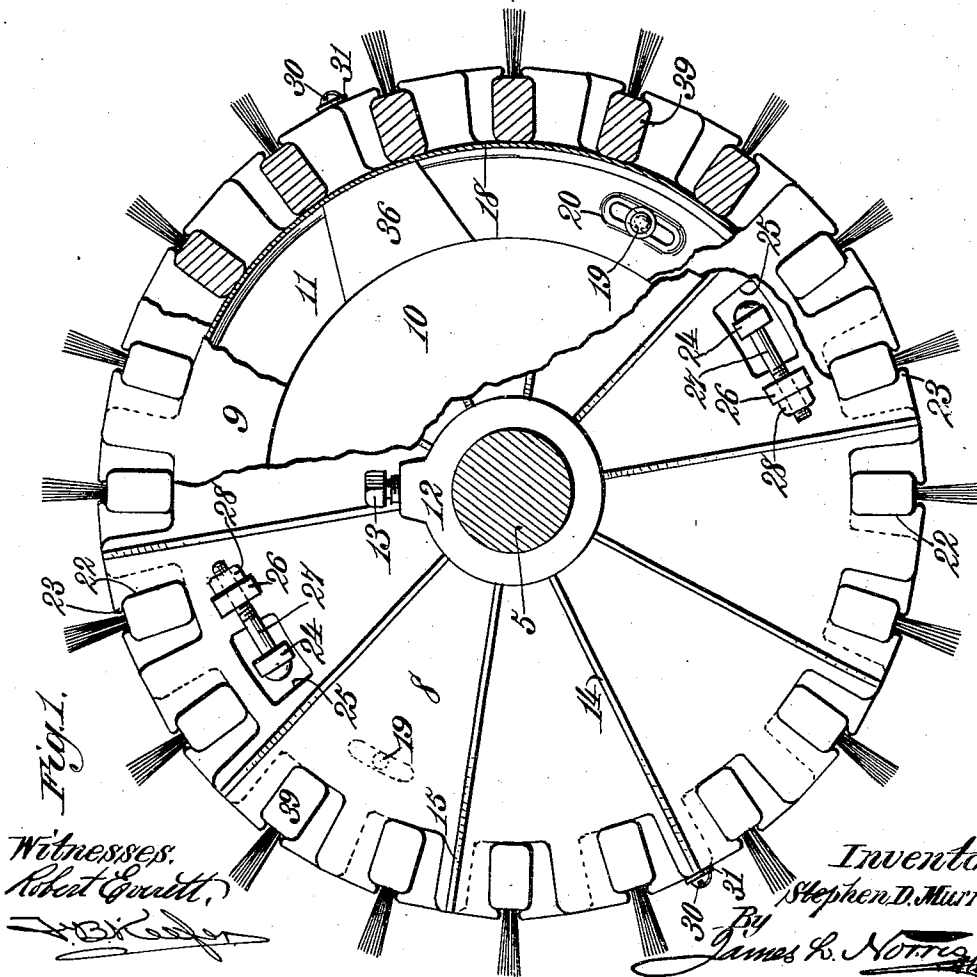
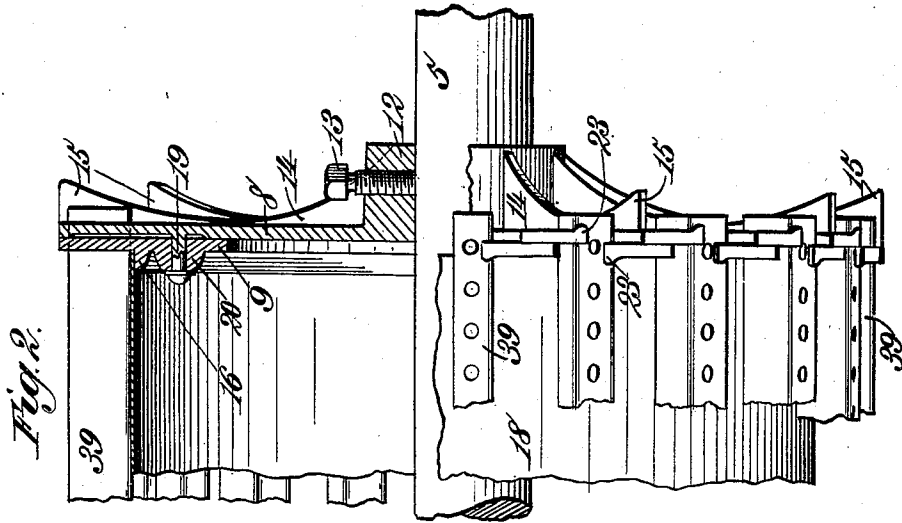


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APPLICATION FILED OCT. 6, 1909.

