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MEAT BLOCK SCRUBBER

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Fig. 1

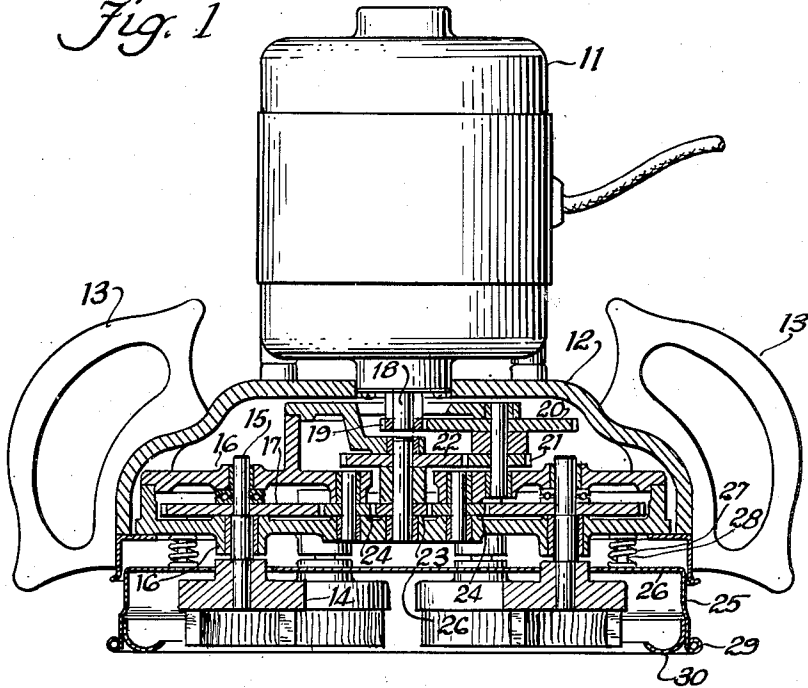
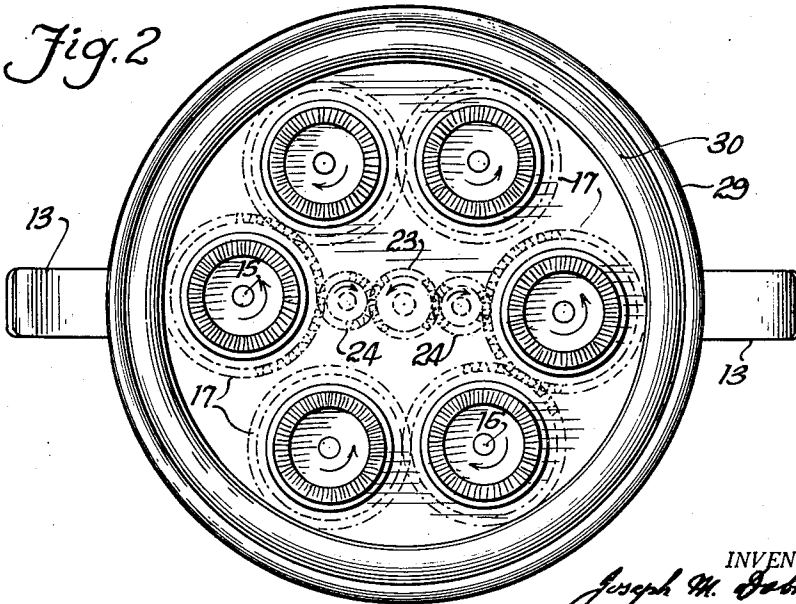


Fig. 2



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MEAT BLOCK SCRUBBER

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4 Claims. (Cl. 15—28)

1

This invention relates to a machine for scraping, scrubbing or polishing substantially flat surfaces and has for an object the provision of an improved device of that character.

According to this invention, a series of brushes are driven by an electric motor and a system of gears which cause rotation of adjacent brushes in opposite directions.

In the preferred form of this invention the brushes are divided into two groups, the brushes of the individual groups being geared together in series relationship, and a central gear mechanism drives one brush of each group. Rotation of adjacent brushes in opposite directions substantially eliminates "walking" of the device across the surface being treated.

