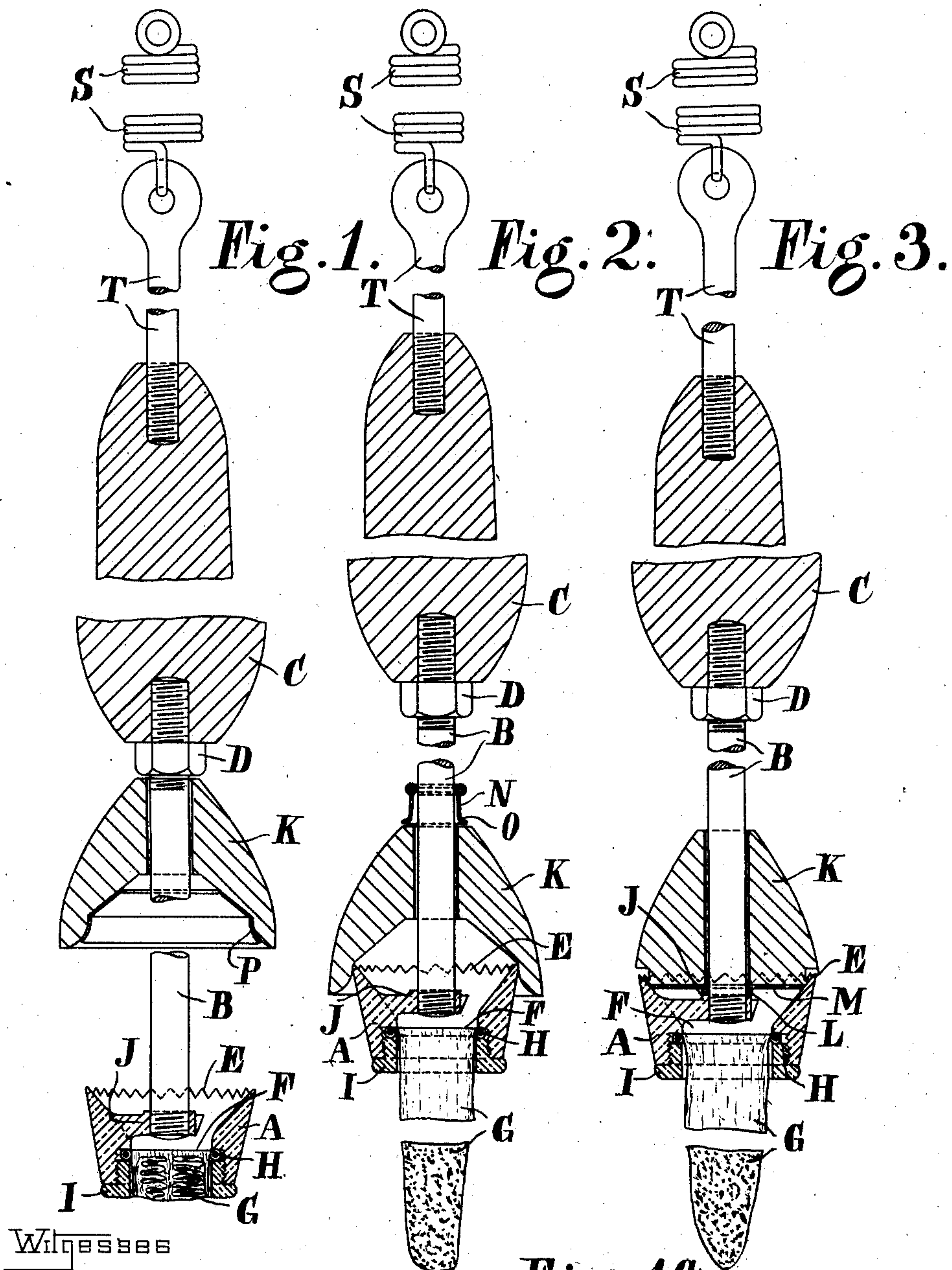


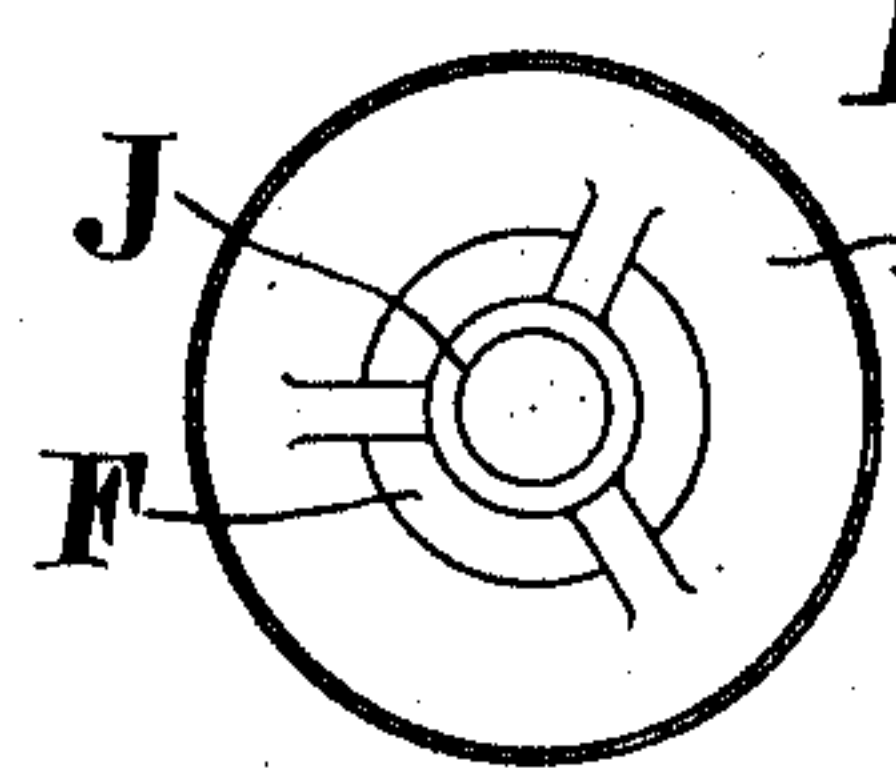
P. S. HUDSON.  
 APPARATUS FOR TAKING SOUNDINGS.  
 APPLICATION FILED MAY 16, 1910.

998,515.

Patented July 18, 1911.



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*Fig. 1<sup>a</sup>*  
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# UNITED STATES PATENT OFFICE.

PERCY SEAFORTH HUDSON, OF WATERLOO, NEAR LIVERPOOL, ENGLAND.

## APPARATUS FOR TAKING SOUNDINGS.

998,515.

Specification of Letters Patent.

Patented July 18, 1911.

Application filed May 16, 1910. Serial No. 561,686.

### *To all whom it may concern:*

Be it known that I, PERCY SEAFORTH HUDSON, a subject of the King of Great Britain, residing at Waterloo, near Liverpool, in the county of Lancaster, in the Kingdom of England, have invented certain new and useful Improvements in Apparatus for Taking Soundings, of which the following is a specification.

10 This invention relates to apparatus or means for taking soundings, more particularly for use in deep water, and consists in providing means whereby practically all the specimens collected are retained until  
15 the apparatus has been drawn on board, thus enabling a correct record to be obtained of the substances at the bottom of the water.

20 The invention also consists in providing means for enabling soundings to be taken irrespective of the speed at which the vessel is moving.

25 The invention will be better understood with reference to the accompanying drawings, in which—

30 Figure 1 is a longitudinal section of the apparatus showing the bag in a collapsed condition; Fig. 1<sup>a</sup>, a plan of the basket or cup; Fig. 2, a longitudinal section showing the bag extended; Fig. 3, a longitudinal section of a modification.

35 In the drawings, A is a grab, basket, cup or the like, secured to one end of a rod or spindle B, the other end of said rod or spindle B being attached to or fixed into a lead or sinker C, and held in position thereon by means of a lock-nut or the like D. The basket or cup is preferably tapering in form, the taper extending from the base to the  
40 upper edge. Slots or serrations E are arranged at the mouth or periphery of the basket A, by means of which a better sample of the sand or the like can be collected in the basket A, during the passage of the apparatus along the bottom of the sea. A cut-out or hollowed portion F is provided at the bottom of the basket A, for the reception of a bag G of linen or any other suitable material, said bag G being retained in said  