1,011,831.

Patented Dec. 12, 1911.

2 SHEETS—SHEET 1.



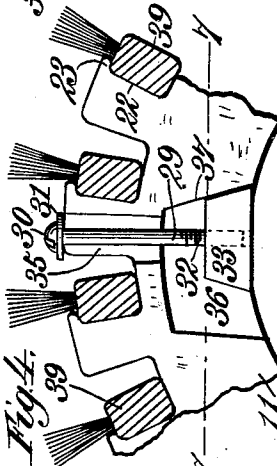
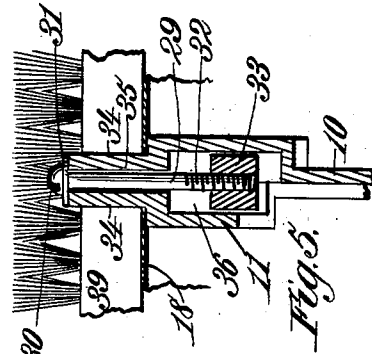
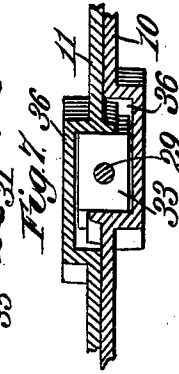
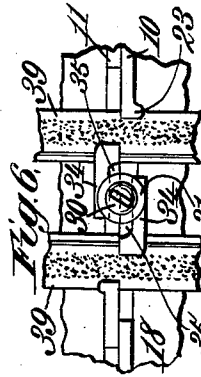
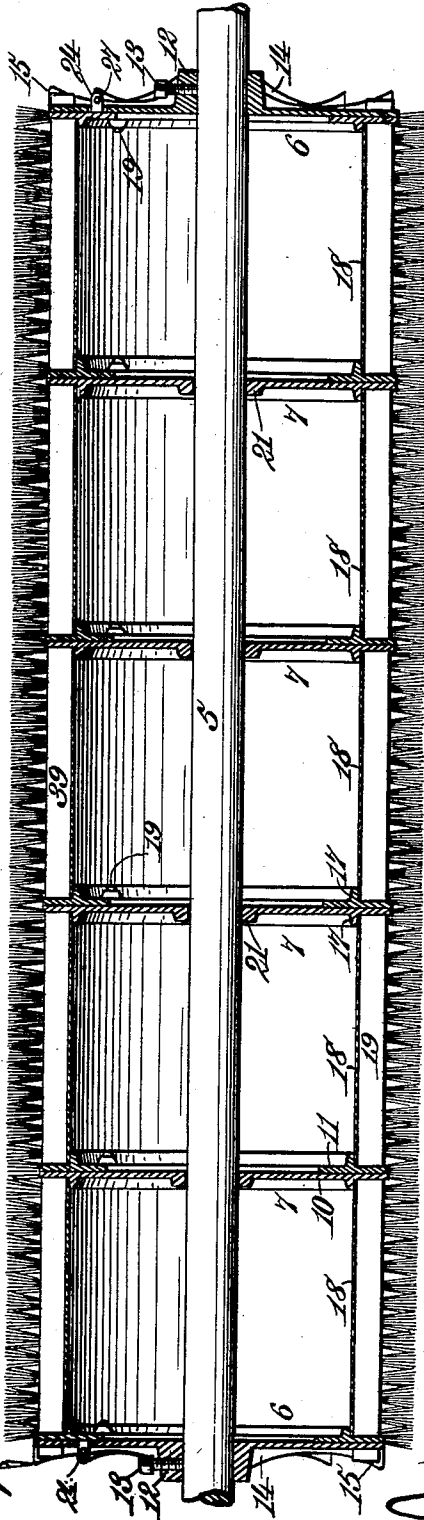
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2 SHEETS—SHEET 2.

Fig. 3.



Witnesses:
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Inventor:
Stephen D. Murray.

By James L. Norris

UNITED STATES PATENT OFFICE.

STEPHEN D. MURRAY, OF DALLAS, TEXAS.

BRUSH-CYLINDER FOR COTTON-GINS.

1,011,831.

Specification of Letters Patent.

Patented Dec. 12, 1911.

Application filed October 6, 1909. Serial No. 521,402.

