June 1, 1926. 1,587,068

W. H. DINEHART

GOLF BALL CLEANING DEVICE

Filed June 2, 1925

Fig. 1

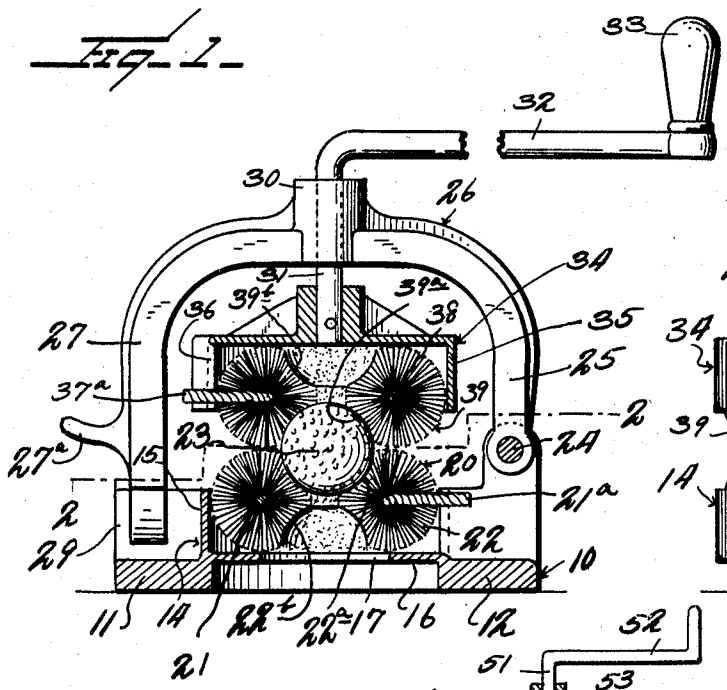


Fig. 3

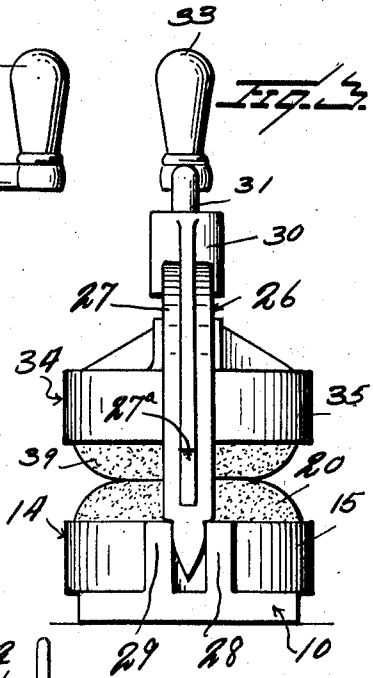


Fig. 5

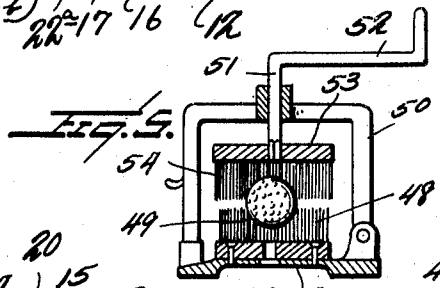


Fig. 2

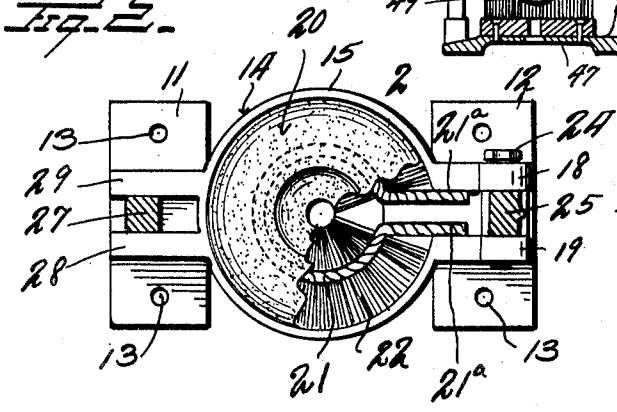


Fig. 4

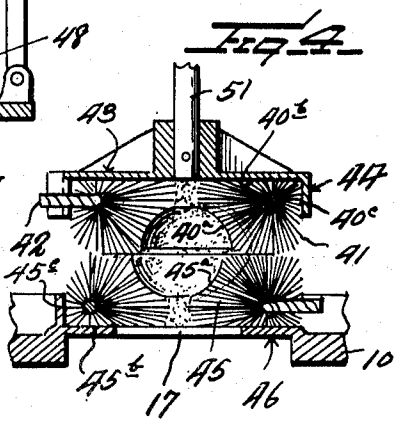
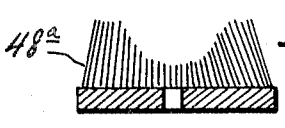


Fig. 6



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UNITED STATES PATENT OFFICE.

