

No. 615,422.

Patented Dec. 6, 1898.

J. L. BLISS.
SHIP'S LOG.

(Application filed Feb. 25, 1898.)

(No Model.)

Fig. 1.

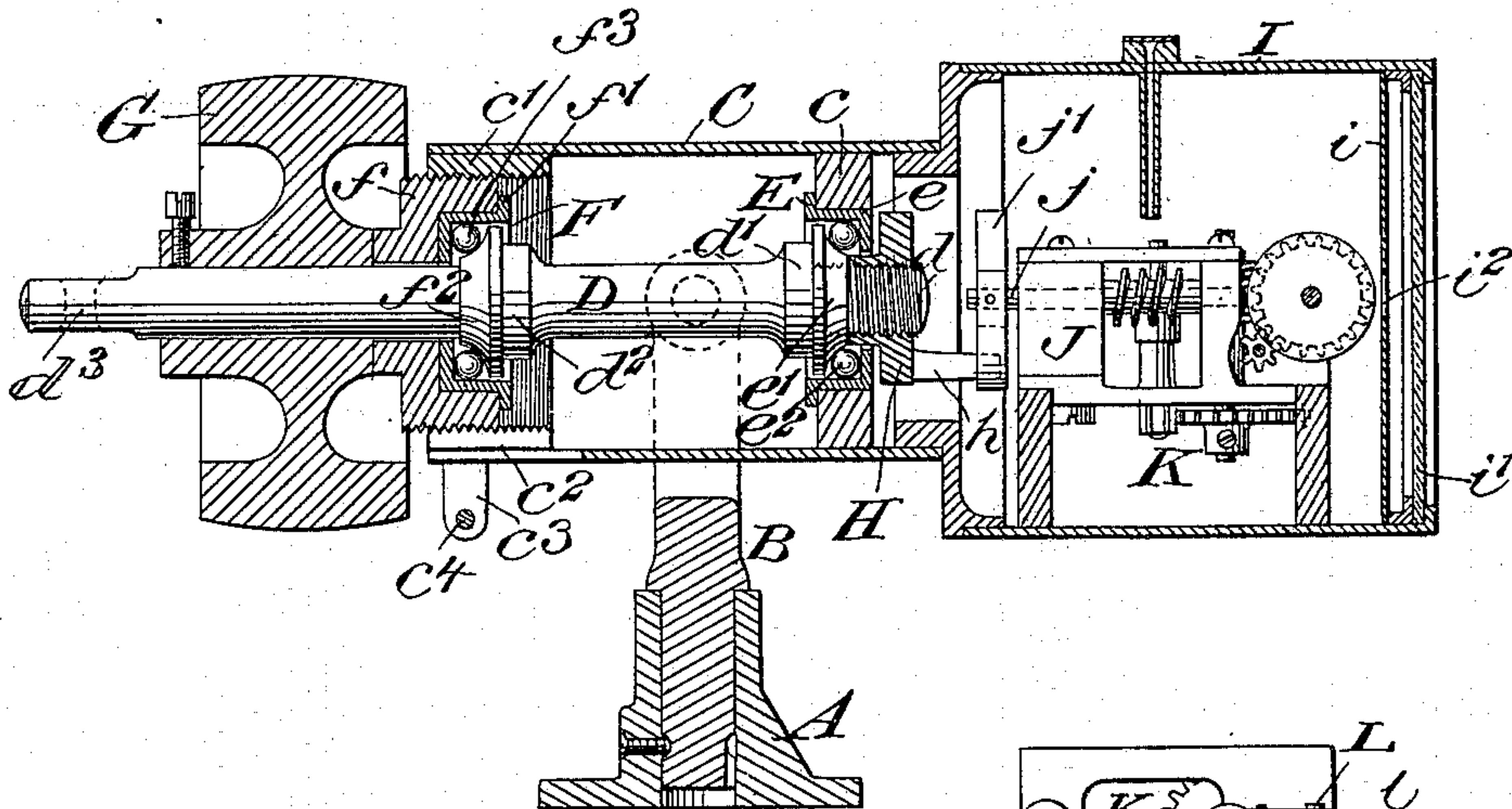


Fig. 3.

