

G. E. FREDERICKS.
HORSE CLEANER.

APPLICATION FILED OCT. 3, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

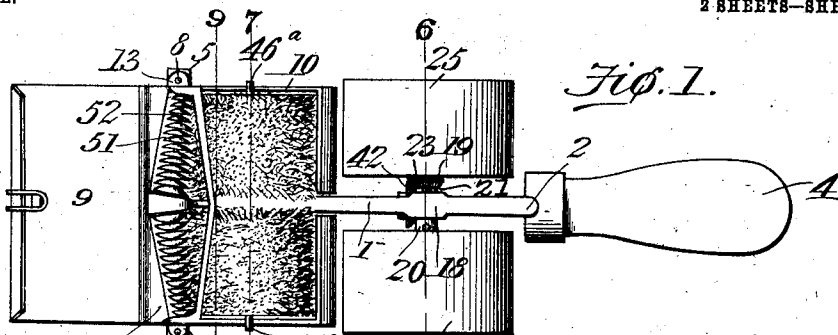


Fig. 1.

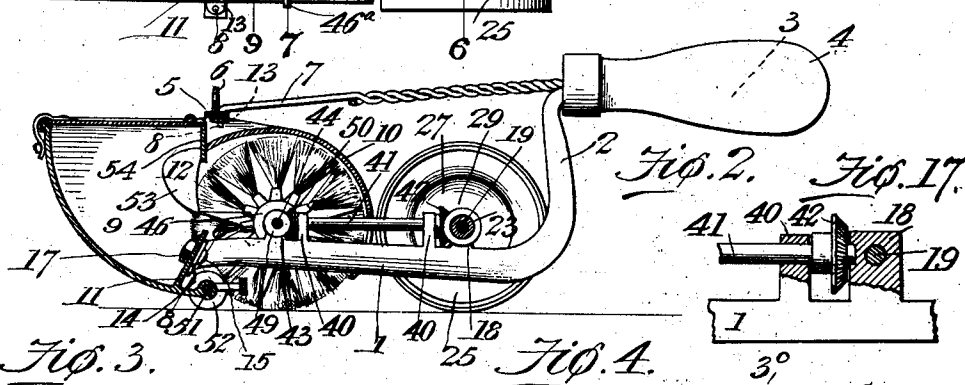


Fig. 2.

Fig. 17.

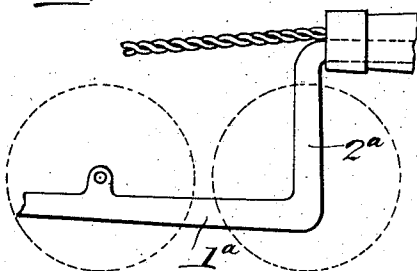


Fig. 5.

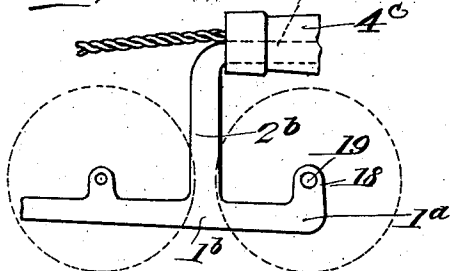


Fig. 4.

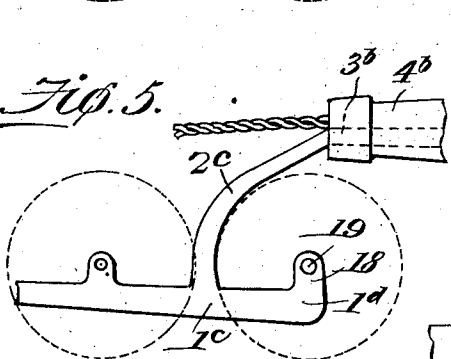
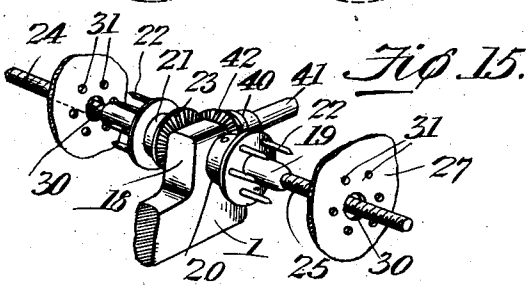


Fig. 15.