To all whom it may concern:

Be it known that I, STEPHEN D. MURRAY, a citizen of the United States, residing at Dallas, in the county of Dallas and State of Texas, have invented new and useful Improvements in Brush-Cylinders for Cotton-Gins, of which the following is a specification.

This invention relates to rotatable brushes or brush cylinders for cotton gins and other purposes where found applicable. In devices of this class, as heretofore constructed, considerable inconvenience and delay have been experienced in applying and removing the brush holding members or sticks.

The present improved brush cylinder for cotton gins overcomes by its construction the numerous disadvantages heretofore encountered in usual devices of this class and the improved brush cylinder is particularly advantageous in view of the positive application and retention of the sticks which are thoroughly clamped and tightly held without injury thereto. When the stick or brush holding member in accordance with the present invention is clamped or secured in the heads therefor, there is no need of any further fastening means such as nails, wire bands, or analogous devices commonly employed, and the operation of assembling and dissociating the several parts of the cylinder is very simple. It is important that sticks or brush holding means be tightly fixed in the devices provided for assembling the same, and, further, that injury to the sticks or brush holding members be avoided when applying them to the heads or other devices to reduce wear to a minimum and obviate any loose tendency of the sticks or brush holding members during the operation of the cylinder. It is also necessary in accordance with the present practices to provide a brush cylinder capable of being repaired and the brush sticks renewed at the ginnery where it is used so that no material loss of time may ensue as under the present methods of repairing gin brush cylinders and requiring them to be sent back to a factory. The improved organization of brush cylinder may be readily dismantled or the brush sticks or brush holding members separated and reset without injury thereto and positively held against movement, and, furthermore, the brush stock or material may be renewed in the brush sticks or brush holding

members whenever it is found necessary. The improved rotatable brush or brush cylinder is also organized to readily permit the adjustment of the brush holding members or sticks so as to bring new portions of the brush bristles in operative relation to the saws. To accomplish these objects and advantages the improved cotton gin brush or brush cylinder is provided with expansible and contractible seats in which the brush holding members or sticks are disposed. More specifically the expansible and contractible seats for holding the brush members or sticks are formed in supports associated with a shaft, and each support embodies complementary parts or components, one at least of which is movable or adjustable with relation to the other so as to increase or decrease the dimensions of the seats.

In the accompanying drawings one practical embodiment of the improved brush or brush cylinder is illustrated for the purpose of demonstrating the advantages of the structure and the expeditious operation which is possible in applying, removing and adjusting the brush holding members or sticks, but it will be understood that the invention is not limited to the details of construction and specific features which will be enumerated in the subjoined description.

In the drawings: Figure 1 is a sectional end elevation of a brush or brush cylinder embodying the features of the present invention. Fig. 2 is a sectional side elevation of one extremity of the brush or brush cylinder and showing a portion of the shaft. Fig. 3 is a longitudinal vertical section of the brush or brush cylinder. Fig. 4 is a detail cross-section showing a portion of one of the components of the intermediate supports illustrating the means for adjusting the same. Fig. 5 is a transverse vertical section through the organization as illustrated by Fig. 4. Fig. 6 is a top plan view of the parts shown by Fig. 4. Fig. 7 is a horizontal section on the line 7—7, Fig. 4.

The numeral 5 designates the usual form of shaft used in brushes or brush cylinders, and mounted thereon are a plurality of supports 6 and 7, the supports 6 serving in the present instance as end heads, and the supports 7 arranged at regular intervals between the supports 6. Each support has two complementary parts or components assem-