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GOLF-BALL-CLEANING DEVICE.

Application filed June 2, 1925. Serial No. 34,382.

This invention relates to devices for removing foreign matter such as soil, mud, grass stains, and so forth from golf balls.

One of the objects of this invention is to provide a simple and thoroughly practical device for cleaning golf balls and capable of rapid and highly efficient action.

A further object is to provide a device of the above-mentioned character which will be of rugged and durable construction, capable of convenient and simple manipulation, and well adapted to meet the conditions of hard practical use, all without detracting from rapidity and effectiveness of action.

A still further object is to provide a device of the above-mentioned character which will be capable of rapid and inexpensive manufacture and of assembly, and which will be constructed so that the active parts may be conveniently and readily accessible for purposes of repair or replacement.

Other objects will be in part obvious or in part pointed out hereinafter.

The invention accordingly consists in the features of construction, combinations of elements, and arrangements of parts as will be exemplified in the structure to be hereinafter described and the scope of the application of which will be indicated in the following claims.

In the accompanying drawing, in which is shown several various possible embodiments of this invention,

Figure 1 is a front elevation partly in section of the apparatus in assembled relation;

Figure 2 is a sectional view of the apparatus taken on the line 2—2 of Figure 1;

Figure 3 is an end elevation as seen from the left in Figure 1;

Figure 4 is a fragmentary view illustrative of a modified embodiment of certain features of my invention;

Figure 5 is a vertical sectional view of a very simple form of my device;

Figure 6 is a section through the lower brush head showing convergent bristles.

Similar reference characters refer to similar parts throughout the several views of the drawing.

Referring now to the drawing, and more particularly to Figure 1, I have provided first a base member or main frame, generally indicated at 10, and provided with suitable supporting brackets 11 and 12 arranged, as by the provision of suitable openings 13 therein, to permit the base member 10 and the parts supported thereby to be rigidly secured and held in operative position. Integrally formed with the plate-like bracket members 11 and 12 and interposed therebetween is a cup-shaped member 14 preferably of circular cross section, as will be clear from a consideration of Figure 2. The cup-shaped member, generally indicated at 14, is thus preferably provided with substantially cylindrically shaped side walls 15 and a bottom member 16 in which is centrally positioned a suitable opening 17, for a purpose to be more clearly described hereinafter.

The supporting bracket 12 at the right hand end of the apparatus, as seen in Figures 1 and 2, is provided with two upwardly directed lugs 18 and 19, preferably integrally formed therewith and suitably spaced so as to form a recess therebetween. The cylindrical side wall portions 15 of the bottom cup-shaped member 14 are broken away at a point or points adjacent the recess between the lugs 18 and 19, and within the cup 14 is seated a brush, generally indicated at 20. This brush is preferably annular in form and is preferably and most conveniently formed of a wire core 21 into or with which are interwoven the bristles 22 in such manner that they extend substantially radially about the core 21. The core 21 and hence the brush 20 is bent into circular form and the free ends 21^a of the wire core 21 bent outwardly from the resultant annularly shaped brush 20 are received through the broken-away portion of the side wall 15 of the cup 14 and project into the recess between the lugs 18 and 19 of the supporting bracket 12.

The wire core 21, when thus bent into substantially annular form, tends, by reason of its resiliency, to spring open in such a manner as to increase the diameter of the annular brush 20. Such action causes the brush 20 to seat securely in the cup 14 and in effect tends to lock the extended ends 21^a of the core 21 in the recess in the side wall 15 and in the recess between the lugs 18 and 19, thus securely holding the brush 20 in its position within the cup 14.

The bristles 22 of the brush 20 are preferably relatively stiff and made of a suitable fibrous material to resist well the action of moisture thereon. Moreover, the bristles 22 are trimmed, cut, or burned away, as at

22ª, so as to provide a curved seat for the ball, generally indicated at 22ª, and the radius of curvature of the surface provided by the bristles trimmed, as at 22ª, is preferably substantially the same as the radius of curvature of the ball 23. In like manner, the bristles 22 of the brush 20 are trimmed but upon the under side thereof, as at 22ᵇ, so that should the bristles throughout the part 22ª become worn, the brush 20 may be lifted out of the cup 14 and reversed so as to present at the upper side thereof the bristles trimmed or shaped, as at 22ᵇ.

