

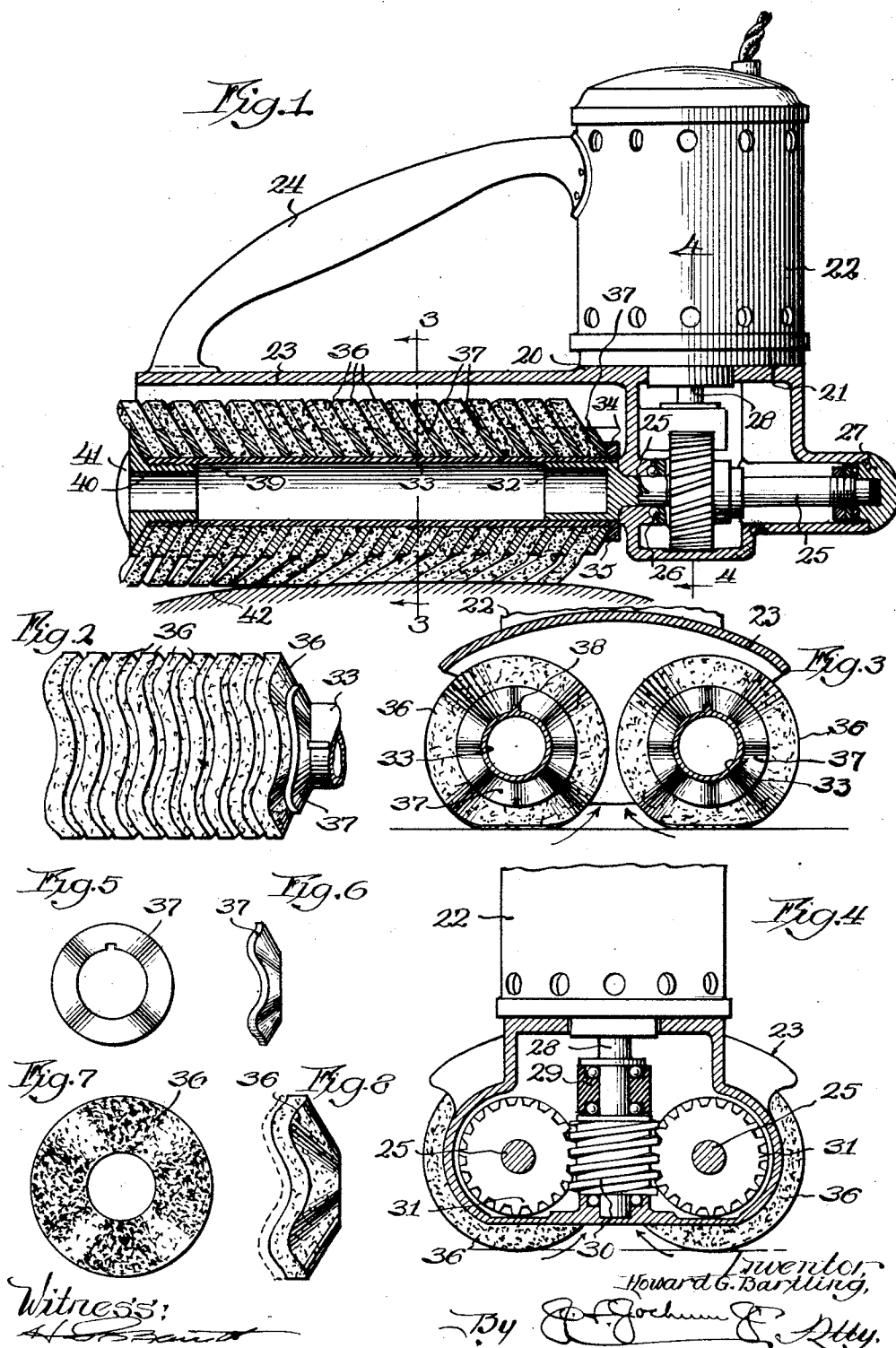
April 7, 1931.

