My invention relates generally to floor polishing devices, but more specifically to an electrically operated mechanism adapted to be arranged to both apply the polishing material and thereafter rub it down to polish the surface.

Broadly considered, my device comprises a frame, suitably mounted upon rollers or casters, to permit its being manually directed over the floor; a gear driving mechanism for rotating the spreading and polishing brushes; a suitable motive power for driving the gear mechanism; and means for automatically feeding the polishing material to the spreading brushes.

The principal object of my invention is the provision of a mechanism to automatically spread the polishing material over a surface in a thin and even coating. This is accomplished by my mechanism through the feed means, in combination with the revolving brushes. It is also an object to combine in the same mechanism means for mechanically rubbing down and polishing the surface after the polishing material has been applied.

It is a further object to provide a feed means for the polishing material which will effect the feed simultaneously with the rotation of the spreading brushes, first directing the material to the center of the brush, so that it is picked up and evenly applied by its perimeter. The feed means is made adjustable so that the flow of the material may be regulated as need be.

In the accompanying drawings I have illustrated the preferred specific embodiment of my invention, it being understood, however, that I reserve the right to make such changes and modifications in structure as may appear to those skilled in the art and will come within the scope of the claims appended hereto.

In the drawings:

Figure 1 is a plan view of my entire device;
Figure 2 is a side elevation, with the handle omitted, the view being taken as indicated by the line 2-2 of Figure 1;
Figure 3 is an enlarged plan view of the gear box, taken as indicated by the line 3-3 of Figure 4;
Figure 4 is an enlarged transverse, vertical, sectional view, taken as indicated by the line 4-4 of Figure 3, with some of the parts shown in elevation;
Figure 5 is a further enlarged, fragmentary, detailed plan view of the adjustable front caster wheel;
Figure 6 is a side elevation of the parts illustrated in Figure 5;
Figure 7 is an enlarged elevation of one of the spreading brushes;
Figure 8 is a plan view thereof;
Figure 9 is an enlarged elevation of one of the polishing brushes; and
Figure 10 is a plan view thereof.

Referring first to Figures 1 and 2, the numeral 10 designates a suitable frame, which may be constructed of light angle iron, which supports a base or platform 11. The frame is suitably mounted upon rear caster wheels 12 and a front caster wheel 13, on which the device may be manually directed over the floor, through the medium of a handle 14. The handle 14 is pivotally connected to the frame 10 by pins 13 to permit its being raised or lowered as desired.

An electric motor 16 is supported upon the platform 11 and may be connected with any suitable source of motive power through the medium of the usual flexible cord (not shown). This motor drives the spreading brushes or the polishing brushes, as the case may be, through the medium of a gear mechanism contained in a gear box 17.

The front caster wheel 13 is provided for transportation purposes only, so the device may be moved from place to place without the entire weight of the mechanism being thrown on the spreading or polishing brushes, which is the case when the material is being either spread or rubbed down. For that reason this caster is so mounted that it may be locked in the position illustrated in solid lines in Figure 2 for transporting, or moved to the position illustrated in dotted lines when it is desired to throw the weight of the mechanism on the spreading or polishing brushes. The means by which the caster wheel 13 is made adjustable is illustrated in Figures 5 and 6. The caster may be of any of the usual types, having a stem 18 suitably
connected with a yoke 19, so that the latter may rotate freely. The stem 18 is suitably secured to the outer end of an arm 20, the latter being hingedly joined, by means of a pin 21, to the platform 11. This connection permits the swinging of the caster from the position shown in solid lines in Figure 2 to that shown in dotted lines. The caster is held in the position shown in solid lines by means of a latch 32. This latch consists of a flat strip of metal, bent upwardly at one end to provide a handle 23 for actuating it, and is secured to the platform 11 by means of bolts or rivets 24 extending through a longitudinal slot 25. It may be moved from position shown in solid lines in Figures 5 and 6 to that shown in dotted lines when it is desired to throw the caster upwardly.

The gear box 17 is substantially rectangular in configuration, and of suitable depth to properly house the gearing, and is provided with a removable cover 26. It is supported upon the platform 11 by means of parallel tubular housings 27, secured to the platform 11 by means of suitable studs 28 extending through flanges 29. The housings 27 are preferably formed integral with the floor 17 of the gear box, and extend upwardly thereinto at short distances, as illustrated in Figure 4.

