(No Model.)

A. G. DELANOY.

DEEP SEA SOUNDING APPARATUS.

No. 257,154. Patented May 2, 1882.

Fig. 4.

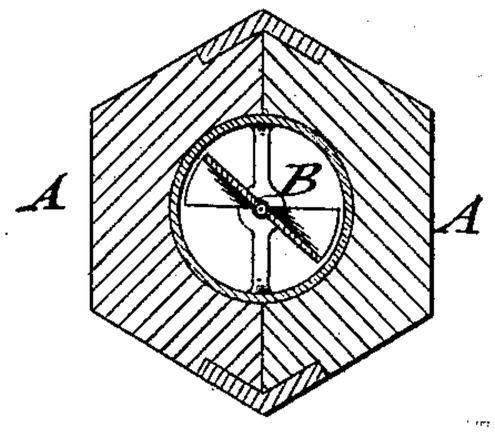


Fig. 1.

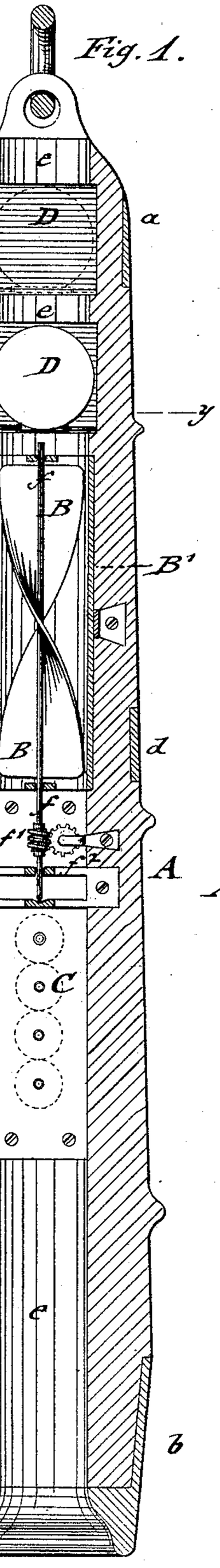


Fig. 5.

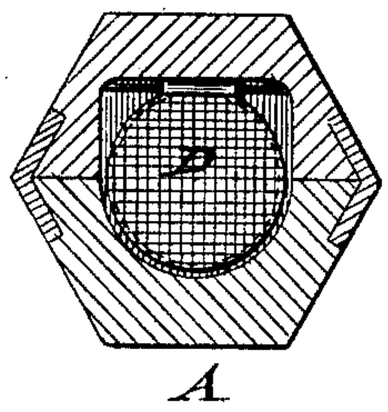


Fig. 2.

