

March 6, 1951

M. S. DUNKELBERGER

2,544,449

MAGNETIC RETRIEVER

Filed April 6, 1948

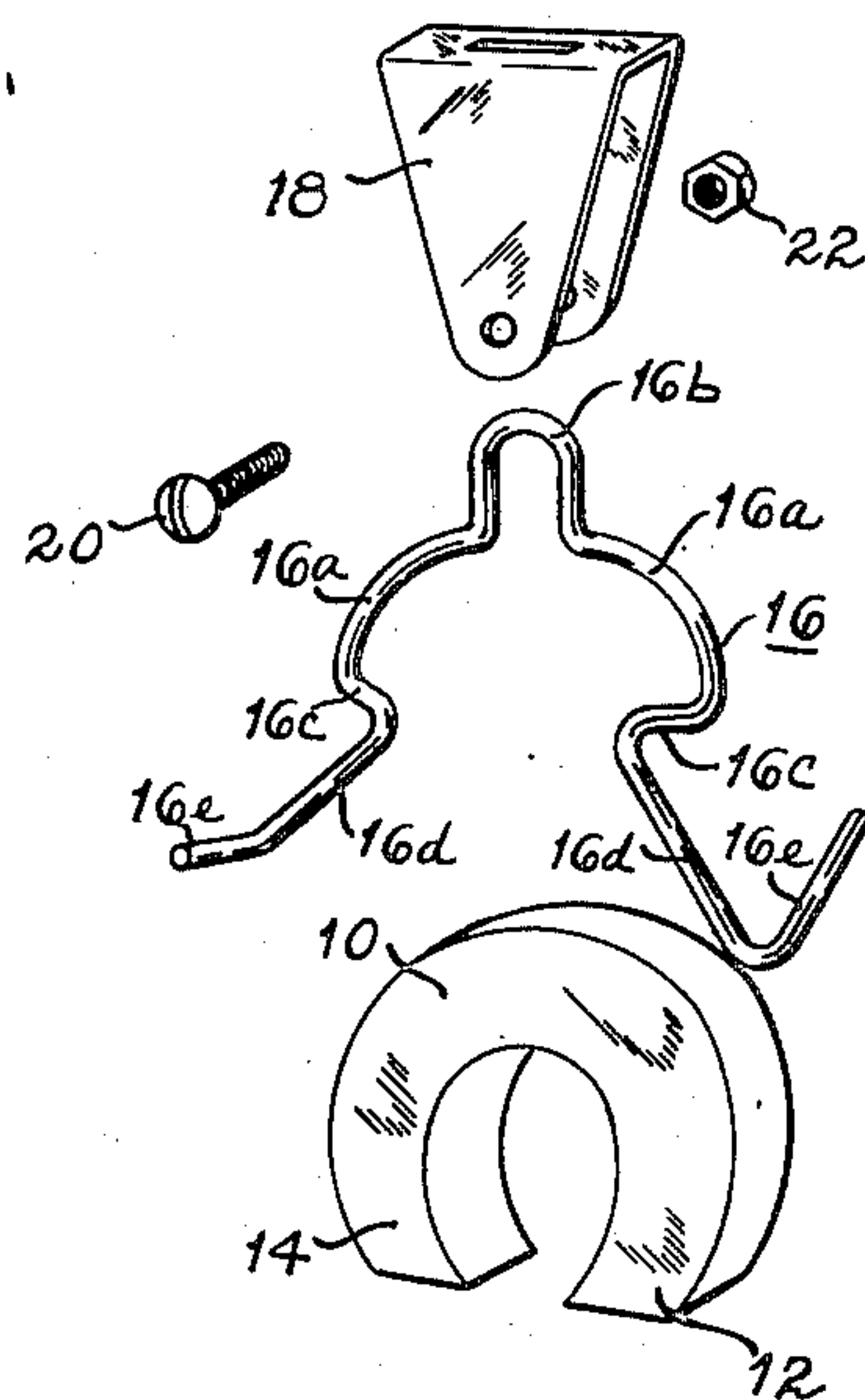


FIG. 2

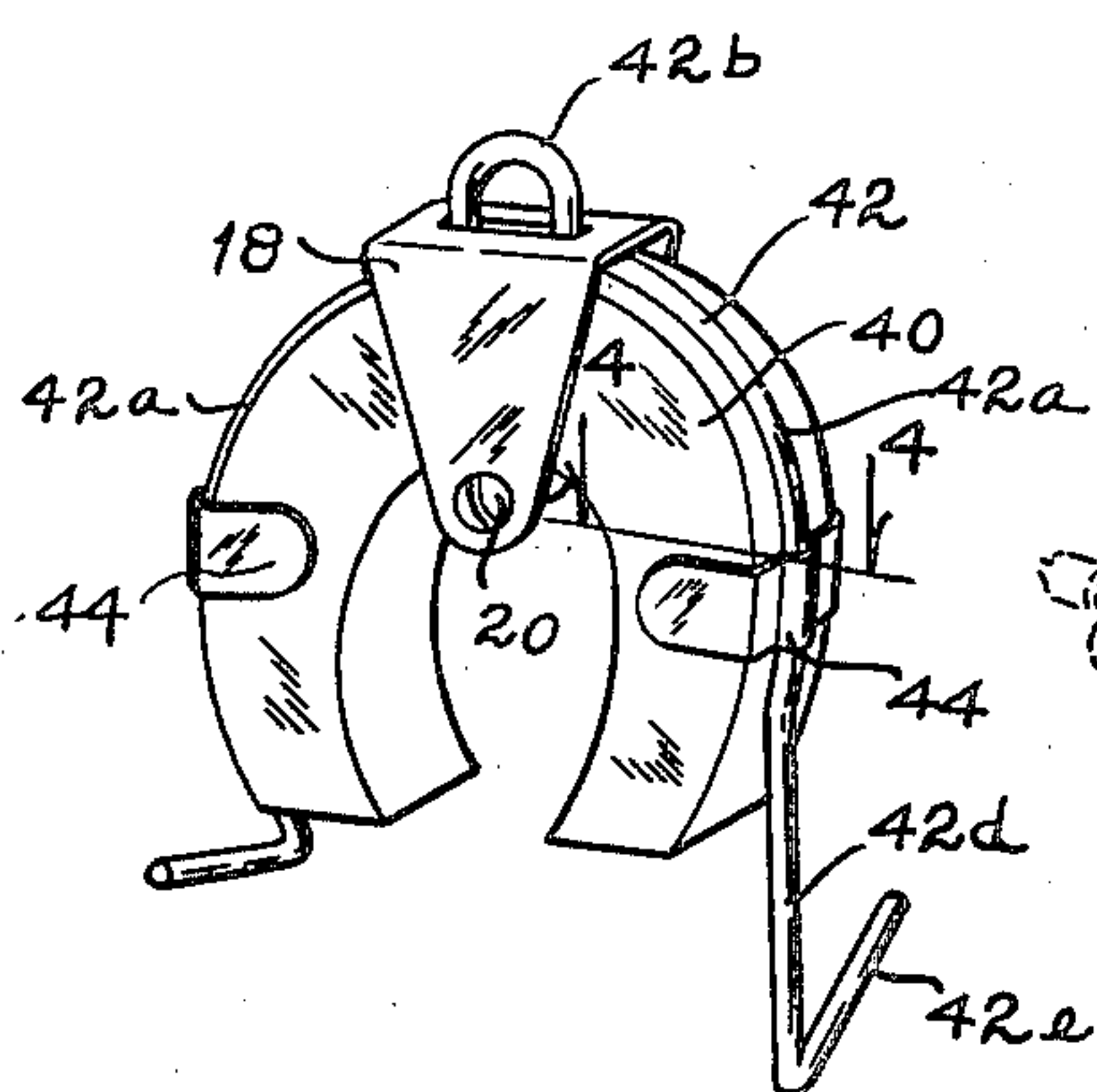


FIG. 3

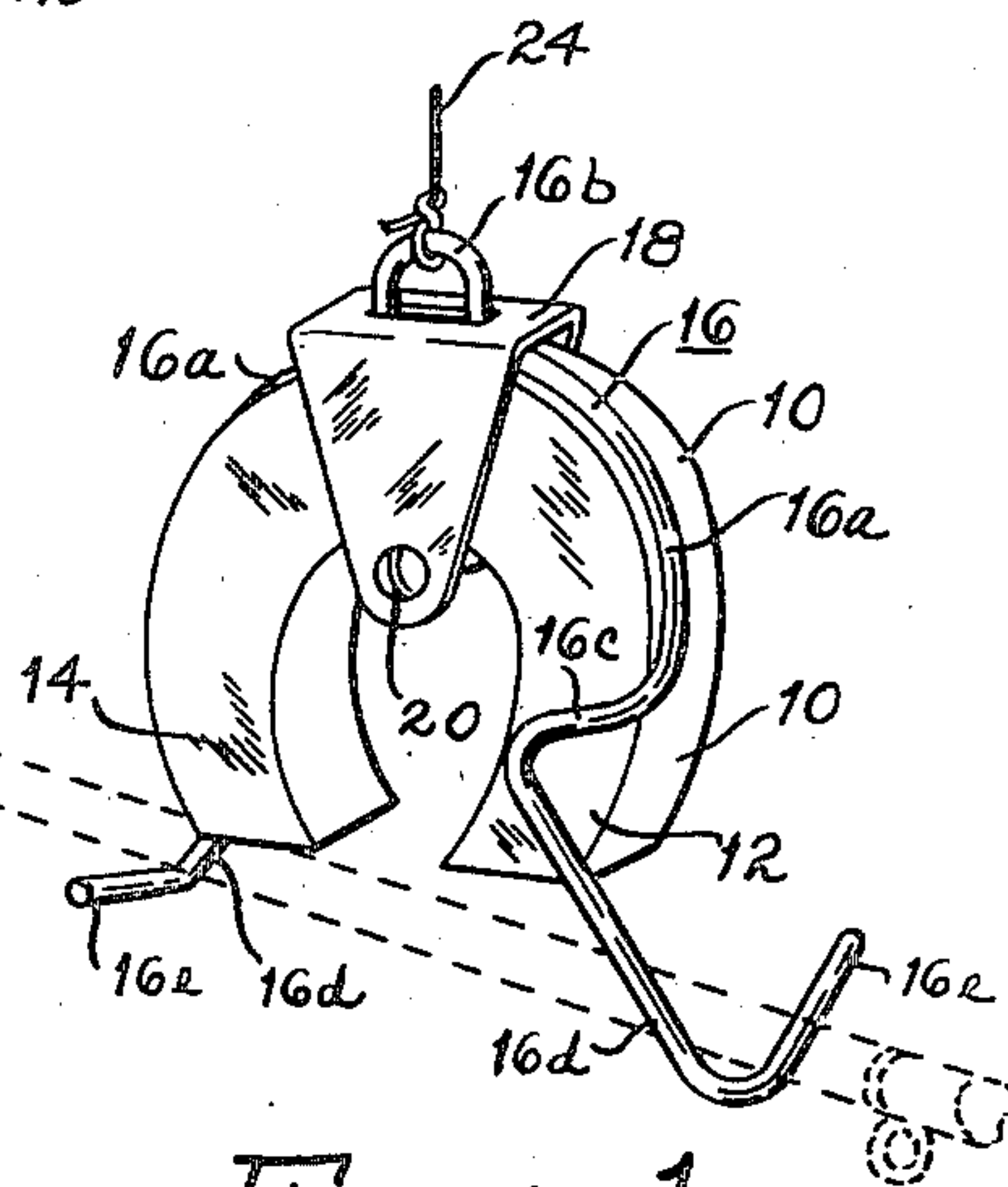


FIG. 1

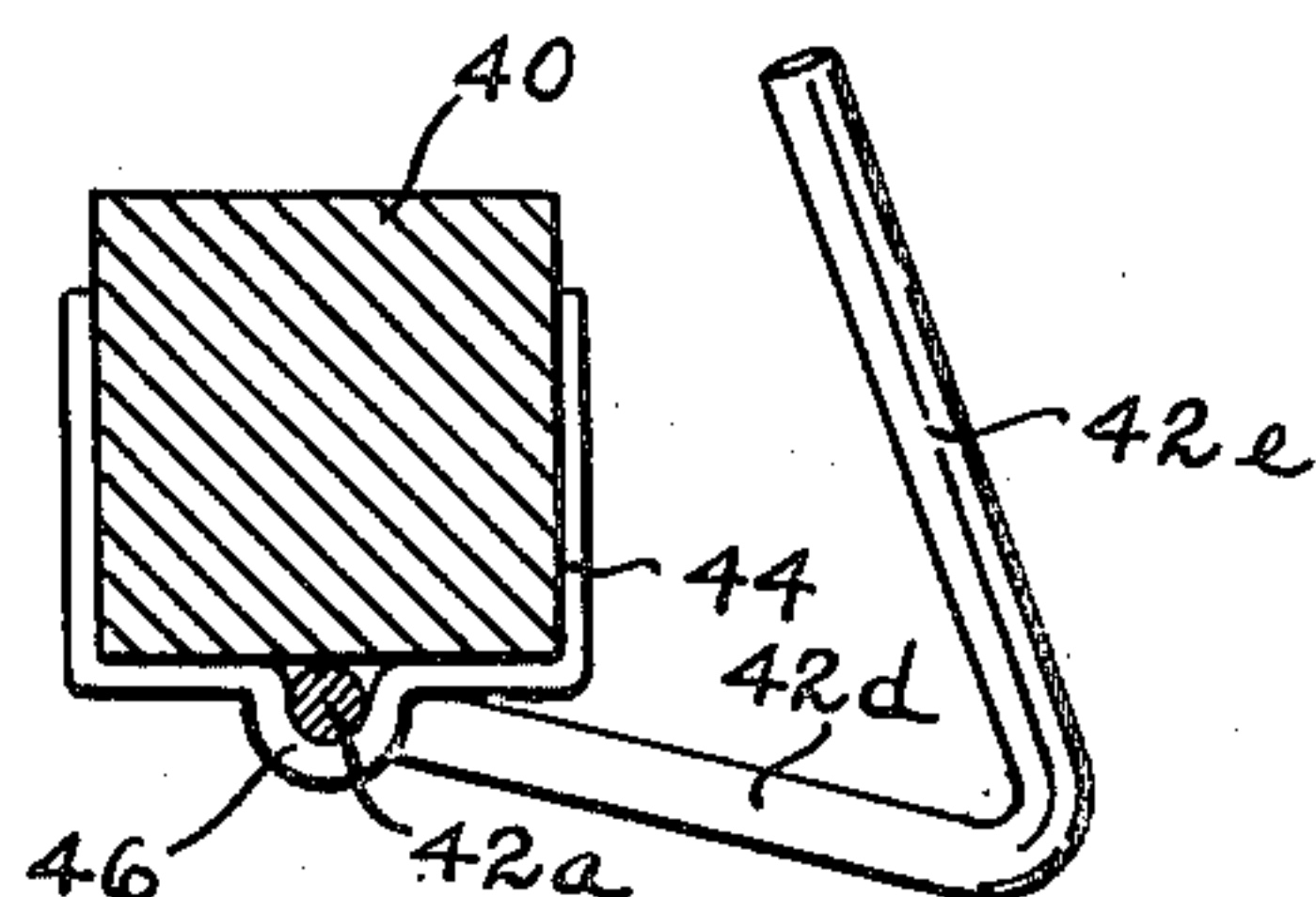


FIG. 4

INVENTOR.
Milton S. Dunkelberger
BY *Dybvig & Dybvig*
His Attorney

UNITED STATES PATENT OFFICE

2,544,449

MAGNETIC RETRIEVER

Milton S. Dunkelberger, Dayton, Ohio

Application April 6, 1948, Serial No. 19,292

5 Claims. (Cl. 294—65.5)

1