45 part F by means of a ring or rod H and a cover or cap I, the cap or cover I being preferably provided with a milled edge. The linen bag G is capable of expansion, as will be hereinafter described. A boss or  
50 bridge J is provided inside the cup or basket

A, into which boss J, one end of the spindle or rod B is secured, thus connecting the basket A to the sinker C. The rod B not only serves as a connection between the basket A and sinker C, but it also acts as a  
60 guide rod on which a buoyant valve K can slide, and which valve K, on the apparatus being thrown into the water, is raised off its seat on the basket A and remains in its raised position until the apparatus is com-  
65 menced to be hauled in, when, owing to the pressure of water on the upper surface of said valve K, the latter is pressed down again on to the basket A, thereby entrapping the contents in the latter. 70

In the forms of construction shown in Figs. 1 and 2, the valve K is shown as fitting outside or over the edges of the basket A, and also as being hollowed out on its underside to enable the serrations E or up-  
75 per edge of the basket A to be completely inclosed when the valve is in its lowermost position.

80 In Fig. 3 is shown a modification of the valve K. In this figure the valve is shown as fitting inside and below the serrations E in the mouth of the cup A, and a packing or washer M of felt or any other suitable material provided thereon. By this means a  
85 perfectly tight joint can be made on the valve K reaching its lowermost position.

To prevent the inrush of water down the space between the rod B and valve K, a packing or washer L of felt or any suitable material is arranged, either on the spin-  
90 dle B immediately above the boss J, or the packing may be arranged on the upper side of the boss itself, or an apron or hood N of linen, canvas or any other suitable material, may be provided above the top of the valve  
95 as shown in Fig. 2, the lower ends of the hood N being preferably curved outward as at O. A packing P of any suitable material may also be arranged on the inside of the valve K whereby an additional security for  
100 the making of a tight joint at the point where the valve K overlaps the serrations E of the basket A, as shown in Fig. 1, is afforded.

