(No Model.)

W. S. HADAWAY, Jr.

ELECTRICALLY HEATED SMOOTHING SURFACE.

No. 567,976. Patented Sept. 22, 1896.

Fig. 3,

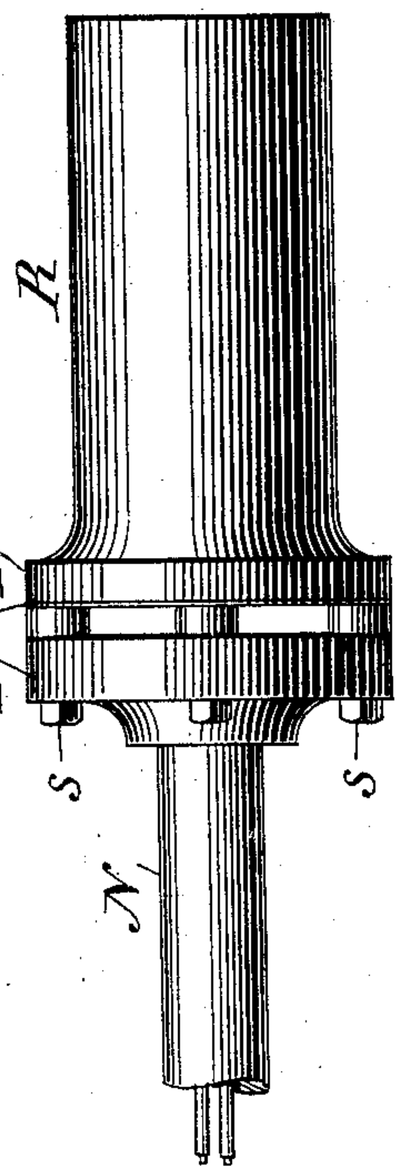