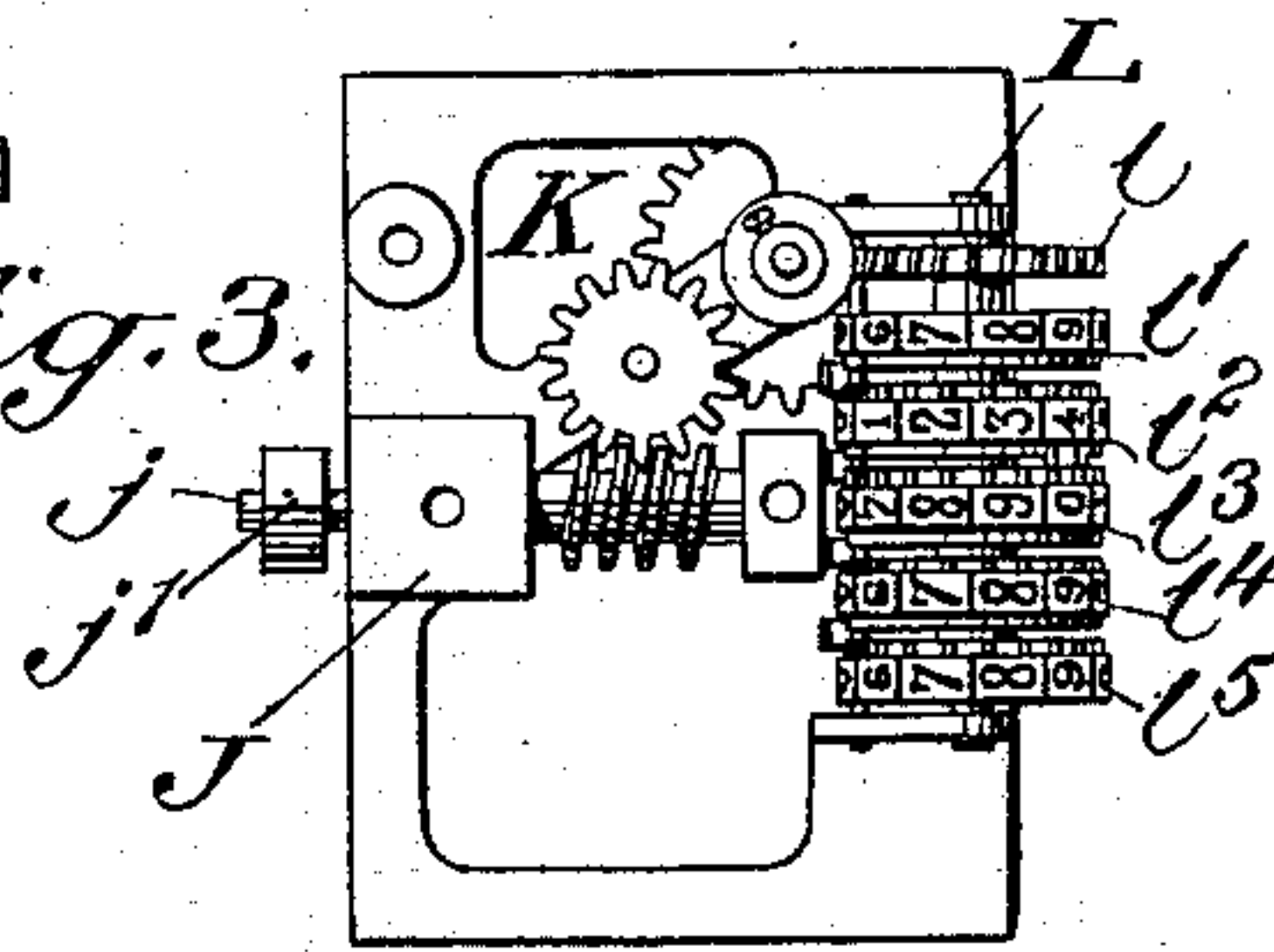
