

(No Model.)

H. L. HAPGOOD.
Sand Paper Roll.

No. 238,284.

Patented March 1, 1881.

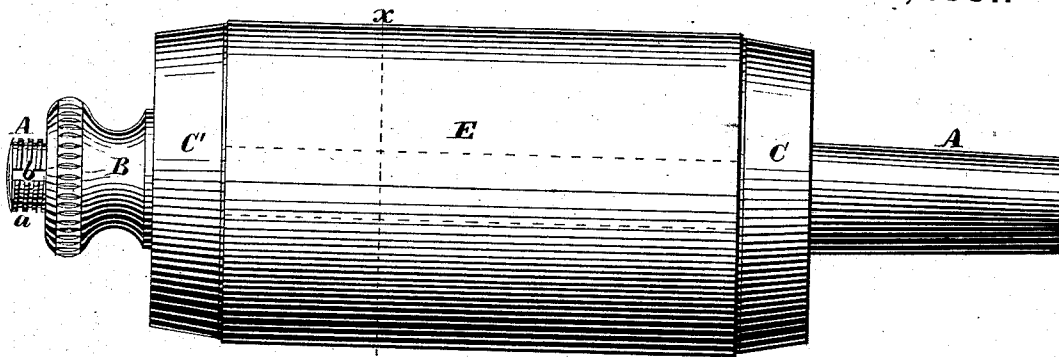


Fig. 1.

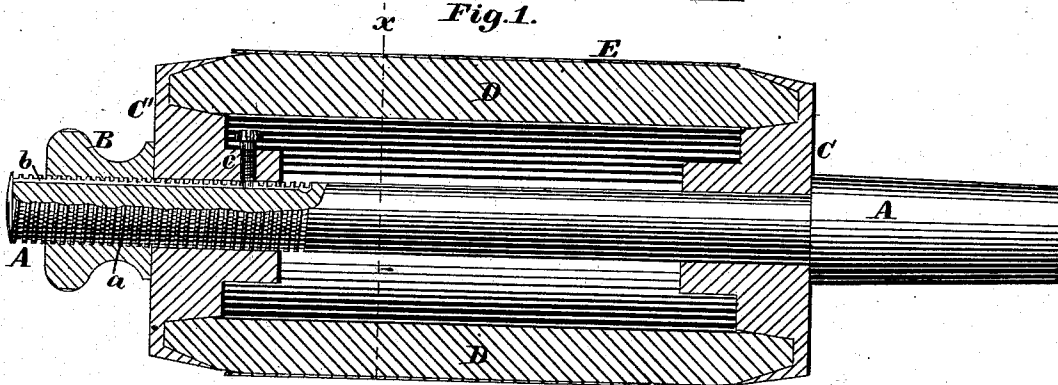


Fig. 4.

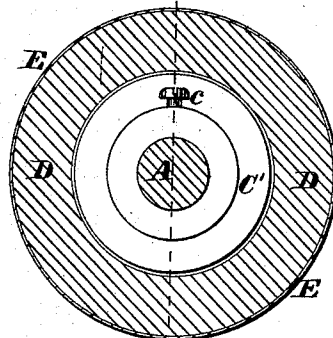


Fig. 2.

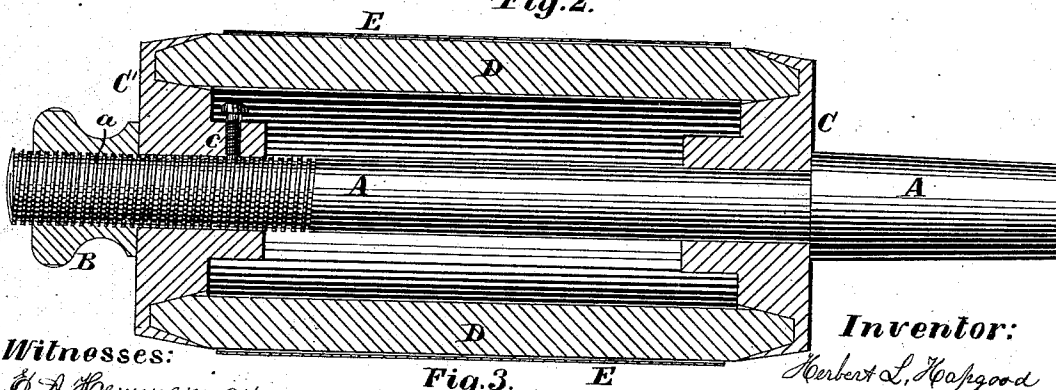


Fig. 3.

Witnesses:

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UNITED STATES PATENT OFFICE.

HERBERT L. HAPGOOD, OF ATHOL, MASSACHUSETTS.

SAND-PAPER ROLL.

SPECIFICATION forming part of Letters Patent No. 238,284, dated March 1, 1881.

Application filed January 10, 1881. (No model.)