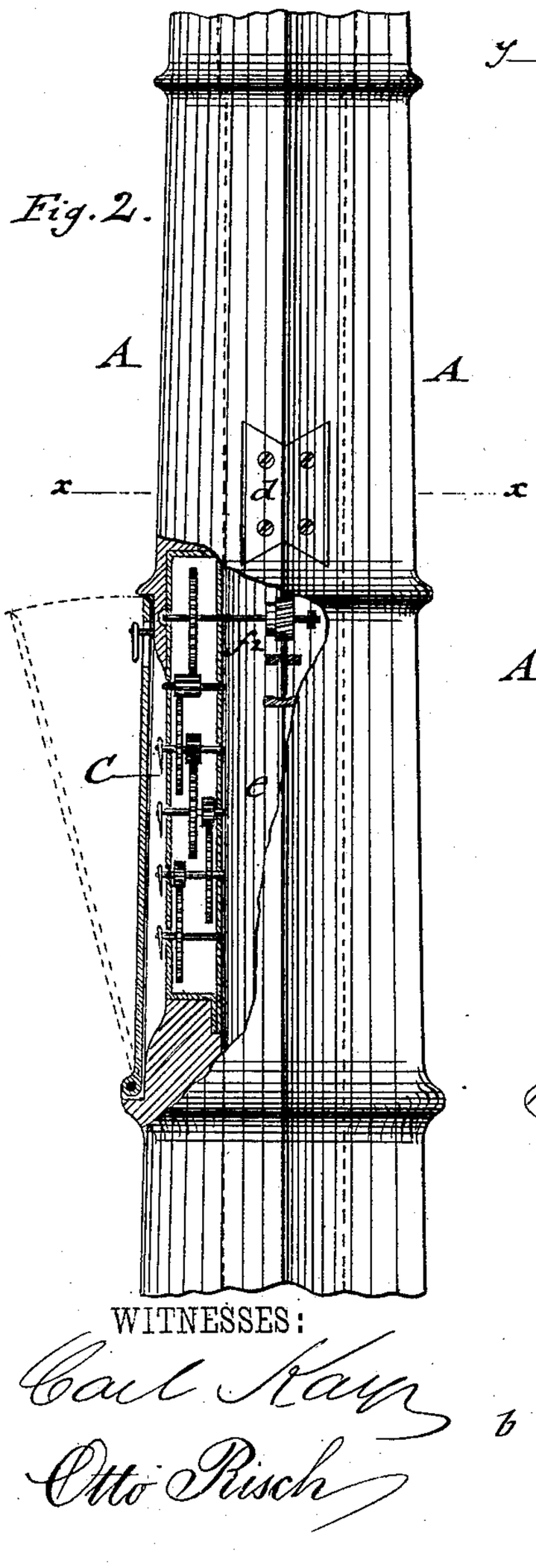
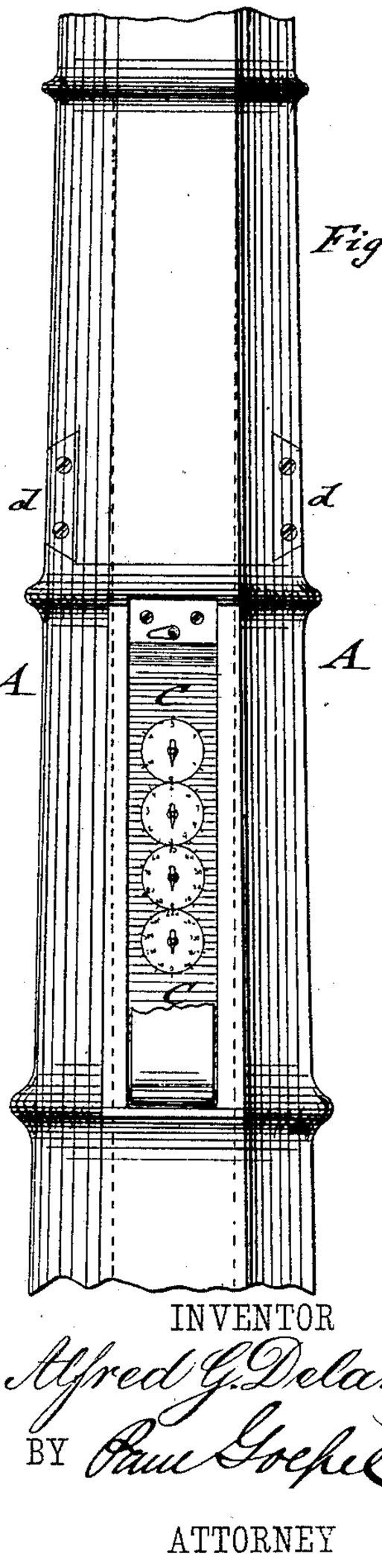


Fig. 3



WITNESSES:

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DEEP-SEA-SOUNDING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 257,154, dated May 2, 1882.

Application filed June 15, 1881. (No model.)

To all whom it may concern:

Be it known that I, ALFRED G. DELANOY, of the city, county, and State of New York, have invented certain new and useful Improvements in Deep-Sea-Sounding Apparatus, of which the following is a specification.

