

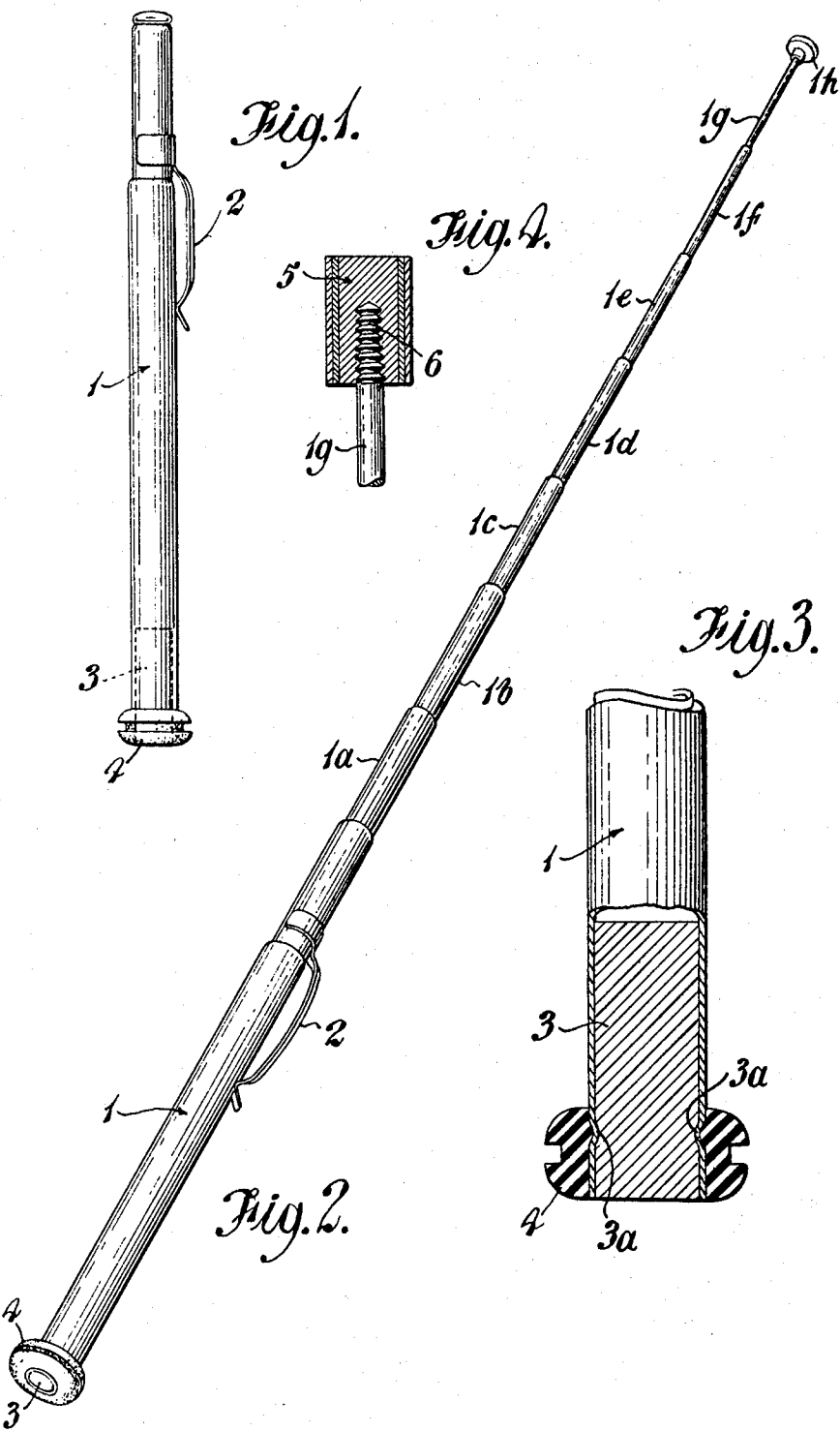
May 21, 1968

D. A. FURZEY

3,384,408

HAND TOOLS

Filed April 11, 1966



1

3,384,408

HAND TOOLS

Denis Alfred Furzey, 44 Durban Road, Watford,
Hertfordshire, England

Filed Apr. 11, 1966, Ser. No. 541,636

5 Claims. (Cl. 294—65.5)

ABSTRACT OF THE DISCLOSURE

An extensible magnetic hand tool for retrieving objects from otherwise inaccessible places and which consist of a telescopic rod, of a kind similar to a telescopic radio aerial, and carrying a magnet at each end of the rod, in which one of the magnets is in a larger diameter open end of the rod, and the other surmounts the opposite end of the rod, which is of smaller diameter. The larger diameter open end is surrounded by a non-magnetic shield and the magnet at the smaller opposite end is of a kind having negligible magnetic side field.