An apron circumferentially surrounds the entire brush assembly and is arranged to support resiliently the remainder of the device above the level of any flat surface upon which the apron may rest. However, a slight downward pressure by the operator will cause the brushes to come into contact with the surface. This feature reduces the danger of damage to a surface being treated in the event that the operator inadvertently leaves the machine running unattended.

Accordingly, another object of this invention is to provide an improved scraper or polisher which will not tend to "walk" across the surface being treated.

Another object of this invention is to provide an improved scraper or polisher which may safely be allowed to rest on a surface being treated when its motor is running, without danger of contact of the brushes with that surface.

Another object of this invention is to provide a scraper or polisher of economical and durable construction while at the same time having the advantages mentioned above.

This invention, together with further objects and advantages thereof, will best be understood by reference to the following description taken in connection with the accompanying drawing, and its scope will be pointed out in the appended claims.

In the drawing:

Fig. 1 is an elevational view, partially in cross section, of a scraper constructed in accordance with this invention; and

Fig. 2 is a bottom view of the scraper shown in Fig. 1.

A motor 11 is supported on a housing 12, having a pair of handles 13 for convenient manipulation of the device. A series of six brushes 14 are located at the bottom of the scraper with their

2

working faces lying substantially in a single plane. Each brush is mounted on a stub shaft 15 which is rotatably mounted in bearings 16, these bearings being rigidly mounted in housing 12. Each brush is driven by a gear 17 rigidly mounted on the corresponding stub shaft 15.

As best seen in Fig. 2, the six brushes are divided into two groups of three each. The gears 17 of each of the three brushes of either group are connected or meshed in series relationship, and accordingly adjacent brushes of either group rotate in opposite directions. The opposite direction of rotation of adjacent brushes substantially reduces or eliminates the tendency of the scraper to "walk" or move under its own power across the surface being treated.

Connected to the motor shaft 18 is a speed reduction gear mechanism including gears 19, 20, 21 and 22, each gear being mounted in bearings rigidly fixed to housing 12. The centrally located gear 22 and gear 23 which is directly connected thereto, are thereby driven at a speed substantially lower than that of the motor shaft 18. Gear 23 drives one brush of each group through the corresponding brush gear 17 and idler gears 24 and, since the three brushes of each group are geared together, all brushes are driven by gear 23 and motor 11.

It will be noted by observation of Fig. 2 that in the particular embodiment shown the end brush of one group rotates in the same direction as the adjacent end brush of the other group. Tests have shown that this factor does not result in any substantial "walking" tendency of the device. However, if it is desired to cause adjacent brushes throughout the machine to rotate in opposite directions, this can be accomplished through several obvious equivalents of the embodiment illustrated. For example, an even number of brushes can be provided in each group, two groups of four brushes each or three groups of two brushes each, with idler gears connecting gear 23 with corresponding brushes of each group; also, in the embodiment shown, one idler gear 24 can be relocated to drive the central brush of one group. These arrangements will result in rotation of adjacent brushes in opposite directions throughout the machine.

A substantially rigid apron 25 extends circumferentially around the entire brush assembly. The upper portion 26 of apron 25 is resiliently connected to housing 12 through springs 27 and sliding pins 28, and the lower end of the apron terminates in a rolled portion 29. This rolled portion extends downwardly beyond the plane of

3

the working faces of the brushes when springs 27 are in their extended condition.

Springs 27 are of sufficient strength to support the entire weight of the scraper and, therefore, when the scraper is resting on a surface the rolled portion 29 of apron 25 will be the only portion of the scraper to touch the surface. However, a light downward pressure on handles 13 by the operator will overcome springs 27 and will cause brushes 14 to come into contact with the surface and polish or scrape that surface, depending on the nature of the brushes used.

Connected to the inner surface of apron 25 is an annular cup member 30 arranged to hold the material scraped from the surface being treated. A relatively high speed is intended for brushes 14, a speed for example of 1000 R. P. M. As a result of this high speed, particles scraped from the surface being treated will be thrown outwardly by centrifugal force and will lodge in cup member 30. The accumulated particles may, of course, be emptied as desired, merely by tipping the device.