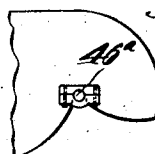


Fig. 16.

Witnesses
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2 SHEETS—SHEET 2.

Fig. 6.

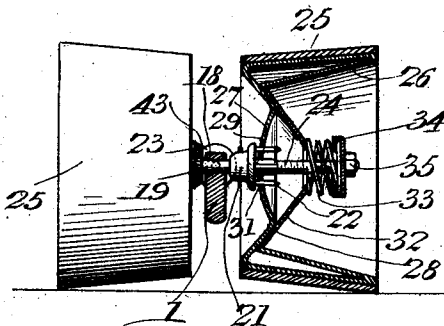


Fig. 7.

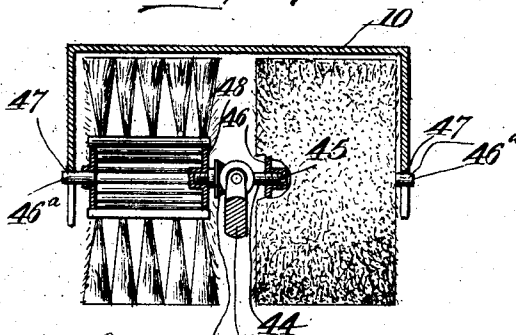


Fig. 8.

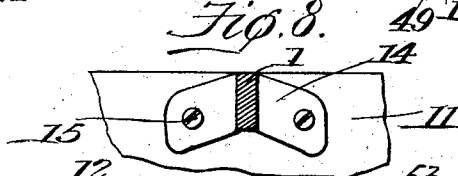


Fig. 9.

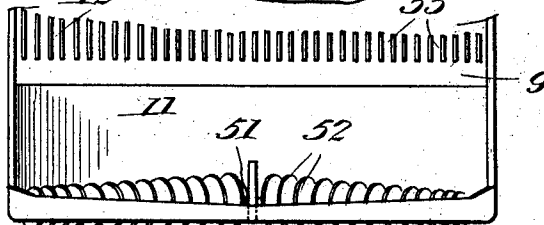


Fig. 10.

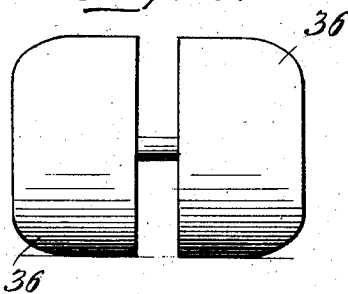


Fig. 11.

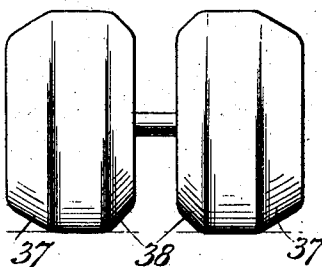


Fig. 12.

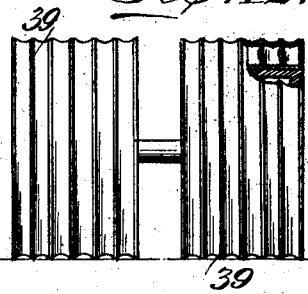


Fig. 13.

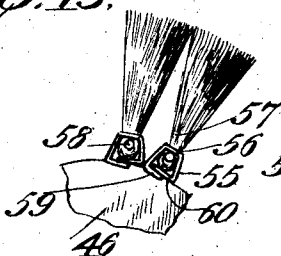


Fig. 14.



Witnesses.

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UNITED STATES PATENT OFFICE.

GEORGE E. FREDERICKS, OF HAMLER, OHIO.

HORSE-CLEANER.

SPECIFICATION forming part of Letters Patent No. 761,952, dated June 7, 1904.

Application filed October 3, 1903. Serial No. 175,677. (No model.)

To all whom it may concern:

Be it known that I, GEORGE E. FREDERICKS, a citizen of the United States, residing at Hamler, in the county of Henry and State of Ohio, have invented a new and useful Horse-Cleaner, of which the following is a specification.

