

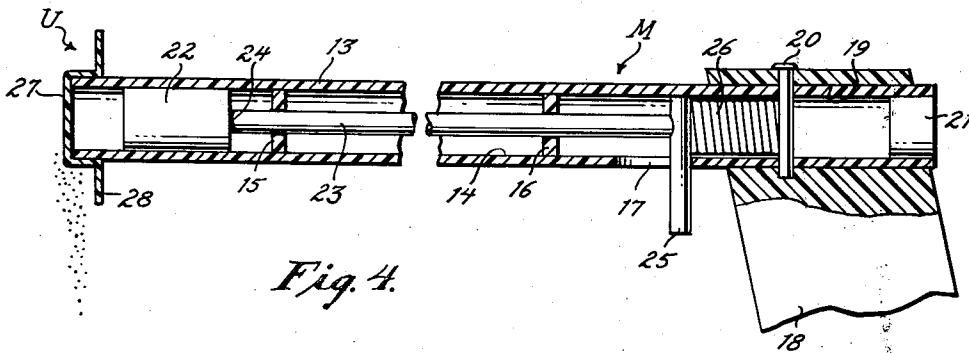
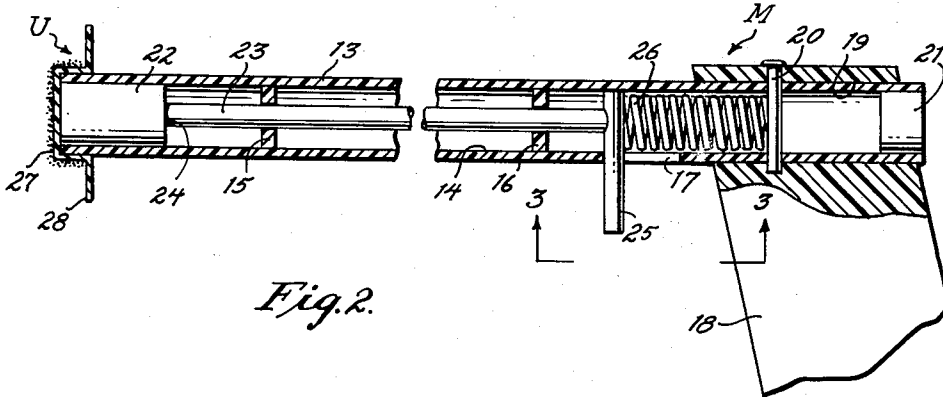
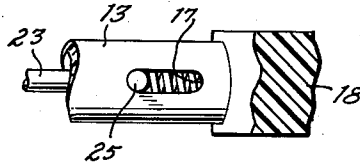
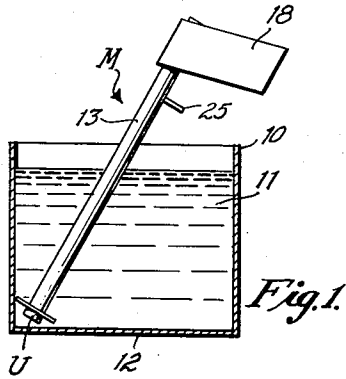
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MAGNETIC PICKUP

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MAGNETIC PICKUP

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3 Claims. (Cl. 294—65.5)

The present invention relates to magnetic-pickup devices, and is concerned primarily with a device intended to be used in picking up metallic filings or other finely divided or comminuted metallic materials from inaccessible places such as acid vats.

At the present time, mechanics and similar workmen are confronted with the problem of removing metallic filings or similar materials from acid vats or other places that are either inaccessible or in which it is undesirable for the operator to immerse his hands. While magnetic-pickup devices generally are known, there is not now known and presently available to the public a magnetic-pickup device that is particularly adapted for use with materials under the conditions indicated. With the foregoing conditions in mind, the present invention has in view as its foremost objective the provision of a magnetic-pickup device which will satisfy these conditions.