bled in adjustable relation, the parts or components 8 and 9 of the end supports being essentially similar to the components 10 and 11 of the intermediate supports and differing only in structural features in so far as to adapt the supports 6 to be disposed at the opposite ends of the brush or brush cylinder and for convenience in adjusting the said components. The outer component 8 of each end support is provided with a hub 12 having a set screw 13 therein, and extending from the hub radially in all directions are a plurality of strengthening ribs 14 which are shown as enlarged at their outer extremities as at 15 to form small fan blades. While these blades 15 are advantageous at opposite ends of the brush or brush cylinder to create a blast of air sufficient to obstruct the passage of the lint cotton, or cotton fibers between the ends of the brush or brush cylinder and the adjacent ends of the gin frame, for instance, they are not an essential part of the invention and may be replaced from a standpoint of function by the opposite projecting extremities of the brush holding members or sticks, as will be more fully hereinafter explained. The inner component 9 of each end support has an annular flange 16 at its inner side and both components 10 and 11 have similar flanges 17 on their outer sides, and between the supports cylindrical sheet metal sections 18 are interposed and terminally engage the flanges 16 and 17 and provide a metallic sheathing for the brush or brush cylinder. The flanges 16 and 17 are located inwardly a suitable distance from the peripheries of the several supports and the brush holding members or sticks are applied over this sheathing or the several cylindrical sections. The components 8 and 9 and 10 and 11 of the respective supports 6 and 7 are held closely associated in rotary adjustable relation by studs or pins 19 secured to one component of each support and extending through a slotted boss 20 in each instance of the contiguous components and headed over to maintain a positive assemblage. As many of the studs or pins 19 may be used with each pair of components as are found necessary, and the slots in the bosses 20 will be long enough to permit the maximum adjustment of one component of each support with relation to the remaining component. The body structure of the two components of each support may be varied indefinitely, but one preferred form of structure is to make each component 8 and 10 of the end and intermediate supports a solid disk and the remaining components 9 and 11 of the similar supports annular so as to lighten the structure of the brush or brush cylinder as much as possible. The components 10 of the intermediate supports 7 extend fully to the shaft 5 and have central bearings 21 for

the latter, the shaft being loose in the said bearings. The outer portions of the supports are provided with a plurality of seats 22, the seats of each support being formed in the two components and consisting of slots having radially straight walls, or opposing walls so shaped as to snugly embrace a brush holding member or stick, and the one wall terminating at its outer portion in an inwardly projecting hooked portion, lip or extension 23 and the opposing wall of the same slot or seat formed without such lip or extension, the lips or extensions 23 of the seats or slots formed in the contiguous portions of the components of each support being in reverse positions so as to extend over the outer portion or edge of the brush holding member or stick from reverse sides of the latter. In other words, the extensions 23, which are virtually outer retention devices for each seat, cooperate to close the latter sufficiently to prevent the brush holding member or stick from becoming disengaged from the seat in which it is disposed. By adjusting or moving the complementary parts or components of each support in reverse directions, or partially rotating the said components, the seats 22 will be expanded or contracted in accordance with the direction of movement. Various means may be provided for imparting an adjusting movement to the components of the several supports in order to uniformly expand and contract the seats of each support, and the specific means for this purpose which will be presently described should be understood to be only one possible organization in each instance by which the result sought may be obtained.

The end supports in accordance with the present practical embodiment of the invention are provided with means for adjusting their components differing from the means embodied in the intermediate supports, the adjustment controlling means of the end supports being accessible from the outer sides of the latter, and the adjustment controlling means of the intermediate supports being operative from the peripheries of said intermediate supports. If desired, however, the end supports may be provided with adjustable controlling means similar to that used in the intermediate supports, or other analogous adjustment controlling means may be adopted at will. It is only essential that some means conveniently accessible and positively operative be provided for adjusting the complementary parts or components of the supports irrespective of the position of the latter or whether they be the end or intermediate supports. In the construction shown, the component 9 of each end support has an apertured lug 24 projecting outwardly through a slot 25 formed in the component 8, and the latter

has a lug 26 in relative position to the lug 24, and through the two lugs a bolt 27 is passed and has a slotted head bearing against the lug 24 and a nut 28 to engage the lug 26, the nut being held against rotation by having one face in contact with the adjacent portion or outer side of the component 8 so that by applying a suitable implement to the head of the bolt and rotating the components 8 and 9 will be accordingly adjusted or perform a partial rotation to contract the seats 22. While one of this particular form of adjusting means might be all that is sufficient to adjust the components, it is preferred that the same be duplicated at a diametrically opposite point in the end support structure, as clearly shown by Fig. 1.

The specific adjusting means for the intermediate supports is, as hereinbefore specified, accessible at the outer portions of said supports and is disposed between one pair at least of the brush sticks or the seats for the latter and consists of a radially disposed adjusting rod or bolt 29 with an outer head 30 bearing on a washer 31 and a lower screw-threaded extremity 32 engaging an expanding block or member 33. The contiguous outer portions of the components 10 and 11 where the bolt or rod 29 extends through the same are enlarged as at 34 and have their inner opposing sides recessed as at 35 to give ample room for the operation of said rod or bolt 29. The components 10 and 11 at a suitable distance inwardly from the outer portions of the same having the enlargements 34 are struck outwardly or formed with recesses as at 36 which unitedly provide ample room for the operation of the expanding member or block 33, the opposite ends of the latter being inclined as at 37. The expanding member or block 33 is thick enough to extend across the joint between the components 10 and 11 and engage the reverse walls of the said components, the latter being inclined correspondingly to the inclination of the ends of the expanding member. By rotating the bolt or rod 29 in one direction the expanding block 37 will be drawn outwardly and force the angular wall of the one component in one direction and the opposite wall of the contiguous component in the reverse direction, and by rotating the bolt or rod 29 in the opposite direction the member or block 33 is loosened and the components 10 and 11 released for manual movement. The washer 31 and head 30 of each bolt or rod are always maintained in close engaging relation with respect to the peripheries of the components with which they cooperate, and the recesses 36 are of such dimensions as to provide ample room for the maximum movement of the expanding member or block in opposite directions without liability of the