Fig. 1,

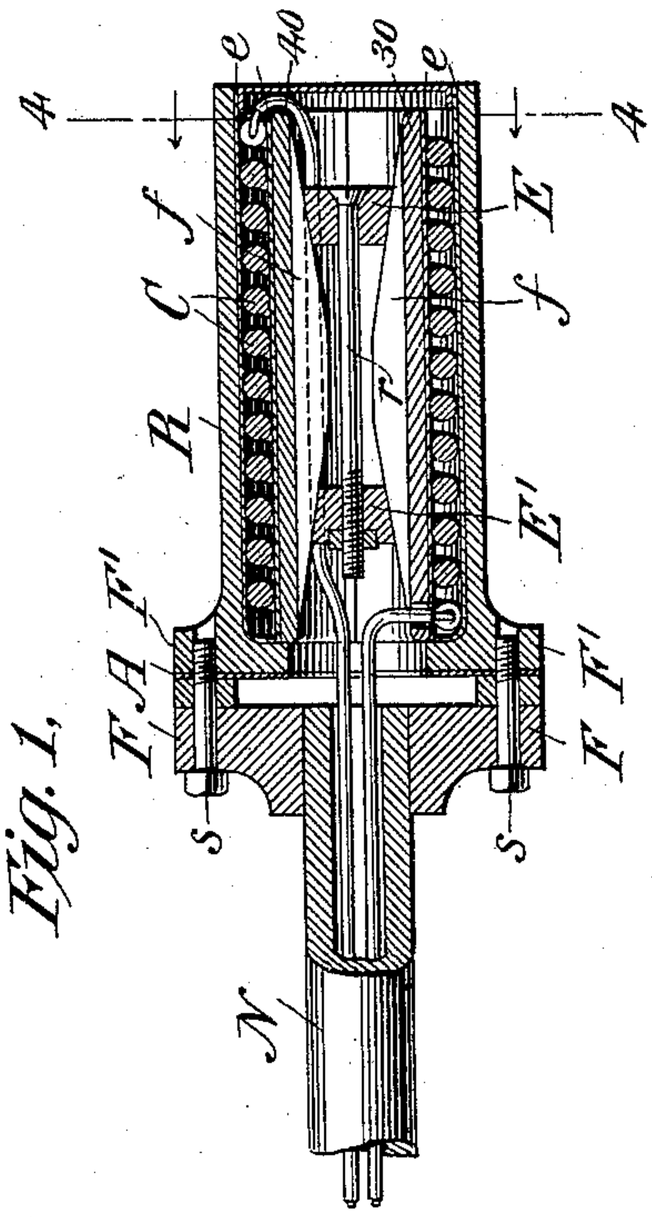


Fig. 2,

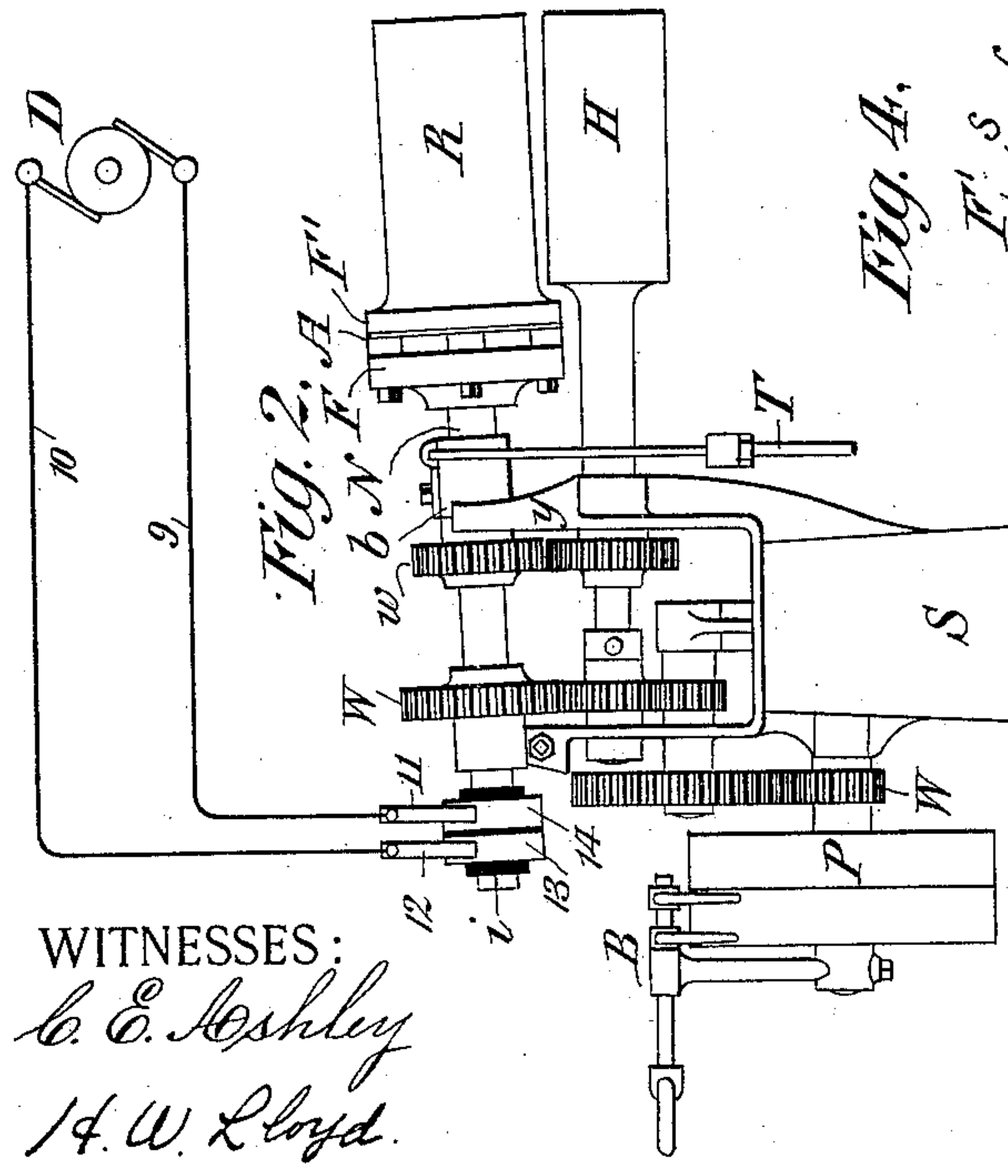
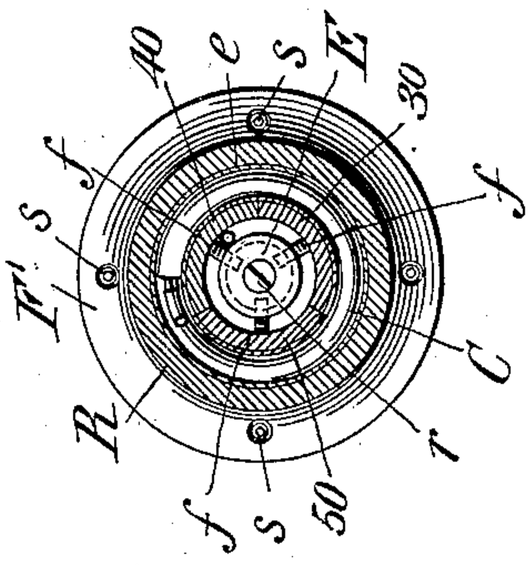


