2 Sheets—Sheet 1.

A. HILDRETH.

Tidal Alarm.

No. 19,196. Patented Jan. 26, 1858.

Fig. 3

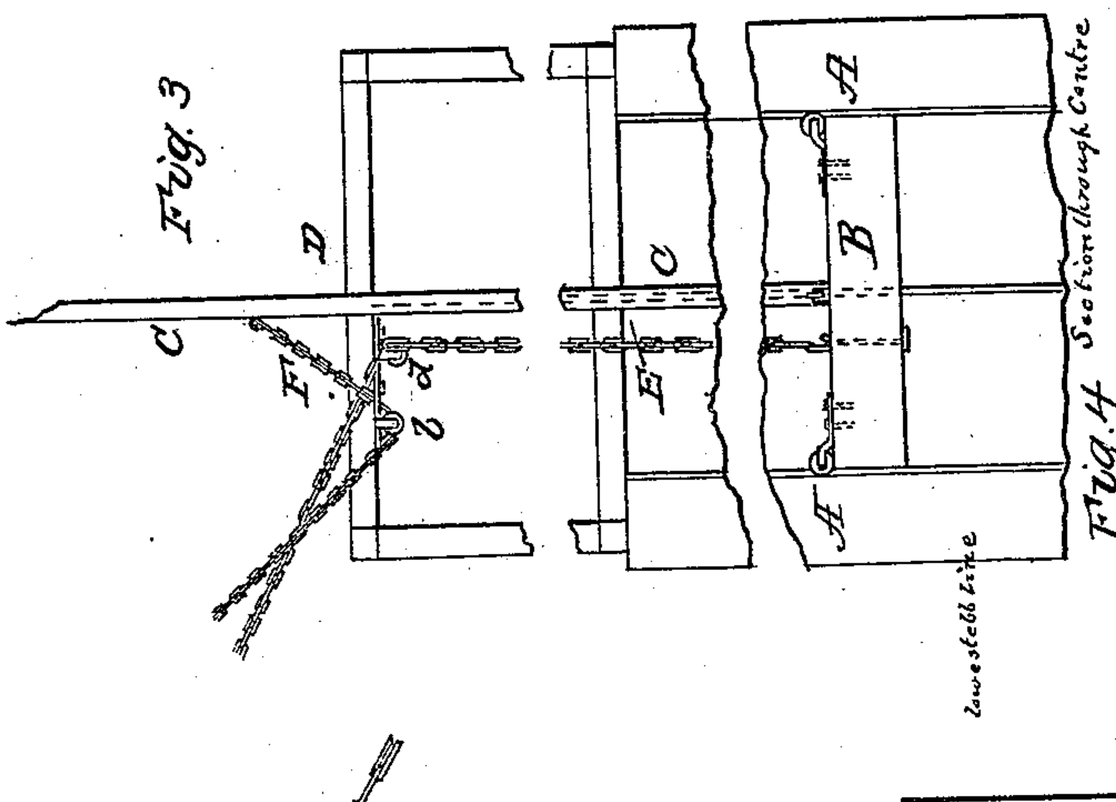


Fig. 4

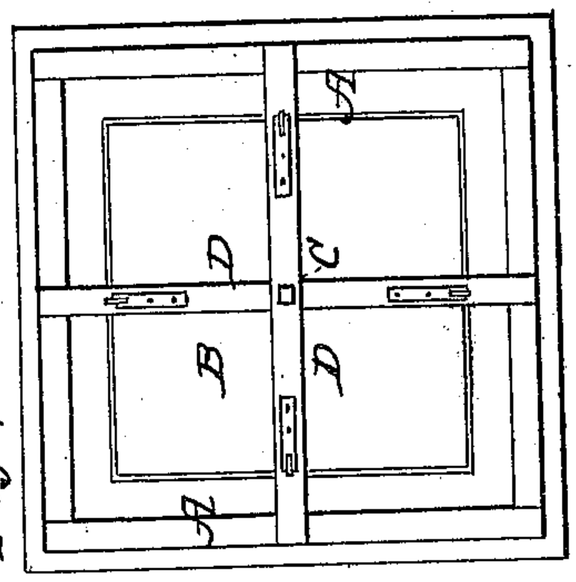