More in detail, the invention has in view as an object the provision of a magnetic-pickup device which includes as characteristic and essential elements a plastic tube having a magnet reciprocally mounted in one end thereof, together with manually operable means for moving the magnet. Associated with the end of the tube in which the magnet is located is a unitary piece including a cap for the end of the tube, together with a circular shield which prevents metallic filings or similar materials from moving up along the tube as the magnet is retracted. With this arrangement, the effective end of the pickup device may be dipped into an acid vat into engagement with metallic filings, and the magnetic force is rendered effective through the cap, which is also plastic. After removal from the vat, the magnet is retracted to release the filings. At the same time, the shield prevents the filings from moving up along the exterior of the tube with the magnet.

Still another object of the invention is to provide a magnetic-pickup device of the character indicated which includes a pistol grip with which is associated a trigger for causing retraction of the magnet which is spring-biased into effective position.

Another somewhat more detailed object is to provide, in a magnetic-pickup device of the character indicated, a metallic operating rod which carries the operating trigger at one end and the other end of which is joined to the magnetic force alone. Such a device may be easily manufactured and is susceptible of assembly and disassembly by simply removing the cap-and-shield unit from one end of the tube.

Various other more detailed objects and advantages of the invention, such as arise in connection with carrying out the above-noted ideas in a practical embodiment, will in part become apparent and in part be hereinafter stated as the description of the invention proceeds.

The invention therefore comprises a magnetic-pickup device consisting essentially of a plastic tube having a pistol grip at one end and a removable cap-and-shield at the other end. A magnet is reciprocally mounted in the latter end of the tube and is connected by a magnetic

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force to an operating rod which is spring biased to move the magnet towards the cap end and which carries a trigger disposed in proper relation to the pistol grip.

For a full and more complete understanding of the invention, reference may be had to the following description and accompanying drawings, wherein:

Figure 1 is a side view, partly in section and partly in elevation, depicting the magnetic pickup of this invention and its manner of use;

Figure 2 is a view taken on an enlarged scale and as a longitudinal section through the tube and a portion of the handle. This view depicts the magnet in effective position;

Figure 3 is a detail taken about on the plane represented by the line 3—3 of Figure 2; and

Figure 4 is a view similar to Figure 2 showing the magnet as retracted.

Referring now to the drawings, wherein like reference characters denote corresponding parts, and first more particularly to Figure 1, a vat is shown at 10 as including acid 11 and having a bottom 12 on the upper side of which metallic filings or other material to be removed from the vat would ordinarily rest. The magnetic pickup of this invention is referred to in its entirety by the reference character M, and is shown in effective position with relation to the vat 10.

Referring now more particularly to Figure 2, the magnetic pickup device M is shown as including the tube 13, which preferably is of plastic and may be made from any of the plastics now commonly available to the public and which plastics have non-magnetic properties. The tube 13 has a bore 14 into which extends a pair of circular guides 15 and 16.

As shown in Figure 3, the underside of the tube 13 is formed with a slot 17 for a purpose to be later described.

A hand grip in the nature of a pistol grip is shown at 18 and is also preferably of plastic. The handgrip 18 is formed with a circular recess 19 which receives an end portion of the tube 13. The jointer between the tube 13 and handgrip 18 may be effected in any desired manner. Thus, a press fit might be utilized, or a solvent which would fuse the two plastic materials. However, in a preferred form of the invention, a pin 20 is shown as passing through aligned openings in the handgrip 18 and tube 19, respectively. This pin will also function as a spring abutment, as will be later described. The end of the tube at the handgrip is preferably closed by a plug 21.

