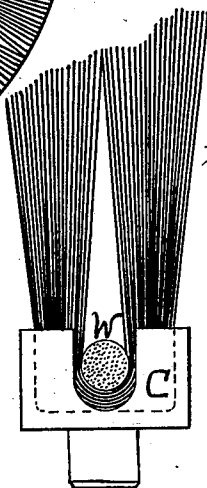
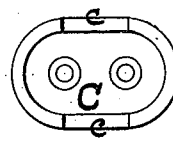
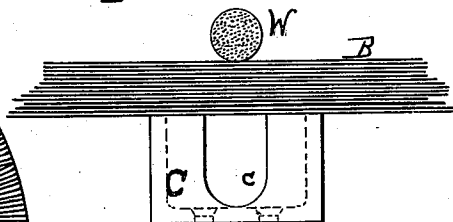
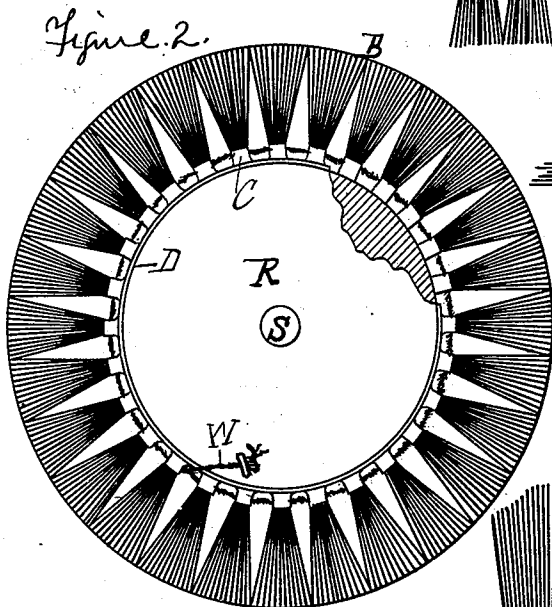
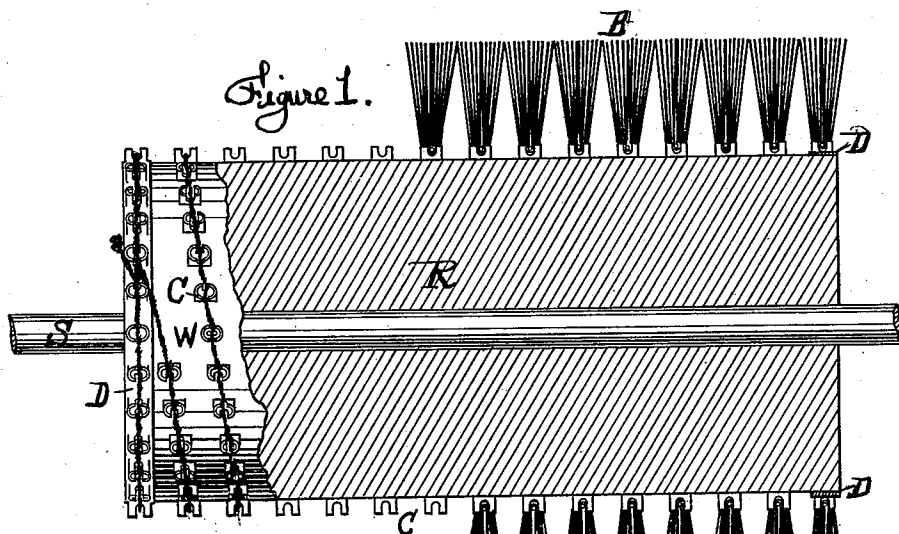


(No Model.)

C. J. CLEMENTS.
ROTARY BRUSH.

No. 549,106.

Patented Nov. 5, 1895.



Witnesses

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UNITED STATES PATENT OFFICE.

CHARLES J. CLEMENTS, OF NEW YORK, N. Y.

ROTARY BRUSH.

SPECIFICATION forming part of Letters Patent No. 549,106, dated November 5, 1895.

Application filed April 15, 1895. Serial No. 545,722. (No model.)

To all whom it may concern:

Be it known that I, CHARLES J. CLEMENTS, of New York city, in the county and State of New York, have invented a certain new and useful Improvement in Rotary Brooms or Brushes for Street-Sweeping and Like Uses, of which the following is a description, referring to the accompanying drawings, which form a part of this specification.

In street-cleaning and other uses in which the broom, reed, or other brush is subjected to severe wear against hard rough surfaces it is necessary to frequently renew the broom. In the rotary brooms used in street-sweepers it is customary to secure the broom, reed, or other brush in recesses or sockets in the cylindrical face of the revolving broom shaft or roller and to secure the "knots" of broom, reed, or other material in place by means of a rope drawn tightly around the cylindrical surface to hold the knots in place. As such street-sweeping brooms are subjected to mud, moisture, and all kinds of dirt, the wood about the broom quickly rots and weakens its grip upon the knots.

The purpose of my improvement is to produce a rotary sweeper-broom in which the knots of the broom, which are preferably made of "reed," which is the inside of rattan, may be readily renewed and the life of the roller indefinitely prolonged.