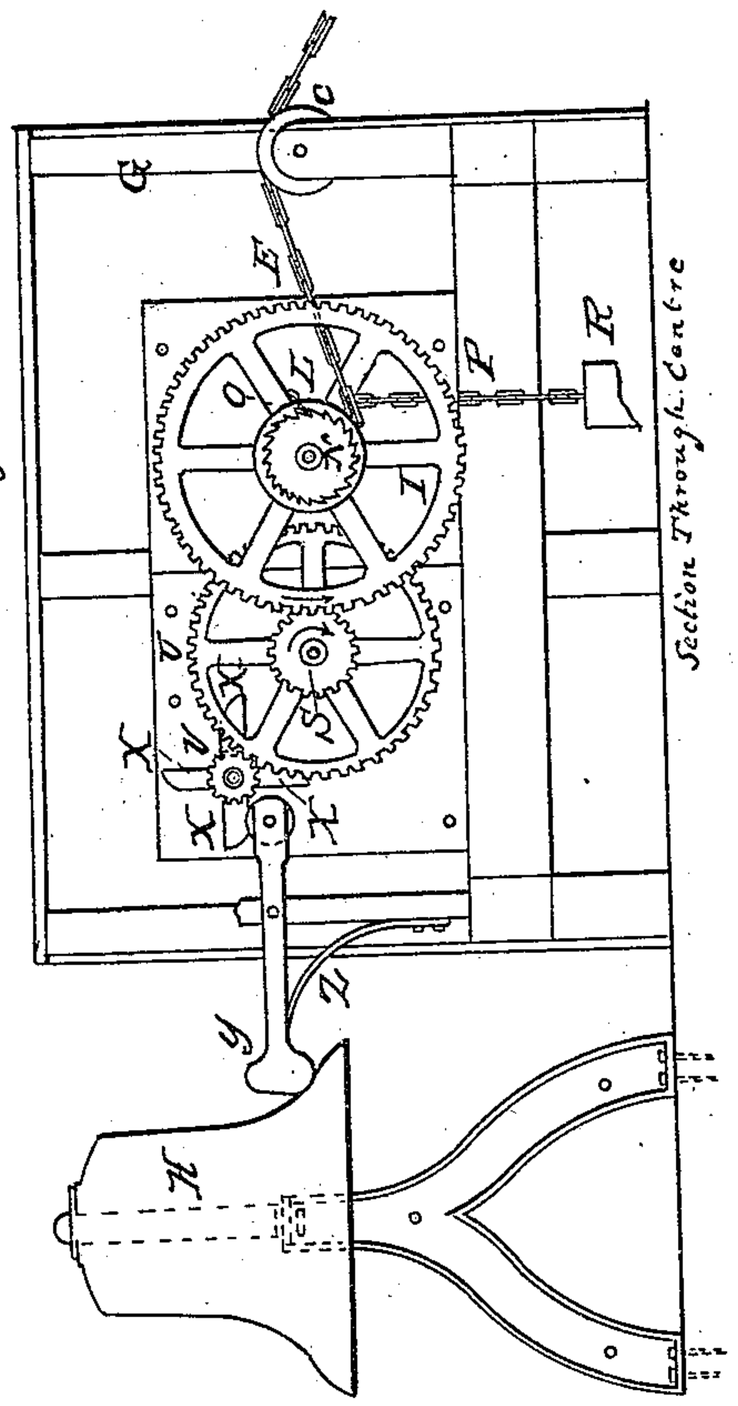
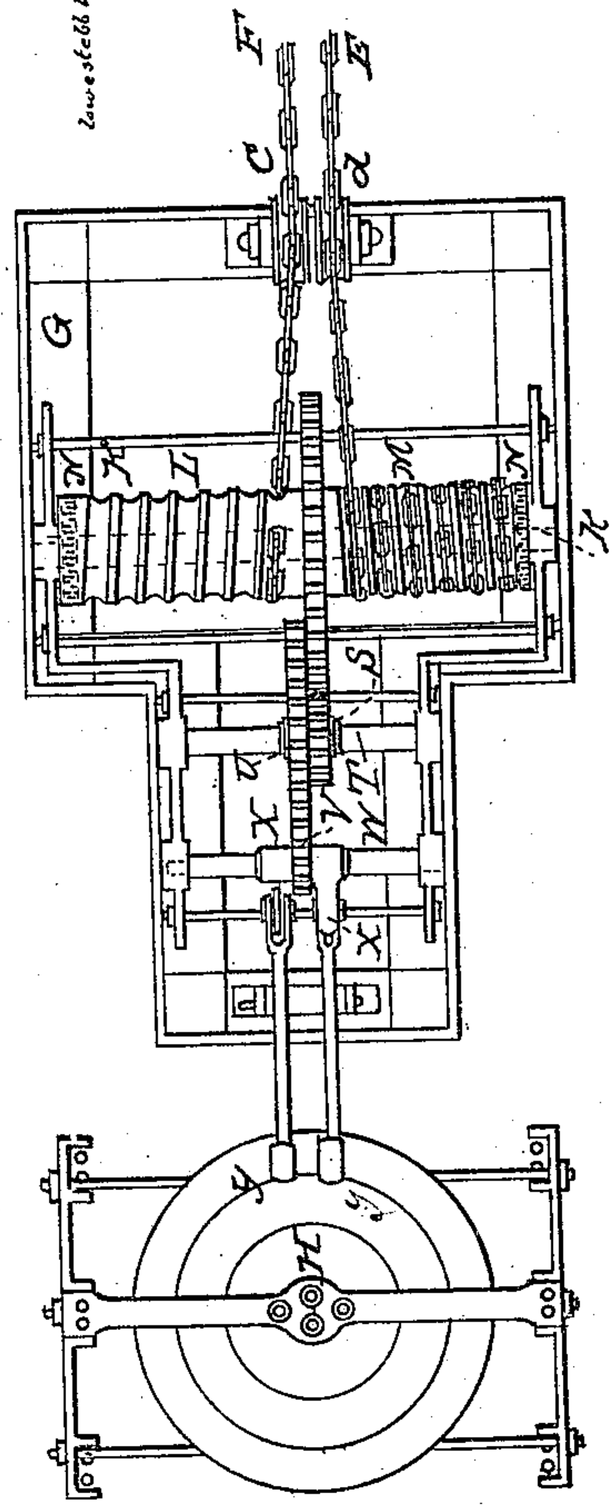


