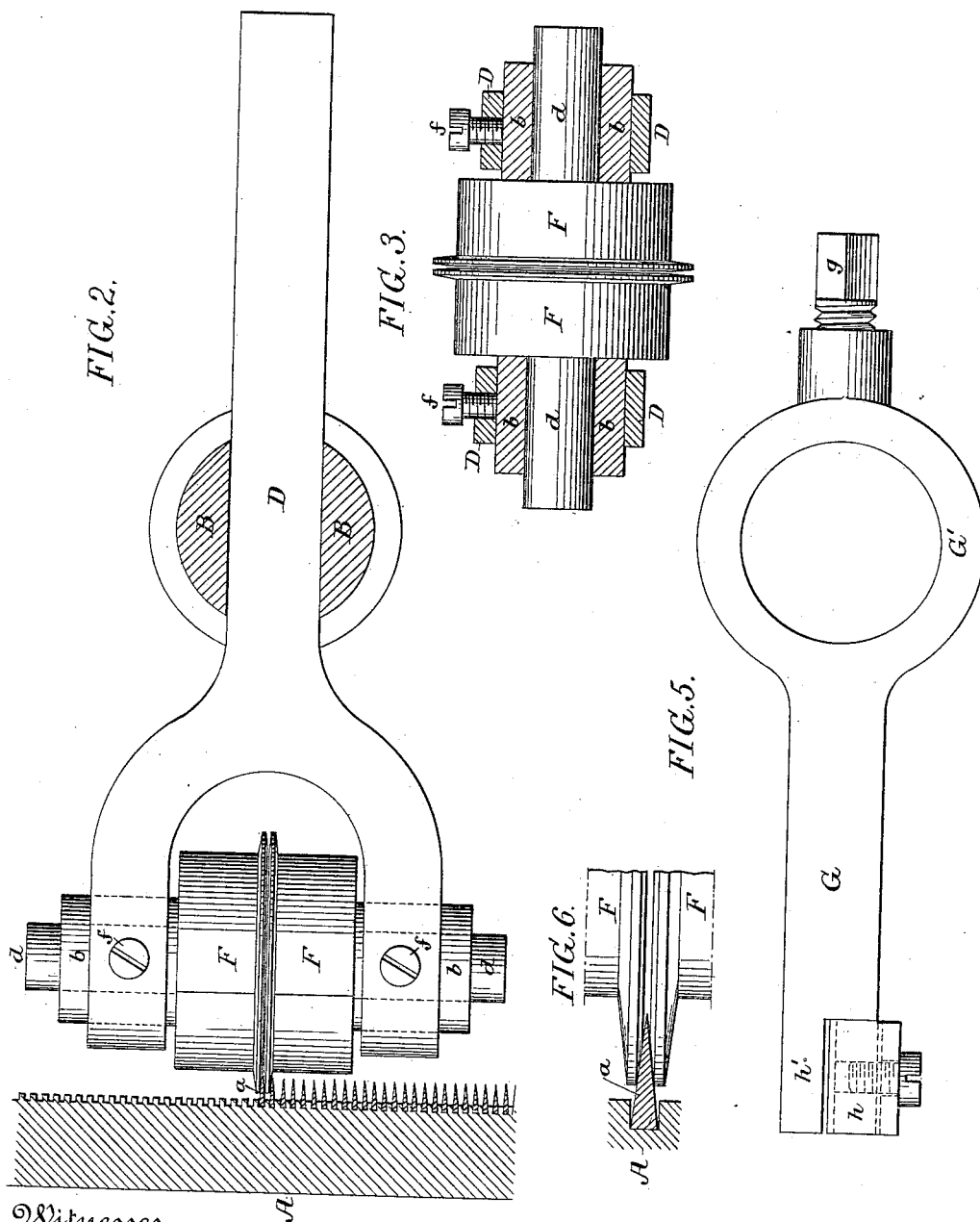
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UNITED STATES PATENT OFFICE.

