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MAGNETIC FLOOR SWEEPER
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2,426,795

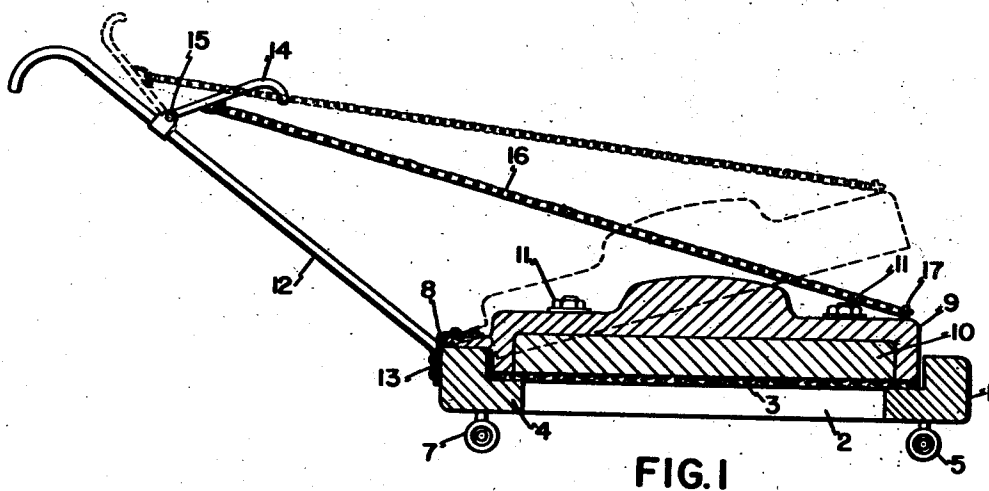


FIG. 1

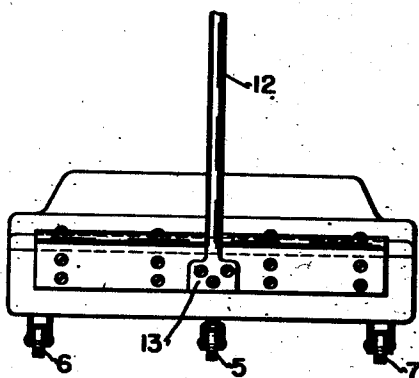


FIG. 2

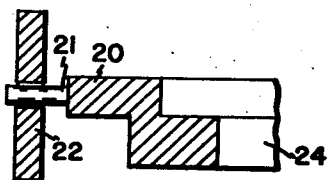


FIG. 3

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MAGNETIC FLOOR SWEEPER

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3 Claims. (Cl. 209-215)

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The present invention relates to a device for picking up magnetizable scraps or small pieces as, for instance, nuts, screws or bolts, filings, lath chips, and other magnetic scraps or dust which may be on floors or benches or the like.

The present invention is operated in a very simple fashion. It is only necessary to roll the machine on the floor. The particles of magnetizable material will be drawn up to the machine and held in place until they are dumped by raising of a lever, as will be described in the specification below. No electrical connections are needed for the machine and therefore there is no need of providing cables which would otherwise make operation more difficult and less practical.

The present invention will be more fully understood in connection with the drawings illustrating an embodiment of the same in which:

Figure 1 shows a view of the invention in sectional elevation.

Figure 2 shows an end view of the machine as viewed from the left end of Figure 1, and

Figure 3 shows a modification of a detail.

In the drawings the machine comprises a base frame 1 with a centrally located opening 2 which may be rectangular or any other desirable shape. The frame so formed is covered by a sheet of non-magnetic material 3 such as a sheet of plywood which may rest and be fastened to a shoulder or flange 4 running around the edge of the frame. The opening 2 faces the surface which is to be swept over, such as a floor, on which the machine rests by virtue of rollers or casters 5, 6 and 7. The casters should be low or should be so set that the opening 2 is substantially adjacent the floor surface. This may be accomplished by using small casters or by mounting the casters on a bracket extending from the frame, as indicated in Figure 3.

Hinged at the back end of the frame by means of a hinge 8 is a cover 9 of non-magnetic material such as aluminum, plastic or the like in which one or more permanent magnets 10 may be retained by suitable means such as bolts 11. The machine is also provided with a handle 12 rigidly secured to the back of the frame by means of the bracket 13. On the handle is mounted a lever 14 pivoted at 15. Attached to the lever 14 is a chain 16 which extends from the lever to the forward part of the cover 9 where it is attached by means of a post 17.

The operation of the device is extremely simple. The machine is rolled across the floor in a manner similar to the way in which a vacuum

cleaner is used. Iron particles are attracted by the magnets 10 and drawn into the recess formed by the frame 1 and the non-magnetic plate 3. The magnetic lines of force from the permanent magnet extends to the floor which is swept and thereby draw up and retain the particles to the plate 3. Any type of the modern permanent magnets may be used for this purpose such as an alloy of nickel called "Alnico" or other very powerful permanent magnet material, many of which have recently been developed. It has been found that a considerable layer of iron particles, shavings, nuts, bolts, and the like may be drawn up by the permanent magnets in this manner. In order to release the materials which have been gathered, it is simply necessary to raise the lever to the dotted line position indicated in Figure 1. The magnet 10 will be raised and as a result of the angular rotation of the magnet, the lines of force emanating therefrom will no longer retain the particles against the non-magnetic plate so that they are freed and drop out of the chamber.

In the modification of Figure 3 the frame of the machine is provided with a flange 20 from the side of which a supporting bearing 21 projects upon which the wheel or caster 22 is journaled. The wheel is of such a size that the bottom opening 24 in the frame is close to the floor so that the lines of force of the magnet will exert its effect more efficiently.

Having now described my invention, I claim:

1. A device for picking up metallic materials responsive to magnetic forces such as iron or the like comprising a frame having an opening at the bottom thereof, means supporting the said frame for pushing the same over a floor or the like, a cover of non-magnetic material covering said opening, a second hinged cover hinged at one end to said frame, a permanent magnet supported within said hinged cover and adapted to be raised in its operation with the magnet positioned over the first cover abutting and parallel thereto, said magnet being of such nature that when the cover is tilted on its hinge, particles held beneath the cover will be released.

2. A device for picking up metallic materials responsive to magnetic forces such as iron or the like comprising a frame of non-metallic material, roller means supporting said frame for permitting the same to roll over a floor to be swept, said frame having a central opening, a non-metallic plate covering said opening, a non-metallic cover hinged to said frame, a permanent magnet supported within said cover abutting said plate, a handle extending from said frame for

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manually pushing the frame over the floor, a chain extending from said cover to said handle for tilting the cover in releasing materials picked up by said machine.

3. A device for picking up metallic materials responsive to magnetic forces such as iron or the like comprising a frame having an opening at the bottom thereof, means supporting the said frame for pushing the same over a floor or the like, a cover of non-magnetic material covering said opening, a second cover supported on the top of said frame, a permanent magnet mounted within said second cover, means for raising said second cover and permanent magnet away from said first cover, said permanent magnet being

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normally supported in a position over the first cover, abutting and parallel thereto.

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