This invention relates to a retriever and more particularly to a retriever of the magnet type that may be used in retrieving ferro-magnetic articles located in obscure, concealed, invisible or inaccessible places, although not necessarily so limited.

Fishermen, on numerous occasions, have lost their steel tackle by accidentally dropping the pole and reel into the water. Furthermore, fishermen oftentimes utilize several rods loosely laid over the edge of a boat. Then, in the event a pole drops into the water, it is lost. Retrievers have been provided which consist of a mechanism attached to the end of the handle that includes a cork or another float attached to a line normally stored in a compartment in such a manner that when the compartment is submerged in the water, the cork or float is released so as to carry one end of the line to the surface, the other end of the line being attached to the tackle. This, however, is objectionable, in that it is necessary to have one attachment to each rod and furthermore, these attachments unbalance the rod, occupy space, are in the way and therefore very undesirable.

An object of my invention is to provide a magnetic retriever wherein a small magnet is used, which magnet may have insufficient strength to raise or lift the rod and if such is the case, the retriever is provided with hooks positioned in the vicinity of the poles of the magnet in such a manner that by manipulating the magnet, the hooks work under the rod or the object to be retrieved, so that when the magnet is raised, the hooks lift the rod to the surface.

Another object of this invention is to provide a magnet that may be suspended from a line so as to be lowered towards a ferro-magnetic object to be retrieved.