A magnet is shown at 22 as located in the opposite end of the tube. This magnet 22 is preferably an alnico magnet that is now commonly available on the open market as such. An operating rod 23 is of metal; and one end of the rod 23 is connected to the magnet 22 by the magnetism of the latter, the jointer being illustrated at 24. The rod 23 passes through the guides 15 and 16, and at the end remote from the magnet 22 carries a trigger or operating pin 25 which passes through the slot 17 and is located conveniently adjacent to the handgrip 18 so that an operator in grasping the handgrip 18 with the hand may engage the trigger 25 with the finger. Interposed between this trigger 25 and the pin 20 is an expansion coil spring 26 which normally urges the operating rod 23 together with the magnet 22 outwardly towards the end of the tube remote from the handgrip.

A cap-and-shield unit is referred to in its entirety by the reference character U. This unit U is made of a nonmagnetic material such as plastic and comprises a cup-shaped cap 27 which is fitted over the end of the tube with a frictional press fit that is sufficient to maintain the unit in position against the influence of the spring 26. However, the unit U may be removed to permit disassembly of the magnet 22 for replacement purposes.

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Extending radially outwardly from the inner edge of the cap 27 is a circular shield 28 which is formed integrally with the cap 27.

Operation

While the mode of operation of the magnetic pickup of this invention is believed to be obvious from the illustration of the drawing and description of parts given, they may be briefly outlined as follows:

In the ordinary effective position which is depicted in Figure 2, the spring 26 urges the magnet 22 against the capped end of the tube. In this position an operator may grasp the handgrip 18 and insert the cap end into an acid vat in the manner shown in Figure 1 so that metallic filings are picked up and will collect about the cap 27. This action will take place due to the fact that the magnetic force is effective through the plastic cap.

After removal from the vat to a place where it is desirable to release the filings, the operator simply exerts a pull on the trigger 25 with his finger. This retracts the magnet 22 into the position shown in Figure 4. As this action takes place, the shield 28 prevents the metallic filings from moving up along the tube with the magnet. Due to the increase of the magnetic gap, the metallic filings will now be released as depicted in Figure 4. The operator, simply by releasing the trigger 25, restores the magnetic-pickup device to its effective operating condition.

While a preferred specific embodiment of the invention is hereinbefore set forth, it is to be clearly understood that the invention is not to be limited to the exact arrangements, materials, and devices illustrated and described, because various modifications of these details may be provided in putting the invention into practice within the purview of the appended claims.

What is claimed is:

1. In a magnetic pickup, a plastic tube having a bore, a magnet in the bore of said tube at one end and slidable therein, a cap-and-shield unit mounted on said tube at the end in which said magnet is located and including a circular shield extending radially outwardly from the tube, a guide carried by said tube and extending inwardly into the bore thereof, a metallic rod mounted in said guide and having one end secured to said magnet by magnetism, a spring normally urging said rod toward said

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cap-and-shield unit, and a manually operable trigger for moving said rod against the influence of said spring.

2. In a magnetic pickup, a plastic tube having a bore, a magnet in the bore of said tube at one end and slidable therein, a cap-and-shield unit mounted on said tube at the end in which said magnet is located and including a circular shield extending radially outwardly from the tube, a plastic handgrip formed with a recess for receiving said tube, said tube being formed with a slot adjacent to said handgrip and having a pair of guides extending into said bore, a metallic rod in said guides having one end connected to said magnet by magnetism and a trigger at the other end extending through said slot, a spring abutment carried by said tube, and an expansion coil spring interposed between said spring abutment and said trigger.

3. In a magnetic pickup, a plastic tube having one end closed by a plug and the other end by a plastic cap-and-shield unit, said unit including a cap that is fitted over said tube with a friction fit and a circular shield extending radially outwardly therefrom, a cylindrical magnet reciprocally mounted in said bore at the end carrying said cap-and-shield unit, a pair of guides extending radially into said bore, a metallic rod slidably received in said guide and having one end connected to said magnet by magnetism, said tube being formed with a slot, a trigger connected to the other end of said rod and extending through said slot, a spring abutment carried by said tube, an expansion coil spring interposed between said spring abutment and said trigger, and a handgrip in the nature of a pistol grip formed with a recess receiving the plugged end of said tube.

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