May 11, 1943. W. O. WALKER 2,319,023

APPARATUS FOR REMOVING WALL PAPER OR OTHER SURFACE ORNAMENTATION

Filed Jan. 1, 1942 3 Sheets-Sheet 1

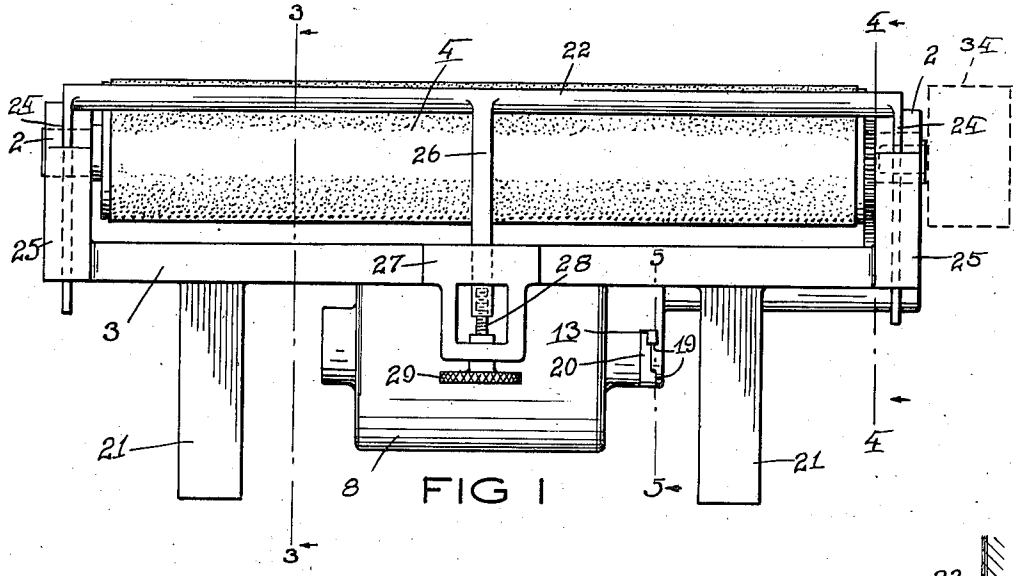


FIG 1

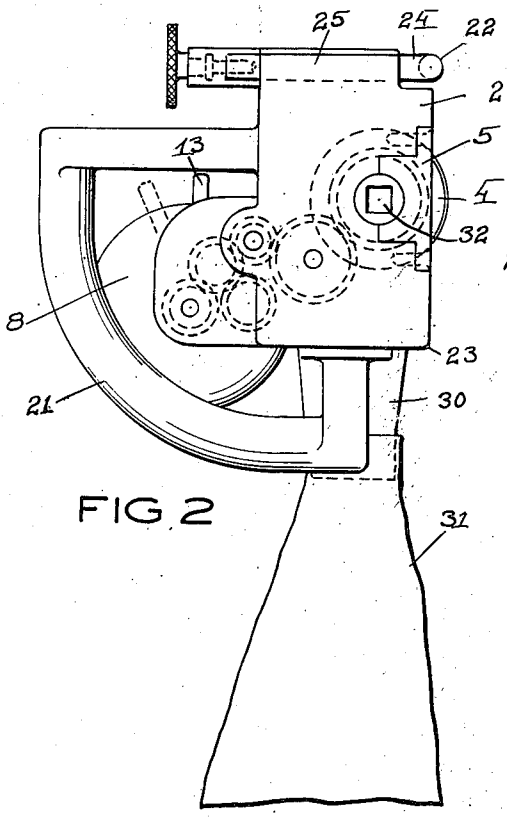


FIG 2

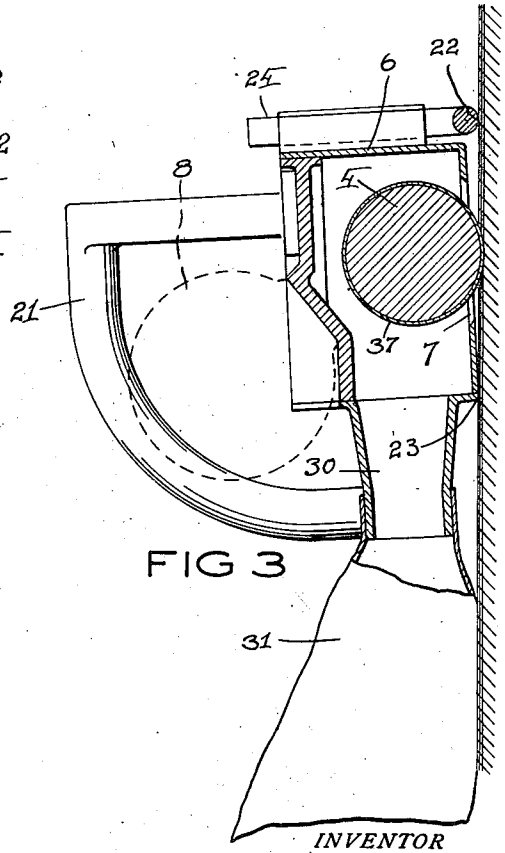


FIG 3

