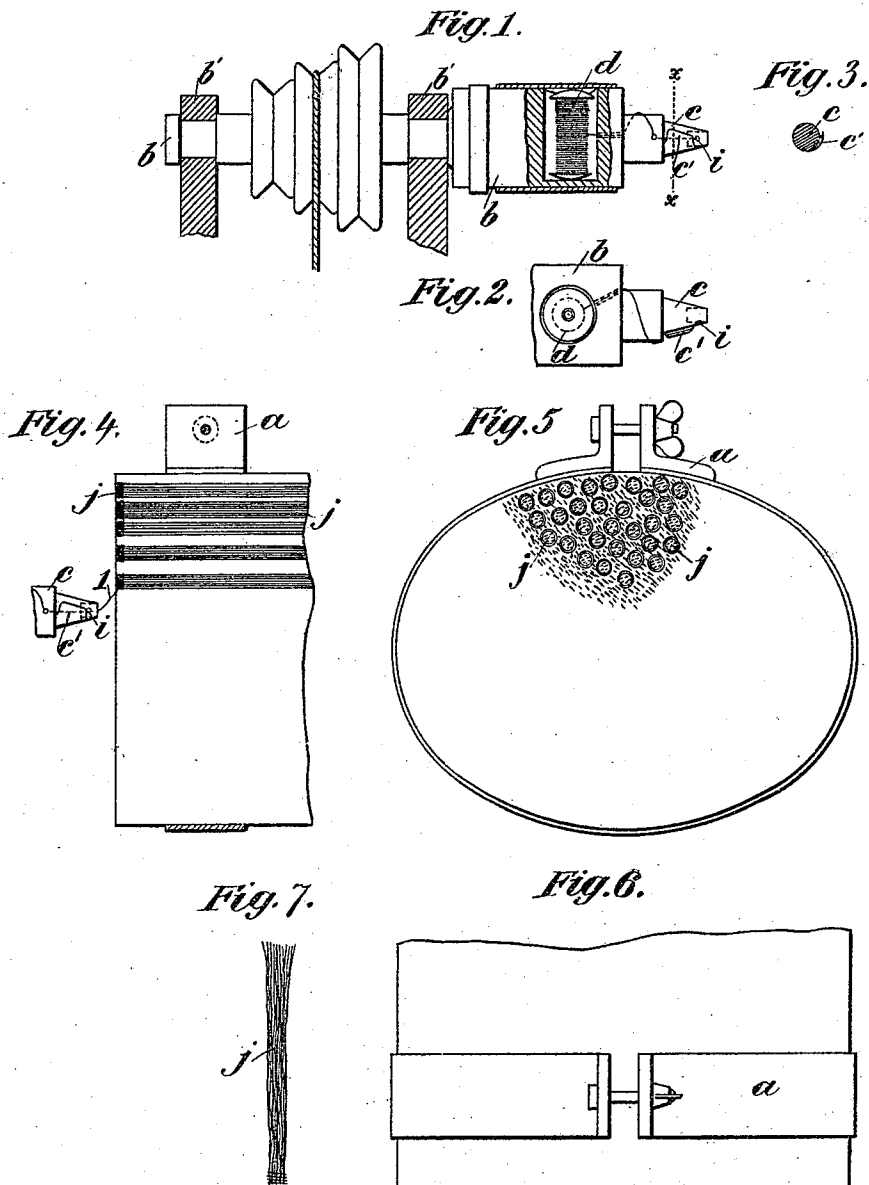


(No Model.)

J. T. C. STECH.
MANUFACTURE OF BROOMS, BRUSHES, &c.

No. 501,219.

Patented July 11, 1893.



Witnesses:-
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MANUFACTURE OF BROOMS, BRUSHES, &c.

SPECIFICATION forming part of Letters Patent No. 501,219, dated July 11, 1893.

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To all whom it may concern:

Be it known that I, JOHANN THOMAS CARL STECH, of Lübeck, in the German Empire, have invented a new and useful Improvement in the Manufacture of Brooms, Brushes, and the Like, of which the following is a specification.

This invention consists first in the improved method hereinafter described and claimed of mechanically bunching and binding fibers or fibrous materials for the manufacturing of brooms, brushes and the like; and it consists secondly in the apparatus hereinafter described and claimed for carrying out such method of bunching and binding.

The improved method consists in taking a very large number of the fibers and pressing them together into a bundle by a band or holder with their ends even and then bringing their ends endwise against a rapidly rotating tubular tool formed with a sharpened edge or annular rim so that the latter penetrates the bundle of fibers and surrounds the ends of a few therein, while the end of a thread or a cord drawn from a reel rotating with the tool rapidly winds around the fibers inclosed and held within the tube and binds them in a small bunch. If then the whole bundle of fibers is withdrawn and then moved a little sidewise, and again pushed on the end of the tube so that the latter incloses another group of the fibers to form a new bunch, the edge of the tube will sever the cord from that wound about the first bunch and then proceed to wind it around the new group to bind them into a new bunch and to be again cut off by sidewise moving of the bundle and so on till one after another all the fibers in the bundle are brought against the binder. The surrounding band or holder is then loosened when the whole of the fibers in the bundle will be found to be grouped in a number of small bound bunches with only a few interposed loose fibers which are collected and added to the next filling of the holder.

The invention is illustrated by the annexed drawings, in which—

Figure 1 shows a side view of the apparatus used for the aforesaid purpose, partly in section; Fig. 2 a side view of the tubular end of

the tool at right angles to Fig. 1; Fig. 3 a transverse section of the said tool in the line xx of Fig. 1. Figs. 4, 5, 6 show respectively side and front views and a ground plan of a bunch of such fibers compressed within a holding band, some being bound; and Fig. 7 a single small completed bunch.

a designates the band or holder containing a bundle of fibers.

b is a rapidly rotating spindle supported in bearings b' and having a tubular end c sharpened on its edge, this tube having its interior diameter corresponding to the thickness of the desired bunches j into which the bundle is to be divided.

d is a bobbin placed to rotate in the interior of the spindle. The end of the cord or thread wound around this bobbin is first passed outward and then through a hole i arranged near the point of the tube piece c into the side of the interior cavity thereof.

c' is a lapping spring for tensioning the cord. If now a bunch of fibers be brought endwise against the end of the tube c , it is evident that the cord must wind itself thereon in consequence of the rotating motion of the spindle around those fibers the ends of which have entered the end of the tube c . When this bunch is withdrawn out of the tube with the rest of the fibers in the bundle and moved sidewise, the cord end 1 (as to be seen in Fig. 4) is cut off by the sharp edge of the tube when brought against it, while another group of fibers enters the tube to be bound by the cord. This process is repeated until the whole bundle of fibers is transformed into a number of small bunches by pressing the bundle again and again always with slight displacement on the end of the tube. After this is done the compressing band a is opened and the different bunches are separated from the few remaining loose fibers, which latter are collected to be formed into another bundle. The ends of the binding cords of the several bunches are fastened either by means of an adhesive substance or by tucking them in between the bristles or fibers of their respective bunches after the opening of the bundle.

What I claim as my invention is—

1. The improved method of bunching and

binding fibers consisting in temporarily binding together a quantity of such fibers in a bundle, then while so bound, collecting separate portions of the fiber successively into
5 single groups and binding said separate groups into bunches within the bundle, substantially as herein set forth.

2. An improved apparatus for bunching and binding fibers consisting in the combi-

nation of a spindle *b* having a sharp edged to tubular end *c* and a hole *i* in its side and a bobbin *d* arranged to rotate in said spindle, substantially as herein set forth.

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