H. G. BARTLING

1,799,808

RUBBING MACHINE

Filed March 27, 1925 2 Sheets-Sheet 1



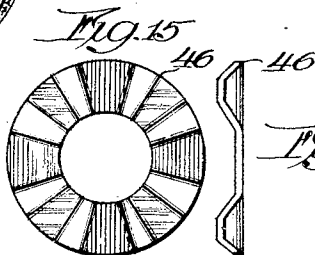
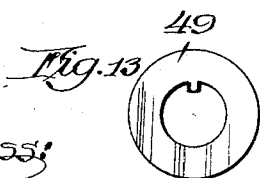
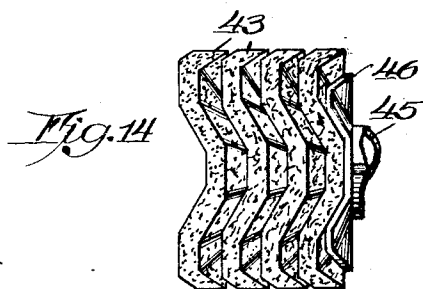
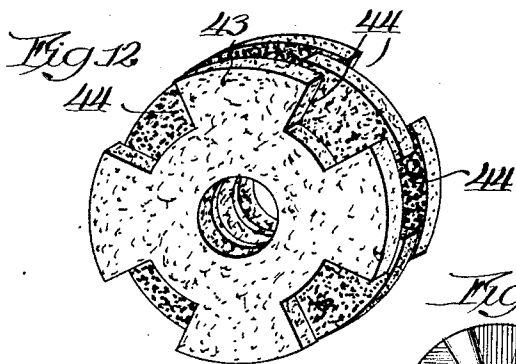
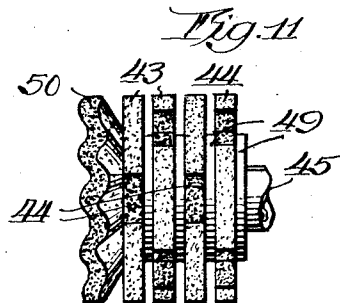
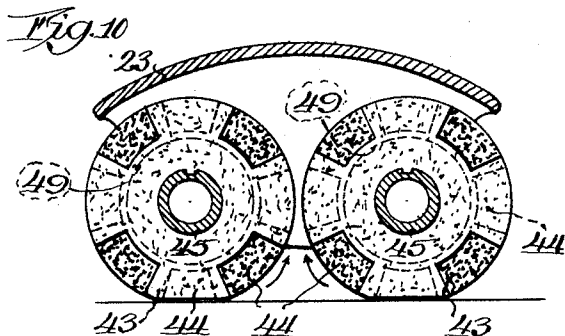
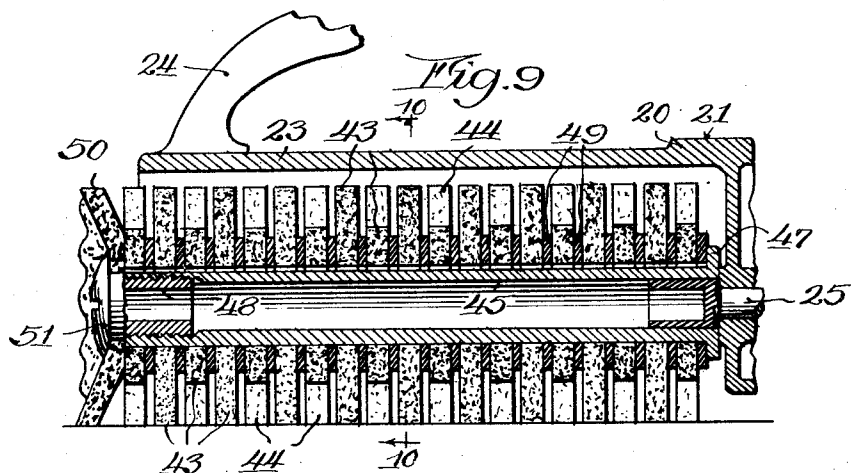
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RUBBING MACHINE

Filed March 27, 1925 2 Sheets-Sheet 2



Witness:
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UNITED STATES PATENT OFFICE

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RUBBING MACHINE

Application filed March 27, 1925. Serial No. 18,774.

This invention relates to improvements in rubbing machines particularly adapted though not necessarily limited in its use for rubbing the surfaces of automobiles and also polished and varnished surfaces, and one of the objects of the invention is to provide an improved machine of this character in which is embodied a rubbing member adapted to effectively rub curved, irregular and uneven surfaces, the rubbing member being rotatable and embodying a plurality of separate flexible disc-like rubbing elements, the outer edges of which are free to conform to the contour of the surface being operated upon.

A further object is to provide in an improved machine of this character a rotatable rubbing member embodying flexible disc-like rubbing elements, the peripheries of the elements, when pressure is exerted upon the machine, being deflected and co-operating to present a substantially continuous surface of yieldable material to conform with the contour of the surface of the work, centrifugal action operating to cause the discs to be brought back to normal.

