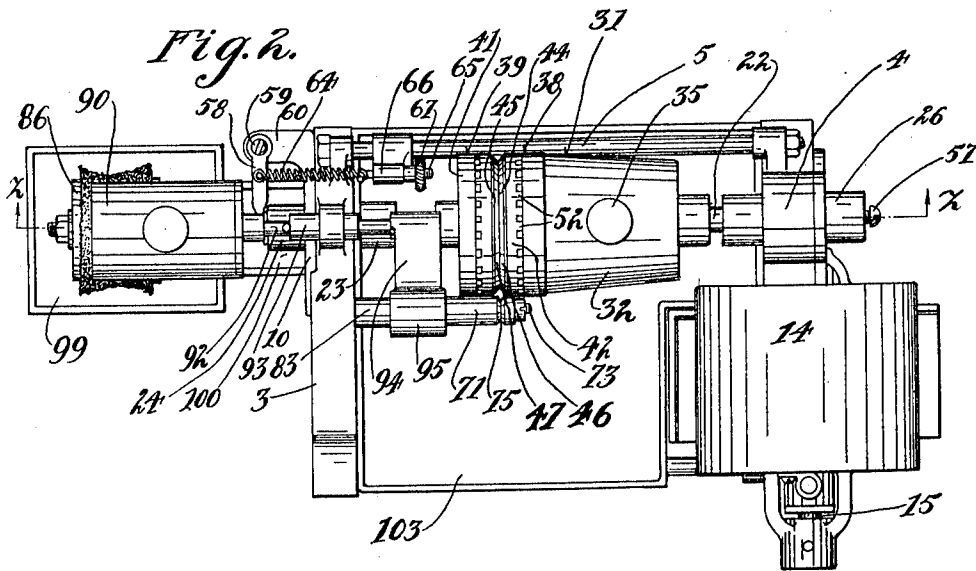
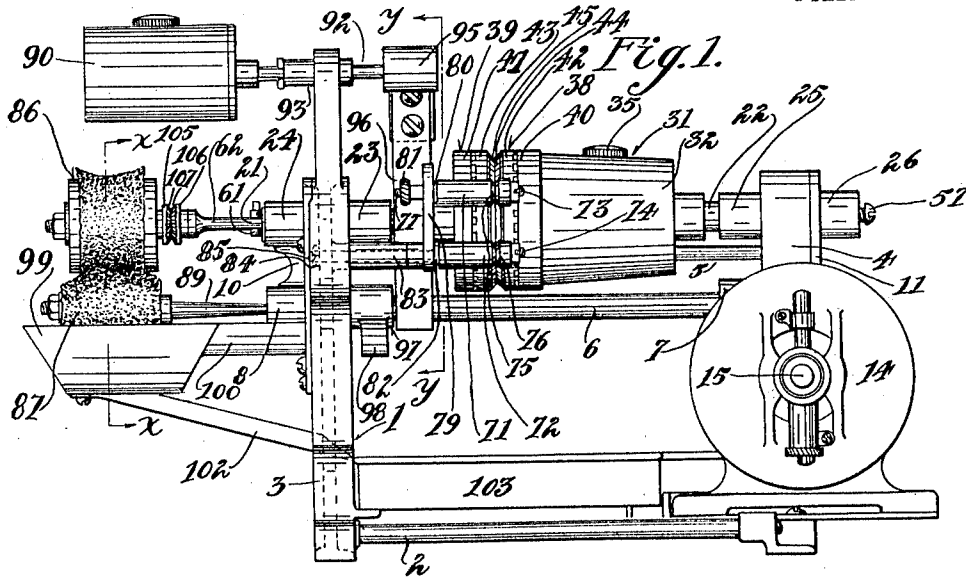


E. W. KOTTUSCH.
CLEANING OR POLISHING MACHINE.
APPLICATION FILED AUG. 12, 1910.

1,061,481.

Patented May 13, 1913.

