

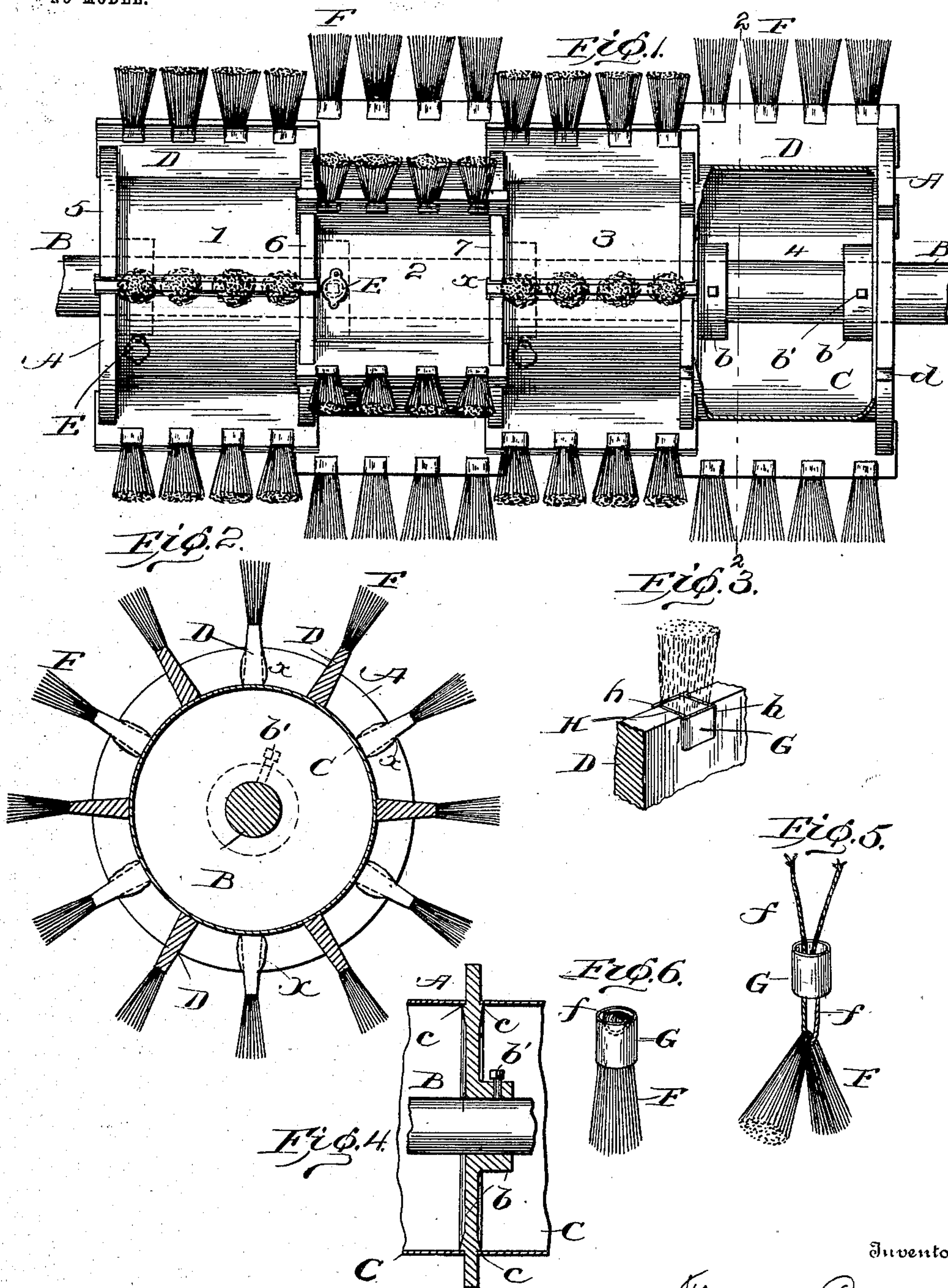
No. 732,999.

PATENTED JULY 7, 1903.

T. BRANTLEY.
COTTON GIN BRUSH.

APPLICATION FILED OCT. 17, 1902.

NO MODEL.



Witnesses
A. M. Perkins.
M. M. O'Connor.

By

Thomas Brantley
Baldwin, Davison & Light
his Attorneys

UNITED STATES PATENT OFFICE.

THOMAS BRANTLEY, OF ALBANY, GEORGIA.

COTTON-GIN BRUSH.

SPECIFICATION forming part of Letters Patent No. 732,999, dated July 7, 1903.