The motor 16 is operatively connected with the gear mechanism, contained in box 17, through the medium of a shaft 29. This shaft extends through the adjacent wall of the box and may be journaled in a suitable bearing 30 secured thereto. A worm gear 31 is keyed to its inner end, which meshes with gears 32 mounted to rotate about vertical parallel axes on each side thereof. Gears 32 are each fixed upon vertically disposed hollow shafts 33.

As the elements operatively connected to and in association with each of the gears 32 are identical, as illustrated in Figure 4, but one of them will be described, it being understood that the description applies to each. A shaft 33 is revolveably journaled at its upper end in a bearing 34, and at its lower end in a bearing 35. The bearing 34 consists of a suitable metallic disc 36, secured to the cover 26, having a central bore through which the shaft extends. A felt packing 37 is set into the disc 36 to prevent leakage of oil.

The bearing 35 is supported within a tubular housing 39, depending from the platform 11 co-axially with the housing 27. A sleeve 38 is supported concentrically within the housing 39, by means of a closure collar 40, and a bearing sleeve 41, loosely mounted on the shaft 33, is adapted to rotate within the sleeve 38, the usual bearing metal surface 42 being provided between them. The bearing metal 42 is outwardly flanged around its bottom to extend over the lower end of the sleeve 38 and the sleeve 41 is provided with a peripheral flange 43 at its lower end to engage the outturned flange of the bearing metal.

Sleeve 41 is held upon the shaft, with its peripheral flange 43 in rotative engagement with the bearing metal 42, by means of a lock nut 44 screwed upon the lower end of the shaft 33.

A tapered bearing seat 38* is formed in the upper end of the sleeve 38 to support a roller bearing, generally designated by the numeral 39*. This may be of any approved type suitable for the purpose. It is supported upon sleeve 41, as well as on the seat 38*, and is held in place by a collar 38* on shaft 33.

A tapered bearing seat 45 is provided in the upper end of the tubular housing 27 and is adapted to receive a roller bearing, generally designated by the numeral 46. This bearing may be of the type shown at 38*, and is secured upon the shaft 33, in fixed position, by means of collars 47 and 48. By tightening the lock nut 44 and bringing the peripheral flange 43 of the sleeve 41 into engagement with the bearing metal 42, the roller bearing 46 may be drawn down into proper rotative engagement with the seat 45. By removing the lock nut 44 and sleeve 41 the shaft 33, together with its gear 32 and roller bearing 46, may be removed upwardly through the box 17.

In Figures 7 and 8 I have illustrated the spreading brushes, and in Figures 9 and 10 the polishing brushes. Referring first to Figures 7 and 8, the polishing brush consists of a body portion or back 49, suitable bristles 50 and a connecting stem 51. The stem 51 is tubular, as illustrated in Figure 4, and is secured to the brush back 49 through the medium of an integral flange 52 and screws 53. The lower end of the tubular shaft 33 is provided with a bayonet slot 54 adapted to receive a lug 55 on the upper end of the stem 51. The brushes are thus made removable from the shaft 33. An aperture 56 extends through the back 49 in axial alignment with the bore of the stem 51 to permit feeding of the polishing material to the bristles 50 in the manner and by the means hereinafter described.

The polishing brush illustrated in Figures 9 and 10 is similar to the spreading brush. The stem 51 is the same, being provided with an axial bore and a securing lug 55. It is secured to the back 49* by means of the flange 52 and screws 53. In this instance the back 49*, which is preferably constructed of wood, has secured to its lower face a polishing element 57, preferably of felt or a similar material. To avoid undue thickness of the felt, the back 49* is somewhat thinner than the back 49 of the spreading brush. Back 49* is also provided with an axial aperture 56, but to prevent flow of the polishing mate-
rial it may be closed at its lower end by a suitable plate 58.

By the constructions just described, the spreading and polishing brushes are made interchangeable in the shafts 33, so

that the spread of the material may be first effect-

ed by the spreading brushes, which are there-

after removed and the material rubbed down by the attachment of the polishing brushes.

A frame 59, preferably of flat metal, ex-

tends over the top of the gear box 17, down

over its ends, and is removably secured to the platform 11 by means of studs 60. This also holds the top 26 in place by means of lugs 61. Bosses 62 are formed integral with the frame 59 and have internally screw threaded bores 63 therein, in position to be disposed in axial alignment with the shafts 33.