Fig. 2





2 Sheets—Sheet 2.

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Tidal Alarm.

No. 19,196.

Patented Jan. 26, 1858.

Fig. 5

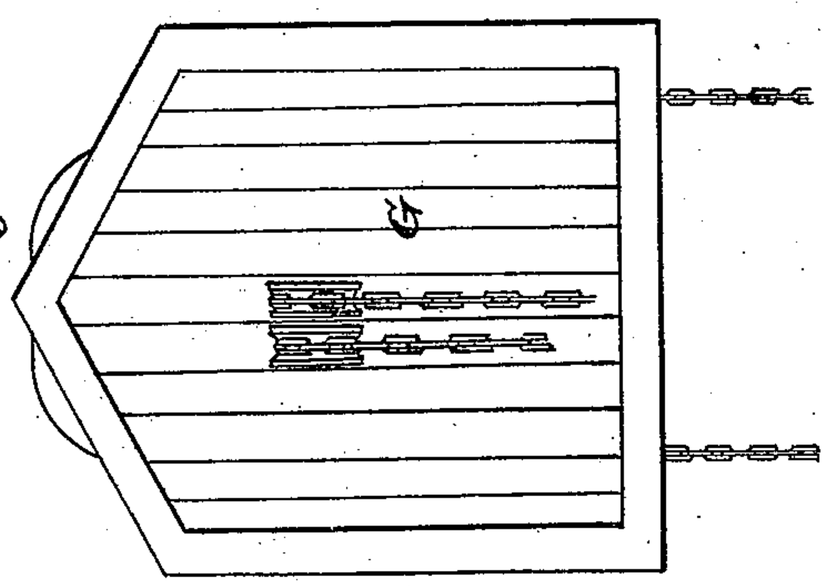


Fig. 7

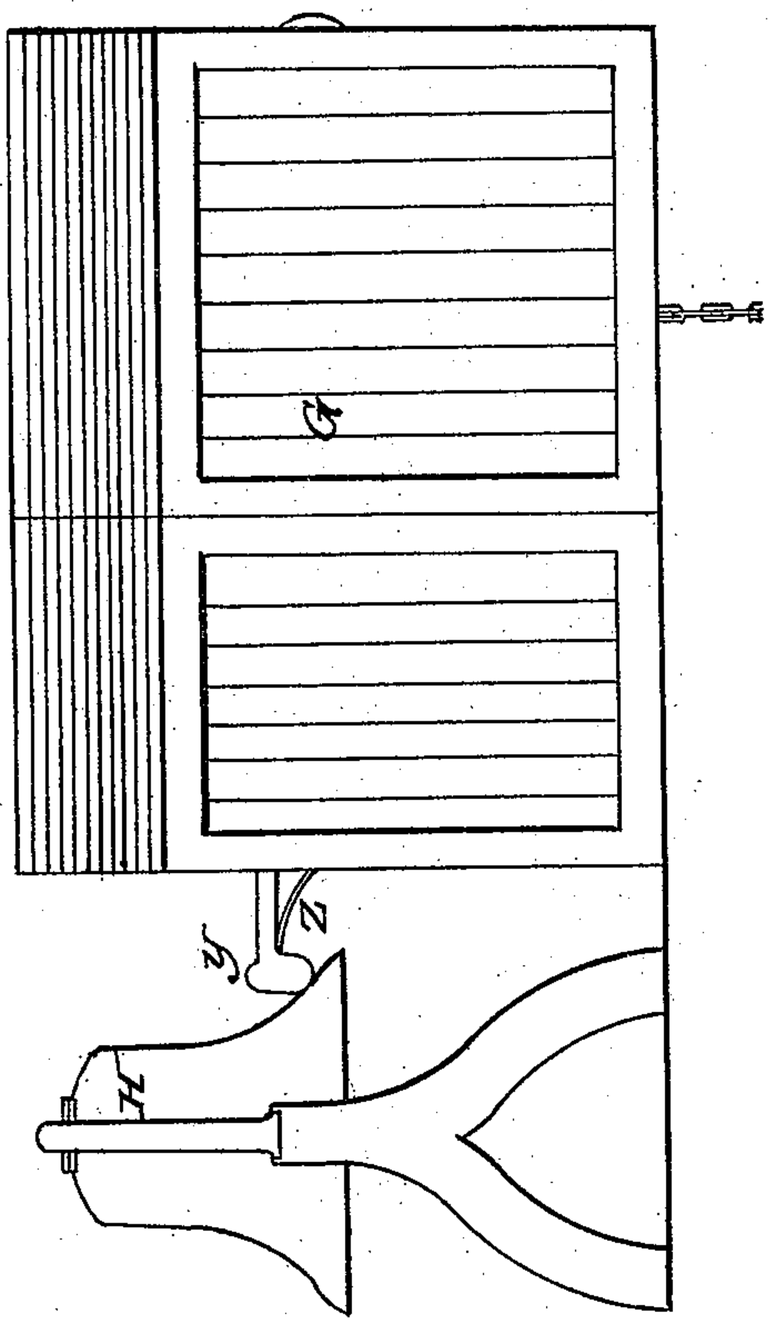


Fig. 8

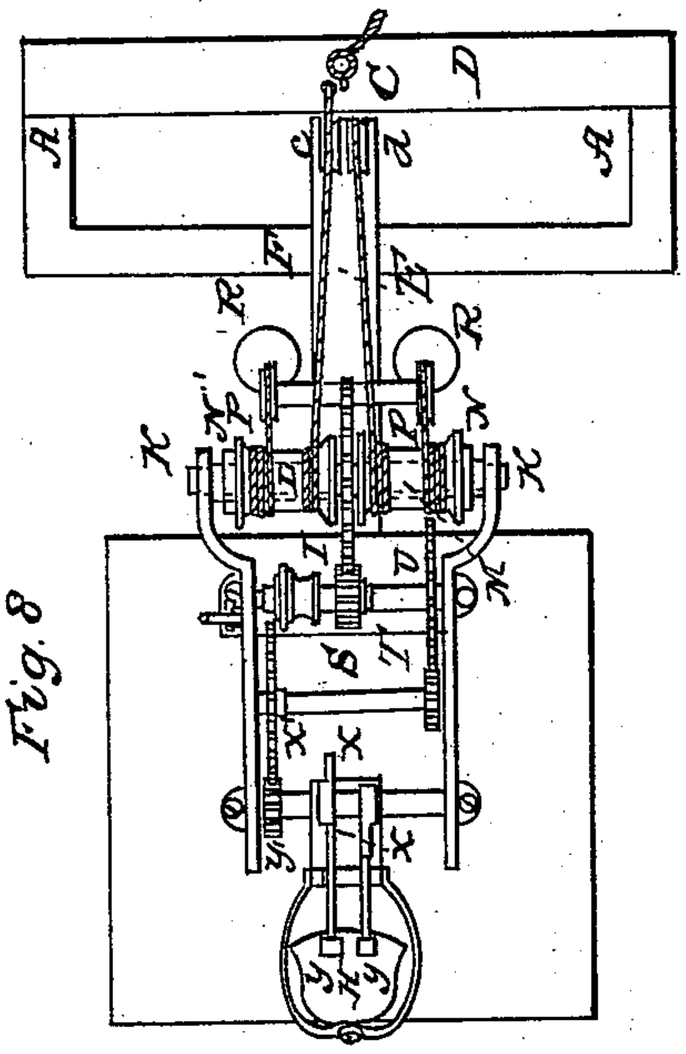
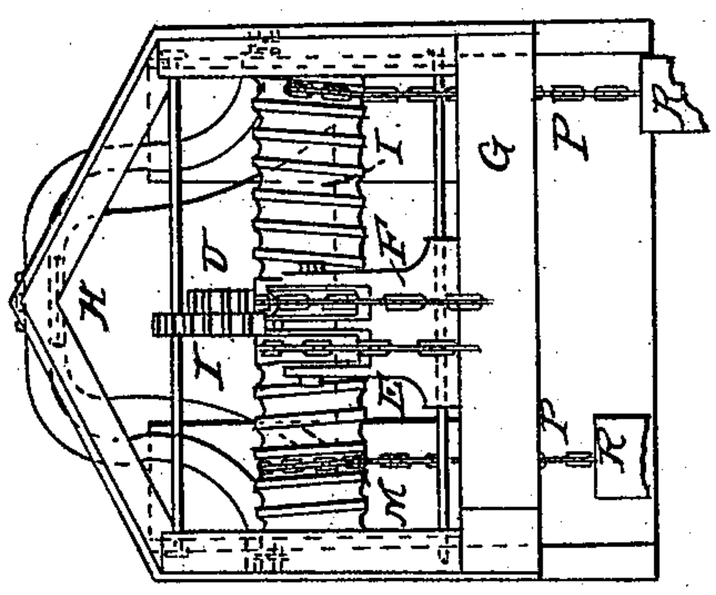


Fig. 6



UNITED STATES PATENT OFFICE.

ABEL HILDRETH, OF THOMASTON, MAINE.

TIDAL ALARM.

Specification of Letters Patent No. 19,196, dated January 26, 1858.

To all whom it may concern:

Be it known that I, ABEL HILDRETH, of Thomaston, in the county of Lincoln and State of Maine, have invented a new or Improved Tidal Alarm; and I do hereby declare that the same is fully described and represented in the following specification and the accompanying drawings, of which—

Figure 1, exhibits a top view of part of the mechanism which will be hereinafter described or explained. Fig. 2, is a longitudinal sectional view. Fig. 3, a section of the well and float. Fig. 4, a top view of said well and float. Fig. 5, an end elevation of the building or case inclosing the wheel work. Fig. 6, a sectional end view. Fig. 7, a side elevation of the bell, and the cover of the striking apparatus.

The object of the above mentioned invention or tidal alarm is to warn mariners, during a fog, of their vicinity to a coast, reef or some place of danger.