said block or member becoming disconnected from the bolt or rod.

The seats 22 are preferably formed with rounded corners to facilitate construction thereof and the free ends of the extensions or lips 23 are also rounded.

The brush sticks 39, as shown, are substantially of the usual form but may be replaced by any brush holding member. The brush sticks as shown have their corners rounded to snugly fit the rounded corners of the seats and thereby insure a better clamping action.

In applying the brush members or sticks 39 the seats of the supports are opened to permit the said brush holding members or sticks to be laid therein and after the brush holding members or sticks are properly disposed in the seats the components of the supports are adjusted to tightly clamp or secure the members or sticks therein.

The brush or brush cylinder as a whole is fixed to the shaft 5 to rotate with the latter through the medium of the set screws 13 of the end supports, and the intermediate supports are maintained in practical assemblage with the end supports for effective rotation by the brush holding members or sticks which engage all of the intermediate supports as well as the end supports. While the intermediate supports are not secured to the shaft 5, as hereinbefore stated, it is obvious that they might be made fast to the shaft in a manner similar to the end supports, though this securing of the said intermediate supports is not necessary to the practical operation of the brush or brush cylinder.

The supports constructed and arranged as specified positively hold the brush members or sticks against movement after the said members or sticks have been arranged as desired, and any tendency toward bulging or outward movement of the brush holding members or sticks due to centrifugal action is obstructed and likewise inward swaying or crushing of the said members or sticks is averted. As heretofore intimated the brush holding members or sticks may be longitudinally adjusted to bring new portions of the bristles in operative relation to the gin saws, the brush holding members or sticks being primarily made long enough to compensate for this adjustment. Furthermore, the opposite ends of the brush holding members or sticks will project outwardly beyond the outer sides of the end supports and may serve the same function as the blades 15 hereinbefore referred to, and in this event or owing to this arrangement said blades may be removed or dispensed with in the preliminary construction of the end supports.

What is claimed is:

1. A brush cylinder of the class specified

having expansible and contractible seats, and brush holding members disposed in said seats.

2. A brush cylinder of the class specified comprising supports having components provided with means for receiving and holding brush members or sticks, said components being rotatable for clamping the brush members or sticks.

3. A brush cylinder of the class specified comprising supports provided with expansible and contractible seats for receiving and holding brush members or sticks, said supports being composed of complementary adjustable parts for clamping the brush members or sticks, and means for adjusting said complementary parts.

4. A brush cylinder of the class specified comprising supports provided with expansible and contractible seats for receiving and holding brush members or sticks, said supports being composed of rotatably associated parts, and means for adjusting said parts.

5. A brush cylinder of the class specified having expansible and contractible seats, and brush holding members adjustably and removably disposed in said seats.

6. A brush cylinder of the class specified having expansible and contractible seats, and means for uniformly contracting said seats.

7. A brush cylinder of the class specified

having supports comprising complementary parts each provided with a portion of a brush holding means for receiving brush members or sticks, the one complementary part being movable on the other.

8. A brush cylinder of the class specified having supports comprising complementary adjustable parts, each part being provided with a portion of means for receiving and holding brush members or sticks, and means for adjusting the said complementary parts.

9. A brush cylinder of the class specified having supports provided with seats, brush sticks removably mounted in said seats, the seats having overlapped portions for holding the sticks against radial displacement, the overlapping portions of the seats being expansible and contractible for the removal or replacement of the sticks.

10. A brush cylinder of the class specified having supports provided with seats, and brush sticks removably mounted in said seats, the outer portions of the seats having reversely movable means to hold the brush sticks against radial displacement.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

STEPHEN D. MURRAY.

Witnesses:

CHAS. S. HYER,
ROBERT EVERETT.