This invention relates to that class of horse-cleaning devices which comprise in their construction a rotary brush and a traction-roller adapted to bear against the body of the animal, motion being transmitted from said roller to the rotary brush. An application for Letters Patent of the United States, Serial No. 159,662, for a horse-cleaning device embodying this general principle was filed by me on the 1st day of June, 1903, and my present invention may be said to be a development of and an improvement upon the device shown in said application.

By my present invention I aim to improve the frame construction which is simplified and made more rigid, so as to brace and strengthen the device.

A further object of my invention is to duplicate the traction-rollers and the brushes, locating one on either side of a central frame member, thereby enabling the traction-rollers and the brush members to adapt themselves more readily to the body of the animal that is to be cleaned. To still further advance this object, I also propose to mount the traction-rollers flexibly when so desired.

A further object is to provide rollers that shall be specially adapted to the contour of the surface to be cleansed.

A further object of my invention is to provide improved means for transmitting motion from the traction-rollers to the brush members.

With these and other ends in view my invention consists in the improved construction, arrangement, and combination of parts, which will be hereinafter fully described, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a bottom plan view of a horse-cleaner constructed in accordance with the principles of my invention. Fig. 2 is a longitudinal vertical sectional view of the same. Figs. 3, 4, and 5 are detail views showing different modi-

fications of the frame construction. Fig. 6 is a transverse sectional view taken on the line 6 6 in Fig. 1. Fig. 7 is a transverse sectional view taken on the line 7 7 in Fig. 1. Fig. 8 is a detail sectional view taken on the line 8 8 in Fig. 2. Fig. 9 is a sectional view taken on the line 9 9 in Fig. 1. Fig. 10 is a detail view illustrating a modified form of the traction-rollers. Fig. 11 is a detail view illustrating still another form of the traction-rollers. Fig. 12 is a sectional detail view illustrating the traction-rollers provided with inflatable tires. Figs. 13 and 14 are detail views illustrating a preferred construction of the brush members of the device. Fig. 15 is a detail view showing the preferred form of the roller-carrying shaft and the parts or members related thereto. Fig. 16 is a detail view illustrating a portion of the device equipped with a bearing for the spindle at the outer end of one of the rotary brushes. Fig. 17 is a detail view illustrating one of the bearings of the shaft 41.

Corresponding parts in the several figures are indicated by similar numerals of reference.

The improved construction of the frame of my improved horse-cleaner will be seen in Fig. 2 of the drawings, by reference to which it will appear that said frame is composed of a longitudinal bar or body 1, having its rear end upturned in a slightly-forward direction, as shown at 2, and extended from thence rearwardly, as shown at 3, a knob or handle 4 of suitable dimensions being placed upon the part 3, which forms a stem for said handle. The parts 1, 2, 3, and 4 coact to form the main supporting-frame of the several elements constituting my improved horse-cleaner and the handle by means of which the same is manipulated; but the frame also includes a transverse bar 5, having upwardly-extending teeth 6, constituting a currycomb. The ends of the cross-bar 5 are connected with the ends or arms 7 of a wire yoke, which are twisted together at their rear ends and inserted into the handle 4, from which they project forwardly, the front ends of the arms 7 being bent to form hooks 8, which extend downwardly through perforations in the ends of the cross-bar 5, with which they are preferably connected per-

