

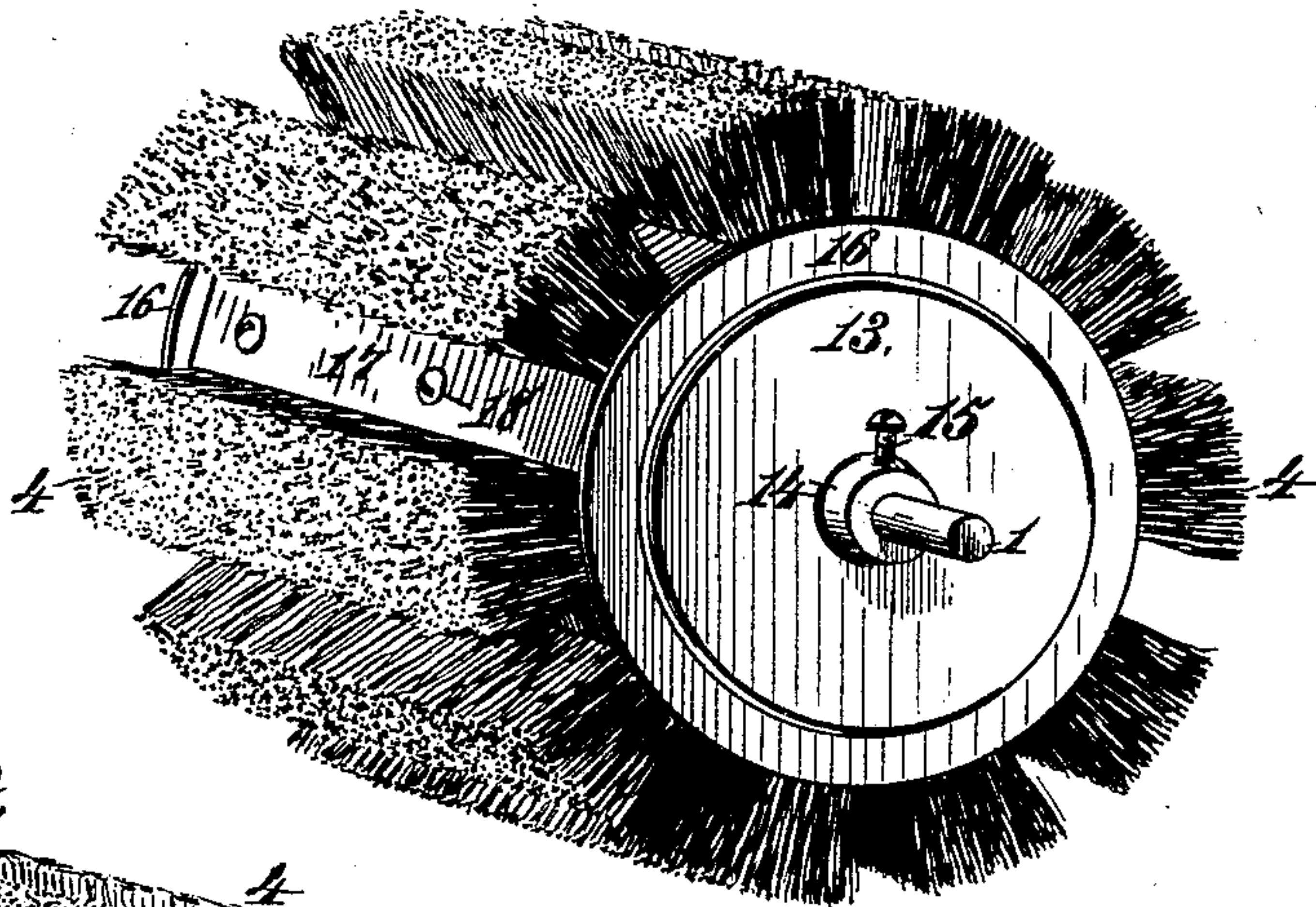
(No Model.)