Hingedly connected to the lugs 18 and 19, as by the bolt 24, is the lower end of the right hand member 25 of a yoke-like auxiliary frame, generally indicated at 26, and shaped to bridge across the cup-shaped member 14 and shaped further to provide a left hand member 27 whose lower end is shaped to be received between two lugs 28 and 29 preferably integrally formed with the plate-like bracket 11 of the base of the apparatus. The central part of the yoke-like frame 26 is provided with a bearing 30 whose axis extends in a general vertical direction, and in this bearing 30 is rotatably supported a shaft 31, the upper end of which is provided in any suitable manner with a crank arm 32, to the extreme end portion of which is secured a suitable handle 33. The shaft 31 is of sufficient length to permit movement thereof in an axial direction with respect to the bearing 30 in the frame or yoke 26, and at its lower end, as viewed in Figure 1, there is secured thereto an inverted, cup-like member 34 shaped in effect to form a counter part of the cup-like member 14 hereinbefore described. The substantially cylindrically shaped side wall 35 of the upper cup member 34 is slotted or recessed, as at 36, so that the bent ends 37ª of the core 38 of a brush 39 housed within the cup 34 may extend therethrough and by an action which is substantially similar to that characteristic of the lower brush 20 to hold the brush 39 in position within the upper cup 34. It will be seen that the brush is also supported by press-fitting it into the cup, that is, the outside diameter of the brush is slightly larger than the inside diameter of the cup, and as a consequence the bristles will engage the wall of the cup and hold the brush quite firmly in place.

The brush 39 has its bristles cut away or trimmed or shaped, as at 39ª, to present an annular but substantially spherical surface of bristles to the ball 23, which may be interposed between the two brushes 20 and 39 by swinging the frame 26 and the parts carried thereby in clockwise direction about the hinge connection 24, a handle 27ª being provided on the frame 26 to facilitate the manipulation in this manner of the frame 26 and the parts carried thereby. The brush 39 is similarly shaped or formed but upon the other side thereof, as at 39ᵇ, so that the brush 39 may be reversed if and when necessary to present a surface of new bristles to the ball 23.

The axis of rotation of the brush 39, while coincident preferably with the axis of the annulus which the brush 39 forms, is eccentric with respect to the axis of the lower brush 20. This relative arrangement of the two brushes is conveniently carried out by displacing one of the cup-shaped members within which the respective brush is received with respect to the other and, as is indicated in Figures 1 and 2, this displacement will be seen to be conveniently carried out by so mounting the two cup-shaped members that the axis of the one, such as the upper cup-shaped member 34, is displaced to the right of the axis of the lower cup-shaped member 14.

When the frame member 26 with parts associated therewith is swung in clockwise direction about the hinge connection 24, the ball 23 may be inserted into the substantially hemi-spherical pocket formed by the bristles of the brush 20, as at 22ª (see Figure 1); by means of the handle 27ª the frame 26 with its associated parts may thereupon be returned to their normal position, substantially as indicated in Figure 1, whereupon it will be seen that the ball 23 is substantially encased within and between the two substantially hemi-spherical pockets formed by the adjacent and coacting brushes 20 and 39. The brush 39 is thereupon given an appropriate movement about its axis, which, as above noted, is out of alignment with the axis of the lower brush 20, and this movement about its axis is preferably made a rotary movement, as by manual operation of the crank arm 32 through the handle 33. The shaft 31 being slidably mounted in the bearing 30 of the frame or yoke 26 permits the brush 39 to be urged downwardly toward the brush 20 to any desired extent and thus any desired degree of pressure of the bristles upon the ball 23 may be exerted. As the motion of the brush 39 about its axis, preferably rotary, is carried out, an action upon the ball 23 results which permits or causes the bristles of the brushes to be effective and active upon substantially every part of the ball 23. The eccentricity of the axes of the two brushes causes such an action upon the ball 23 to take place, when the one brush is given a movement with respect to the other, that a substantially continuous rotation of the ball 23 is brought about, but this rotation is such that the axis thereof is substantially continuously changed in an irregular manner, and this action, together with the resultant relative movement between the surface of the ball 23 and the bristles of the two brushes, causes substan-

tially every portion of the surface of the ball 23 to be operated upon by the bristles and thus to be effectively cleansed. The foreign matter such as adhering soil or mud, for example, upon the surface of the ball 23 is thus effectively removed.

