

(No Model.)

W. E. ELAM & R. S. THOMAS.
COTTON GIN BRUSH.

No. 493,691.

Patented Mar. 21, 1893.

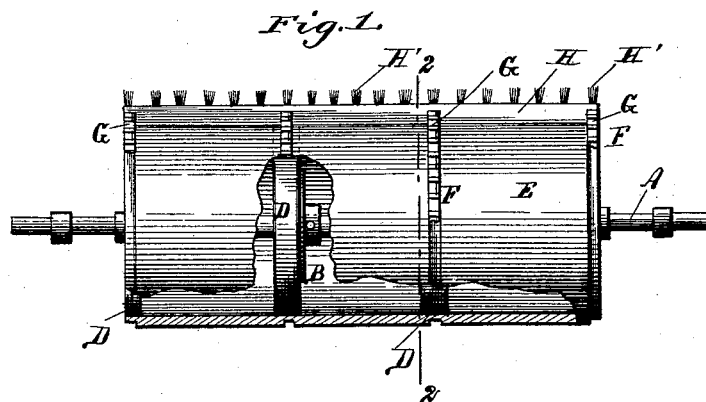


Fig. 2.

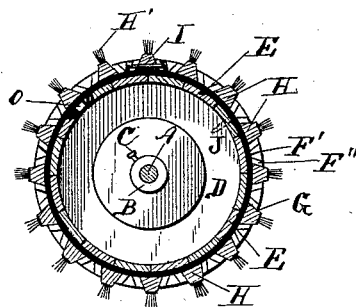
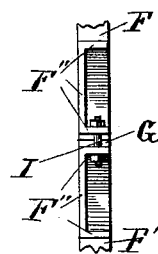


Fig. 3.



Witnesses:

Harry B. Polk.
H. B. Polk

Inventors:

W. E. Elam.
R. S. Thomas.

By W. H. Lamar,
Attorney.

UNITED STATES PATENT OFFICE.

WILLIAM E. ELAM AND ROBERT S. THOMAS, OF DALLAS, TEXAS.

COTTON-GIN BRUSH.

SPECIFICATION forming part of Letters Patent No. 493,691, dated March 21, 1893.

Application filed September 5, 1892. Serial No. 445,069. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM E. ELAM and ROBERT S. THOMAS, citizens of the United States, residing at Dallas, in the county of Dallas and State of Texas, have invented certain new and useful Improvements in Cotton-Gin Brushes; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

A gin brush is run at a high speed and as its diameter is necessarily large, centrifugal force exerts a great strain tending to dismember it, and further, if it be not at all times accurately balanced there is a tendency to spring the shaft and cause rattling in the bearings which results in rapid wear and failure to work well.

The object of this invention is to produce a light brush that shall be strong, balanced and durable as well as inexpensive and readily renovated when worn. These objects are attained by fixing upon a light shaft a wholly closed, iron hooped, wooden drum provided with readily removable brush sticks held in dove-tail slots in the iron hoops and resting closely against the smooth surface of the drum in such manner that there is no place, either within or without the drum, for the lodgment of extraneous matters that might throw the brush, as a whole, out of balance.

In the accompanying drawings, Figure 1 is a side view of the drum with parts broken away and with most of the brush sticks removed. Fig. 2 is a section upon the line 2—2, Fig. 1. Fig. 3 shows the part of one of the hoops, looking toward the axis of the brush.

In the figures, A is the brush shaft, and B, B are flanged collars secured thereto by set screws C and rigidly fastened, respectively, to circular wooden plates D, the outer plates being intended to form the ends of the drum and the intermediate ones internal supports for the drum walls. Upon these plates staves E are placed and secured to each plate and to each other by nails and glue. The closed drum thus formed is turned in a lathe to insure symmetry, and is also turned down, at each end and over the middle of the intermediate plates, to receive iron hoops that further

strengthen it and serve other ends, as will appear. The hoops F are of malleable iron and those intended for the ends of the drum are endless bands, while the others are divided so that they may be opened and passed over the cylinder to the grooves provided for them. The body F' of each hoop is equal in thickness to the depth of the groove or depression turned in the drum to receive it, and each is provided with flanges F'' arranged to form a series of dove-tail grooves G, in which accurately fit brush sticks H, or sticks equal in length to the drum and bearing at proper intervals brush tufts H'. The hoops are all placed in position and so turned that the grooves register with each other. The ends of the divided hoops are then drawn together by means of bolts I passing through adjacent flanges on the hoops. All the hoops are fastened in position by means of screws J that pass through the hoop, through the stave E and on into the wooden plates D. The sticks are then forced into place end-wise, filling all the dove-tail grooves, and forming a series of which each rests snugly against the outer face of the drum and is parallel to the drum's axis. The bolts I in the divided hoops are temporarily removed for the insertion of the stick intended for the groove which the bolts cross, and the bolts are then replaced, suitable holes for the bolts having been bored through the stick. The bolts cause the intermediate hoops to bind the drum firmly, and the end hoops are driven on with some force, so that when completed the drum has all the strength and rigidity of an iron hooped cask and evidently the internal shaft cannot spring even though it be unusually light. Nor is there the least danger of injury though the drum be run at the highest speed that is ever practically desirable. It is plain, too, that there is nowhere any place for the lodgment of matter that might throw the drum out of balance.

When by long use the brush tufts become worn, as must inevitably be the case, the sticks may be readily removed and the brush be repaired at a trifling cost. When the journals become worn, the old shaft can be taken out and the new shaft be inserted, holes being left in the drum to permit access to the set screws. These holes are covered by one

of the brush sticks so that nothing can enter the drum, and this stick is removed when access to the set screws is desired.

What we claim is—

- 5 1. The combination with a brush shaft and an entirely closed hollow wooden drum secured thereto, of metal hoops encircling said drum and sunk in its surface until flush therewith, and a series of brush sticks fitting against
10 said surface and removably secured to said hoops.
2. The combination with the wooden drum, of the metal hoops sunk in its surface and provided with a series of projecting flanges
15 forming a series of dove-tail slots, and brush sticks fitting in said slots, substantially as set forth.
3. The combination with the shaft, of the hollow wooden drum having end closing plates
20 and intermediate plates supporting the drum walls, means for fixing the drum to said shaft, metal hoops encircling the drum, and brush

sticks fitting against the outer face of the drum and removably secured to said hoops.

4. In a gin brush, the combination with the drum, of the divided hoop having the external
25 flanges adapted to receive brush sticks, and the belt passing through said flanges and clamping the hoop upon the drum, substantially as and for the purpose set forth.

5. The combination with a shaft, of a normally closed, hollow, brush-bearing drum secured to the shaft by devices located within the drum, apertures for permitting access to said
30 devices, and closures normally stopping said apertures.

In testimony whereof we affix our signatures in presence of two witnesses.

W. E. ELAM.
R. S. THOMAS.

Witnesses:

S. H. MCBRIDE,
BEN H. BROOKS.

Correction in Letters Patent No. 493,691.

It is hereby certified that in Letters Patent, No. 493,691, granted March 21, 1893, upon the application of William E. Elam and Robert S. Thomas, of Dallas, Texas, for an improvement in "Cotton-Gin Brushes," an error appears in the printed specification requiring the following correction, viz.: In line 28, page 2, the word "belt" should read *bolt*; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 11th day of April, A. D. 1893.

[SEAL.]

CYRUS BUSSEY,
Assistant Secretary of the Interior.

Countersigned:

N. L. FROTHINGHAM,
Acting Commissioner of Patents.