To all whom it may concern:

Be it known that I, HERBERT L. HAPGOOD, of Athol, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Sand-Paper Rolls, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to the construction of rolls or cylinders which carry an envelope or covering of sand-paper or other thin flexible abrading material, and are used for buffing the soles of boots and shoes, for smoothing articles of wood, and for other purposes; and it consists, first, in the combination of a central shaft provided at one end with a male screw-thread and a nut, and a longitudinal groove cutting through or across said screw-threads, two collars or heads fitted to said shaft, one in a fixed position and the other movable endwise thereon, said collars being each provided with an annular groove in its inner face with inclined sides, a hollow cylinder or tube of rubber having its outer and inner surfaces for a short distance at each end beveled to fit said grooves in the collars or heads, and a key or pin set in the movable collar and engaging with the groove in the shaft, as will be described.

It further consists in the combination of a tube or hollow cylinder of rubber, a central shaft provided with a fixed collar and a movable collar of slightly less diameter than the inner diameter of the sand-paper cylinder, a means of adjusting said movable collar to compress said rubber cylinder endwise, and thus cause it to expand laterally, and a tube or cylinder of sand-paper, emery-cloth, or other thin flexible abrading material, all so arranged and constructed that the cylinder or tube of abrading material may be readily applied or removed without removing either collar.

It further consists in the combination of the tube or cylinder of rubber having its outer surface near each end made in the form of the frustum of a cone, two collars each provided with an annular groove in its inner face to receive the end of said rubber tube or cylinder and fit its conical surface, and each having its periphery made in the form of the frustum of a cone, with its largest end toward the rubber

tube, and of a diameter not greater than said rubber cylinder, a cylinder or tube of sand-paper or other abrading material surrounding said rubber cylinder, and means of adjusting said collars toward or from each other, whereby said abrading cylinder or tube is held firmly upon the rubber cylinder.

Figure 1 of the drawings is an elevation of a sand-paper roll embodying my invention. Fig. 2 is a transverse section on line *x x* on Figs. 1 and 4. Fig. 3 is a central longitudinal section of the same before the rubber cylinder is expanded laterally by being compressed longitudinally, and Fig. 4 is a similar section after the rubber cylinder has been so expanded.

A is the shaft upon which the sand-paper roll or cylinder is mounted, provided at one end with the male screw-thread *a*, upon which works the thumb-nut B, and also having formed there in the spline-groove *b*, extending longitudinally of said shaft, as shown.

C and C' are two collars, the outer peripheries of which are in the form of frustums of cones, and each has formed in its inner radial face an annular groove, the sides of which are inclined, as shown, the collar C being made fast to the shaft A, and the collar C' being so fitted thereto that it may be moved on said shaft toward or from the collar C by turning the thumb-nut B, said collar C' being prevented from revolving about said shaft with the nut by the screw *c*, the inner end of which fits into the groove *b*, as shown in Fig. 4.

D is a tube or hollow cylinder of rubber, the ends of which are beveled exteriorly and interiorly, so as to fit the annular grooves in the collars C and C', as shown in Figs. 3 and 4.

E is a tube or cylinder of sand-paper or other abrading material formed by cementing or gluing together two opposite edges of a sheet of sand-paper, substantially as described in a former patent granted to me September 9, 1873, and reissued June 16, 1874. By this construction of the rubber cylinder and the collars C and C' the abrading cylinder or tube can be removed and replaced without removing either of the collars, as was necessary in using the device covered by my former patent, above cited, it only being necessary to turn back the thumb-nut to a sufficient extent to allow the rubber cylinder to assume its natural shape,

when, both it and the collars C and C' being of somewhat less diameter than the interior of the sand-paper tube, it may readily be removed or applied.

5 What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination of the shaft A, provided with the screw-thread *a* and the spline-groove *b*, extending longitudinally thereof, the thumb-
10 nut B, a fixed collar, C, and a movable collar, C', each provided with an annular groove in its inner face, the screw *c*, set in the collar C' with its inner end in the groove *b*, and the tube or cylinder of rubber, D, having its ends shaped
15 to fit the annular grooves in the collars C and C', substantially as described.

2. The combination of a shaft, a tube or cylinder of rubber, two collars of a diameter not larger than the exterior diameter of the rubber
20 cylinder in its natural state, a tube or cylinder of sand-paper or other abrading material, having an interior diameter greater than

the diameter of the collars and the rubber cylinder in its natural state, and means of adjusting said collars toward each other, substantially as described.

3. The combination of the shaft A, two collars the peripheries of which are in the form of frustums of cones, and provided upon their inner faces with annular grooves the outer
30 wall of which is inclined, a tube or cylinder of rubber of a diameter equal to the greatest diameter of said collars and having its ends shaped to fit the grooves in said collars, a tube or cylinder of sand-paper or other abrading material, and the nut B, all constructed, arranged,
35 and adapted to operate substantially as and for the purposes described.

Executed at Athol, Massachusetts.

HERBERT L. HAPGOOD.

Witnesses:

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