The above-described operation of the apparatus upon the ball 23 can be carried on without the application to the brushes or to the ball of a suitable cleansing fluid, but if desired a suitable cleansing fluid such as water may be applied to the ball or to the operative parts of the apparatus, the opening 17 in the bottom member 16 of the lower cup member 14 permitting the removed matter and the cleansing fluid to discharge out of the device.

If desired, the apparatus may be made of somewhat more compact construction while retaining many of its thoroughly practical advantages by shaping the brushes, as is diagrammatically shown in Figure 4. In this figure, the upper brush, indicated at 40, as its bristles 41 preferably built up upon a wire core 42 in order to permit the rapid and convenient mounting of the brush in position, and these bristles 41 are shaped, as as 40^a, to present a concave pocket for engagement with the ball 23. The brush 40, however, is shaped to present a substantially flat portion 40^b at its upper part so as to rest flatwise against the upper portion 43 of the rotatable cup-shaped member 44, which may thus be made of less height in a vertical direction and reduced in diameter. The bristles are also cut short at the side, as at 40^c, to thus permit reduction in the diameter of cup 44. The lower brush 45 is of substantially like construction and is shaped, as at 45^a, to form a concave pocket-like portion for coaction with the upper brush upon the ball; at 45^b the brush 45 is shaped to rest flatwise against the bottom cup-shaped member 46 of the base portion 10 of the aparatus, and at 45^c also cut away. With this arrangement the two cup-shaped members into which the brushes are respectively received may be made of less height and of less diameter and the compactness of the apparatus corespondingly increased.

It will be seen that in both the construction shown in Figure 1 and that shown in Figure 5 the upper brush is shiftable toward the lower brush by the shafts 31 and 51 sliding through the bearing in the supporting yoke or auxiliary frame, and thus a requisite degree of pressure may be placed upon the golf ball or other spherical body supported within the brush and the upper brush will move downward as the bristles tend to wear off.

In Figure 5, I illustrate a very simple form of the device in which the base or main frame 47 supports the upwardly extending bristles 48, these bristles being recessed at the center of the mass to provide the concave ball cavity 49. The base is provided with the yoke or auxiliary frame 50 substantially as heretofore described, and operating through this yoke is the shaft 51 having the crank handle 52 whereby it may be rotated, and this shaft carries upon it the head 53 which is provided with the downwardly extending bristles 54 cut out, burned out or otherwise formed to provide a cup-shaped cavity confronting the cup-shaped cavity 49. Preferably this cup-shaped cavity in the brush 54 will have its axis slightly eccentric to the axis of the cup-shaped cavity 49 of the brushes 48 for the reasons heretofore stated.

While I have illustrated the yoke 50 as being pivoted to the base 47, it is to be understood that the shaft 51 might move up and down so as to permit the insertion of the ball between the two brushes, and the yoke 50 be stationarily connected to the base. I do not wish to be limited to the use of bristles which extend parallel to each other, as bristles might be provided which extend in convergent relation to each other, as shown in Figure 6, where the base with the upstanding bristles 48^a is shown. The base is also formed with a central opening through which dirt and any cleaning liquid may be discharged.

The action of the apparatus in practice is found to be rapid and highly efficient. It will be seen that the apparatus is of simple but thoroughly practical construction and is capable of manipulation in a thoroughly simple and convenient and rapid manner. The ball itself is automatically rotated and controlled in its rotation by the apparatus as the brushes of the latter effect their cleansing action, and it will thus be seen that manual manipulation of the ball with respect to moving parts is eliminated, the necessity for skilled operation of the device done away with, and the apparatus is thus exceedingly well adapted for operation by the layman, all without detracting from rapidity of operation and efficiency of action. It will thus be seen that there has been provided in this invention an apparatus in which the several objects of this invention, together with many thoroughly practical advantages, are effectively achieved.

I claim:—

1. In apparatus of the character described, in combination, a main frame having supported therein an annular concave brush adapted to receive a spherical object, an auxiliary frame supported by said main frame and arranged to be moved toward or away from the latter, an annular concave brush rotatably supported in said auxiliary frame and arranged so that its axis is eccentric with respect to the axis of said first-

mentioned brush, and means for causing rotary movement of said rotatably mounted brush.

2. In apparatus of the character described, in combination, a pair of coacting brushes, means mounting one of said brushes to permit it to be moved toward or away from the other, each of said brushes having a substantially hemispherical pocket and said mounting means being arranged so that the axis of one pocket is displaced with respect to the axis of the other, and means for causing relative rotary movement between said two brushes.