2 SHEETS—SHEET 1.



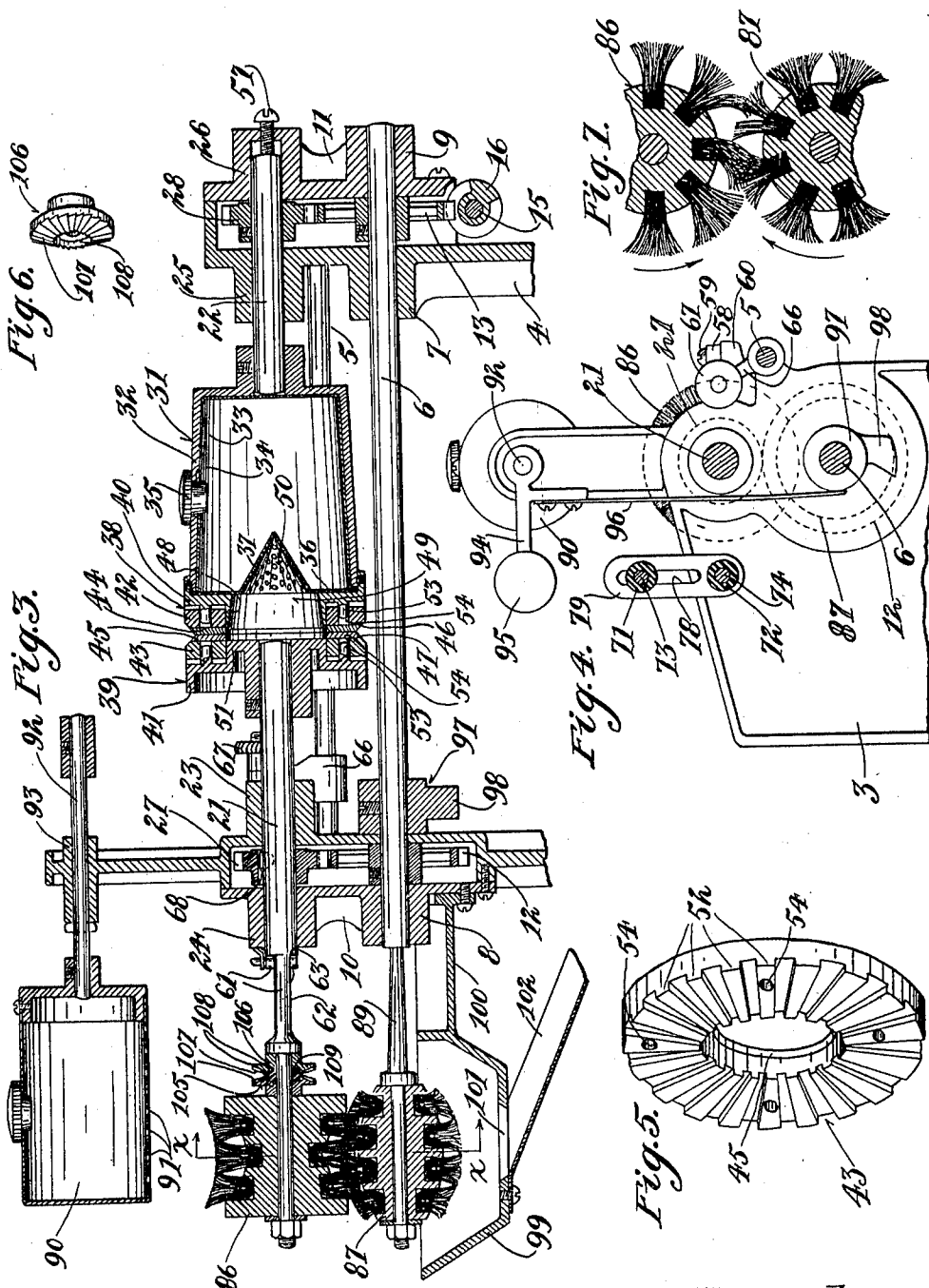
Witnesses:
Jacob H. Hollander
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His Attorney.

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His Attorney.

UNITED STATES PATENT OFFICE.

EMIL W. KOTTUSCH, OF CINCINNATI, OHIO, ASSIGNOR TO THE MILLER, DU BRUL & PETERS MANUFACTURING COMPANY, OF CINCINNATI, OHIO, A CORPORATION OF OHIO.

CLEANING OR POLISHING MACHINE.

1,061,481.

Specification of Letters Patent.

Patented May 13, 1913.

Application filed August 12, 1910. Serial No. 576,790.