To enable a sounding to be taken irrespec-  
105 tive of the speed at which the vessel is traveling, and also with a view of preventing the lead C and basket A from becoming detached from the line, a spring S is attached to the lead C at one end by means of a hook  
110



or bolt T, and at the other end to the rod line in any suitable manner. The spring S is preferably spiral in form, but of course other forms of spring may be employed.

- 5 The method of using the apparatus is as follows: On the apparatus being thrown into the water, the latter forces or lifts up the valve K on its rod B, until it reaches the nut D, thereby uncovering the basket A.
- 10 On reaching the bottom of the water the apparatus falls on its side and on being drawn along, the bag is caused to open out, thus collecting and retaining specimens of the sand, shell or the like. Immediately the
- 15 apparatus is commenced to be withdrawn from the water, the valve K is forced down by the pressure of water on to the basket A thereby preventing the escape of the contents from the bag G. To release the con-
- 20 tents of the bag G, the cap I at the base of the cup A is unscrewed, when the bag can be withdrawn, and it will be found that a very large quantity of material has been collected, and owing to the bag G being of a
- 25 porous nature most of the water collected therein will also be found to have escaped, thus leaving practically a solid sample. To replace the bag after the contents have been examined, it is only necessary to insert it in
- 30 the hollow F of the basket A and screw the cap I on again.

I declare that what I claim is:—

1. In apparatus for taking soundings, in combination, a sinker, a receptacle, a rod
- 35 connecting said sinker to said receptacle and a collapsible bag in said receptacle.

2. In apparatus for taking soundings, in combination, a sinker, a receptacle, a rod connecting said sinker to said receptacle, a
- 40 collapsible bag in said receptacle, and a buoyant valve on said rod adjacent to said receptacle.

3. In apparatus for taking soundings, in combination, a sinker, a receptacle, a rod
- 45 connecting said sinker to said receptacle, a collapsible bag in said receptacle and a buoyant valve on said rod above said receptacle, and a washer on said valve.

4. In apparatus for taking soundings, in combination, a sinker, a receptacle, a rod
- 50 connecting said sinker to said receptacle, a boss in said receptacle into which said rod is secured, a collapsible bag in said receptacle, a buoyant valve on said connect-
- 55 ing rod adjacent to said receptacle, and a spring connected to said sinker.

5. In apparatus for taking soundings, in combination, a sinker, a receptacle, a col-
- 60 lapsible bag in said receptacle, a rod connecting said sinker to said receptacle, a boss in said receptacle to which said rod is secured, a collapsible bag in said receptacle, a buoyant valve on said connecting rod above

said receptacle, a covering on said rod between said sinker and said valve.

6. In apparatus for taking soundings, in combination, a sinker, a receptacle, a collapsible bag in said receptacle, a rod connecting said sinker to said receptacle, a boss in said receptacle to which said rod is secured, a collapsible bag in said receptacle, a buoyant valve on said connecting rod above said receptacle, a covering on said rod between said sinker and said valve and a spring connected to said sinker.

7. In apparatus for taking soundings, in combination, a receptacle, a buoyant valve adjacent to said receptacle for closing the same, and a bag supported by the receptacle to receive material therefrom.

8. In apparatus for taking soundings, in combination, a receptacle, a collapsible bag normally housed by said receptacle during sinking of the same and adapted to receive material from the receptacle and to expand under the weight of its contents.

9. In apparatus for taking soundings, in combination, a receptacle, a valve adapted to close said receptacle and to remain normally open while the receptacle is sinking, and a bag suspended from the receptacle to receive material therefrom.

10. In apparatus for taking soundings, in combination, a receptacle, a valve adapted to close said receptacle and to remain normally open while the receptacle is sinking, and a porous bag suspended from the receptacle to receive material therefrom.

11. In apparatus for taking soundings, in combination, a receptacle, a valve operating adjacent to the receptacle to open and close the same, and a porous bag suspended from the receptacle and adapted to receive material therefrom.

12. In apparatus for taking soundings, a sinker, a receptacle, a rod connecting said sinker to said receptacle, a collapsible bag in said receptacle, means for retaining said bag in said receptacle, and a buoyant valve on said rod adjacent to said receptacle connecting said sinker to said receptacle.

13. In apparatus for taking soundings, a sinker, a receptacle, a rod connecting said sinker to said receptacle, a collapsible bag in said receptacle, means for retaining said bag in said receptacle, and a buoyant valve on said rod adjacent to said receptacle connecting said sinker to said receptacle, and a spring connected to said sinker.

In witness whereof, I have hereunto signed my name this thirteenth day of May 1910, in the presence of two subscribing witnesses.

PERCY SEAFORTH HUDSON.

Witnesses:

JAMES A. BRANNEN,  
F. MASSON.