Another object of this invention is to provide a horseshoe magnet adapted to be suspended from the bight of the horseshoe and associated with grappling hooks that are adapted to snag an object to be retrieved.

Another object of this invention is to provide a permanent type of magnet associated with hooks made from a low retentive ferro-magnetic material that are magnetized by the magnet, so that the hooks extend the effective magnetic range of the magnet.

Other objects and advantages reside in the construction of parts, the combination thereof and the mode of operation as will become more apparent from the following description.

Referring to the drawings,

2

Figure 1 is a perspective view of the preferred embodiment, showing the magnetic retrieving device.

Figure 2 is an exploded view of the device shown in Figure 1.

Figure 3 discloses a modification.

Figure 4 is an enlarged cross sectional view, taken substantially on the line 4—4 of Figure 3.

In the drawings, the reference character 10 indicates an electromagnet of the horseshoe type, having the two poles 12 and 14. A grappling hook member 16 is provided with arcuate portion 16a positioned on the curved portion of the horseshoe magnet 10. The arcuate portions 16a terminate in a loop 16b projecting through a slot in a clevis or clamping member 18. This clevis 18 is clamped over the top of the magnet at its center, as viewed in Figure 1, and is held in position by a screw 20 passing through apertures in the two ends of the clevis 18 and held in clamping position by a nut 22. A suitable line 24 may be tied to the loop 16b.

The arcuate portions 16a merge into offset portions 16c, each positioned upon a side of the respective legs of the horseshoe magnet. These offset portions 16c contact the sides of the magnet, so as to resiliently grasp the sides. The offset portions 16c merge into outwardly deflected portions 16d, terminating in hooked portions 16e extending in opposite directions, so as to be adapted to engage the object 30 to be retrieved. In the particular embodiment disclosed herein, object 30 has been disclosed as a fish rod.

The grappling hook member 16 is preferably made from ferro-magnetic material, as for example, copper coated steel wire. By utilizing the ferro-magnetic material in member 16, the effective range of the magnet is extended over a much wider area, in that the hook portions 16e become polarized. The material in member 16 may have a low retentivity; but due to the fact that a portion of member 16 is juxtaposed upon the legs of the magnet, the hook portions 16e function the same as a permanent magnet.

If the magnet is used in retrieving a steel rod in water, the steel rod being invisible, a great deal of difficulty is encountered in locating the rod, in that it is usually impossible to see the bottom. That being the case, an ordinary grappling tool or hook without the use of a magnet will engage any type of object, whether it be a twig, a root, seaweed, rubbish and it may even snag on a rock.

The magnetic hook that has been shown herein, whenever it comes within range so as to be attracted by the steel rod, begins to exert a pull.

The magnet may not be strong enough to raise the rod. However, by jiggling the line supporting the magnet, the hook portion underlying the magnet has a tendency to work under the rod, to thereby use the hook portion for lifting the rod. The hook portions 16e extend at only a slight inclination with respect to a normal to the plane passing through the main body of the magnet. That being the case, the hook portions 16e do not have a tendency to snag on all types of obstructions. In other words, the hook portions 16e are substantially horizontally disposed when the magnet hangs downwardly. The inclination of the hook portions 16e, however, is sufficient so that this inclination, together with the magnetic pull, retains the retrieved article on the hooks. However, the hooks do not tend to snag as readily as they would in the event the angle of inclination were greater. When the rod is being raised, the main body of the magnet is used in reenforcing or imparting strength to the wire-like hook portions. Furthermore, by making the wire-like hook portions from a ferro-magnetic material, as for example, steel, then the hook portions are also attracted to the rod. The rod then closes the magnetic path. As is well known to those skilled in the art, when a ferro-magnetic member comes in contact with a magnetized member, the pull exerted upon the member used in closing the magnetic path is then the greatest. That being the case, it can readily be seen that the hook portions 16e will hold the rod in position while it is being retrieved.

This device need not be limited in its use to raising fish rods. It may also be used for locating and retrieving baits and lures, in that most baits and lures have attached thereto ferro-magnetic hooks or a ferro-magnetic deflecting plate or wobble plate, or some other ferro-magnetic part. Many of the baits and lures now used are of such a weight that a comparatively small magnet will suffice.

This retrieving magnet may also be used for locating fire arms that may be tossed into a body of water, as for example, many a criminal has thrown the pistol used in committing a crime into a body of water, with the hope that the pistol will never be found, to thereby determine whether or not the bullet was fired from that particular pistol.