In carrying out the said invention, I employ a well or upright box A, (see Figs. 3, and, 4,) built up or placed within the water or sea, where the tide may ebb and flow or rise and fall within the said well or box. Furthermore, I place in the well and so as to rest on the water therein, a float B, having a long upright stem C, arranged so as to play freely in a vertical direction through a guide frame D. To this float and its stem, I attach two ropes or chains E, F, as shown in the drawings; that is, one chain is attached to the float, while the other is affixed to the upper part of the stem of the float. The chain E, from thence is carried over a guide pulley, *a*, while the chain, F, is carried under another guide pulley, *b*, both the said pulleys being affixed to the frame, D. From the pulleys, the chains are led toward the case or house, G, which covers the wheel work or mechanism for sounding or striking a bell, H, which is arranged near to the said house, as shown in the drawings. It is intended that the bell shall be sounded during the ebb, as well as during the flow of the tide. For this purpose, it becomes necessary to impart to the main gear I, of the striking apparatus, a continuous revolution in one direction from the reciprocating vertical movements of the float B. This main gear, I, seen in Figs. 1, and, 2, is affixed to the middle of a horizontal shaft, K, (shown in dotted lines in Fig. 1,) which carries two windlass barrels L, M, that rotate freely on it. Each of these barrels, at or near its outer end abuts against a ratchet N, or N′, on a shaft, K, and besides, each barrel carries one or more pawls, O, to work into the ratchet in order that when the windlass barrel is put in rotation in one direction, it shall rotate the shaft, K, and when put in rotation in the opposite direction, such windlass barrel shall rotate freely on the shaft.

The two chains F, and E, are led from the pulleys, *b*, *a*, to and over pulleys, *c*, *d*, arranged in the front end of the box or house, G. From the said pulleys the chains pass respectively and are attached to the windlass barrels, L, M. Furthermore, from each windlass barrel a chain, P, carrying a weight, R, depends as shown in the drawings.

The gear, I, works in a pinion, S, carried by a horizontal shaft, T, on which is another gear, U, that engages with a pinion, V, fixed on a cam shaft, W, carrying wipers or cams, X, X, which act against lever hammers Y, Y, during the rotation of the shaft, W, so as to put them in action in a manner to cause them alternately and repeatedly to sound the bell, each hammer falling on a reaction spring, Z, by which it may be raised out of contact with the bell immediately after each percussion or blow of it thereon.

In the operation of the above described mechanism, one of the chains will be drawn upon and the other slackened by the float, while such float is either ascending or descending. That chain which is drawn upon by the float will cause the shaft, K, to be put in rotation, the slack of the other chain in the meantime being taken up by the rotary movement imparted to the windlass barrel by the descent of the weight, R, of the said barrel. Each windlass barrel, while being put in revolution by its float chain will wind up the chain, P, of its weight, R, so as to provide a power of putting its said barrel in rotation in the opposte direction, when its float chain is next slackened.

By the employment of leading chains and apparatus as described, I am enabled to arrange the bell and striking apparatus at any distance from the float it being desirable to operate the bell in a high position rather than very near to the surface of the sea.

I would remark, that I am aware that a fog bell has been sounded by a striking ap-

paratus, whose motive power has been obtained by the tidal movements of a float. Therefore I do not claim such as my invention. In this case, however, the movements of the float have been employed to wind up a weight, which when wound up and allowed to fall would set the striking apparatus of the bell in operation. Such a mode of anchoring the striking hammers of a bell is objectionable on several accounts and does not operate to good advantage in practice. My apparatus differs therefrom, as I dispense with the weight and put the striking apparatus in operation by the direct action of the float, its stem, the two chains and the windlasses applied to it as described.

What therefore I claim as my invention is—

My improved tidal alarm, constructed with the two windlass barrels, the ratchets and pawls, the reversing chains and weights and the two float chains arranged and applied in connection with the striking mechanism and the float and its stem or rod and so as to operate therewith, substantially as described.

In testimony whereof, I have hereunto set my signature.

ABEL HILDRETH.

Witnesses:

R. H. Eddy,

F. P. Hale, Jr.