Fig. 4,



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WILLIAM S. HADAWAY, JR., OF NEW YORK, N. Y.

ELECTRICALLY-HEATED SMOOTHING-SURFACE.

SPECIFICATION forming part of Letters Patent No. 567,976, dated September 22, 1896.

Application filed March 24, 1896. Serial No. 584,617. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM S. HADAWAY, Jr., a citizen of the United States, and a resident of New York, in the county and State of New York, have made certain new and useful Improvements in Electrically-Heated Smoothing-Surfaces, of which the following is a specification.

My invention is an improvement in laundry-machines wherein one or more rotating heated cylinders are employed in coöperative relation to iron or smooth or polish wearing-apparel, such as collars and cuffs. These machines usually consist of two rollers, one or both power driven, having means for moving one roller to and from the other, as by a sliding bearing operated by foot-power and treadle. The heat of one roller has been maintained by employing a jet of gas led to the interior of the roller by a pipe. The heated smoothing-roller has been coupled to a driving-shaft by a flange-coupling, and it has been found necessary to place the box or bearing for the shaft near the end of the heated roller to give needed strength and rigidity while providing capacity for the movement of one roller to and from the other. A serious trouble arose at this point as the heat from the roller was transmitted to the bearing. Oil could not be satisfactorily employed and the bearings would become set or would bind by reason of the heat transmitted to them from the cylinder.

My invention consists in an improved arrangement of apparatus providing for electrically heating the smoothing roll or cylinder, and for preventing the transmission of heat from the heated roller to the bearing of the driving-shaft. I provide a smoothing or polishing surface which is preferably cylindrical and hollow. I prefer a tube-section of cast-iron with a thin wall. Within this I place a helical coil of bare steel wire, nickel wire, or tungsten-steel wire is preferred, and within this helical coil I place a sectional cylinder divided longitudinally. I prefer a three-part hollow cylinder, each part being of substantially equal dimensions and bearing upon the interior an axial fin, web, or rib, increasing in width from each end inwardly, so that the three ribs converge at or near the center. I place this sectional conductor, as a core, within the coil of wire, and I provide an expander, consisting of two disks of metal, the opposite flat surfaces of each being of different diameters. There is a hole at the center of each disk to receive a screw-threaded rod, and I place these disks in the sectional cylinder and draw them toward each other by turning the threaded rod. As they approach, they force the sections of the cylinder apart and expand it, while it in turn expands the helical coil of wire and clamps said coil between the outer surface of said core and the inner wall of the heating surface or cylinder. Both said surfaces are covered or coated with a vitreous enamel, as well known in the art of electric heating.

