

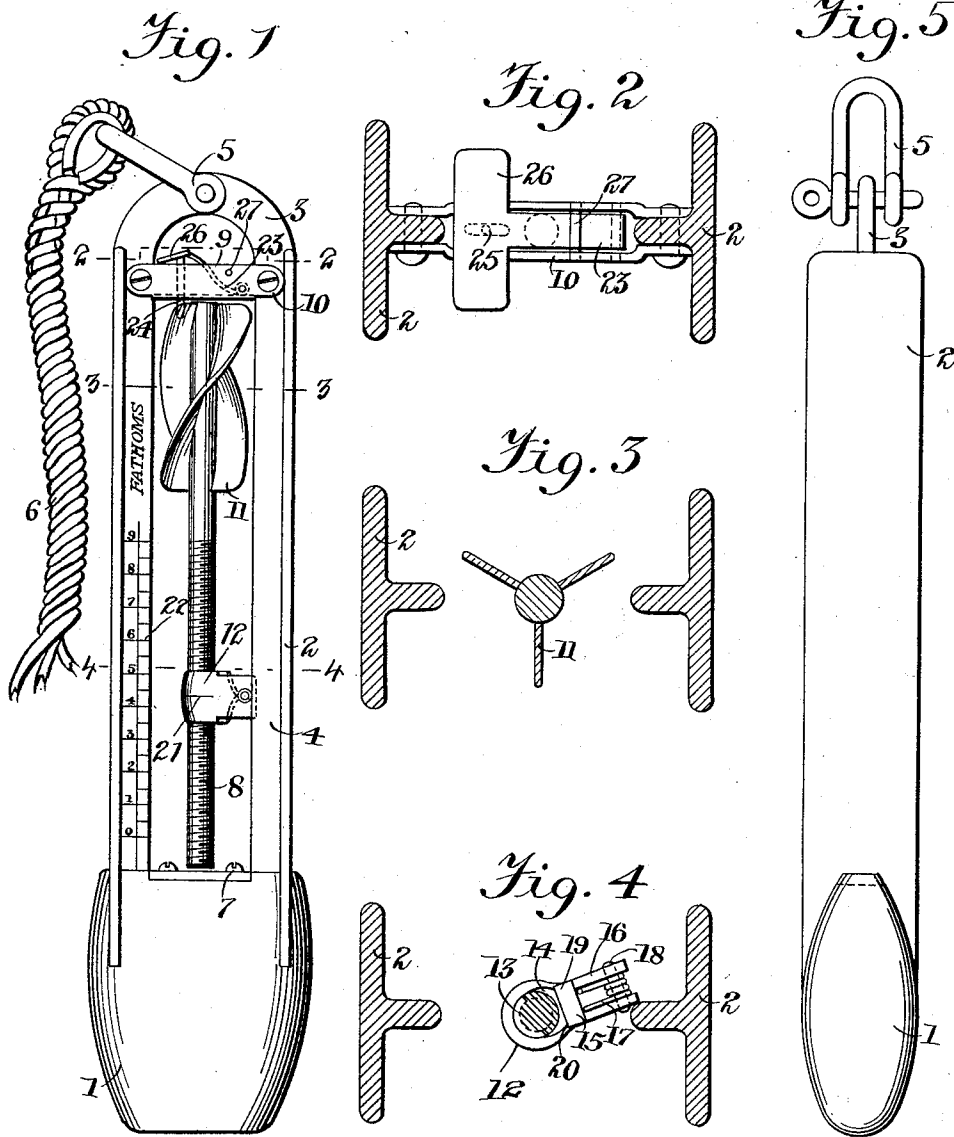
Draftsman's Copy

F. A. WARNER.
SOUNDING DEVICE.

APPLICATION FILED NOV. 2, 1911.

1,055,244.

Patented Mar. 4, 1913.



Witnesses

Alfred G. Seiler
Edw. W. D. Smith

Inventor

Frederick A. Warner

By Victor J. Evans

Attorney

UNITED STATES PATENT OFFICE.

FREDERICK A. WARNER, OF HALIFAX, NOVA SCOTIA, CANADA.

SOUNDING DEVICE.

1,055,244.

Specification of Letters Patent.

Patented Mar. 4, 1913.

Application filed November 2, 1911. Serial No. 658,259.

To all whom it may concern:

Be it known that I, FREDERICK A. WARNER, a subject of the King of Great Britain, residing at Halifax, in the Province of Nova Scotia and Dominion of Canada, have invented new and useful Improvements in Sounding Devices, of which the following is a specification.

This invention relates to sounding devices and the particular object of the invention is to obviate the difficulties encountered in the use of the ordinary hand lead, which of necessity, requires a trained operator. The use of this device also obviates the difficulty of watching the different colored buntings which are difficult to read in day time and almost impossible to read at night. Another advantage over the lead line is that the device does not have to be drawn up plumb but can be drawn up at an angle without affecting the register. With the ordinary lead line, the depth was difficult to ascertain when the lead line was drawn up at an angle to the vertical, which is needless to say, increases the immersion of the line and causes faulty reading.

A further object of the invention is the provision of a simple and efficient registering sounder which may be rapidly and conveniently set to zero and which is provided with automatic locking mechanism to prevent the retrograde movement when the line is hauled.