J. M. HENDERSHOT.  
BROOM.

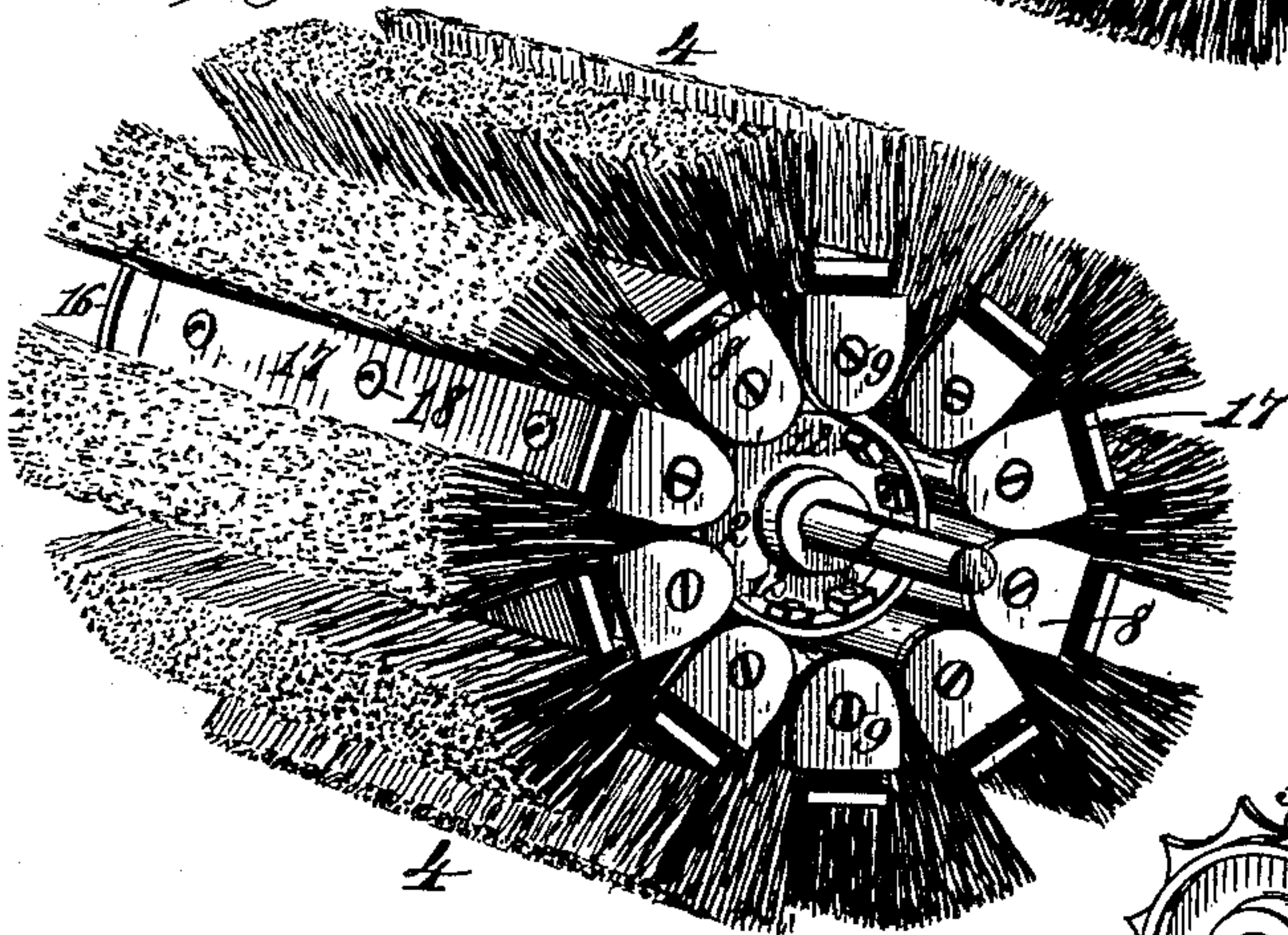
No. 435,304.

