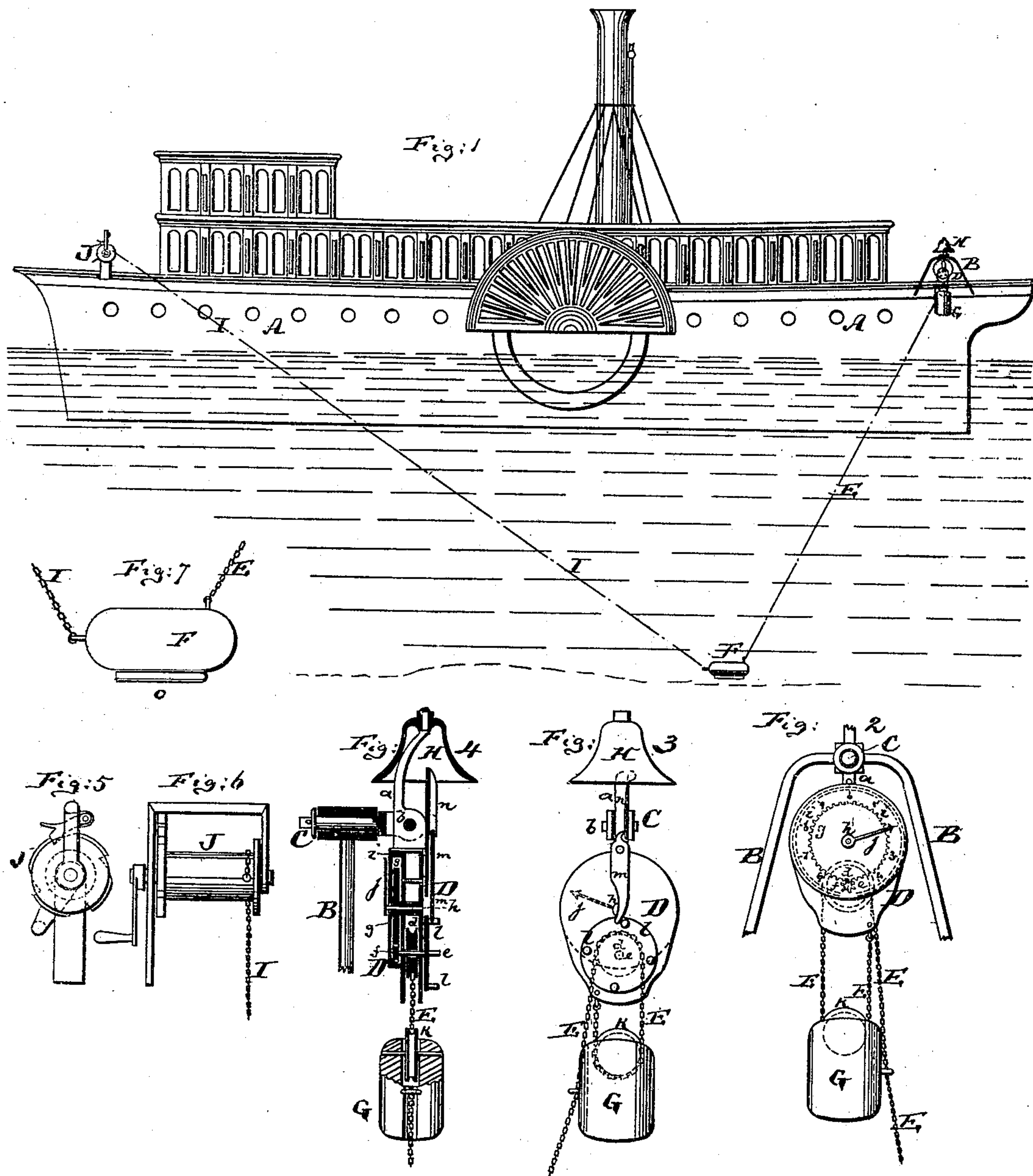


F. X. WAGNER.

SEA SOUNDING AND ALARM APPARATUS.

No. 175,792.

Patented April 4, 1876.



Witnesses:
 Otto A. Weidner
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Inventor:
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 by his attorney
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UNITED STATES PATENT OFFICE.

FRANZ X. WAGNER, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF HIS
RIGHT TO ABRAHAM SCHOENBERG, OF SAME PLACE.

IMPROVEMENT IN SEA-SOUNDING AND ALARM APPARATUS.

Specification forming part of Letters Patent No. **175,792**, dated April 4, 1876; application filed
March 10, 1876.

To all whom it may concern:

Be it known that I, FRANZ XAVIER WAGNER, of New York city, in the county and State of New York, have invented a new and Improved Sea-Sounding and Alarm Attachment to Ships, of which the following is a specification:

Figure 1 is a side view of a ship provided with my improved sounding and alarm attachment. Fig. 2 is a face view of the indicator applied to the alarm attachment. Fig. 3 is an outer face view of the alarm attachment. Fig. 4 is a vertical central transverse section of the same. Figs. 5 and 6 are end and side views, respectively, of the windlass used in connection with my improved apparatus. Fig. 7 is a detail side view, partly in section, of the suspended sinker, and of the tube attachment thereon.

Similar letters of reference indicate corresponding parts in all the figures.

This invention relates to a new mechanism which, when attached to a steamer or sailing-vessel, will give timely notice to the persons on board such vessel of the approach of the same to shallow water, and also indicate automatically, as soon as its sinker strikes bottom, the exact depth of water beneath such vessel. The invention is applicable to all ships, in place of the ordinary leads now in use, and also as a surveying apparatus, to ascertain the profile of the bottom of seas, lakes, rivers, or other water-courses, and the character of the ground.