To the attainment of these ends and the accomplishment of other new and useful objects as will appear, the invention consists in the features of novelty in substantially the construction, combination and arrangement of the several parts hereinafter more fully described and claimed and shown in the accompanying drawings illustrating this invention, and in which

Figure 1 is a view partly in elevation and partly in longitudinal section of an improved machine of this character constructed in accordance with the principles of this invention.

Figure 2 is a detail elevation of one form of rubbing member.

Figure 3 is a detail, vertical, sectional view taken on line 3—3, Figure 1.

Figure 4 is a detail, vertical, sectional view taken on line 4—4, Figure 1.

Figure 5 is a front elevation of one form of spacing member.

Figure 6 is a side elevation of Figure 5.

Figure 7 is a front elevation of one of the

elements constituting the rubbing member.

Figure 8 is a side elevation of Figure 7, showing it in the shape which it will assume when the elements are clamped together.

Figure 9 is a detail, longitudinal sectional view of another form of rubbing member.

Figure 10 is a sectional view on line 10—10, Figure 9.

Figure 11 is a detail side elevation of one end of one of the rubbing members.

Figure 12 is a detail perspective view of several of the disc-like rubbing elements in their normal condition.

Figure 13 is a detail elevation of one of the spacing members.

Figure 14 is a side elevation of the rubbing members, showing the shape they will assume when clamped together by a modified spacing member.

Figure 15 is a front elevation of the form of spacing member used in Figure 14.

Figure 16 is a side elevation of Figure 15.

Referring more particularly to the drawings the numeral 20 designates generally a supporting structure which may be of any desired size and configuration and is provided with a supporting surface 21, upon which a suitable motor or driving mechanism 22 may be mounted. A portion of the member 20 is shaped to form a shield 23 beneath which the rubbing members are located and a handle 24 may be provided by means of which the machine may be manipulated or transported.

Journalled in the supporting structure 20 is a shaft 25, having a bearing 26 and an end thrust bearing 27. This shaft 25, two of which are shown in the present invention, receives motion from the motor 22, preferably through the medium of a shaft 28 journaled in a suitable bearing 29 and having connected therewith a gear 30 preferably of the worm type. This gear 30 meshes with gears 31 connected with each of the shafts 25 for rotation therewith and in such a manner that the shafts 25 will be rotated in opposite directions.

As each of the rubbing elements and the connection to the respective drive shafts is

the same, the description of one will apply equally as well to them both.

Connected with the shaft 25 is a bearing 32 which is adapted to be telescoped into one end of a tubular member 33, and the member and shaft are secured together in any suitable manner so that they will rotate together.

The member 33 is preferably provided with a shoulder 34 at one end thereof, having an inclined face 35. This member 33 may be of any desired length and diameter and is adapted to support a plurality of disc-like rubbing elements 36. These elements are constructed of any suitable flexible material and may be of any desired diameter and of any thickness. They are sleeved upon the member 33 and intermediate the elements 36 are arranged spacing members 37. These spacing members are preferably constructed of any suitable non-flexible material such as metal or the like and are held against rotation with respect to the element 33 in any suitable manner, such as by means of a key or feather 38. The spacing members 37 are of a diameter considerably less than the diameter of the elements 36 and are preferably of a corrugated or undulated configuration of a frustro-conical shape. One of these spacing members is placed between each pair of rubbing elements 36, and one of the spacing members is also preferably placed upon the member 33, so as to abut the inclined surface 35 of the collar or shoulder 34.

The outer extremity of the member 33 is preferably provided with internal screw threads 39 adapted to receive a screw or fastening device 40, and which screw or fastening device is preferably provided with a head 41 which co-operates with the shoulder 34 so as to clamp the rubbing elements 36 and the spacing members 37 together, and to cause the rubbing elements 36 to conform to the contour of the spacing members 37.

When the rubbing elements 36 are thus clamped together spaces will be formed intermediate adjacent rubbing elements 36 so as to permit the peripheries of the rubbing elements 36 to be deflected, in the manner shown in Figure 1, against the work surface 42, when pressure is exerted upon the machine and thereby cause the peripheries of the flexible members 36 to form a substantially continuous surface against the work.

During the operation of the machine the shield 23 which extends over the rubbing members will prevent the rubbing material or compound from being thrown out by the rubbing elements.

Furthermore the peripheries of the flexible elements 36 will cause them to conform to the contour of any irregular or curved surface which is being operated upon.