Application filed October 17, 1902. Serial No. 127,649. (No model.)

To all whom it may concern:

Be it known that I, THOMAS BRANTLEY, a citizen of the United States, residing at Albany, in the county of Dougherty and State of Georgia, have invented certain new and useful Improvements in Brushes for Cotton-Gins, of which the following is a specification.

My invention relates particularly to rotary brushes of the kind employed in cotton-gins to clear the saws. Some parts of my invention, however, are applicable to brushes of other kinds and used for other purposes.

In illustrating and describing my improvements I have shown in the drawings and will describe in this specification my invention as embodied in a brush especially intended for use in a cotton-gin.

Ordinarily the frames of the brushes of cotton-gins are made of wood, consisting of disks secured to a driving-shaft and carrying longitudinal wooden bars, to which the tufts of bristles are attached. Each of these bars extends from end to end of the brush-frame, and a series of tufts of bristles is attached to each bar by a single cord in such manner that if the cord is cut or broken at any point the whole series of tufts is loosened. If one of the tufts becomes worn or cut and it is necessary to remove it and replace it by another, the bar to which this tuft is attached must be removed, and it is necessary to loosen the entire series of tufts on the bar. When the tuft-carrying bars extend the entire length of the frame, all of the tufts in a row from end to end of the frame are in contact at the same time with the saws, thus producing a heavy draft, requiring great power to operate the brush.

According to my invention I construct the brush-frame of a series of disks, which I secure to a central driving-shaft, and I connect the disks by comparatively short brush-bars, the bars of one section of the frame between two adjacent disks being out of line with the bars of the next adjacent section, by which arrangement only a portion of the tufts are brought into contact with the saws at any one time, thus producing a much lighter draft than that incident to the old construction.

I have observed that in the old style of gin-brush, where the frame is made of wood and

where the brush-bars are secured to the end disks or heads comparatively loosely, there is considerable vibration and a springing or bowing of the driving-shaft. To remedy this, I securely fasten the disks or heads of the skeleton frame to the shaft and attach the brush-bars to the disks in such manner as to produce a longitudinal tension on the frame, holding the outer edges of the disks firmly and rigidly, and thus not only prevent their vibration, but also the springing or bowing of the shaft.

Instead of attaching a series of tufts of bristles to a brush-bar by a single cord I secure each tuft independently thereto in such manner that while being held firmly when in use it may be readily removed and replaced without disturbing the other tufts and without removing the bar from the frame. I do not, however, herein claim the improved way of securing tufts to the brush bars or frames, as such subject-matter is claimed in my Patent No. 723,579, March 24, 1903.

In the accompanying drawings, Figure 1 is a plan view of a gin-brush, constructed in accordance with my invention, with part of the casing in one section broken away. Fig. 2 shows a transverse section on the line 2 2 of Fig. 1. Fig. 3 is a detail view in perspective of a part of a brush-bar with one of the tufts secured thereto. Fig. 4 is a detail view, in longitudinal section, of a part of the brush-frame. Fig. 5 is a diagram illustrating the manner of constructing a tuft. Fig. 6 is a perspective view of a tuft nearly completed.

The disks A are arranged equal distances apart on a central shaft B. Each disk is formed with a hub *b*, carrying a set-screw *b'*, which engages the shaft B, and between each pair of disks is arranged a cylindrical sheet-metal casing or shield C, the edges of which rest on flanges *c* on the disks, as indicated in Fig. 4. I have shown in Fig. 1 five such disks. The two outer disks are of course provided with only one flange *c*, while the three inner disks are provided with flanges *c* on each side. The disks are formed on their peripheries with notches or recesses *d*, preferably dovetailed or undercut, as shown, to receive the brush-bars D. The disks, as well as the bars, are of metal, and the notches are so ar-

ranged that the bars on one section of the frame shall be out of line with those on the next adjacent section. The bars are inserted endwise into the proper notches of two adjacent disks and are upset or headed, as indicated at x , in such manner as to hold the disks parallel and to prevent any endwise movement of the bars.