Patented Aug. 26, 1890.

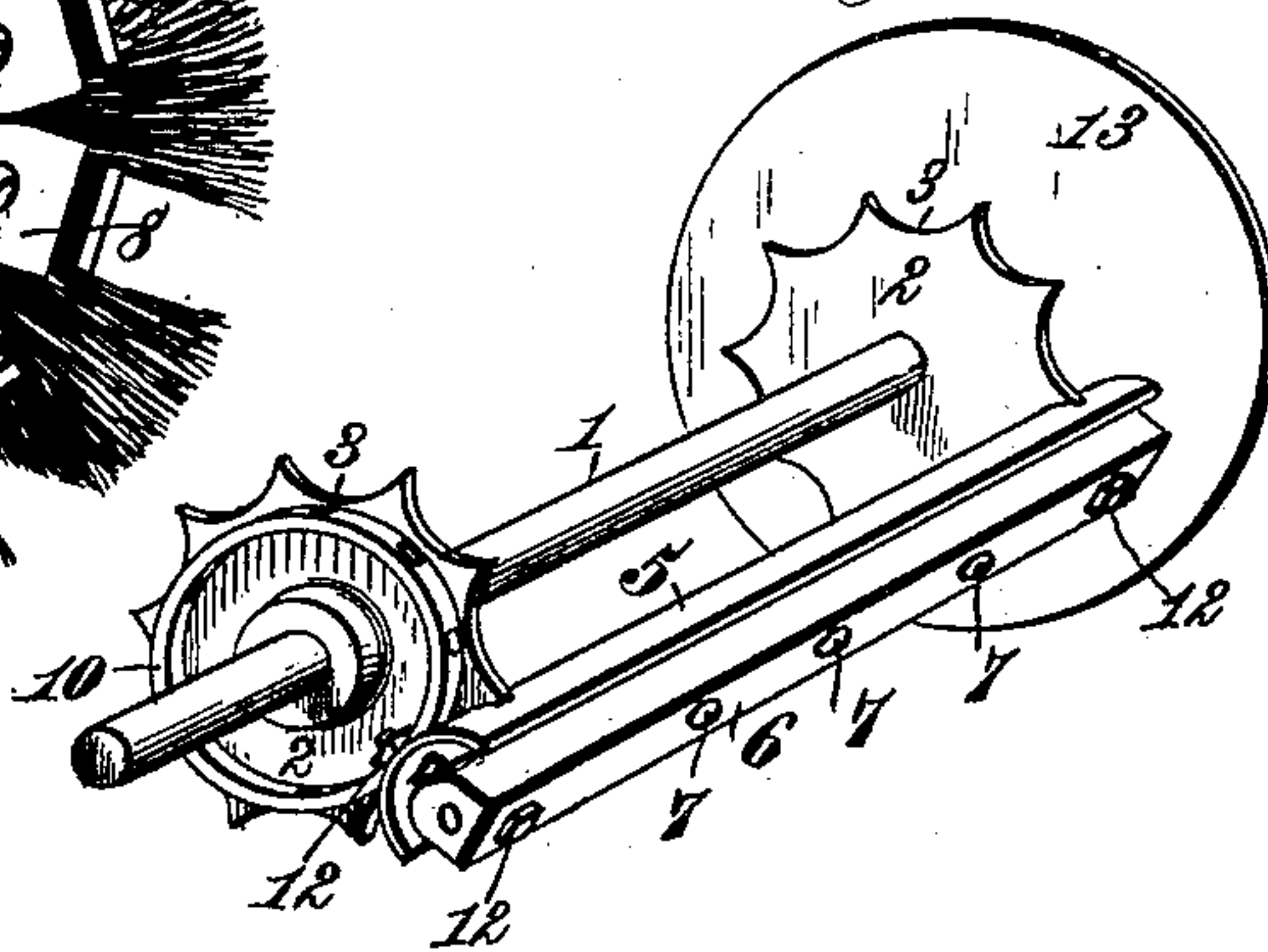
*Fig. 1.*



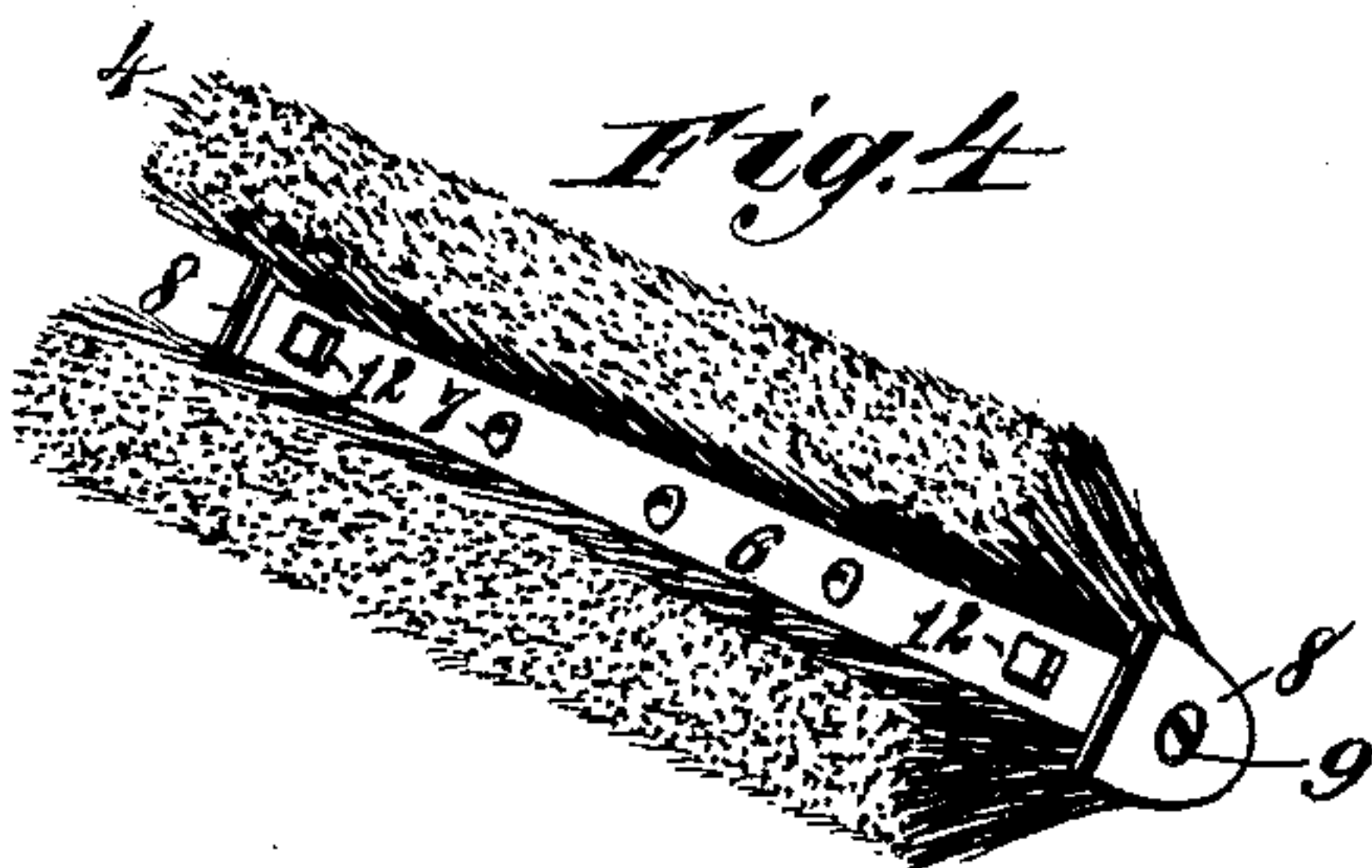
*Fig. 2.*



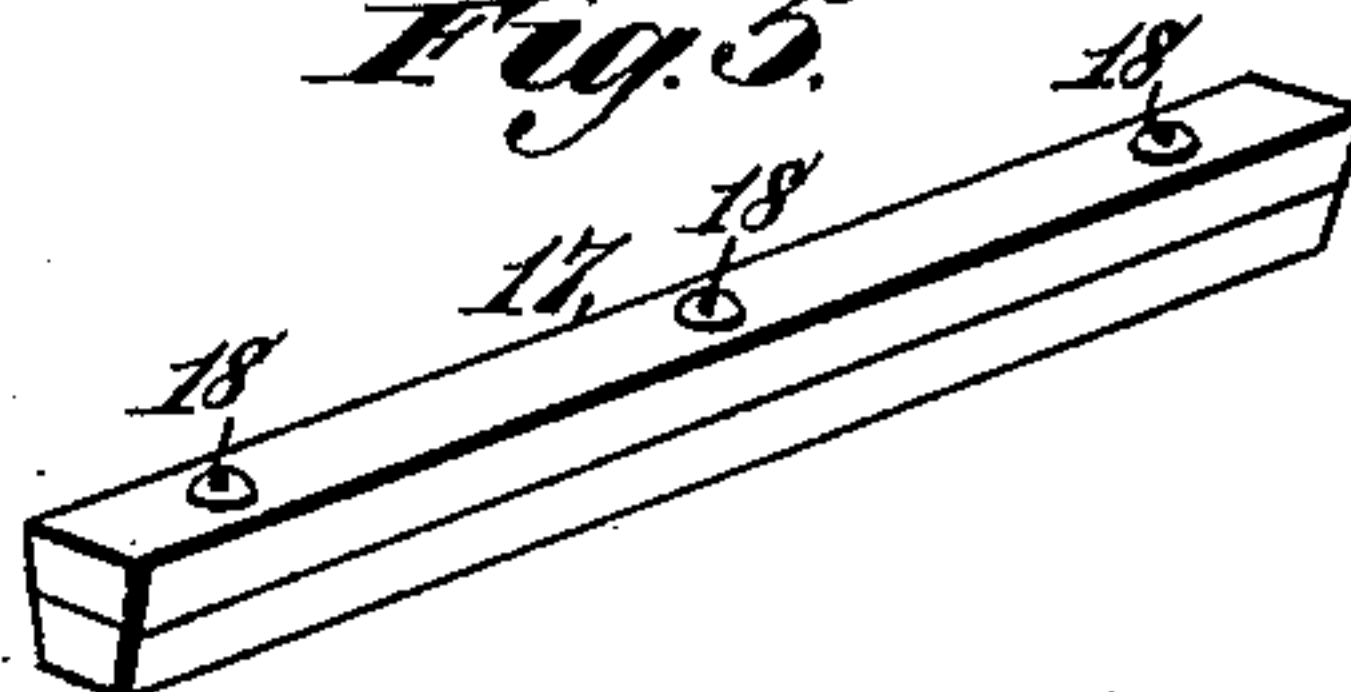
*Fig. 3.*



*Fig. 4.*



*Fig. 5.*



Witnesses,  
*Phat & Co.*  
*Dennis Sundry.*

Inventor,  
*James M. Hendershot.*  
By *James L. Norris.*  
*Atty.*



# UNITED STATES PATENT OFFICE.

JAMES M. HENDERSHOT, OF ATCHISON, KANSAS.

## BROOM.

SPECIFICATION forming part of Letters Patent No. 435,304, dated August 26, 1890.

Application filed April 30, 1890. Serial No. 350,036. (No model.)

### *To all whom it may concern:*

Be it known that I, JAMES M. HENDERSHOT, a citizen of the United States, residing at Atchison, in the county of Atchison and State of Kansas, have invented new and useful Improvements in Cylindrical Brooms for Street-Sweepers, of which the following is a specification.