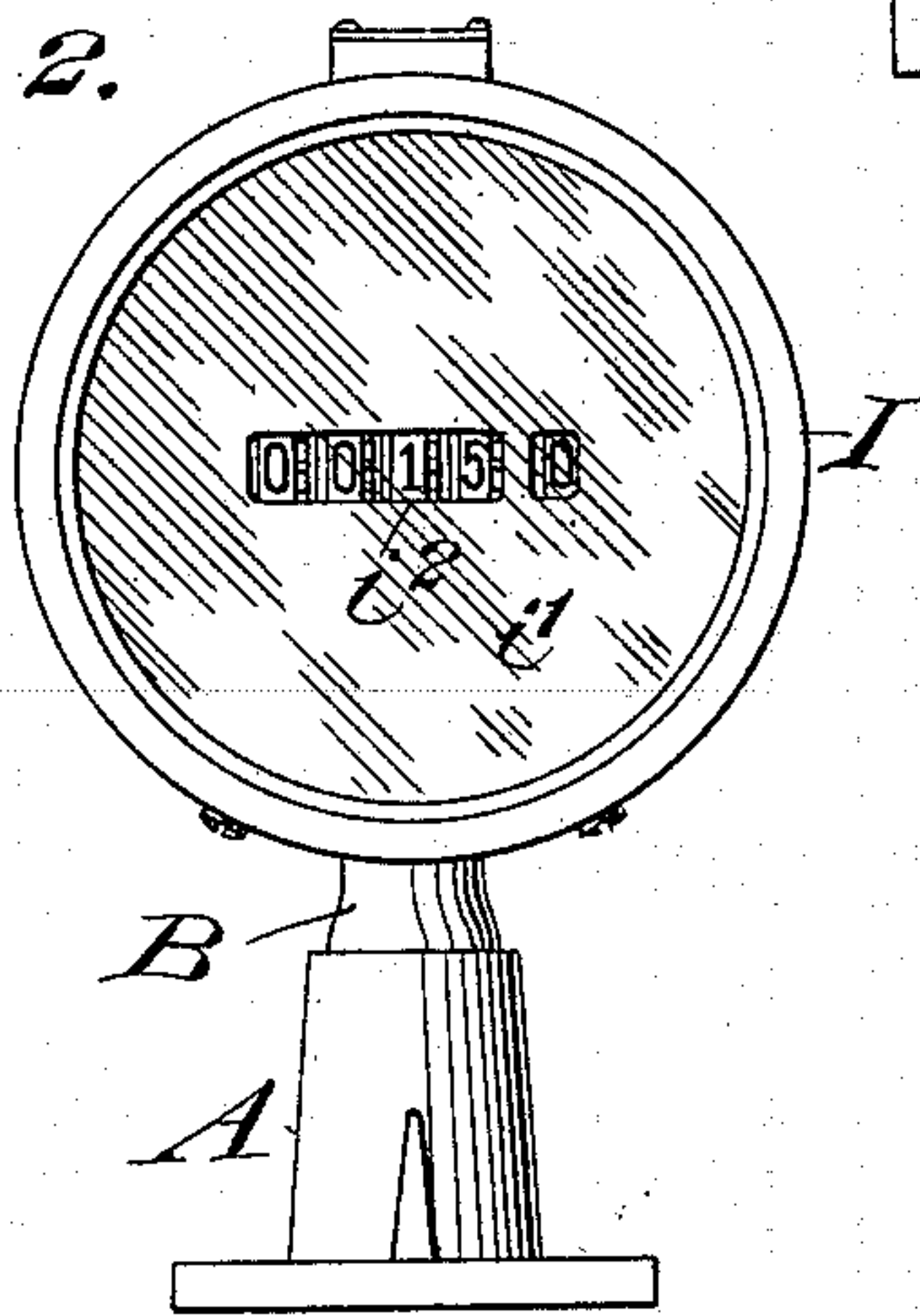