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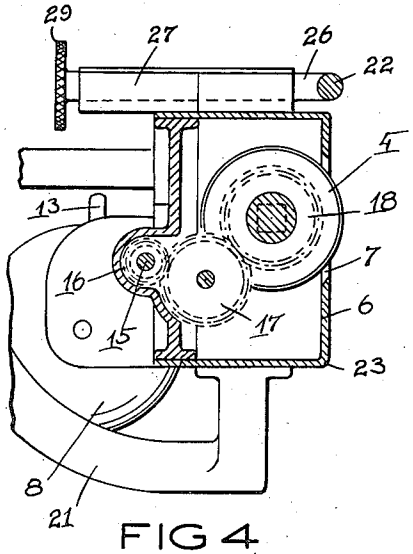


FIG 4

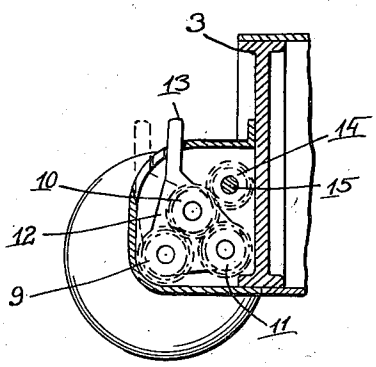


FIG 5

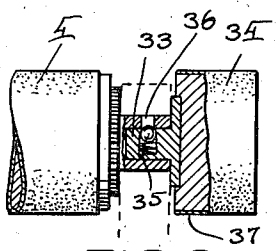


FIG 6

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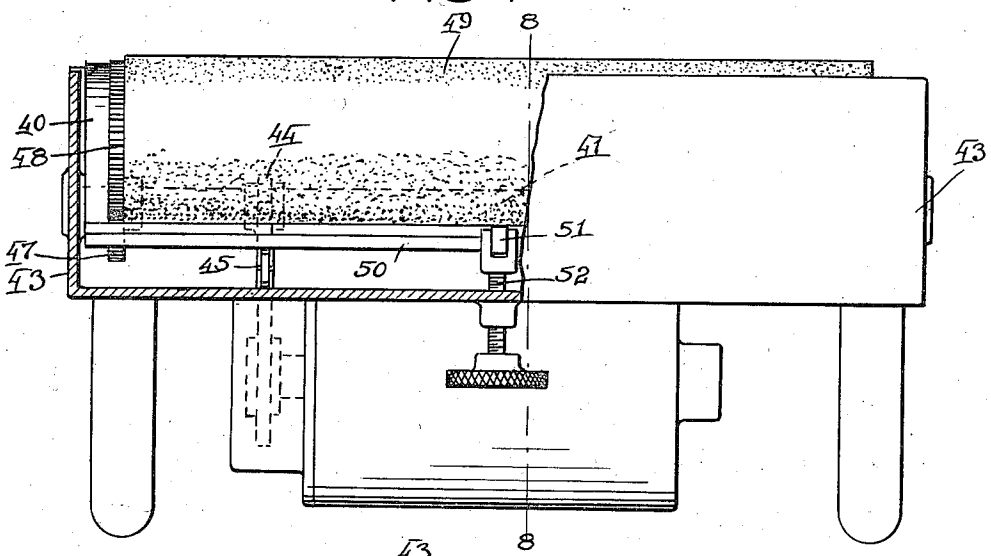
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FIG 7