To all whom it may concern:

Be it known that I, EMIL W. KOTTUSCH, a subject of the Emperor of Germany, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Cleaning or Polishing Machines, of which the following is a specification.

My invention relates to cleaning or polishing machines intended for use in cleaning or polishing knives, forks, spoons, and the like, and has for its object the provision of novel means whereby the cleaning or polishing of articles of the character mentioned may be conveniently performed, and the invention will be readily understood from the following description and claims, and from the drawings, in which latter:

Figure 1 is a front elevation of my improved device. Fig. 2 is a plan view of the same. Fig. 3 is a vertical axial section taken on the line $z-z$ of Fig. 2. Fig. 4 is a vertical cross-section taken on the line $y-y$ of Fig. 1. Fig. 5 is a rear perspective elevation of one of the cushion-rings. Fig. 6 is a perspective view of one of the knife-sharpening disks; and Fig. 7 is a sectional detail on the line $x-x$ of Fig. 1, illustrating the action of the polishing brushes.

1 represents the main frame which as shown comprises a base 2 and side uprights 3 4, the latter connected by a suitable brace-rod 5.

6 is a drive-shaft journaled in a suitable bearing 7 of the main frame and in bearings 8 9 of gear-covers 10 11 suitably secured to the side uprights. Gears 12 13 are secured to the drive-shaft and the drive-shaft may be driven in suitable manner by hand or power; in the present instance I have shown the drive-shaft driven by an electric motor 14, the armature-shaft 15 of which has a worm 16 thereon which meshes with the gear 13.

21 22 are driven shafts preferably located in axial plane with each other, the shaft 21 being journaled in a bearing 23 of the upright 3 and a bearing 24 of the gear-cover 10. The shaft 22 is journaled in a bearing 25 of the upright 4 and a bearing 26 on the gear-cover 11. These respective shafts have gears 27 28 thereon which mesh with the gears 12 13 for driving the driven shafts 21 22 at similar speeds, but preferably greater

speed than the speed of the drive-shaft 6 55 for purposes to be hereinafter explained.

31 is a receptacle adapted to contain a suitable cleaning or polishing powder and is secured to the shaft 22. It preferably comprises an outer shell 32, which in practice is made of cast-iron, and an inner container 33, the cleaning or polishing powder being received in the receptacle through an opening 34 closed by a plug 35. The outer shell being of cast metal, its inner wall is rough and prevents proper action of the powder. To provide a proper inner surface for the receptacle in economical manner I provide the inner container and preferably form the same of tin, which presents a smooth surface upon which the powder will readily shift and roll, this inner container being received in the outer shell for forming an inner wall therefor.

The side wall of the inner container is frusto-conical in form, the end of larger diameter thereof being adjacent the cleaning or polishing heads hereinafter described for directing the powder in the container toward the said end when the receptacle is revolved. The inner container is preferably closed by an end-sheet 36 of tin. The end-sheet 36 of the container is adjacent said heads and comprises a conically formed sifter 37 extending inwardly into said receptacle and having its mouth presented toward the inner portions of said heads. The construction stated directs the powder in the receptacle toward the head-end of the receptacle, and as the powder is carried upwardly during the turning of the receptacle, it drops upon the conically formed perforated sifter, which causes the powder to be directed reversely in the container, and directs the powder which has passed through the perforations toward the heads, and maintains the powder in agitation, so that packing or solidifying of the powder may be avoided, and insures a proper feed of the powder to the outside of the container, so that sufficient powder will be maintained at the heads to insure proper polishing.

38 39 are the cleaning or polishing heads, which comprise supporting plates 40 41, cushion-rings 42 43, and cleaning or polishing rings 44 45. The plate 40 is secured to the end of the receptacle 31, and also preferably holds the end-sheet 36 in place. The

plate 41 is secured to the shaft 21. The cushion-rings 42 43 are supported by the respective plates, and the adjacent faces of the cushion-rings have the cleaning or polishing rings 44 45 thereon, being preferably secured thereto by means of cement. The outer and inner edges of the polishing rings are preferably beveled as shown at 46 47, for permitting ready insertion of the knife between the rings. The cushion-rings are preferably of rubber or other yielding material and the cleaning or polishing rings are preferably of leather or similarly acting material.