The invention consists, principally, of a sinker suspended from a sounding-line, which passes over the registering apparatus, and is counterweighted, to register the depth of water as soon as the sinker strikes ground. The invention also consists in the combination of said sounder-line and sinker with a bracing-line, which serves to hold the sinker at the proper place with reference to the position of the ship. Other details of improvement pertain to said invention, and will be hereinafter more fully described.

In the accompanying drawing, the letter A represents the hull of a suitable ship. To the side thereof, near the stern, or to its stern, is

rigidly secured a frame, B, in which a horizontal or nearly horizontal shaft, C, has its bearings. The outer end of this shaft is forked, and carries the case or shell D of the registering and alarm apparatus, the shank *a* of said case or shell being, by a pin, *b*, pivoted in the forked end of the shaft C. By this mode of attachment the case or shell is suspended by universal joint, so it can freely vibrate in either direction without straining its connection with the ship. Any other form of universal joint may, however, be substituted for the pin *b* and forked shaft C. In the case or shell D is hung a drum, *d*, which is mounted upon an arbor, *e*, whose bearings are in said shell. A pinion, *f*, mounted upon the arbor *e*, gears into a toothed wheel, *g*, which is mounted upon another arbor, *h*, whose bearings are also formed in and by the shell D. The inner face of the case or shell carries, or constitutes, a graduated dial or index plate, *i*, (clearly shown in Fig. 2,) over which a pointer, *j*, fastened to the arbor *h*, is caused to travel. E is the sounding line or chain, of suitable length. Its lower end is attached to the sinker F. Its upper part passes around the drum *d*, thence downward around the pulley *k*, which is hung in a counter-weight, G, and thence upward to the case or shell D again, to which its upper end is firmly attached. The counter-weight G is poised to hold the finger *j* to zero on the dial *i* as long as the sinker F remains suspended in water; but as soon as the sinker strikes bottom the weight G will descend until it draws the line E taut, and in descending will cause the drum *d* to rotate and the finger *j* to move over the face of the dial. The more the sinker is raised—that is, the shallower the water becomes under the ship—the farther will the counter-weight G descend, and the farther will the finger *j* travel over the dial. The finger or pointer *j* will thus correctly show the depth of water beneath the ship as soon as the sinker has reached bottom, the dial being properly graduated with reference to the diameter of the drum *d* and wheels *f g*, to show the exact depth by fathoms or other units of measure. It is evident that the toothed wheels *f* and *g* may be entirely dis-

pensed with or others substituted in their place, and that the drum *d* may be directly mounted upon the arbor *h* of the pointer.

Fig. 2 shows the weight *G* partly descended. A toothed wheel, *l*, or prong or prongs, mounted upon the arbor *e* or *h*, serves to actuate, when said arbor revolves, a lever, *m*, which is pivoted to the case or shell *D*, and which, when thus set in motion, actuates the clapper *n* of a bell or gong, *H*, carried on said shell or case. By this means an alarm will be sounded whenever the pointer *j* is set in motion, and the attention of the officers of the ship called to such motion. Any other species of alarm mechanism may be substituted for the bell and clapper above described. Thus the prong or wheel *l* may, when moved, serve to close or break an electric circuit, and thus cause the alarm to be given in the captain's and officers' cabins, or either, or in other parts of the vessel. For the purpose of holding the sinker *F* in proper position with reference to the position of the moving ship and preventing said sinker being dragged behind the vessel, and for other evident purposes, I connect the sinker *F* with a bracing line or chain, *I*, which extends to a windlass, *J*, hung in the forward part of the ship. This bracing chain or line should preferably have a length nearly equal to the distance between the windlass *J* and shaft *C*, so that when the ship enters a harbor, and at other times when desired, the line *I* may be wound upon the windlass, and the sinker thereby raised out of water. The sinker *F* is of suitable form, preferably cigar-shaped, and carries at its lower side a tube, *o*, which is open in front and closed in rear, and which serves, upon the sinker striking the ground, to scrape up and gather parts of the ground to disclose the character thereof. For ordinary passenger and freight ships I prefer to suspend the sinker at a depth of, say,

two hundred to three hundred feet, so that the finger *j* will remain at zero as long as the ship has a greater depth of water beneath it than that to which the sinker is suspended; but as soon as a less depth is reached the sinker will strike bottom, and will cause the alarm to be sounded, the pointer *j*, at the same time, indicating the depth of water beneath the ship.

I claim as my invention—

1. In a sounding apparatus, the combination of the sounding-line *E* with the case or shell *D*, which is, by universal joint, connected with the body of the vessel, substantially as herein shown and described.

2. The sounding-line *E*, combined with the case or shell *D* and counterpoise *G*, substantially in the manner and for the purpose herein shown and described.

3. The combination of the sinker *F* and sounding-line *E* with the drum *d*, pointer *j*, and counter-weight *G*, substantially as and for the purpose herein shown and described.

4. In combination with the movable pointer *j* of a ship's sounding apparatus, the alarm-actuating prong or wheel *l*, arranged to be operated by the motion of the sounding-line, substantially as specified.

5. The combination of the sinker *F* with the counterweighted sounding-line *E* and bracing-line *I*, substantially as specified.

6. The windlass *J*, combined with the bracing-line *I*, sinker *F*, and sounding-line *E*, substantially as herein shown and described.

7. The braced sinker *F*, provided with the horizontal scraping-tube *o*, which is open in front, substantially as herein shown and described.

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Witnesses:

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