In the drawings I have shown the frame divided into four sections, (numbered 1, 2, 3, and 4.) The bars in section No. 1 being upset or headed at their outer ends tend to draw the disks 5 and 6 toward each other and bind them tightly against the intervening casing or shield C. The bars of section No. 2 tend in like manner to draw the disks 6 and 7 toward each other and bind them against the casing intervening between them. The remaining disks are held together in a similar way, the total effect being to bind all the disks firmly together and clamp the casings securely between them. By this arrangement a longitudinal tension is produced on the peripheries of the disks that prevents them from vibrating, holds them in alinement, and prevents sagging or bowing on the shaft. The inner ends of the notches or recesses d are just outside the flanges c , so that when the bars D are inserted they bear against the casings or shields C and hold them securely on the flanges. In order that the set-screws b' may be conveniently tightened or loosened, I provide openings in the casings closed by doors E of any suitable construction, through which a socket-wrench may be inserted.

In constructing the tufts for the brushes I proceed as follows: I first take a tuft F of suitable bristles and pass a cord f around it in the manner illustrated in Fig. 5. I then dip the ferrule G in a suitable glue or cement, pass the cord through the ferrule, as indicated in Fig. 5, and draw the tuft well up into the ferrule. I then clip the cord close to the upper edge of the ferrule, as illustrated in Fig. 6, and then apply a suitable glue or cement until all space around the bristles and at the upper end of the ferrule is completely filled. The glue or cement which I employ is such that it will not become brittle when cold or dry, but will be somewhat yielding or elastic, permitting the ferrule to be bent or have its shape changed in the manner hereinafter described. It will be observed that I do not entirely remove the cord which is used to draw the tuft into the ferrule. If the cord were removed, the glue or cement might not penetrate the bristles sufficiently to firmly attach the inner bristles; but by leaving the cord in the tuft, as illustrated in Fig. 6, all the bristles will be securely held in the ferrule.

Each brush-bar is formed with a series of notches or recesses H, which are preferably dovetailed or undercut. A ferrule carrying a tuft is inserted in each of these notches and is bent or compressed by suitable tools until it takes the form of the notch and over-

laps the side edges thereof, as indicated at h in Fig. 3. By this arrangement each tuft is securely attached to a bar, being held firmly against strains due to centrifugal force or to the resistance produced by the gin-saws. If one of the tufts becomes unduly worn or cut, it may be removed and replaced without disturbing any of the other tufts by the use of a suitable tool which may be employed to crush or distort the ferrule until it is so loose in its notch that it may be readily removed therefrom. The cement which I employ may of course in time become hard and brittle; but this is immaterial, because when it is desired to remove a worn-out tuft there is no objection to having the glue or cement crumble; but the cement remains elastic long enough after the tuft is made to permit the tufts to be assembled and attached to the brush-bars.

It is obvious that some of my improvements are not confined to cotton-gin brushes. They are applicable to rotary brushes of various forms and for various uses, and the manner of constructing and applying the bristles may be used in brushes of nearly all kinds.

Instead of employing bristles to form the tufts I may use other suitable material. So far as part of my invention is concerned it is immaterial how the tufts are attached to the brush-bars. I prefer, however, to attach the tufts individually to the bars by means of ferrules; but so far as the general construction of the brush is concerned the tufts may be applied in any suitable way, or if the tufts are applied individually the string and the cement may be omitted in some cases, as the compression of the ferrule into the notch may attach the tufts securely to the brush-bar.

I claim as my invention—

1. A rotary brush, comprising a shaft, a series of disks attached thereto, sheet-metal casings or shields arranged between the disks, brush-bars connecting a disk with an adjacent disk on one side, brush-bars out of line with said first-mentioned bars, connecting said first-mentioned disk with another disk on its opposite side, and brushes carried by the brush-bars.

2. A rotary brush, comprising a shaft, metallic disks secured thereto, metal brush-bars connected with the disks, and having their ends upset to put the disks under tension and to hold them against vibration, and brushes carried by the brush-bars.

3. A rotary brush comprising a shaft, a series of disks carried by the shaft and having side flanges and notches or recesses outside the flanges, casings or shields arranged on the flanges, brush-bars arranged in the notches or recesses and connecting the disks, the bars which connect two adjacent disks being out of line with those connecting the next pair of disks, and brushes carried by the brush-bars.

4. A rotary brush comprising a shaft, a series of disks carried by the shaft and having

side flanges, and notches or recesses outside
the flanges, casings or shields arranged be-
tween the disks and resting on the flanges,
brush-bars arranged in the notches or re-
cesses, and connecting the disks, said bars
5 each extending only part way across the
brush-frame and being out of line with each
other, as described, the ends of each bar be-

ing upset or headed for the purpose specified,
and brushes carried by the brush-bars. 10

In testimony whereof I have hereunto sub-
scribed my name.

THOMAS BRANTLEY.

Witnesses:

W. D. NANCE,
J. P. ROYAL.