The plate 40 is provided with an annular flange 48, the inner wall of which is preferably of frusto-conical form with its end of larger diameter adjacent the meeting points between the heads, and forms a powder-receiving space 49 with which the conically formed space 50 of the sifter 37 communicates. This flange preferably extends beyond the meeting faces between the polishing ring 44 and the cushion-ring 42. The plate 41 is provided with a hub 51 about which the cushion-ring 43 is received.

The cushion-rings are preferably formed with ribs 52 on their faces adjacent their backing plates. These ribs preferably extend radially and permit ready yield of all parts of the rings, and further provide means whereby alternating points of greater and less pressure are directed against the object being polished. The points on the cleaning or polishing rings backed by the ribs yield at slightly greater resistance than the points of the cleaning or polishing rings backed by those points of the cushion-rings at which the spaces between the ribs are located. The effect is that the cushion-rings will have greater resilience and yield at less pressure than if a solid ring were employed while a vibrating effect is imparted at the surface of the object being cleaned or polished by the cleaning or polishing rings. The polishing rings are preferably held against turning on the plates by studs 53 on the plates being received in holes 54 in the cushion-rings.

The heads are preferably yieldable with relation to each other, and I provide adjustment for this yield, so that greater pressure may be maintained when cleaning or polishing steel knives, and only slight pressure maintained when cleaning or polishing silver knives, and for similar purposes. For positioning the head 38 I provide an end-thrust screw 57 threaded in the end of the bearing 26. The shaft 21 is yieldable longitudinally for permitting yield of the head 39. I provide this yield preferably by means of an arm 58 pivoted at 59 to a bracket 60 and provided with a fork 61 received over the reduced shank 62 and against the shoulder 63 of the shaft 21. A spring 64 has one end

thereof secured to the arm 58 and the other end thereof to a threaded rod 65 which has longitudinal adjustment in a bearing 66 secured to the brace-rod 5, the longitudinal adjustment being accomplished by a thumb-nut 67. The tension of the spring 64 determines the pressure between the cleaning or polishing rings. For permitting endwise movement of the shaft 21 without disturbing its drive, I provide a spline-connection 68 between said shaft and the gear 27.

When a knife is inserted between the heads to be cleaned or polished, the spring will cause the rings 44, 45 to make close contact with the knife, and the cushion-rings will cause said rings 44 45 to close about said knife so that the latter rings will be separated only at the points of contact with the knife, thereby preventing the loss of polishing powder in the space between the rings, the polishing powder in said space however coming in contact with the knife in sufficient quantity to insure its proper cleaning or polishing. Each knife receives a fresh supply of powder and no dirt can enter the powder-space, and the powder being kept in continual agitation is capable of being entirely used.

For guiding the knife between the rings 44 45 I provide rollers 71 72, which may be of electric insulating fiber, on studs 73 74, the rollers being provided with annular depressions 75 76 in which the knife is guided. The distance between the guide-rollers is adjustable as by passing the threaded end 77 of the stud 73, through a slot 78 of an arm 79, the arm being clamped between a shoulder 80 on the stud and a nut 81. The arm 79 is radially positioned and clamped about the stud 74, between a shoulder 82 thereon and a boss 83 on the upright 3 by a nut 84 received over the threaded end 85 of the stud 74.

Rotary cleaners or polishers 86 87 are located in vertical plane with each other and shown in the form of rotary brushes. The brush 86 is secured to the reduced extension 62 of shaft 21, and the brush 87 is secured to a reduced extension 89 of shaft 6, permitting yield between the brushes. These brushes have mating peripheral forms conforming in general outline to the inner and outer surfaces of the bowls of the spoons and are intended to be used in cleaning or polishing spoons, forks and the like, the bristles of the brushes being readily received between the tines of the forks and the brushes themselves being of such form as to readily clean or polish the inner and outer surfaces of the bowls of the spoons simultaneously, the handles of the forks and spoons being also readily received between the brushes for cleaning or polishing both sides thereof simultaneously. One of the brushes preferably rotates at greater peripheral speed than

the peripheral speed of the other of said brushes, so that the one brush will clean itself upon the other during the interims between the applications of the articles being cleaned thereto. The brush 86 is in-
 5 stanced as rotating faster than the brush 87. The spring 64 acting on the arm 58 also causes the brush 86 to be maintained in proper vertical position with relation to the
 10 brush 87, but permits endwise yielding movement of the brush 86 when force is exerted outwardly against said brush in cleaning or polishing the outer surface of the bowl of the spoon.