manently by solder or in any other suitable manner. The hook members 8 are adapted to be detachably connected with the casing of the device, which includes a dirt-receptacle 9 and brush-shield 10, which are separated from each other by a partition 11, above which the brush-cleaners 12 are disposed. Said casing is provided near its upper edge with perforated lugs 13 for the reception of the hook members 8, with which they are detachably connected. The frame-bar 1 is provided at its front end with a cross-piece 14, having openings for the passage of set-screws 15, which extend through said cross-piece and through the partition 11, which forms the lower rear wall of the dust-box and which is provided with nuts 17, permanently attached thereto for engagement with the screws 15. This general arrangement obtains in the several forms of the frame, which are illustrated in Figs. 3, 4, and 5 and which simply differ from each other in this, that in Fig. 3 the upward extension (here designated 2^a) rises from the bar 1^a at the point at which the bearings for the traction-rollers are located, while in the preferred form (shown in Fig. 2) the bar 1 is extended in rear of the roller-bearing. In Figs. 4 and 5 the upright members (here designated, respectively, 2^b and 2^c) rise from the main frame-bars 1^b and 1^c at a point even farther toward the front, the main bars 1^b and 1^c being in this case provided with rearwardly-extending brackets 1^d, constituting the roller-bearings. The upward extension 2^b is bent rearwardly toward its end and carries the stem 3^b and handle 4^b, while the upward extension 2^c is more approximately straight and provided with a rearward extension 3^c, terminating in the part which carries the handle 4^c. In each case the lower horizontal member of the main frame-bar is provided with means, already described, for connection with the casing of the device, as will be readily seen and understood by reference to the drawings. In describing the various forms of the traction and brush members as well as the casing of the device and other details they will be shown and described only in connection with the preferred form of the frame illustrated in Figs. 1 and 2 of the drawings, it being understood that the several structural details thus described are equally applicable when either of the modified frame structures are used. The frame-bar 1, (or the bracket 1^a, extending rearwardly from the same, as shown in Figs. 4 and 5,) is provided with a bearing 18 for a shaft 19, upon which, adjacent to each side of the bearing 18, is secured a collar, said collars being designated, respectively, 20 and 21. Each of these collars is provided with a plurality of laterally-extending fingers 22, and the collar 21 is additionally provided with a beveled gear portion 23, which is disposed adjacent to the bearing 18, or, in other words, upon the inner side of the collar 21. The

ends of the shaft 19 are screw-threaded, as shown at 24, and upon the screw-threaded ends are mounted the rollers 25, which may be generally described as consisting of the rims 26 and end disks 27, the latter being annularly grooved, as shown at 28, so as to form the central convexities 29 upon their inner sides—that is to say, upon the sides adjacent to the central frame portion. The disks 27 of the rollers are provided with central perforations 30 to engage the screw-threaded ends of the shaft 19 and with additional perforations 31 to engage the pins 22 of the collars 20 and 21. Fitted in each of the rollers against the convex side of the end disk is a dished disk 32, which is perforated centrally to engage the end of the shaft and to which is permanently attached a helical spring 33. When the roller 25 is placed in position upon the end of the shaft, this disk is mounted in position, as shown, the helix 33 surrounding the screw-threaded portion of the shaft, upon which is placed a washer 34 and a nut 35. It will be observed from the foregoing that when the rollers are mounted upon the ends of the shaft their connection with said shaft will be of a flexible nature, the convex portion of the inner disk of each roller being in engagement with the collars upon the shaft having the fingers which extend through the perforations 31, thus permitting the rollers to yield in any direction with relation to the axis of the shaft without disconnecting the parts. This freedom of motion is of course augmented by the spring 33 and the disk 32, which permits the rollers to flex, as described, without danger of becoming detached, the parts being securely connected by means of the nuts and washers herein described.

It will be understood that in the preferred form of my invention (shown principally in Figs. 1 and 2 and described in the foregoing paragraph) the rollers, which are preferably covered with a tire of rubber or analogous material, will readily adapt themselves to the surface which is to be cleaned, whether this be the body, neck, or limbs of the animal. I reserve the right, however, to use traction-rollers of different forms, as shown in Figs. 10 and 11, in the former of which the outer ends of the rollers are curved, as shown at 36, and in the latter form of which the outer ends of the rollers are angular, as shown at 37, while their inner ends are slightly curved, as shown at 38. In these modified forms the rollers have also been shown as secured non-flexibly upon the roller-carrying shaft, and I reserve the right of using duplex rollers of any of the forms herein illustrated or of any other convenient form, whether they may be mounted rigidly or flexibly upon opposite sides of the center of the roller-carrying shaft, a principal feature of my invention being the combination, with a suitable frame, of duplex traction-rollers disposed at opposite ends of a

shaft having its bearing in such frame. I also desire to invite attention to the form of traction-rollers illustrated in Fig. 12 of the drawings, in which said traction-rollers have been shown as provided with inflatable tires 39, which when inflated will conveniently yield to the contour of the surface that is operated upon. The frame-bar 1 is provided with a pair of upwardly-extending lugs 40, forming bearings for a longitudinal shaft 41, carrying at its rear end a pinion 42, which is in operative engagement with the bevel-gear 23, formed upon the collar 21 on the roller-carrying shaft. In cases where the traction-rollers are mounted rigidly upon the roller-carrying shaft it is obvious that the collars 20 and 21 may be omitted; but the bevel-gear 23 is necessarily mounted upon the roller-carrying shaft to engage the pinion 42, thereby to transmit motion through the shafts 41 to the rotary brush elements, which are now to be more fully described.