Further objects of this invention will appear as the following specific description is read in connection with the accompanying drawing, which forms a part of this application, and in which:—

Figure 1 is a side elevation. Fig. 2 is a section on the line 2—2 of Fig. 1. Fig. 3 is a similar section on the line 3—3 of Fig. 1. Fig. 4 is a section on the line 4—4 of Fig. 1. Fig. 5 is an edge elevation.

Referring more particularly to the drawing, 1 represents an ordinary sinker which has connected thereto and extending vertically therefrom in parallel relation, the separated guide bars 2 which are connected at their upper ends by a yoke 3 forming a continuation of the reinforcing web or rib 4, the guard members being preferably constructed of T-shaped irons. At the upper end of the yoke 3, a shackle 5 is pivoted to which is connected the ordinary lead line 6. Secured upon the upper end of the sinker between the guide bars 2 is a bearing plate

7 in which is stepped a shaft 8 having screw threads throughout the major portion of its length. The upper end of the shaft being journaled in a bridge piece 9 which is substantially U-shaped in cross section and has projecting ears 10 which are connected to the webs 4 of the guide bars. Adjacent the upper end of the shaft, suitable propeller blades 11 are formed thereon which are actuated by the water to rotate the shaft 8 and raise an indicating nut 12 thereon. This member 12 is in the form of a half-nut, that is, it is provided with a threaded portion 13 which engages the threads of the shaft, and a smooth channel 14 opposite the threaded portion and of similar area so that when the nut is pushed to one side the threaded portion will be disconnected from the shaft and the nut may be moved idly up or down upon the shaft, as is desired. In order to hold the threaded portion of the nut in engagement with the shaft, a block 15 having said threaded portion is slidably mounted between arms 16 which project outwardly from the nut in parallel relation. This block is normally held in engagement with the shaft by a spiral spring 17, whose terminal ends bear against the block and whose coil is wound around a rivet 18 extending across the arms. The upper and lower ends of the block 15 are provided with extensions 19 which are adapted to engage the shoulders 20 formed on the nut to limit the inward movement of the block and thereby prevent excessive friction between the shaft and the nut. A suitable pointer line 21 is made upon the nut and suitable graduation marks 22 indicating fathoms are placed upon one of the webs 4.

In order to permit the rotation of the propeller and shaft, when the lead is cast and to prevent its rotation when the lead is hauled, an arm 23 is pivoted between the sides of the bridge piece 9 and carries a projecting pin 24 which extends through an aperture 25 in the bottom of the bridge piece and lies in the path of the propeller blades. At the juncture of the pin and arm, a plate 26 is secured which extends transversely across the upper end of the bridge piece and is actuated by the water in descent of the lead to raise the pin and withdraw the same from the path of the propeller. When the lead is raised, the water will engage the upper portion of the plate 26, depress the same, and throw the pin into the

path of the propeller, thus preventing its retrograde movement. A cross pin 27 limits the upward movement of the arm 23. It will be noticed that the arms 16 are of sufficient length to contact with the webs 4 and thereby prevent the rotation of the nut with the shaft, at the same time permitting the nut to move freely vertical upon the shaft, as will be clearly understood.

10 In the operation of the device, the cast is made in the same manner that the ordinary lead is cast and with the nut 12 at the zero point. Immediately that the water strikes the under side of the plate 26, the pin 24 is removed from the path of the propeller and the same starts to rotate. As the propeller and shaft rotate upon the descent of the device, the nut will rise upon the shaft until the sinker strikes the bottom. When the device is hauled, the water striking against the top of the plate will depress the same into the path of the propeller and prevent any retrograde movement thereof, thus holding the device in its actuated position and showing the true depth irrespective of the angle at which the line is hauled.

All parts are preferably constructed of some non-corrosive metal or are treated in such a manner as to make them non-corrosive.

What is claimed is:—

1. A sounding device comprising a yoke-shaped frame, a sinker connecting the ends of the yoke-shaped frame, a bridge piece carried by the frame, a threaded shaft journaled in the bridge piece a nut mounted to

travel on said shaft, a propeller carried by the shaft, and a water actuated device pivoted on the bridge piece for automatically releasing and locking the shaft against rotation of the propeller.

2. A sounding device comprising a yoke-shaped frame, a sinker connecting the ends of the frame, a bridge piece carried by the frame, a threaded shaft journaled in the bridge piece and carrying a propeller, an indicating nut threaded on the shaft, a pivoted water actuated lever carried by the bridge piece, and means carried by the lever and adapted to be interposed in the path of the propeller when the device is raised, whereby the propeller will be locked against rotation.

3. A sounding device comprising a yoke-shaped frame, a sinker connecting the ends of the frame, a bridge piece carried by the frame, a threaded shaft journaled in the bridge piece and carrying a propeller, an indicating nut threaded on the shaft, a pivoted water actuated lever carried by the bridge piece, means carried by the lever and adapted to be interposed in the path of the propeller when the device is raised, whereby the propeller will be locked against rotation, and means for removably holding the nut in engagement with the shaft.

In testimony whereof I affix my signature in presence of two witnesses.

FREDERICK A. WARNER.

Witnesses:

HENRY O'TOOLE,
W. B. MACCOY.