90 is a receptacle adapted to contain the cleaning or polishing powder for application to the brushes and at the bottom thereof has perforations 91 located above the brushes. This receptacle is mounted on a rock-shaft 92 journaled and slidable in a bearing 93 in the upright 3. An arm 94 is secured to the
 20 rock-shaft and has a weight 95 thereon. A spring 96 depends from the arm into range of a striker 97 secured to the drive-shaft. As the drive-shaft turns the lug 98 of the
 25 striker makes contact with the spring and thereby raises the weight 95, and when the lug has turned out of range of the spring the latter drops against the hub of the
 30 striker by the force of the weight 95. This spring is a light leaf spring, and the action is such that when forced against the hub by the action of the weight it will cause re-
 35 bounding of the weight and cause a shaking of the receptacle 90 similar to hand agitation and cause ready dropping of the powder upon the brushes.

When the brushes are not being used, the shaft 92 is moved longitudinally so as to
 40 bring the spring 96 out of vertical plane with the lug of striker 97, whereby the receptacle 90 will remain unagitated, and thereby prevent the dropping and waste of powder. As the powder drops upon the
 45 brushes during use, it is fed to the article being cleaned or polished and also aids in maintaining the brushes in dry condition. The brushes rotating at different peripheral speeds further causes the brushes to mutu-
 50 ally clean themselves and work the dry powder lengthwise of the bristles of the brushes in cleaning the same. The action is illustrated in Fig. 7, the bristles rubbing longi-
 55 tudinally along one another, the dry powder dropping upon them meanwhile for drying the same and removing dirt therefrom. The powder used and the dirt drops into a pan 99 secured to the upright 3, by means of a
 60 bracket 100, the pan having an opening 101 in its bottom with which a chute 102 communicates for dropping the used powder and dirt to a pan 103 below the polishing heads
 38 39.

105 106 are knife-sharpening disks, the
 65 adjacent faces of which are provided with

sharpening ribs 107 which when the disks are placed in endwise adjacent positions re-
 70 ceede outwardly from each other for permitting the edge of the knife to be received between the same. The adjacent faces of the mating disks are provided with sockets 108
 75 in which a ring 109 is received which acts as a contact-ring for the edge of the knife. The ring 109 is preferably a hard fiber ring such as is for instance used for electric insulation and it acts as a support for the edge of the
 80 knife and prevents the edge from being drawn inwardly by the action of the cutting ribs 107 and insures a regular edge and prevents the ribs from gouging into the edge or causing notches therein.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a polishing machine, the combina-
 85 tion with a pair of shafts arranged in alinement and at constant distance during operation, polishing heads rigidly secured on the adjacent ends of said shafts, a powder chamber in one of said heads, a polishing plate on
 90 each of said heads and means for holding said plates yieldingly in contact with each other, whereby the plates may be sprung apart when inserting an article between them for polishing and whereby the plates
 95 are again brought into contact with each other upon the withdrawal of said article to prevent leakage of cleaning powder from between the plates.

2. In a cleaning and polishing machine, 100
 the combination of a pair of polishing heads arranged at a constant distance from each other, said heads having a powder space open to the joint between said heads, of means for holding said heads yieldingly
 105 against each other.

3. In a cleaning and polishing machine, the combination with a pair of cleaning heads kept at a constant distance from each other, each head comprising a supporting
 110 plate having an inner annular flange, a cleaning ring keyed to rotate with its supporting plate, a cushion ring mounted on said flange between said cleaning ring and supporting plate, a powder receptacle to one
 115 side of one of said heads, said powder receptacle comprising a sifter opening into the space formed by said annular flange.

4. In a cleaning and polishing machine, the combination with a pair of alined shafts
 120 arranged at a constant distance from each other, adjacent polishing heads on said shafts, a polishing disk on each head and means for holding said disks yieldingly in contact with each other, a third shaft ar-
 125 ranged parallel to said pair of shafts, and gearing between said third shaft and each of said pair of shafts.