3. In apparatus of the character described, in combination, a pair of coacting brushes, each of which is provided with a concave recess and adapted conjointly to receive a spherical object, means mounting one of said brushes to permit it to be moved toward or away from the other, thereby to permit the insertion or removal of said spherical object, said brushes being arranged so that the axis of the concave recess of one is displaced with respect to the axis of the concave recess of the other, and means for causing movement of one brush about its axis with respect to the other.

4. An apparatus of the character described including a pair of coacting, yieldable, cleaning members, each of which is provided with a concave recess and adapted conjointly to receive therebetween a spherical object, and means for causing relative rotary movement between said two members, the axis of one of said members being eccentric to the axis of the other member whereby rotary movement will cause an irregular rotation of the spherical object between the cleaning members.

5. In apparatus of the character described, in combination, a pair of cup-shaped members, means supporting said members with their open ends adjacent one another and to permit rotary movement of one with respect to the other, a pair of yieldable members, each provided with a concave recess and adapted conjointly to receive a spherical object, and means removably supporting one each of said yieldable members in each one of said cup-shaped members.

6. In apparatus of the character described, in combination, a pair of cup-shaped members, means supporting said members with their open ends adjacent one another and to permit rotary movement of one with respect to the other, a pair of yieldable members, one each of said members being positioned in each one of said cup-shaped members and shaped for coaction upon a spherical object interposed therebetween, and means for causing relative rotary movement between said cup-shaped members.

7. In apparatus of the character described, in combination, a pair of cup-shaped members, means supporting said members with their open ends adjacent one another and to permit rotary movement of one with respect to the other, a pair of yieldable members, one each of said members being positioned in each one of said cup-shaped members and shaped for coaction upon a spherical object interposed therebetween, means removably mounting one of said yieldable members in its cup-shaped member, and means for causing relative rotary movement between said cup-shaped members.

8. In an apparatus of the character described, a substantially annular brush core of resilient material having parallel end portions and having inwardly extending brush bristles radial to the core to thus provide a substantially annular brush adapted to receive a spherical object, and means for supporting the core including a member having an outwardly extending recess within which the parallel end portions of the annular core are sprung.

9. In an apparatus of the character described in combination, a pair of substantially annular brushes each comprising a central, substantially annular core and bristles extending radially in all directions from said core, means supporting said brushes in opposed relation in coaction upon a spherical object interposed therebetween, and means for causing relative rotary movement between said brushes around an axis extending through both brushes at right angles to their planes of rotation, each of said brushes being reversible upon its supporting means.

10. In apparatus of the character described, in combination, a pair of substantially cup-shaped members, means supporting said members so that their open ends are adjacent one another, a pair of annular brushes, one seated within each cup-shaped member and adapted to coact upon a spherical object interposed therebetween, means for supporting each brush within its associated cup-shaped member and said means permitting reversal of the brush with respect to the cup-shaped member, and means for causing relative rotary movement between said cup-shaped members.

11. In apparatus of the character described, in combination, a pair of substantially cup-shaped members, means supporting said members with their open ends adjacent one another and with the axis of one cup-shaped member eccentric with respect to the other, a pair of annular brushes, one seated within each cup-shaped member and adapted to coact upon a spherical object interposed therebetween, means supporting each brush within its associated cup-shaped member said means permitting reversal of the brush with respect to the cup-

shaped member, and means for causing relative rotary movement between said cup-shaped members.

12. In apparatus of the character described, in combination, a main frame having supported thereon a brush provided with a concave recess adapted to receive a spherical object, a cup-shaped member supported by said frame and having a recess in the side wall thereof, a brush comprising a series of bristles supported by a resilient core and seated within said cup-shaped member, said core being bent into substantially circular form and having its free ends arranged to be received in said recess in the side wall of said cup-shaped member, and means for causing relative rotary movement of one brush with respect to the other.

13. A ball cleaning device including two opposed brushes, each having its bristles formed to provide a ball-receiving recess, a relatively fixed support for one of said brushes, a support for the other brush permitting the same to be moved toward or from the first named brush and rotated relative to the first named brush, and means whereby the second named brush may be rotated, the axis of one brush being eccentric to the axis of the other brush.

14. A ball cleaning device including two brushes, each having bristles formed to provide confronting ball-receiving recesses in the brushes, and means for causing a rotary movement of one brush relative to the other in a plane parallel to the other brush, the recesses in the brushes being eccentric to each other to thereby cause a rotation of the ball between the brushes around a constantly changing axis as the brushes are rotated.

In testimony whereof I hereunto affix my signature.

WILLIAM H. DINEHART.