This invention relates to cylindrical brushes or brooms for street-sweeping machines, and has for its objects to improve the broom-head, to provide novel means for attaching the tufts of broom material, to provide a novel construction whereby the broom material can be made more or less rigid in operation, to provide novel devices for sustaining the ends of the broom, and to provide a simple, efficient, and durable means whereby the broom-head can be conveniently repaired and refilled as occasion demands by an unskilled person.

To accomplish all these objects, my invention involves the features of construction, the combination or arrangement of devices, and the principles of operation hereinafter described and claimed, reference being made to the accompanying drawings, in which—

Figure 1 is a perspective view of a cylindrical broom or brush embodying my invention. Fig. 2 is a similar view omitting the end supporting-disk. Fig. 3 is a detail perspective view of the broom-shaft and one of the clamps for a tuft of the broom material. Fig. 4 is a detail perspective view of one of the tufts held by one of the clamps. Fig. 5 is a detail perspective view showing a series of the tuft-dividing packers for increasing or decreasing the rigidity of the broom material.

In order to enable those skilled in the art to make and use my invention, I will now describe the same in detail, referring to the drawings, wherein—

The numeral 1 indicates the broom-shaft, having near each end a circular collar 2, provided with a series of segmental recesses or cavities in its periphery to form the seats 3 at its periphery, corresponding in number to the number of tufts or broom-sections employed. The brush or broom tufts 4 may be composed of any suitable material; but I prefer to employ jute-butts, which fibers are particularly adapted for the purpose. The fibers are formed into the desired tufts or broom-sections, which are then doubled or folded

upon themselves, and at the bights are secured by clamps, each comprising a channel-plate 5 to receive the exterior of the bight, and a clamp-bar 6, arranged in the bight and secured to the channel-plate by transverse screws, as at 7, or by other fastenings, whereby the tuft is clamped between the channel-plate and the clamp-bar. The ends of each clamp are provided with cover caps or plates 8, secured by screws 9 or otherwise, to prevent displacement of any portion of the tuft at the ends of the clamp. The plates and bars composing the tuft-clamps may be made of any material suitable for the conditions required; but I prefer to construct the channel-plates of sheet metal and the bars of wood, though the latter could be of metal shaped the same as the channel-plates. The convex surfaces of the channel-plates conform to and rest in the segmental seats of the collars on the shaft, and a series of the tufts and their clamps being arranged around the shaft and supported by the collars produce a brush or broom of cylindrical shape.

The collars 2 each comprise a lateral annular flange 10, to which the channel-bars are attached by bolts and nuts, as at 12, Fig. 2, thereby rigidly connecting the tuft-clamps with the collars. The ends of the clamps bear against end disks, as at 13, and each disk is provided with a hub 14, detachably secured to the broom-shaft by a set-screw 15, or other device which will permit the disk to be conveniently removed and replaced. These disks sustain the clamps against endwise movement and support the end portions of the tufts, and each disk may be provided with a removable metal flange 16, annular in shape and projecting beyond the periphery of the disk to sustain the ends of the tufts composing the brush or broom surface. When the diameter of the broom-surface is reduced by wear, the flanges 16 can be removed and preserved for future use, when the broom-head is refilled with new tufts.

To increase the rigidity of the tufts, I provide each clamp-bar with a longitudinal tuft divider and packer 17, composed of a rectangular strip of wood or other material detachably secured to the clamp-bar by screws 18 or otherwise. As shown by Fig. 2, I prefer to employ a series (two or more) of these dividers and packers for each tuft-clamp, the



innermost packer being secured to the packer on which it rests. The opposite longitudinal edges of the dividers and packers press against and brace the tufts of broom material, and as the diameter of the latter becomes reduced by wear, and therefore more rigid, the dividers or packers are removed and preserved until the broom-head is refilled. If a series of dividers and packers be used on each clamp, a single course of the dividers and packers can be removed, thus decreasing the rigidity of the broom material, while if a course be added the rigidity will be increased. The dividers and packers operate to separate the free ends of each tuft and to pack the tufts one against the other, as will be obvious from Fig. 2 of the drawings.