5. In a cleaning and polishing machine, the combination with a pair of alined shafts, 130

arranged at a constant distance from each other, polishing heads rigidly secured on the adjacent ends of said shafts, a polishing disk on each head and means for yieldingly holding said disks in contact, a third shaft arranged parallel to said pair of shafts, gearing between said third shaft and each of said pair of shafts, whereby the shafts are driven faster than the third shaft and end thrust means for one of said pair of shafts.

6. In a cleaning and polishing machine, the combination with a pair of heads comprising supporting plates rigidly attached to a pair of shafts, cushions having abrading parts, and a central powder space, of a powder receptacle having an inner wall which slants toward said powder space and a discharge member tapered in the same direction as said inner wall to conduct the powder to said space.

7. In a cleaning and polishing machine, the combination with a pair of heads comprising supporting plates rigidly attached to a pair of shafts, cushions having abrading parts, and a central powder space, of a powder receptacle having an inner wall which slants toward said powder space and a discharge member within said receptacle, said member having a wall slanting toward said space to conduct the powder to said space.

8. In a cleaning or polishing machine, the combination of a pair of heads of the character described, and a rotary powder-receptacle therefor having a sieve extending inwardly into said receptacle and having slanting perforated wall which opens toward the meeting line between said heads, substantially as described.

9. In a cleaning or polishing machine, the combination of a pair of heads of the character described comprising supporting plates, cushions having knife-abrading parts thereon, and a central powder-space, a powder-receptacle having an inner wall which slants toward said powder-space, and a conically formed sieve which extends inwardly into said receptacle and opens toward said powder-space, substantially as described.

10. In a cleaning or polishing machine, the combination of a pair of heads of the character described and a receptacle therefor at the side thereof comprising an outer shell, an inner powder-container received in said shell, an end-sheet and a sieve for the latter having apertured sloping wall projecting inwardly into said container and having a mouth opening toward the meeting line between said heads, substantially as described.

11. In a machine of the character described, the combination of a pair of heads,

means for causing resilient approach between said heads, said heads arranged end to end and provided with a central space at the meeting line between said heads, and a powder-receptacle comprising a perforated sieve having a wall slanting inwardly into said casing and opening outwardly into said space, substantially as described.

12. In a cleaning or polishing machine, the combination of a head of the character described, comprising a supporting plate and a cushion having a knife-contacting part thereon, the said cushion and supporting plate having alternated raised portions and spaces therebetween, substantially as described.

13. In a cleaning or polishing machine, the combination of a head of the character described, comprising a supporting plate and a cushion having a knife-contacting part thereon, the said cushion having thereon ribs at its face adjacent to said supporting-plate, substantially as described.

14. In a cleaning or polishing machine, the combination of a head of the character described, comprising a supporting plate, a cleaning or polishing ring, and a cushion-ring between the latter and said supporting plate, the side of said cushion-ring adjacent to said plate having alternate radially arranged ribs and recesses, for the purpose described.

15. In a cleaning or polishing machine, the combination of a cleaning head comprising a supporting plate having an inner annular flange, a cleaning ring, a cushion-ring received about said flange between said cleaning ring and supporting plate, a powder-receptacle to one side of said head, said powder-receptacle comprising a conically formed sifter opening into the space formed by said annular flange, substantially as described.

16. In a machine of the character described, the combination of a cleaning head comprising a supporting plate having an inner annular flange, a cleaning ring, a cushion-ring received about said flange between said cleaning ring and supporting plate, a powder-receptacle at one side of said head, said powder-receptacle comprising a sifter opening into the space formed by said annular flange, the inner face of said annular flange and sifter being conically formed and sloping toward said cleaning ring, substantially as described.

17. In a machine of the character described, the combination of cleaning heads arranged end to end and each comprising a supporting plate, a cleaning ring and a cushion-ring between said cleaning ring and supporting plate, said cushion-rings being provided with ribs and spaces therebetween adjacent to the supporting faces of said sup-

porting plates, said supporting plates at
their supporting faces being provided with
lugs, said cushion-rings being provided with
apertures in which said lugs are received,
5 and means for turning said cleaning heads,
substantially as described.

In testimony whereof, I have signed my

name hereto in the presence of two subscrib-
ing witnesses.

EMIL W. KOTTUSCH.

Witnesses:

JACOB A. HOLLANDER,
LILLIAN BURNETT.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."