It has been found that this device is particularly well adapted for scraping butcher blocks, and for such use wire brushes are recommended. However, the device is also well adapted to the polishing of floors and other flat surfaces. In such applications a relatively soft brush should, of course, be used.

While a particular embodiment of the invention has been shown, it will be understood, of course, that the invention is not limited thereto since many modifications may be made, and it is, therefore, contemplated to cover by the appended claims any such modifications as fall within the true spirit and scope of the invention.

I claim:

1. In a butcher block scrubber a plurality of rotatable brushes having their working faces lying substantially in a single plane, means for rotating said brushes about axes perpendicular to said plane, means for resiliently supporting said working faces of said brushes above the surface of a butcher block, said last mentioned means comprising a rigid and substantially cylindrical skirt member encircling said brushes and normally extending axially beyond said working faces of said brushes, said skirt member being imperforate along its sides thereby to retain debris thrown against its interior, and spring means urging said skirt member axially beyond said working faces of said brushes, said spring means being of such stiffness as to maintain the working surfaces of said brushes above the lip of said skirt member when said scrubber rests upon a horizontal surface.

2. In a butcher block scrubber a plurality of rotatable brushes having their working faces lying substantially in a single plane, means for rotating said brushes about axes perpendicular to said plane, means for resiliently supporting said working faces of said brushes above the surface of a butcher block, said last mentioned means comprising a rigid and substantially cylindrical skirt member encircling said brushes and normally extending axially beyond said working faces of said brushes, said skirt member being imperforate along its sides thereby to retain debris thrown against its interior, and spring means urging said skirt member axially beyond said working faces of said brushes, said spring means being of such stiffness as to maintain the working surfaces of said brushes above the lip of said skirt member

4

when said scrubber rests upon a horizontal surface, said skirt member having an inwardly and upwardly turned ledge disposed at the lip of said skirt member and extending substantially completely around the inner surface thereof thereby forming a trough for receiving such debris removed from the surface of a butcher block by said brushes.

3. In a butcher block scrubber, a frame, a plurality of rotatable brushes supported by said frame and having working faces lying substantially in a single plane, means for rotating said brushes about axes perpendicular to said plane, means for resiliently supporting said working faces of said brushes above the surface of a butcher block, said last mentioned means comprising a rigid and substantially cylindrical first skirt member attached to said frame, said first skirt member having a side portion encircling said brushes and normally extending axially beyond said working faces of said brushes, said side portion being imperforate thereby to retain debris thrown against its interior, said first skirt having an upper portion lying above said working faces of said brushes, spring means bearing against said upper portion thereby urging said skirt member axially beyond said working faces of said brushes, said spring means being of such stiffness as to maintain said working surfaces of said brushes above the lip of said skirt member when said scrubber rests upon a horizontal surface, and a second substantially cylindrical skirt member attached to said frame, said second skirt member having an inside diameter slightly larger than the outside diameter of said first skirt member and being disposed to surround said first skirt member when said working faces of said brushes are moved into contact with a butcher block, thereby to guide the movements of said first skirt member.

4. In a butcher block scrubber, a frame, a plurality of rotatable brushes supported by said frame and having working faces lying substantially in a single plane, means for rotating said brushes about axes perpendicular to said plane, means for resiliently supporting said working faces of said brushes above the surface of a butcher block, said last mentioned means comprising a rigid and substantially cylindrical first skirt member attached to said frame, said skirt member having a side portion encircling said brushes and normally extending axially beyond said working faces of said brushes, said side portion being imperforate thereby to retain debris thrown against its interior, said first skirt including an inwardly extending and upwardly turned ledge disposed at the lip of said side portion and extending substantially completely around the inner surface thereof thereby to form a trough for receiving such debris, said first skirt having an upper portion lying above said working faces of said brushes, spring means bearing against said upper portion thereby urging said skirt member axially beyond said working faces of said brushes, said spring means being of such stiffness as to maintain said working surfaces of said brushes above the lip of said skirt member when said scrubber rests upon a horizontal surface, and a second substantially cylindrical skirt member attached to said frame, said second skirt member having an inside diameter slightly larger than the outside diameter of said first skirt member and being disposed to surround said first skirt member when said working faces of said brushes are moved into contact with a butcher block,

thereby to guide the movements of said first skirt member.

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