In front of the forward lug 40 the frame-bar 1 is provided with a bearing 43 for the brush-carrying shaft 44, which is provided with screw-threaded ends 45, engaging the hubs of the brush members 46, which are provided with screw-threaded sockets for the reception of the ends of the shaft, upon which they are thus securely mounted and by which they may be said to be connected with each other. The outer ends of the brush members have projecting spindles 46^a for which suitable bearings may be provided, as shown in Fig. 16, or the said spindles may simply rest in the angles of recesses 47, formed in the sides of the brush-shield. The hub 48 of one of the brush members is provided with a pinion 49 at the inner end thereof, said pinion engaging a bevel-gear 50 upon the front end of the shaft 41. It is obvious that when the latter is rotated by the rotation of the traction-rollers rotary motion may in this manner be transmitted to the brush members, both of which are connected with or mounted upon the ends of a common shaft.

The lower part of the casing of the device is provided with bearings for a pair of shafts 51, disposed at an angle to each other and carrying revoluble dirt-loosening disks 52. Such disks, however, have been shown and claimed in my previous application for Letters Patent, above referred to, and have been shown in the present case only in order to illustrate the device complete. The same to some extent applies to the brush-cleaning device 12, which has been previously referred to and which comprises in its construction a plurality of approximately triangular plates, which are suitably spaced apart and connected in any convenient manner. The difference between the disks of the dirt-cleaning device shown in my former application and those shown in the present application is that in the present case

the upper corners of the disk constituting the device are decidedly rounded instead of being made with sharp corners, as shown in my former application. The disks, which are individually designated 53, are connected in either of the ways illustrated in my former application, or they may be connected directly with a flange 54, depending from the upper rear corner of the dust-box.

With regard to the construction of the revoluble brush members, I desire to state that I prefer the construction illustrated in detail in Figs. 13 and 14 of the accompanying drawings, by reference to which it will be seen that I provide sheet-metal strips 55, bent to an angular or V shape and provided at the angle thereof with perforations 56, through which the bristle-bunches 57 are drawn from the exterior side of the angle and confined in the strip by means of a rod or wire 58, extending through the loops of the bunches. The edges of the strips being finally turned down upon one another, as shown at 59 and 60, serve to secure the bristle-holding rod and the bristles in position with a greater degree of security than heretofore and in such a manner as to enable a much heavier binding-wire to be used than is ordinarily the case. The bristles when mounted in this manner cannot readily be pulled out, and a brush comprising a hub upon which a plurality of the bristle-carrying strips are suitably mounted will be found extremely durable and effective in operation.

From the foregoing description, taken in connection with the drawings hereto annexed, the operation and advantages of my improved horse-cleaning device will be readily understood. If I have omitted to specially describe lubricating-openings in the bearing for the shaft 41, as well as for the bearings of the roller-carrying and brush-carrying shafts, it is simply because such lubricating-holes are commonly used. The drawings will also (see Fig. 17) illustrate how the ends of the shaft 41 are journaled not only in the lugs 40, but have additional bearings in the adjacent sides of the lugs which form the bearings of the roller and brush carrying shafts.

Such modifications as have been described are believed to be strictly within the scope of my invention, and I desire it to be particularly understood that I do not limit myself to these or to any other structural details which may be adopted within the scope of my invention and without departing from the spirit or sacrificing the efficiency of the same, but reserve the right to any other changes and modifications which may be so used.

Having thus described my invention, I claim—

1. In a horse-cleaning device, an intermediate frame-bar and duplex traction-rollers disposed on opposite sides of said frame-bar.

2. In a horse-cleaning device, duplex traction-rollers connected flexibly with the ends of a shaft.

3. In a horse-cleaning device, a frame-bar, 5 duplex traction-rollers connected flexibly with the ends of a shaft and separated by said frame-bar, and a bearing in the latter for said shaft.