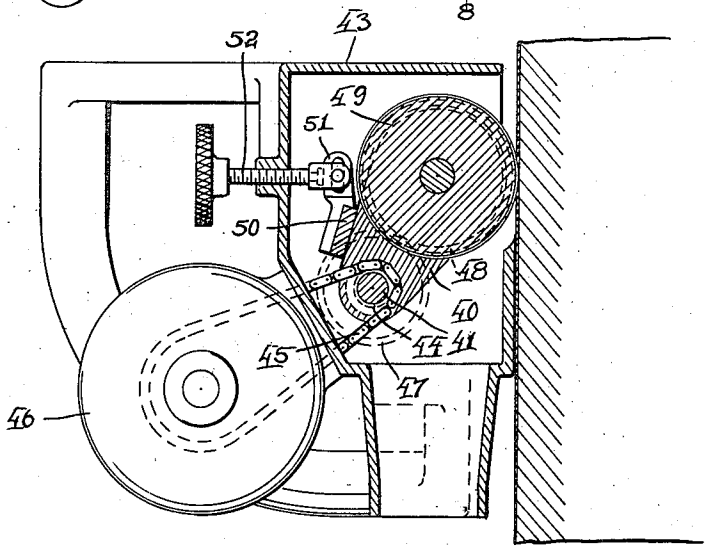


FIG 8

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UNITED STATES PATENT OFFICE

2,319,023

APPARATUS FOR REMOVING WALLPAPER OR OTHER SURFACE ORNAMENTATION

William O. Walker, Whiting, Ind.

Application January 1, 1942, Serial No. 425,366

8 Claims. (Cl. 51—180)

This invention relates to apparatus for preparing walls, ceilings etc. for redecoration and more especially for removing old layers of wall paper and other surface decoration and the principal object of the invention is to so construct an apparatus for this purpose that it may be handled by its operator to quickly and efficiently remove one or more layers of wall paper or other surface covering with a minimum effort.

A further object of this invention is to provide the apparatus with novel adjusting means for removing the layers of wall paper or other surface decoration to any desired depth.

A still further object of this invention is to provide the apparatus with means for quickly and easily changing the rotation of its abrasive roller to effect its most efficient operation relative to the direction of movement of the apparatus by the operator.

All these and other objects and attendant advantages of this invention will become more readily apparent from the detailed description thereof which follows, reference being had to the accompanying drawings in which

Figure 1 is a top plan view of the apparatus.

Figure 2 is an end elevation thereof.

Figure 3 is a vertical sectional view of the apparatus taken on the line 3—3 in Figure 1.

Figure 4 is a vertical sectional view of the apparatus taken on the line 4—4 in Figure 1.

Figure 5 is a detail sectional view taken on the line 5—5 in Figure 1.

Figure 6 is a detail view and partial section of an extension abrasive roller and its connection with the abrasive roller proper.

Figure 7 is a top plan view of a modified form of my apparatus with a portion of the top of the casing broken away to show the abrasive roller and its driving mechanism within it.

Figure 8 is a vertical section on the line 8—8 in Figure 7.

The frame of the apparatus forming the subject matter of the present invention comprises the parallel end walls 2, 2 which are connected by the rear wall 3. The abrasive roller 4 rotates in the frame and is journaled in the end walls which, for this purpose, are provided with journal bearings which are partially formed by a removable bearing block 5 which permits the abrasive roller to be withdrawn from the frame for resurfacing with a new layer of abrasive and be replaced again or be substituted by another abrasive roller.

