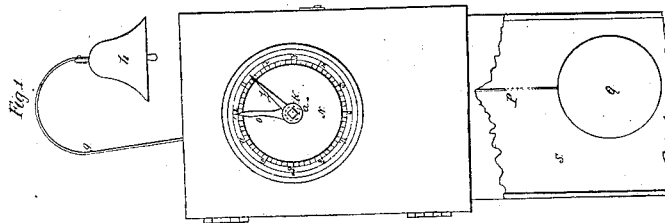
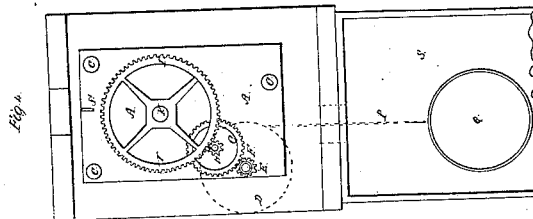
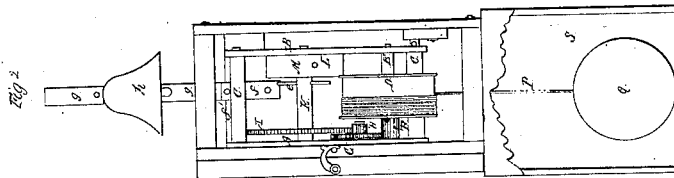
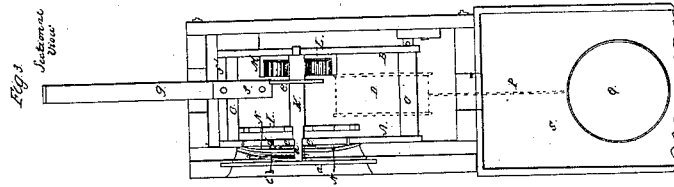
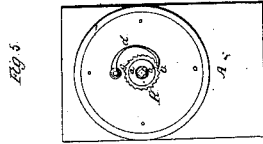


N. Edwards

Water Gauge.

N^o 7,138.

Patented Mar. 5, 1850.



UNITED STATES PATENT OFFICE.

NELSON EDWARDS, OF CHITTENDEN COUNTY, VERMONT.

APPARATUS FOR REGISTERING THE DEPTH OF WATER IN VESSELS' HOLDS.

Specification of Letters Patent No. 7,138, dated March 5, 1850.

To all whom it may concern:

Be it known that I, NELSON EDWARDS, of the county of Chittenden and State of Vermont, have invented a new and useful or improved apparatus for registering the depth of water in the holds of a vessel or other place to which the same may be applicable; and I do hereby declare that the same is fully described and represented in the following specification and accompanying drawings, letters, figures, and references thereof.

Of the said drawing, Figure 1 denotes a front elevation of my said improved register. Fig. 2 is a side elevation of it. Fig. 3 is a transverse central and vertical section of it. Fig. 4 is a vertical and longitudinal section showing the positions of the several wheels and pinions. Fig. 5 is a front view of the plate A with the ratchet wheel, and spring click on the front side of it.

In the said drawings A B represents two plates of metal arranged parallel to each other and connected together by three or any suitable number of cross racks or bars C C C.

D is a windlass or barrel applied to a shaft E which is disposed as seen in the drawings and has its journals playing in bearings made in the plates A and B. On this shaft a toothed pinion F which engages with a gear wheel G to whose side a pinion H is fixed so as to be turned with and by the said wheel G. The said pinion is made to engage with a large gear wheel I placed on and fixed to the horizontal shaft K whose journals have their bearings in the plates A B. One end—viz., the inner end—of a spiral or coiled spring L is fastened to the shaft K, while the outer end of it is attached to the inside of an inclosing circular box or case M. The front end of the shaft K, passes through a dial plate N arranged in front of and at a little distance from and suitably connected to the plate A, an index hand or pointer O being affixed to the said end of the shaft, and made to operate in connection with a series of divisions 1, 2, 3, &c., and suitable subdivisions disposed in the circumference of a circle on the index plate, and made to indicate feet and fractions of a foot in such extent and manner as may be desirable.

Attached to and wound around the windlass barrel is a chain or cord P to the lower end of which a heavy float or hollow sphere

or ball Q is connected, the cord being made to depend from that side of the barrel, which when the ball descends will cause it to impart a rotary motion to the barrel such as will operate to wind the coiled spring close upon its shaft.

A short tube *a* is placed on the front or outer end of the axle or shaft K and is made to turn on it with friction sufficient to carry around an index pointer *b* extended from the tube and on the index plate. On the inner end of the tube a ratchet wheel *c* is fastened a retaining spring pawl or click *d* being connected at one end to the plate A, and made to engage at its other end with the teeth of the ratchet wheel as seen in Fig. 5.

From the shaft K a stud *e* projects and above the stud is a projection *f* from a thin spring steel cross bar *f'* extended between and fixed at its ends to the two plates A, B. From and above the cross bar a bent spring *g*, extends and has a bell *h* fastened to its upper end as seen in the drawing. The stud *e* should be so arranged that it may be made to bear against and pass by the projection *f* whenever the water in the hold has arisen to a certain level above which it should not be allowed to ascend. When such takes place the reaction of the twist or torsion strain produced on the spring bar *f'* by the stud *e* will as soon as the stud leaves it cause the bell to ring and give warning that the water has reached such level, which is that at which the pumps should be put in operation. Thus if by any accident a ship should leak faster than usual notice of such would be given in due time to the master or crew of the vessel. When the ball or float rests on the bottom of the hold of the vessel, the main index pointer or hand should be placed on the zero or commencement of the scale of the dial plate in proportion to the rise of the water in the hold the float will rise, and as the power which keeps the spring in coil is thus relieved, the said spring will uncoil itself and produce a movement of the shaft K, which will cause the index hand and dial plate to indicate the depth of water in the hold. As the shaft thus turns around it will carry with it the tube *a* and secondary index pointer *b* it being understood that when the primary index pointer or hand O as placed on the zero or commencement of the scale, the secondary pointer is also to be placed there. While the float is in the act

of rising the two pointers will be carried
around together, but as soon as the ball
commences to descend the secondary pointer
will remain stationary and thus indicate the
5 rise of the water in such manner, that what-
ever it may have been or the greatest rise
may have been, such will be denoted. By
such means any neglect of duty at the pumps
during the night will be discoverable in the
10 morning by the captain of the ship.

The ball or float should be incased in a
spout or long box S, extending from the deck
down to the keelson, the same being for the
purpose of protecting it from injury, and in-
15 suring its correct operation.

What I claim as my invention is—

The combination of the secondary index
hand apparatus, with the primary index
hand apparatus or that which denotes the
depth or rise of water the secondary index 20
hand apparatus being for the purpose of
registering the extreme depth as above
stated.

In testimony whereof I have hereto set
my signature this thirty first day of Decem- 25
ber A. D. 1849.

NELSON EDWARDS.

Witnesses:

R. H. EDDY,
F. GOULD.