4. In a horse - cleaning device, spring- 10 pressed traction-rollers connected with the ends of a shaft.

5. In a horse - cleaning device, spring-pressed traction - rollers connected flexibly with the ends of a shaft.

15 6. In a horse-cleaning device, a pair of tapering traction-rollers connected flexibly with the ends of a shaft, and a frame-bar separating said rollers and providing a bearing for said shaft.

20 7. In a horse-cleaning device, a frame-bar, a shaft journaled therein, traction-rollers connected flexibly with said shaft on opposite sides of the frame-bar, a brush-carrying shaft supported upon said frame-bar, and means for 25 transmitting motion from the roller-carrying shaft to a brush-carrying shaft.

8. In a horse-cleaning device, a frame-bar having a bearing, a shaft journaled in said bearing and having screw-threaded ends, col- 30 lars mounted upon said shaft and having laterally outwardly extending fingers, rollers having perforations engaging said shaft and fingers, and means for retaining said rollers upon the shaft.

35 9. In a horse-cleaning device, a frame having a bearing, a shaft journaled in said bearing and having screw-threaded ends, collars mounted upon said shaft and having laterally- 40 extending fingers, roller members engaging said shaft and fingers, springs pressing said rollers inwardly upon the ends of the shaft, and means for securing the spring-pressed rollers upon said shaft.

10. In a horse-cleaning device, a frame-bar 45 having a bearing, a shaft journaled in said bearing and having screw-threaded ends, collars mounted upon said shaft and having laterally-extended fingers, rollers having annularly-grooved disks provided with perfora- 50 tions engaging the shaft and the laterally-extending fingers of the collars, dished disks fitted against the outer sides of the annularly-grooved roller-disks, and helical springs connected with said disks and encircling the 55 screw-threaded ends of the shaft.

11. In a device of the class described, a frame- 60 bar, duplex rollers and duplex brush members supported revolubly upon said frame-bar, means for transmitting motion from the roller members to the brush members, said means being supported upon the frame-bar, a casing constituting a dust-box, perforated ears upon

said casing, means for connecting the frame-bar with the rear side of the casing, and independent means connecting the frame-bar 65 separably with the top of the casing.

12. In a horse-cleaning device, a frame-bar provided at its front end with laterally-extending wings, having an upwardly-extending member and a handle-carrying member ex- 70 tending rearwardly from the upper end of the latter, a wire yoke having arms twisted together and secured in the handle, the ends of the arms of said yoke forming downturned hooks, a bar connected with and spacing said 75 hooks, a casing, screws connecting said casing with the wings at the front end of the frame-bar, and ears at the upper end of said casing having detachable connection with the hooks 80 of the yoke.

13. In a horse-cleaning device, a duplex revoluble brush comprising individual members, the hubs of which are provided with inter- 85 iorly-threaded sockets, and a shaft having threaded ends engaging said sockets.

14. In a horse-cleaning device, a duplex revoluble brush comprising independent members connected detachably with the ends of a shaft, one of said members being provided on its 90 inner side with means adapted to receive motion from the source of power.

15. In a horse-cleaning device, a revoluble duplex brush comprising independent mem- 95 bers, and a connecting-shaft, said brush members being provided at their outer ends with individual spindles.

16. In a horse-cleaning device, a frame-bar constituting a support having suitable bear- 100 ings, a roller-carrying shaft journaled in one of said bearings, a brush-carrying shaft journaled in another of said bearings, rollers connected with the roller-carrying shaft, brushes connected with the brush-carrying shaft, said 105 brushes being provided with spindles at their outer ends, and a casing comprising a dust-box and a brush-shield, the latter having bearings for the spindles at the outer ends of the brush members.

17. In a horse-cleaning device, a frame-bar, a shaft supported revolubly upon the same, 110 revoluble brush members connected independently with the ends of said shaft, spindles at the outer ends of said brush members, a casing comprising, essentially, a dust-box and a brush-shield, affording bearings for the 115 outer ends of the spindles of the brush members.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

GEO. E. FREDERICKS.

Witnesses:

D. A. MILLER,

J. P. FREDERICKS.