A cover 6 surrounds the top, bottom and front of the frame and encases all but the portion of the roller 4 which projects from the opening 7 in the cover for contact with the wall paper or other surface ornamentation to be removed thereby. The cover is omitted in Figure 1 in order to more clearly illustrate the mounting of the roller 4 in the supporting frame.

Rotation of the roller 4 is effected by the electric motor 8 which is mounted on the rear wall 3 of the frame and is connected with the roller by a train of gears which is operated by the driving pinion 9 carried by the armature shaft of the motor. The train of gears for the rotation of the roller includes a pair of pinions 10 and 11 mounted on the swinging lever 12. The pinion 10 is constantly in mesh with the driving pinion 9 and the pinion 11 is constantly in mesh with the pinion 10 so that the driving pinion operates to rotate the pinion 10 in one direction and the pinion 11 in the opposite direction. Movement of the lever 12 by means of its handle 13 thus brings either the pinion 10 or the pinion 11 in mesh with the pinion 14 to cause the drive shaft 15 to rotate in either clockwise or counterclockwise direction. The drive shaft extends to the end of the frame and carries another pinion 16 in mesh with the gear 17 for rotation of the gear 18 carried by the roller 4. In this way the roller 4 is positively driven by the motor 8 and its rotation may be changed at will by the shifting of the handle 13 which is normally held fixed by a suitable locking notch 19, one at each end of the slot 20 in the gear housing which surrounds the driving pinions above described.

The apparatus is manipulated by means of a pair of handles 21, 21, one on each side of the motor 8 and suitably spaced from it to permit the fingers of the hand to freely grasp the curved handle portions. One of the handles is located in close proximity to the lever 13 in order to permit the shifting of this lever with one of the fingers to change the rotation of the roller without releasing the grasp of the hand on the handle.

The apparatus is set for operation with the aid of an adjustable and a fixed guiding edge 22 and 23 respectively, both of which extend substantially the full length of the frame in order to hold the grinding roller spaced from and parallel to the wall to provide the uniform removal of the wall paper layers or surface ornamentation to the desired depth. The fixed guiding edge 23 is provided by the bottom edge of the front face of the frame of the apparatus which, as illustrated in Figure 3, is held against the wall during the movement of the apparatus over the wall. The adjustable guiding edge 22 is located above the top edge of the frame and comprises a rod member supported at each end by a guid arm 24, each of which is mounted to slide in a socket 25 on top of the end walls 2, 2. Adjustment of the guiding edge is effected by means of the rod 26 which extends rearwardly thereof and is movably mounted in the guide block 27 on top of the rear wall 3 in the middle thereof. The outer end of the rod is threaded to receive the adjusting screw 28. The latter is journaled in line with the rod so that rotation thereof by means of its handle

29 causes the rod to move forward or backward to locate the guiding edge 22 provided by the rod member relative to the fixed guiding edge 23 and the projecting portion of the periphery of the abrasive roller. In this way the apparatus may be forced against the wall until the abrasive roller has worked itself to the desired depth where it will remove the wall paper layer or layers on the movement of the apparatus up and down on the wall while both the adjustable and the fixed guiding edge is held in contact with the wall.

The abrasive roller operates most efficiently when it is rotated counter to the movement of the apparatus. The roller is thus rotated in one direction on the up movement of the apparatus on the wall and in the opposite direction on the down movement thereof. The reversing mechanism for the roller and its convenient operation thus materially increases the usefulness and efficiency of the apparatus in the operation thereof.

The bottom of the casing which surrounds the roller is provided with an outlet or hopper 30 to which the bag 31 is removably attached to receive the dust and chips produced by the abrasive roller in grinding the layers of wall paper or other surface ornamentation from the wall.