This invention relates to an improved device for deep-sea soundings, with which the soundings can be ascertained and read off directly after the lead has been lifted out of the water, and in which the operating and registering mechanisms are arranged within the lead or sinker, so as to be fully protected against injury by careless handling or otherwise. The apparatus may be readily taken apart and any irregularity corrected.

The invention consists of a sinker constructed in sections, heavier at one end than at the other, united in a peculiar manner, and provided with a central channel extending longitudinally through the entire length of the same.

The invention consists, further, of a tubular sinker provided with a screw-propeller, a registering device, and valves which close automatically when the sinker strikes bottom, so as to prevent the passage of the water through the channel when the sinker is raised.

In the accompanying drawings, Figure 1 represents a vertical central section of my improved apparatus for deep-sea sounding. Fig. 2 is a side view of the same, partly in section, through the registering mechanism. Fig. 3 is a front view; and Figs. 4 and 5 are horizontal sections of the same on line *x x*, Fig. 2, and *y y*, Fig. 1, respectively.

Similar letters of reference indicate corresponding parts.

A in the drawings represents a sinker, which is made of lead, cast-iron, or other suitable metal, and of different sizes, according to the depths to be sounded. The sinker A is made somewhat wider at the lower part and slightly tapered off toward the upper end, as shown in the drawings, and is formed of two semi-sections, which are connected by means of a top socket, *a*, a bottom socket, *b*, and intermediate dovetailed pieces, *d*, (shown in Figs. 2 and 3,) so that a tight joint at the meeting faces of the sections is obtained. A central longitudinal channel, *e*, extends through the entire length of the sinker A, so that a column of water of uniform thickness may pass through the channel when the sinker is lowered.

In the channel *e* is arranged, preferably at the upper part, so as to be above any disturbing influence of mud or sand entering at the lower part of the sinker, a screw-propeller, water-wheel, or other equivalent power-communicating device, B, the shaft *f* of which is supported in bearings of a cylindrical casing, B′, which is set into an annular recess of the sinker, so that its inner surface is flush therewith. The screw B is revolved by the water passing through the channel, and sets, by means of a worm-wheel, *f′*, on the shaft, and a transmitting-pinion, f^2, a registering device, C, of the usual construction, in motion, as shown in Figs. 1 and 2. The register C indicates by a number of index hands and dials the depth to which the lead is sunk respectively in units, tens, hundreds, and thousands of fathoms. The register C is set into a recess or housing of one section of the sinker and flush with the same, and covered at the outside by a hinged metal plate, which is secured by a catch after the depth has been read off, as shown in Figs. 2 and 3.

The sinker is preferably provided with exterior projecting ribs for additional strength and protection in handling. At the inside of the channel *e*, and above the propelling device B, are arranged two valves, D, which are hinged to diametrically-opposite points of the sinker, and are seated on circumferential shoulders formed by interior annular recesses, as shown clearly in Figs. 1 and 5. To whatever side the sinker will fall when striking bottom, one of the valves will be closed, and thereby the water prevented from passing through the channel during the upward motion of the sounder, so that the register cannot be interfered with, and indicates the exact depth reached.

In case, for some reason or other, the sounder should not indicate the proper depth, it can be readily taken apart by removing the fastening devices of the two sections, and the cause of the interruption can be ascertained and removed.

The sinker or lead and registering device are not detachable from each other, and form one sounding apparatus, which is conveniently

handled and more reliable in use than the common lead and sounding-line at present in general use.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A sinker composed of two detachable semi-tubular sections, thickened at their lower ends, and provided at their upper ends with perforated ears, said sections being united at their lower ends by means of a solid tubular socket, at their upper ends by means of a band or otherwise, and intermediately by means of dovetail pieces, substantially as described.

2. The combination of a tubular sinker, a rotary screw or other actuating device within the channel of the sinker, a registering device connected with and operated by the screw, and a valve or valves within the channel, adapted to close automatically when the sinker strikes bottom, substantially as described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 19th day of May, 1881.

ALFRED G. DELANOY.

Witnesses:
PAUL GOEPEL,
CARL KARP.