(No Model.)

# W. G. & G. W. MERRILL.

## SHIP'S LOG.

No. 263,936. Patented Sept. 5, 1882.

Fig. 1.

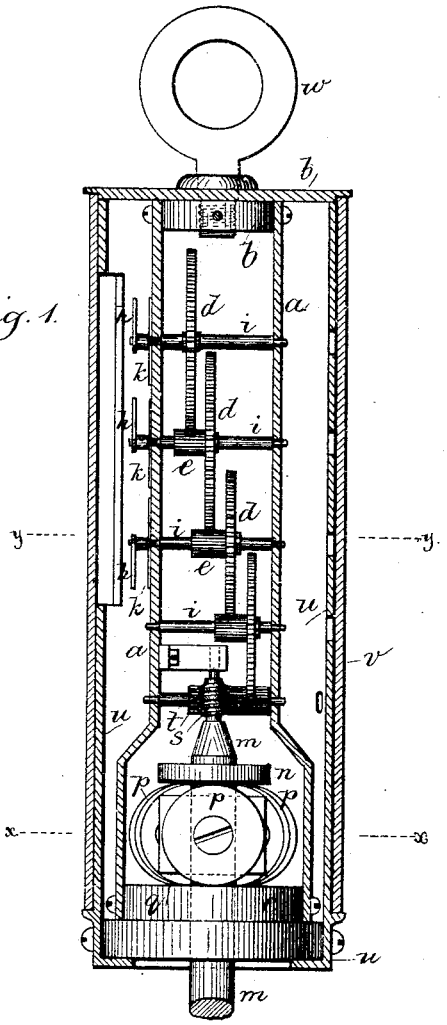



Fig. 2.

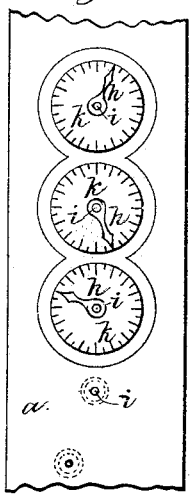



Fig. 3.

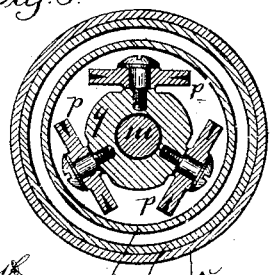
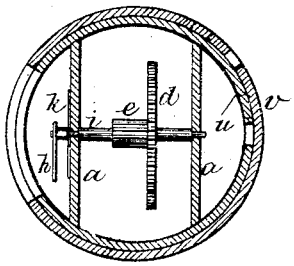



Fig. 4.

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# UNITED STATES PATENT OFFICE.

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## SHIP'S LOG.

SPECIFICATION forming part of Letters Patent No. 263,936, dated September 5, 1882.

Application filed April 3, 1882. (No model.)

*To all whom it may concern:*

Be it known that we, WILLIAM G. MERRILL and GEORGE W. MERRILL, of the city of Brooklyn and State of New York, have invented an Improvement in Ships' Logs, of which the following is a specification.

Ships' logs have been made with a propeller or rotator at the end of a cord or rope and a registering mechanism upon the vessel.

Our present invention relates to the registering mechanism upon the vessel.

In devices of this character heretofore made there is difficulty in lubricating the wheels that receive the spindle to which the rope or chain is attached. If these are not properly lubricated, so as to roll with very little friction, the register will not be accurate, especially in view of the fact that there is considerable strain upon the line that extends to the propeller. We make use of wheels that are provided with deep narrow grooves around their peripheries for holding the lubricating material by capillary attraction, so that the surfaces against which the wheels roll are constantly lubricated, and we use a registering mechanism that is inclosed in two cases, the outer one of which can be turned to expose the dials, and special provision is made for oiling the arbors of the register.

In the drawings, Figure 1 is a side view of the registering mechanism, the cases being in section. Fig. 2 represents the dials. Fig. 3 is a section at *x x*, and Fig. 4 a section at *y y*.

The frames *a a* are connected at one end to the circular head-piece *b* and at the other end to the base-plate *c*. Between these frames are gear-wheels *d*, pinions *e*, and arbors *i*, forming a train that reduces the speed and composes the registering devices. This train may be proportioned in any desired manner, so as to be adapted to register in miles, knots, or other distances, the hands *h* being upon the respective arbors *i* and the dials *k* being upon one of the frames *a*. Each hand should be held by friction upon the arbor, so that it may be moved around to zero to set the instrument as often as desired.

The spindle *m* passes centrally through the base-plate *c*, and it is provided with a bearing-disk, *n*, resting against the edges of the three wheels *p*, that are interposed between the disk *n* and base-plate *c* and receive the endwise strain upon the spindle *m*. These wheels *p* are upon axles in the frame *q*, that surrounds the spindle *m* loosely, and into the edges of the said wheels there are deep grooves that are quite narrow, so that these grooves will retain oil by capillary attraction, and lubricate the surfaces of the base-plate *c* and bearing-disk *n* and prevent unnecessary friction. The wheels may each be made of two plates fastened together at the center and kept apart a slight distance by their washers, so as to increase the depth of the oil-holding grooves. The spindle *m* is provided with a worm-pinion, *s*, that acts upon the first pinion *t* in the train of registering-wheels.

The case *u* is fastened by screws or other suitable means to the head *b* and base-plate *c*. It has an opening at the dials through which they are visible. It also has oiling-holes in line with the respective arbors, and an opening at which an oil-can nozzle can be inserted for supplying oil to the wheels and screw-pinion.

The outer case, *v*, is cylindrical, and it is held to place between the head-plate *b* and rim of the case *u*, so that it cannot slip off; but it may be revolved around the case *u* to bring the openings in such case *v* to correspond with the opening in the case *u* at the hands and dials, so that these may be inspected when necessary, but protected at other times by partially revolving the said case *u*. In this case *v* there are oiling-holes that correspond to the oiling-holes in the case *u*, so that the parts can be lubricated without taking off either case. These holes are so placed that they correspond with each other when the dials are partially covered by the outer case, *v*, so that the oil-holes may not be open in either of the ordinary positions in which the instrument is used.

The attaching-eye *w* is provided in the center of the head-plate *b*. By this the log is connected with the vessel in any suitable manner.

We claim as our invention—

1. The combination, with the rotating spindle in a ship's log, of the wheels *p*, having narrow deep grooves in their edges for holding

oil by capillary action, substantially as and for the purposes set forth.

2. In a ship's log, the combination, with the dials and train of gearing, of a stationary case, *n*, with oil-holes in line, or nearly so, with the arbors, and a moving case, *v*, with opening for the dials and with oil-holes corresponding with the oil-holes in the stationary case when the dials are partially covered, so that the oiling-holes will not be open in either of the ordinary positions of use, substantially as set forth.

Signed by us this 28th day of March, A. D. 1882.

WM. G. MERRILL.
G. W. MERRILL.

Witnesses:
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