FRANK HOUSER AND WILLIAM H. CLARKSON, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNORS TO THE JAMES SMITH WOOLEN MACHINERY COMPANY, OF SAME PLACE.

DEVICE FOR CLOTHING GROOVED CYLINDERS WITH TOOTHED STRIPS OF METAL.

SPECIFICATION forming part of Letters Patent No. 381,473, dated April 17, 1888.

Application filed August 25, 1887. Serial No. 247,844. (No model.)

To all whom it may concern:

Be it known that we, FRANK HOUSER and WILLIAM H. CLARKSON, both citizens of the United States, and residents of Philadelphia, Pennsylvania, have invented certain Improvements in Clothing Grooved Cylinders with Toothed Metal Strips, of which the following is a specification.

The objects of our invention are to insure the accurate guidance of the toothed strip to the groove in the roll and the firm seating of said strip in the groove, and to prevent injury to the roll or winding mechanism by reason of the thickening of the strip due to splicing.

In the accompanying drawings, Figure 1 is a side view, partly in section, of the device forming the subject of our invention, part of the cylinder and part of the toothed wire with which the same is being clothed being also shown. Fig. 2 is a sectional plan view on the line 1 2, Fig. 1. Fig. 3 is a transverse section on the line 3 4. Fig. 4 is a transverse section on the line 5 6. Fig. 5 is a plan view of part of the machine; and Fig. 6 is an enlarged detail, partly in section, of the presser and strip.

In winding toothed metallic strip on grooved cylinders—such, for instance, as those employed in what are known as "Garnett" machines—difficulty is experienced in properly guiding the toothed strip to the groove in the cylinder and in properly seating the strip in said groove, the usual plan being to feed the strip to the grooved cylinder under such tension that it will be drawn into the groove, the guidance of the strip into the groove being effected by a suitable implement held in the hand of the attendant. This plan is objectionable, because the proper seating of the toothed strip in the groove is by no means certain unless said strip is so much narrower than the groove that it can slip easily into the same, and when this is the case excessive calking of the threads between the grooves is subsequently necessary, an operation which consumes power and has a tendency to effect the disintegration of the iron composing the threads. If the strip fits at all snugly in the groove, the tension which must be imparted to the same has a tendency to break the strip

whenever a weak spot occurs, each break necessitating the stoppage of the machine and the loss of considerable time before the winding operation can be resumed. Moreover, very close attention on the part of the attendant is required in order to properly guide the strip into the groove, and there is no effective provision for preventing injury to the roll in the event of the feeding into the groove of the cylinder of a thickened portion of the toothed strip, due to the formation of a splice thereon. In carrying out our invention, therefore, we discard the usual plan of imparting heavy tension to the toothed strip, and thus pulling it into the groove and force it into the groove by positive pressure, and we employ a rigid guide for properly directing the toothed strip to the groove and for preventing a thickened portion of the strip from gaining access to the cylinder or to the pressing device.

In Fig. 1, A represents part of the cylinder, and *a* part of a toothed strip, with which the cylinder is to be clothed by forcing the base of the strip into a continuous spiral groove cut in said cylinder.

The tool-post of the lathe has a stem, B, to which a bar, D, is secured in the same manner as the stem of an ordinary cutting-tool, this bar being forked at the front end, and this forked portion of the bar having openings for the reception of split sleeves *b b*, which provide bearings for the spindles *d* of disks F F, these disks being beveled on their adjoining faces so that when adjusted close to each other they form, practically, a roll with a deep conical groove which is adapted for the reception of the tapering toothed strip *a*, one disk bearing upon one beveled side of said strip and the other disk upon the opposite beveled side of the same, as shown in enlarged diagram, Fig. 6. When the bar D is properly adjusted in respect to the cylinder A, therefore, this grooved roll serves, by pressure upon the opposite sides of the toothed strip, to press the base of said strip firmly down into the base of the groove and insure the firm seating of the strip in said groove, even though the strip be of such width as to fit very snugly, there being, however, no pressure upon the

points of the teeth which would tend to flatten or otherwise distort the same.