The rubbing members rotating in directions

opposed to each other will also cause the rubbing compound or material to be fed inwardly and maintained within the confines of the edges of the machine.

In the form of the invention shown in Figures 9 to 12 the flexible rubbing elements 43 are provided with recesses or cavities 44 arranged thereabout and extending through the peripheries of the respective elements.

These elements 43 in their normal condition are flat and are so arranged upon the supporting or rotatable member 45, which corresponds with the member 33 in the form shown in Figure 1, that the recesses of adjacent elements 43 will be in staggered relation with respect to each other.

In the form of the invention shown in Figures 14 to 16 the spacing elements 46 are constructed of any suitable non-elastic material and are corrugated or formed with radially extending flutes so that when the rotating elements 43 and the spacing members 46 are clamped together against a shoulder 47 on one end of the member 45 by means of the screw or fastening device 48 at the other end of the member 45, the rubbing elements 43 will be caused to be distorted or deflected so as to conform to the contour of the spacing members 46, as shown more clearly in Figure 14, and at the same time the spaces will be formed between adjacent rubbing elements 43.

In Figures 9 and 11 the spacing members 49 are flat so that when placed in position between the rubbing elements 43, and all of these parts clamped together by the screw or fastening device 48, the rubbing elements 43 of this form of the invention will be maintained in their normal shape.

If desired an additional rubbing element 50 may be provided and constructed of a similar suitable flexible material. This element 50 may be secured to the end of the member 45 by the screw or fastening device 48, through the medium of the head 51, and this element 50 is provided for the purpose of causing the flexible rubbing elements to extend beyond the member 45 so that the end of the machine may be employed for rubbing purposes and also to prevent injury to any surface with which the end of the element 45 might contact.

In all of the forms of the invention the spacing members are of a diameter considerably less than the diameter of the flexible rubbing elements so that the peripheries of the rubbing elements may be deflected when pressure is exerted upon the machine and the spaces between adjacent rubbing elements will permit the peripheries of the elements to be thus deflected.

In this form of the invention shown in Figures 10 to 12 the pockets or recesses 44 serve as a means for assisting in conveying the rubbing material in directions lengthwise of the rubbing member.

Obviously the pockets or recesses 44 may be arranged in any desired or suitable manner so as to cause the rubbing compound or material to be fed in any desired direction
5 lengthwise of the rubbing member.

While the preferred forms of the invention have been herein shown and described it is to be understood that various changes may be made in the details of construction and in
10 the combination and arrangement of the several parts, within the scope of the claims, without departing from the spirit of this invention.

What is claimed as new is:—

15 1. In a rubbing machine, a rotatable element, a plurality of flexible discs sleeved upon the said element, frusto-conical spacing elements interposed between said discs and of a diameter less than the diameter of the
20 discs whereby the peripheries of the discs will form flexible work engaging surfaces, and means exerting lateral pressure upon the discs and spacing elements for securing them together.

25 2. In a rubbing machine, a rotatable element, a plurality of flexible discs sleeved thereupon, non-flexible spacing elements interposed between the discs and of a diameter considerably less than the diameter of the
30 discs, the bodies of said spacing members having radially extended flutes, and means for forcing the discs and spacing members together laterally whereby the bodies of said discs will be deflected to conform to the con-
35 tour of the bodies of the adjacent spacing members.

3. In a rubbing machine, a rotatable element, a plurality of flexible discs comparatively wide with relation to their thickness
40 sleeved thereupon, non-flexible spacing elements interposed between the discs and of a diameter considerably less than the diameter of the discs, a portion of the body of said spacing elements between their axes and the
45 peripheries thereof being displaced laterally, and means for forcing said discs and spacing elements together.

4. A rubbing device embodying a rotatable element, a series of flexible discs sleeved
50 upon said element, spacing means having radially extended flutes interposed between adjacent discs and of a diameter considerably less than the diameter of the discs for
55 deflecting the peripheral portion of said discs laterally with respect to the body portions when the discs are clamped together, and means for clamping the discs together.

5. In a rubbing device, a rotatable element,
60 a series of flexible discs secured to said element, and means interposed between adjacent discs for holding them spaced, the said means being of a diameter considerably less than the diameter of the discs, the lateral
65 faces of said discs being inclined to a plane

perpendicular to the axis of the rotatable element.

In testimony whereof I have signed my name to this specification, on this 24th day of March, A. D. 1925.

HOWARD G. BARTLING.

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