I mount metallic cups or sockets in spiral rows around the periphery of a wooden cylinder or roller from end to end, securing the metallic sockets in place by screws or other convenient fastening. The sockets are formed to receive the knots of basswood or other material and to permit a retaining-cord, preferably of small wire rope, to draw the knots firmly into the sockets. At each end of the collar an annular cap is fitted to the roller, and this cap is provided with similar sockets, cast or otherwise formed integrally with it. By this means the knots of the broom are distributed evenly over the surface of the roller in a spiral row; but at each end a circular end row of knots is provided. The annular cap or collars also serve to protect the ends of the broom cylinder or roller. The wire rope is permanently secured to one end of the roller and the knots are secured in

their sockets one at a time by confining them beneath the tightly-drawn wire rope, which is passed over the sockets successively from end to end of the roller and its free end removably secured. By this method of fastening it is only necessary to detach the end of the wire rope, and by unwinding it remove all the worn-out stumps of the knots, replacing them by new ones.

Such, briefly, is a description of my invention.

My preferred construction will be more readily understood from a description of the accompanying drawings, which illustrate it.

Figure 1 is a side elevation, partly in section, of a roller or cylinder provided with my improved means for securing the knots. Fig. 2 is an end view of the same. Fig. 3 is a detail face view of one of my sockets. Fig. 4 is a diagrammatic view illustrating the mode of placing the reeds or other material in a socket to form a knot or cluster, and Fig. 5 shows the knot in position in a socket with dowel-pin.

Throughout the figures like letters of reference indicate like parts.

At S is shown the steel shaft or axle, upon which the wooden drum, cylinder, or roller R is mounted. Upon the surface of this, in a spiral line, are secured the sockets or caps C, which I mount my knots. The form of these cups or sockets is clearly shown in Figs. 3 and 4. Each of these cups is formed of cast metal, preferably iron, with a curved socket-shaped channel, which approximately fits the bend or curve of the knot, as will be understood from an inspection of Fig. 5, in which the inner line is shown in dotted lines, though in practice I find it convenient to make this inner curve less angular than that indicated in the figure. The wall of the socket is cut away, as at c, to admit the confining-cord or wire rope W, by which the knots are held in place. The action of forming a knot is shown in Fig. 4. The reed, basswood, or other broom B is laid across the socket, as in Fig. 4, and the wire rope W drawn over it, forcing in down into the socket and doubling it up into the shape shown in Fig. 5, as will be understood by those familiar with this art. The sockets C are arranged around the curved

surface of the roller, and therefore when the cord or wire rope W is drawn taut through the sockets it confines the knots firmly in place, as in Fig. 2.

5 The arrangement of the sockets upon the cylindrical surface of the roller is shown in Fig. 1. The sockets are set in a spiral line two or three inches apart and are screwed or otherwise secured to the roller. Preferably
10 the sockets are so spaced that in adjacent rows they are not opposite each other. In other words, they are staggered or break joints with each other.

The iron collars or annular caps which surround each end of the roller are shown at D. These are provided with socket-shaped projections resembling and corresponding in position with the sockets C, with the exception that they are arranged in an annular line
20 instead of in a spiral line around the roller.

The wire rope W is secured to one head of the roller, and the knots are formed successively in each of the sockets in turn, first around the collar or cap at that end and then
25 around the spirally-set sockets to the other end of the roller, where the rope is drawn into the sockets upon the collar D at that end, and finally fastened. When the broom is worn out, it is only necessary to unfasten this end,
30 unwind the rope, ripping it out of its sockets, and readily removing the stumps or remaining portions of the knots of the broom.

It will now be seen that when the broom is in use the cord or wire rope W passes from
35 socket to socket without touching the surface of the roller, as shown in Fig. 2, and in this way the rotting of the roller and of the cord, where hemp is used, is largely prevented. In addition to this the rope extending clear of the cylindrical surface from socket to socket
40 exerts all its radial or confining force in holding the knots in place instead of uselessly pressing against the surface of the roller.

In the foregoing I have set forth one preferred form of my invention at length. Obviously a great many modifications may be made in minor details without departing from the principles involved, and I have purposely omitted the enumeration of many such
50 modifications that have occurred to me, because to set these forth at length would ob-

scure rather than make clear the more salient features of the invention; however,

I claim and desire to secure by these Letters Patent of the United States, with all
55 such modifications as may be made without departing from the principles involved and with such limitations as are expressed or by law implied in view of the related art, the following:

1. In combination in a rotary broom, a roller or support, a series of separable knot or bunch sockets mounted upon the surface of the said roller, the knots or bunches of broom, reed, or other material, in the said
60 sockets or cups, and the confining cord or rope W extending spirally around the said roller from socket to socket, substantially as set forth.

2. In combination in a rotary broom, the roller provided with the metallic sockets or cups for the knots or bunches of broom, reed, or other material, the end collars or caps D provided with sockets or cups, and fitted over the end of the said roller, and the rope W
75 securing the said knots in place in the said sockets, substantially as set forth.

3. As an improvement in street sweepers, and like purposes, and in combination with a roller or support, the protecting ring or collar provided with projecting cups or sockets for receiving the knots or bunches of broom, reed, or other material, the said cups or sockets having the transverse recesses or channels
80 c in their walls, substantially as set forth.

4. In combination with the roller or other curved surface provided with projecting sockets or cups, the confining cord or rope W extending over or through the said sockets or cups clear of the said curved surface
90 whereby the broom or other material may be confined in the said sockets by the said cord or rope without contact between the rope and the said surface, substantially as set forth.

In testimony whereof I have hereunto set
95 my hand, at the city of New York, this 13th day of April, A. D. 1895.

CHAS. J. CLEMENTS.

Witnesses:

HAROLD BINNEY,

GEO. H. SONNEBORN.