This magnetic hook assembly is not limited to use in retrieving objects out of the water. For example, the same hook assembly may be used in retrieving chains and tools used by electricians in wiring a building. Furthermore, it may be used in retrieving lost tools and other parts inaccessible or inconveniently located as far as the mechanic is concerned. For example, in connection with airplanes or motor vehicles, a nut or a bolt, a screw driver or a wrench, may accidentally slip out of the hand and drop into an inaccessible place.

In the modification disclosed in Figures 3 and 4, a heavy duty magnetic hook assembly has been shown. A magnet 40 has mounted thereon an arcuate hook member 42 having a loop 42b located between the arcuate portions 42a overlying the sides of the magnet 40. Member 18 cooperating with the screw 20 and the nut 22, not shown, is used in supporting the magnet in a manner similar to that disclosed in the preferred embodiment. Each of the metallic clips 44, one on either side of the magnet, is provided with an arcuate passage 46 through which the arcuate portion 42a extends. The legs of the metallic clips 44 are

secured in any suitable manner to the sides of the magnet 40. The arcuate portions 42a terminate in downwardly and outwardly directed portions 42d terminating in a reentrant hook portion 42e. In this particular modification the hooks 42e are more securely locked in position. The magnetic assembly shown in Figures 3 and 4 may be used in a manner identical to that described in the preferred embodiment.

Although the preferred embodiment of the device has been described, it will be understood that within the purview of this invention various changes may be made in the form, details, proportion and arrangement of parts, the combination thereof and mode of operation, which generally stated consist in a device capable of carrying out the objects set forth, as disclosed and defined in the appended claims.

Having thus described my invention, I claim:

1. A retrieving magnetic assembly including a magnet, a grappling hook member associated with the magnet, said member being provided with a loop used in supporting the magnet, and means for attaching said member to the magnet, said member terminating in a pair of hook-like portions one adjacent each pole of the magnet adapted to hook an object attracted to the magnet, the hooks engaging the object so as to retrieve the same.

2. A retrieving magnetic assembly including a magnet, a grappling hook member associated with the magnet, said member being provided with a loop used in supporting the magnet, and a clevis for attaching said member to the magnet, said clevis embracing a portion of said member adjacent said loop and straddling the center of the magnet, said member terminating in a pair of hook-like portions one adjacent each pole of the magnet adapted to hook an object attracted to the magnet, the hooks engaging the object so as to retrieve the same.

3. A retrieving magnetic assembly including a horseshoe magnet, a grappling hook member associated with the magnet, said member being provided with a loop used in supporting the magnet, and means for attaching said member to the magnet, said member having arcuate portions overlying the curved leg portions of the legs of the magnet and merging into offset portions grasping the sides of the magnet, said offset portions terminating in hook portions arranged in spaced relation from the poles of the magnet.

4. A retrieving magnetic assembly including a horseshoe magnet, a grappling hook member of ferro-magnetic material associated with the magnet, said member being provided with a loop used in supporting the magnet, and means for attaching said member to the magnet, said member having arcuate portions overlying the curved leg portions of the legs of the magnet and merging into offset portions grasping the sides of the magnet, said offset portions terminating in hook portions arranged in spaced relation from the poles of the magnet, said hook portions extending the effective magnetic range of the magnet.

5. A retrieving magnetic assembly including a horseshoe magnet, a grappling hook member of ferro-magnetic material associated with the magnet, said member being provided with a loop used in supporting the magnet, and a clevis for attaching said member adjacent said loop and straddling the center of the magnet, said member terminating in a pair of hook-like portions one adjacent each pole of the magnet so as to extend the effective magnetic range of the mag-

2,544,449

5

net, said hook-like portions being adapted to hook an object attracted by the magnetic assembly so as to retrieve the same.

MILTON S. DUNKELBERGER.

REFERENCES CITED

The following references are of record in the file of this patent:

Number	Name	Date
186,755	Quimby -----	Jan. 30, 1877
762,759	Reuter -----	June 14, 1904
5 1,202,532	Keller -----	Oct. 24, 1916
1,334,839	Cole -----	Mar. 23, 1920
2,130,464	Jacobsen -----	Sept. 20, 1938
2,152,897	Madore -----	Apr. 4, 1939

6

UNITED STATES PATENTS