This invention relates to hand tools.

According to the present invention there is provided a hand tool comprising a telescopic rod carrying a magnet at each end of the rod, in which one of the magnets is in a larger diameter open end of the rod, and the other surmounts the opposite end of the rod which is of smaller diameter.

Preferably, the rod will in a closed condition reduce to a length suitable for a top or inside jacket pocket and will extend in its open condition to several times this length. For securing the tool in the pocket it is preferably provided with a clip such as a standard pencil clip.

The telescopic rod may conveniently be similar to those used as telescopic radio aerial.

The purpose of the tool is inter alia for lifting metal objects, capable of attraction by the magnets, out of otherwise inaccessible recesses in machines.

The facilitate progress of the tool, as in a bore at least one of the ends carrying the magnets may be surrounded by a non-magnetic shield which may conveniently be rounded or chamfered on its leading edge. This will minimise the tendency of the end of the tool to cling to surrounding metal.

Alternatively a cylindrical magnet of the kind having its north and south poles at opposite ends of a diameter of an end face or a coaxial magnet may be used and in this case no non-magnetic shield need be provided as the side magnetic field is negligible.

Reference will now be made by way of example to the accompanying drawing, in which

FIGURE 1 is an elevation of one embodiment of hand tool according to the invention and in a closed or collapsed condition,

FIGURE 2 is a perspective view of the hand tool in an extended condition,

FIGURE 3 is a partly cut-away and partly sectional view, to a larger scale, of one end of the hand tool of FIGURE 1, and FIGURE 4 is a partly cut-away and partly sectional view, to a larger scale than FIGURE 1 and 2, illustrating in detail one end of hand tool according to the invention.

2

There is shown in the drawing, a magnetic hand tool comprising a telescopic rod 1 a similar kind to a standard telescopic radio aerial, having telescoping parts 1a to 1g inclusive. The rod in the collapsed condition reduces to a length suitable for a top or inside jacket pocket and is extensible to several times this length. A pencil clip 2 is provided for securing the tool in the pocket.

An "Alcomax," i.e. Nickel Cobalt Iron Alloy, Anisotropic Permanent magnet material 3 is secured in an open end of the rod 1 by recesses 3a in the magnet into which the wall of the rod is pressed. A single recess only may be provided.

The end of the rod carrying the magnet carries a surrounding non-magnetic shield in the form of a polymeric material such as a plastics material for example, Polyvinylchloride (P.V.C.) or a "Neoprene" rubber.

When the tool is required for use, for example to retrieve a metal object, capable of attraction by the magnet 3, from a recess or bore in a machine, it is extended to a suitable length and inserted in the bore or recess. The gromet facilitates progress of the end of the tool carrying the magnet by keeping it off the side walls of the bore or recess to which it would cling.

As illustrated in FIGURE 4, an additional magnet 6, which may be of the coaxial kind, i.e. consisting of bar magnet in a steel cup so as to eliminate any side magnetic field, is screwed on an opposite threaded end of the rod at 5 as illustrated. A non-magnetic shield is not necessary.

Whereas in these embodiments for cheapness the maximum use of standard available parts has been made i.e. for the rod 1, clip 2 and part 4, the invention is not limited to the use of all or any such parts or to be provided at 6.

What I claim is:

1. A hand tool comprising a telescopic rod carrying a magnet at each end of the rod, in which one of the magnets is in a larger diameter open end of the rod, and the other surmounts the opposite end of the rod which is of smaller diameter.

2. A hand tool as claimed in claim 1, in which a non-magnetic shield surrounds at least one of the magnets.

3. A hand tool as claimed in claim 2, in which the shield is of a polymeric material.

4. A hand tool as claimed in claim 1, in which a clip is provided for securing the hand tool in a pocket.

5. A hand tool as claimed in claim 1, in which at least one of the magnets is of a kind having negligible magnetic side field.

References Cited

UNITED STATES PATENTS

2,597,400	5/1952	Stogsdill	294—2
2,218,825	10/1940	Guillou	294—65.5
2,428,864	10/1947	Boyd	294—65.5
3,169,791	2/1965	Twachtman	294—65.5

FOREIGN PATENTS

1,021,469	3/1966	Great Britain.
-----------	--------	----------------

ROBERT G. SHERIDAN, *Primary Examiner.*

GERALD M. FORLENZA, *Examiner.*

G. F. ABRAHAM, *Assistant Examiner.*