Cups 64, for containing the polishing ma-

terial, are mounted—through the medium of a lower externally screw threaded end 65 engage-

ning in the bore 63—in axial alignment with the shafts 33. Each is identical, so but one will be described. An axial bore 66 ex-
tends through the lower screw threaded end

65 in which a tube 67 is secured. Tube 67
extends through the hollow shaft 33, the bore

of the brush stem 51, and the bore 56 through

the back 49 of the spreading brush, and about one-half inch into the bristles, and it is through this tube that the polishing material is fed to the bristles of the spreading brushes. From the foregoing it is clear that the cups

64, together with the tube 67, may be removed with the frame 60 by removing the studs 60. This will permit access to the interior of the gear box through the removable top 26.

The cup 64 has a cap 68, screw-threaded

secured thereon, provided with a central aperture through which a screw-threaded stem 69 loosely extends. A cup piston 70, preferably formed of leather or the like, is secured to the lower end of the screw thread-
ed stem 69 by means of discs 71, and an ex-

pandable helical spring 72 is confined between

the piston 70 and top 68. A thumb nut 73

is provided on the upper end of the stem 69

for adjusting the position of the piston 70

within the cup, spring 72 always holding the

nut 73 in contact with the top 68, except when

it functions to force the polishing material downwardly through the tube 67. To facilitate feeding of the polishing material the bottom of the cup 64 is conically tapered, as shown.

For convenience, a valve 74 may be pro-

vided in the lower end of the grease cup, to

not only regulate the flow of the wax, but also to shut it off entirely during the polishing

operation.

In the operation of the device the spreading brushes are first attached within the lower ends of the hollow shafts 33. The cups 64 are then filled with polishing material, such as wax, and the piston 70 properly adjusted, through the medium of the thumb nut 73, and the valve 74 set to feed the desired amount of material. During the operation adjustments are made from time to time to supply the requisite pressure as the cups 64 empty, suitable force being supplied by the springs 72. The front caster wheel 13 is then thrown upwardly, from position shown in solid lines to that shown in dotted lines in Figure 2, so that the weight of the mechanism is supported upon the floor engaging brushes and the casters 12. The device is then manually directed over the floor and due to rotation of the spreading brushes the polishing ma-

terial is evenly and quickly applied.

After the polishing material has been thus applied, the flow of wax is shut off by valve 74, the spreading brushes are removed and the polishing brushes attached. The manual operation is then repeated to effect a rubbing down and polishing of the surface. As the polishing material cannot pass through the polishing brushes, feed pressure may be re-

lieved at the start of the polishing operation by raising the piston 70 against the action of springs 72, as well as by closing the valve 74.

It may be noted that the spreading and polishing brushes are disposed in alignment at an acute angle relative to the longitudinal axis of the frame. This is done to insure an overlapping of the brushes when the device is moved backward and forward along its longitudinal axis.

The mechanism is lubricated by filling the gear box 17 with hard grease, which finds its way into the roller bearings and to the lower bearing during operation.

Having described my invention, I claim:

1. In a device of the character described, the combination of a portable base, power means carried by the base, a hollow vertically disposed shaft, gear means operatively con-

necting said power means and shaft, a hori-

zontally rotatable brush detachably con-

nected to the lower end of said shaft and having a central aperture therethrough co-

axial with the shaft, the detachable connec-

tion between said shaft and brush being adapted for quick interchangeability of brushes, a polishing material container in-

cluding force feed means situated above the hollow shaft, a feed tube extending from said container through the hollow shaft and into the central aperture of the brush.

2. In a device of the character described, the combination of a portable base, power means carried by the base, supporting rollers situated adjacent one end of the base; a sup-

porting roller situated adjacent the opposite end of the base, said last mentioned roller being hingedly connected to the base to swing upwardly out of floor engaging position and having latch means for holding it in floor
engaging position, a shaft journaled on said base intermediate said supporting rollers, means operatively connecting said shaft and power means, and a horizontally rotatable brush detachably connected to the lower end of said shaft and adapted to support the base together with the other rollers when the hingedly connected roller is out of floor engaging position.

In witness that I claim the foregoing I have hereunto subscribed my name this 24th day of February, 1927.

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