It will be evident that a single grooved roll may be used in place of the independent disks F F; but the use of the latter is preferred, as they can be adjusted laterally in respect to each other, so as to accommodate toothed strips of different thicknesses, this adjustment being effected by separating to a greater or less extent the sleeves *b b*, which form the backings for said disks; or the disks may be adjusted bodily in a lateral direction by moving both of said sleeves in one direction or the other, set-screws *f* serving to secure the sleeves in position after adjustment.

While the grooved presser may, if desired, be relied upon to guide the toothed strip into the groove of the cylinder, we prefer to locate above said grooved presser a supplementary guide, *G*, which in the present instance consists simply of a bar having a yoke, *G'*, carrying a set-screw, *g*, by which it is secured to the tool-post *B*, the outer end of the bar having a laterally-adjustable jaw, *h*, between which and a fixed jaw, *h'*, forming part of the bar, the toothed strip is compelled to pass in its passage to the grooved presser. By the lateral adjustment of the jaw *h*, therefore, the width of the passage for the toothed strip may be regulated with the greatest nicety to accord with the thickness of the toothed strip which is being wound upon the cylinder, so as to prevent the passage to the presser of any portion of said strip which is of such undue thickness as would tend to cause injury to the cylinder or presser in an attempt to press it into the groove of the cylinder. Such thickened portion of the strip will be caught and retained by the guide-jaws *h h'* and the toothed strip will be broken, thus giving the attendant an opportunity to remove the thickened portion of the strip before resuming the winding operation, the firmness with which the toothed strip is pressed into the groove of the cylinder preventing the unwinding of the broken or free end of the strip before the final calking of the cylinder.

The guide *G* may be adjusted laterally by swinging it on the tool-post, so as to bring the passage for the toothed strip directly in line with the groove in which said strip is being wound.

It will of course be understood that as the cylinder *A* is rotated in the lathe the tool-post *B* is traversed longitudinally at a rate of speed dependent upon the pitch of the spiral groove cut in said cylinder.

We claim as our invention—

1. The within-described tool for effecting the application of a toothed strip to a grooved

cylinder, said tool consisting of a presser having a groove for the reception of the toothed strip, and opposite pressing-flanges constructed to bear upon the sides of the strip below the tips of the teeth of the same, all substantially as specified.

2. The within-described tool for applying toothed strips to grooved cylinders, said tool consisting of a rotating presser having flanges for bearing upon the opposite sides of the strip, all substantially as specified.

3. The within-described tool for applying toothed strips to grooved cylinders, said tool consisting of a rotating presser having a groove with flaring sides adapted to bear upon the flaring sides of the strip, all substantially as specified.

4. The within-described pressing-tool, consisting of a bar, a rotating presser, and sleeves forming bearings for the journals of said presser, said sleeves being adjustable in respect to the bar, all substantially as specified.

5. The within-described pressing-tool, consisting of a bar having a forked end, a pair of pressing-disks, and laterally-adjustable sleeves carried by the forked end of the bar and forming bearings for the spindles of said disks, all substantially as specified.

6. The within-described guide for directing a toothed strip to a grooved cylinder, on which it is to be wound, said guide consisting of a pair of rigid jaws, providing between them a passage which approximates closely to the normal thickness of the strip, all substantially as specified.

7. The within-described guide for the toothed strip, said guide consisting of a fixed jaw and a movable jaw, forming between them a passage for said strip, all substantially as specified.

8. The combination of the rotary presser for bearing upon the sides of a toothed strip and forcing the same into the groove of the cylinder, with a pair of jaws between which the strip passes before reaching the presser, all substantially as specified.

9. The combination of the lathe-post, the presser-bar carried thereby, and the guide-bar secured to the post and adjustable circumferentially thereon, all substantially as specified.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

FRANK HOUSER.
WM. H. CLARKSON.

Witnesses:

FRANK S. TAYLOR,
GEO. D. HOLT.