The accompanying drawings illustrate my invention.

Figure 1 is a longitudinal sectional view of my electrically-heated roller, showing the coil and the expander for adjustably and removably holding the coil in position. Fig. 2 is a view of the complete machine with the heated roller in position. Fig. 3 is an enlarged view of the heated roller and coupling, and Fig. 4 is a cross-section on the dotted line in Fig. 1.

R is a cast-iron smoothing-roller. It is hollow and its walls are comparatively thin. It has a flange F′ at one end to couple it with the flange F at the end of the driving-shaft N. Screws *s* and iron washers are used to unite the flanges across an air-space, and a disk A is included between the roller R and the flange F.

The bearing *b* slides in a frame *y* and is operated by the rod T, usually connected with a treadle. The bearing at the opposite end of the shaft is hinged, and toothed wheels W and *w* are provided for rotating the roller R and the coöperating roller H. The wheels and rollers are supported upon an iron standard S, and there is a driving-pulley P and a belt-shifter B of known construction. For the purpose of heating the smoothing-roller R, I place upon its interior a coil of steel wire C, preferably a helical coil of tungsten-steel or nickel-steel bare wire. The interior wall of roller R is coated with a vitreous enamel *e*. Inside the coil I place an iron or metal core, preferably divided longitudinally into three sections 30, 40, and 50, Fig. 4. On the

inner side of each section there is a fin or web *f*, gradually increasing in width from the ends of the section inwardly, so that the three converge toward the center. These fins are for use in connection with an expander consisting of two disks or sections E and E′. These sections are of greater diameter at one surface than at the other, as shown, and are centrally perforated. A threaded rod *r* passes through the disks E and E′ and engages a nut, so that as the rod *r* is turned the disks are drawn toward each other and toward the converging point of the fins *f*. It results from this that the sections are forced apart and outwardly, so that the divided core increases in circumference and the coil C is gripped and held between the exterior surface of the core, which is covered with a coating of vitreous enamel *e*, and the interior surface of the roller R. By this means the coil can be easily removed and replaced and expansion and contraction can be provided for. On the outer end of the shaft N are two collector-rings 13 and 14, the insulation *i* being employed to insulate them from each other and from the shaft N. Brushes 12 and 11 bear upon the rings 13 and 14, respectively, and the terminals 9 and 10, from a source of constant electromotive force D, are connected with the brushes 11 and 12, respectively.

In the operation of the machine the coil C maintains the roller R at any desired temperature and the heat of the roller R cannot be conducted to the bearing *b* to any harmful degree.

What I claim, and desire to secure by Letters Patent, is—

1. The combination of a heating, smoothing or polishing surface consisting of a hollow section of metal, a coil of wire included in an electric circuit, a sectional core within the wire coil, conforming to its interior outline and means for expanding said core, whereby the coil is removably clamped and held in contact with the interior of said smoothing-surface, substantially as described.

2. The combination in a machine for smoothing and polishing fabrics, of a rotating smoothing-surface of cylindrical exterior and hollow interior, a coil of wire included in an electric circuit, located upon the interior of said smoothing-surface; a hollow core divided into two or more sections upon axial lines, located within said coil, and an expander within said core whereby the coil may be clamped between the interior of the smoothing-surface and the exterior of said core, substantially as described.

3. The combination of a cylindrical smoothing surface or roller having a hollow interior, a helical coil of wire within said roller, a hollow cylindrical core of metal, in two or more sections, divided longitudinally within said coil, each section having an axial rib, all of said ribs converging toward the center of the cylinder, and one or more threaded disks for forcing the core-sections apart to expand the core and hold the coil, substantially as described.

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