By the construction described any tuft-clamp can be removed for repairs or other purposes, and the broom or brush head can be refilled with ease and facility by an unskilled person, while an efficient and durable cylindrical broom for street-sweepers is provided.

I have shown the seats on the collars as segmental-shaped and the channel-plates as having corresponding form; but obviously this construction can be varied.

Having thus described my invention, what I claim is—

1. A cylindrical broom for a street-sweeper, consisting of a shaft having collars provided with clamp-seats, tuft-clamps embracing the tufts and detachably secured in the seats of the collars, and end disks on the shaft outside the collars, substantially as described.

2. A cylindrical broom for a street-sweeper, consisting of a shaft having collars, tuft-clamps embracing the tufts and detachably secured to the collars, and end disks mounted on the shaft and bearing against the ends of the clamps outside the collars and adjustable and removable independent of the said collars, substantially as described.

3. A cylindrical broom for a street-sweeper, consisting of a shaft having collars provided at their peripheries with recesses or cavities, a series of tuft-clamps each composed of a clamping plate and bar detachably connected together, with the tufts between them and detachably secured in the recesses or cavities of the collars, and end disks mounted on the shaft outside the collars and bearing against the opposite ends of each tuft and tuft-clamp, substantially as described.

4. A cylindrical broom for a street-sweeper, consisting of a shaft, the tufts, the clamps engaging the tufts and connected with the shaft, and the removable tuft divider and packer carried by the clamps, detachable independent of the latter and bearing against and bracing the tufts, substantially as described.

5. A cylindrical broom for a street-sweeper, having doubled or folded tufts connected with the broom-shaft, and a tuft divider and packer located between the doubled or folded parts of each tuft for varying the rigidity of the

latter and removable without disturbing the tufts, substantially as described.

6. A cylindrical broom for a street-sweeper, having a series of tufts connected with the broom-shaft, and a series of detachable superimposed tuft dividers and packers for increasing or decreasing the rigidity of the broom-surface, substantially as described.

7. A cylindrical broom for a street-sweeper, consisting of a shaft having collars provided with clamp-seats, the folded or divided tufts, the detachably-connected channel-plate and clamp-bar embracing the bight of each tuft and removably engaged with the clamp-seats of the collars, and the end disks on the shaft outside and independent of the flanged collars to sustain the ends of the tufts, substantially as described.

8. A cylindrical broom for a street-sweeper, consisting of a shaft having collars provided with clamp-seats at their periphery, the tuft-clamps embracing the tufts and detachably secured to the seats of the collars, and the end disks on the shaft outside the collars, substantially as described.

9. A cylindrical broom for a street-sweeper, consisting of a shaft having collars provided with segmental clamp-seats at their periphery, the detachably-connected channel-plate and clamp-bar embracing the bight of each tuft and having the channel-plates removably engaged with the segmental clamp-seats, and the end disks on the shaft, substantially as described.

10. A cylindrical broom for a street-sweeper, consisting of the shaft, the doubled or folded tufts, the clamping plate and bar embracing the bight of each tuft and detachably connected with the shaft, the cover-plates secured to the ends of the clamping plates and bars, and the end disks on the shaft outside the collars, substantially as described.

11. A cylindrical broom for a street-sweeper, consisting of the shaft having flanged collars, the doubled or folded tufts, and the detachably-connected clamping plate and bar embracing the bight of each tuft and removably bolted to the flanges of the collars, substantially as described.

12. The combination, with the shaft, the tufts, and the tuft-clamps, of the end disks having removable annular flanges which are detachable when the diameter of the brush becomes reduced, substantially as described.

13. A cylindrical broom for a street-sweeper, having removable tuft dividers and packers, and end disks provided with removable annular flanges extending beyond the periphery of the disks and bearing against the tufts, substantially as described.

In testimony whereof I have affixed my signature in presence of two witnesses.

JAMES M. HENDERSHOT.

Witnesses:

W. M. NEWELL,  
T. D. FRASER.