J. EARNSHAW.

Brushes.

No. 165,719. Patented July 20, 1875.

Fig 1.

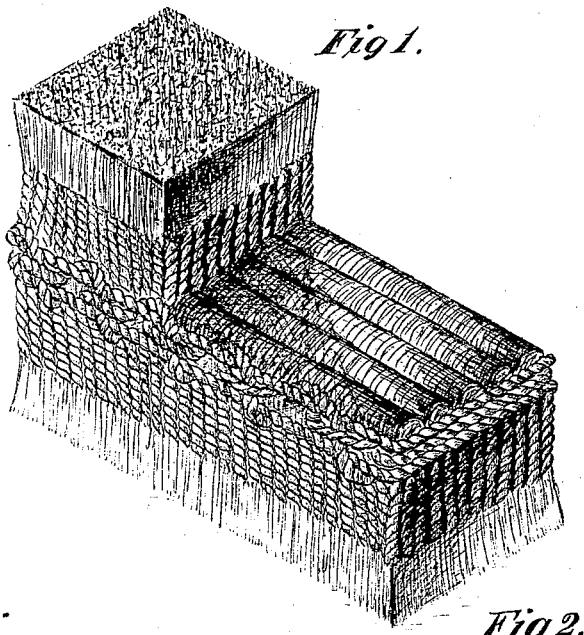

Fig 3.

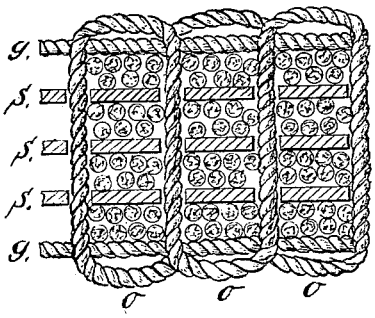


Fig 2.

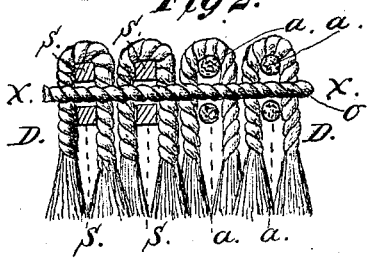


Fig 4.

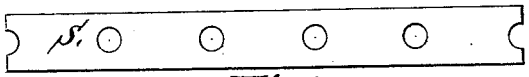


Fig 5.


Witnesses:

Benj Arnold

Frank H Arnold

Inventor:

John Earnshaw

# UNITED STATES PATENT OFFICE.

JOHN EARNSHAW, OF EAST GREENWICH, RHODE ISLAND.

## IMPROVEMENT IN BRUSHES.

Specification forming part of Letters Patent No. **165,719**, dated July 20, 1875; application filed September 4, 1874.

*To all whom it may concern:*

Be it known that I, JOHN EARNSHAW, of East Greenwich, Kent county, State of Rhode Island, have invented an Improved Mode of Making Brushes, of which the following is a specification:

The object of my invention is to form a brush from fibrous material, which shall in its mode of construction have great strength and be either flexible or stiff-backed. In carrying out my invention the bunches of fibers forming the brush itself are held together by means of strands of the same fiber or other flexible material, which are passed across the top of the brush, between and through the bunches forming the brush proper; and, by means of a binding around the outside of the back of the brush, through which transverse strands of fiber are passed, the whole fabric is firmly and securely held together. This forms a brush with a flexible back, but in some cases I propose to stiffen the same by interweaving into the back thin strips of wood.

Figure 1 shows a brush in perspective made of both straight and looped bunches of fibers. Fig. 2 shows a cross-section of the brush part stiff and part flexible. Fig. 3 is a horizontal section taken through in the direction of the line *x x*, Fig. 2. Fig. 4 shows one of the strips of wood used in the stiff brushes. Fig. 5 is the binding around the brush made of strands.

D represents the bunches of fibrous material that forms the base or foundation of the brush and the brush itself. These bunches are looped over the longitudinal strands *a a* of same fiber, and both are held together by means of the strands of fiber *o o*, or other flexible material, which are passed transversely across and back between the bunches D, and through the bindings *g* around the outside. This forms a flexible brush.

In some cases a stiff-backed brush is desirable, and for the purpose of so stiffening the back of the brush I insert therein longitudinally the thin strips of wood S S, which may have holes punched in them for permitting the strands *o o* to be passed through. In this case the longitudinal strands of fiber *a a* may be omitted or not, as preferred.

In case a brush with a double face on any part of it is desired, it is readily so made by passing the bunches of fiber D through and above the brush, the mode of fastening and binding not being altered. The binding *g* may be made of a braid of the same fiber, or it may be constructed, as shown in Fig. 5, of two strands wound around the outside, and held together by the strand *h*, over which the strands *o o* pass.

The longitudinal strips of wood, inserted in the brush for stiffening its back, may be notched or left straight, so that the strands *o o* may pass over or under them, but I prefer passing them through the perforations as previously described.

The machine used in the manufacture of these brushes and the process of making the same will be made the subject of a future application for a patent.

I claim as new and as my invention—

1. A brush composed of fibrous material, the layers or bunches D of which are looped over longitudinal strands *a a* of same fiber, and are held together by the stitches or strands *o o* passed transversely through the bunches of fiber D, as shown plainly in Fig. 1, all substantially as and for the purposes as herein shown and described.

2. The back of a brush composed of fibrous material, constructed as described, stiffened by interweaving into the same a series of strips of wood, S S, substantially as herein shown and described.

3. The brush, composed of fibrous materials and constructed as described, having the bindings *g* of the same fibrous material, substantially as herein shown and described.

JOHN EARNSHAW.

Witnesses:

EDWARD STANHOPE,

BENJAMIN ARNOLD.