In order to have the apparatus remove wall paper or other surface ornamentation in the corners of the room where the abrasive roller 4 cannot be brought into contact with the wall because of its support in the frame, the bearing ends of the abrasive roller are provided with square sockets 32. These sockets are adapted to have the square shank 33 of the extension roller 34 telescope thereinto to have the extension roller 34 rotate in unison with the abrasive roller 4 proper. The extension roller may thus be added to either end of the apparatus on the outside of its end walls and operate to remove the wall paper or other surface ornamentation in the corners into which the abrasive roller 4 cannot reach because of its mounting within the end walls of the apparatus. A spring pressed ball 35 provided in the square shank and slightly projecting from one side thereof is adapted to engage into a small radially extending socket 36 in the bearing ends of the roller 4 so as to removably lock the shank of the extension roller into the sockets 32. The abrasive roller 4 and its extension roller 34 may be covered with any suitable grade of abrasive covering 37, or the rollers may be made with suitable cutting teeth, depending on the work which these rolls must perform in the removal of the layer or layers of wall paper or other surface ornamentation.

In Figures 7 and 8 I have illustrated a modification of my apparatus in which the abrasive roller 4 is mounted to rotate between a pair of arms 40, 40 which are adapted to swing on the shaft 41 for the adjustment of the abrasive roller into contact with the surface to be cleaned thereby. The shaft 41 is suitably journaled in the ends of the housing 43 and carries a sprocket pinion 44 which is driven by the sprocket chain 45 from the motor 46. The shaft 41 has also keyed or otherwise fastened thereto the gear 47 which is adapted to mesh with the gear 48 carried at one end of the abrasive roller 49.

A bar 50 connects the arms 40, 40 and supports a suitable bracket 51 which is connected to the adjusting screw 52 so that rotation of this screw provides for the adjustable movement of the arms which cause the abrasive roller to be moved into and out of contact with the wall, paper or other ornamentation to be removed thereby.

A suction fan driven by the motor which operates the abrasive roller or driven by a separate motor may be attached to the outlet of the casing of the apparatus in order to cause the paper or other surface coating removed by the roller to be forced into a suitable receptacle.

I claim:

1. In an apparatus of the kind described, the combination of a frame comprising parallel end walls and a rear wall between said end walls, an abrasive roller rotatably mounted between said end walls, a pair of handles spacedly arranged on said rear wall, a motor mounted on said rear wall between said handles, means connecting said motor with said roller for rotation of said roller by said motor, a fixed and a movable guiding edge axially parallel to said roller with the roller located between said fixed and movable guiding edge.

2. In an apparatus of the kind described, the combination as set forth in claim 1 including means embodied in said connecting means for reversing the rotation of said roller.

3. In an apparatus of the kind described, the combination of a frame, an abrasive roller mounted to rotate in said frame, a rod carried by said frame spaced from said roller and axially parallel thereto, a pair of arms supporting the ends of said rod, and means for moving said rod axially parallel to said roller.

4. In an apparatus of the kind described, the combination of a frame, an abrasive roller, bearing members at the end of said roller for rotatable support of said roller in said frame, one of said bearing members extending thru said frame, a socket in the last mentioned bearing member, an extension abrasive roller, a shank carried by said extension roller for engagement into said socket and rotation with said abrasive roller.

5. In an apparatus of the kind described the combination as set forth in claim 4 in which both of the bearing members project thru said frame and have sockets provided therein for engagement of the shank of said extension roller thereinto and rotation of said extension roller at either end of said frame.

6. In an apparatus of the kind described, the combination of a casing, a driving shaft journaled in the ends of said casing, a pair of arms mounted to jointly swing on said drive shaft, an abrasive roller rotatably mounted between said arms, a gear carried by said roller and a gear carried by said drive shaft in mesh with said first mentioned gear, means for rotating said drive shaft, and means for adjustably swinging said arms on said drive shaft for movement of said roller relative to said drive shaft.

7. In an apparatus of the kind described the combination of a casing, a drive shaft journaled in the ends of said casing, a pair of arms mounted to swing on said shaft, a connecting member connecting said arms for joint movement thereof, an abrasive roller mounted to rotate between said arms, an adjusting member carried by said casing for engagement with said connecting member and movement of said abrasive roller.

8. In an apparatus of the kind described and as set forth in claim 7 including a driving motor on the outside of said casing, driving means connecting said motor with said drive shaft, and driving means connecting said drive shaft with said roller.

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