Fig. 2.



Witnesses:-
George Barry Jr.
Edward Preser.

Inventor:-
John L. Bliss
By attorneys
Brown & Seward

UNITED STATES PATENT OFFICE.

JOHN L. BLISS, OF NEW YORK, N. Y.

SHIP'S LOG.

SPECIFICATION forming part of Letters Patent No. 615,422, dated December 6, 1898.

Application filed February 25, 1898. Serial No. 671,666. (No model.)

To all whom it may concern:

Be it known that I, JOHN L. BLISS, a citizen of the United States, and a resident of New York, in the borough of Brooklyn and State of New York, have invented a new and useful Improvement in Ships' Logs, of which the following is a specification.

My invention relates to an improvement in ships' logs, and relates more particularly to that class in which a registering mechanism is under the control of a rotary driving shaft or spindle, the said spindle being rotated by the propeller or rotator in the water, which is connected thereto by a flexible connection.

The object of my invention is to provide certain improved features in construction whereby the registering mechanism of the log may be more easily read and in which the antifriction-bearings of the driving-spindle are so located that the outer bearing becomes the thrust-bearing, taking up the longitudinal stress, while the inner bearing takes up the friction due to lateral stresses.

A further object is to so locate the antifriction-bearings that they may be thoroughly protected from the elements.

A practical embodiment of my invention is represented in the accompanying drawings, in which—

Figure 1 represents a vertical central longitudinal section through the log. Fig. 2 is a front view of the same, and Fig. 3 is a top plan view of the registering mechanism.

A designates a suitable base in which is swiveled a yoke B, between the branches of which is hinged, so as to swing vertically, a bearing-casing C. A driving-spindle D is mounted to rotate within the bearing-casing C in inner and outer antifriction-bearings E and F. The inner bearing E comprises a bushing c , in which is seated a ball-race e , facing toward the middle of the casing, a bearing-cone e' , mounted on the spindle D, and an annular row of balls e^2 , located between the said cone and ball-race. The cone e' preferably has a screw-threaded engagement with the end d of the spindle and when screwed home abuts against a circumferential shoulder or flange d' . The outer or thrust bearing comprises an adjusting-cup f , having a screw-threaded engagement with a bushing

c' on the interior of the outer end of the casing C, which adjusting-cup is provided on its inner face with a ball-race f' , between which and the cone f^2 , carried by the spindle, is inserted the annular row of balls f^3 . This cone may be loosely fitted to the spindle D, and when in position abuts against a circumferential shoulder or flange d^2 on the spindle, so that the longitudinal stress upon the cone is resisted by the said shoulder. It will thus be seen that the backs of the cones $e' f^2$ are toward each other.

The adjusting-cup f is clamped in any desired adjustment by splitting the casing C and the bushing c' , as shown at c^2 , and providing lugs c^3 , one only of which is shown, which lugs may be drawn together by a suitable bolt c^4 .

Exterior to the casing C the spindle D may be provided with a suitable fly-wheel G clamped thereon. The end of the spindle D adjacent to the fly-wheel may be provided with a suitable eye d^3 for the attachment thereto of the propeller-cord. (Not shown.) The other end of the spindle D, adjacent to the inner bearing E, is provided with a crank, which in the present instance comprises a sleeve or collar H, having a suitable operating-pin h projecting therefrom for connecting the spindle with the registering mechanism.

The housing for the registering mechanism is denoted by I and is here represented as of cylindrical form, having its rear end secured to the end of the casing C adjacent to the inner bearing E. The front end or face of the housing I is provided with a suitable end plate i and a transparent window i' for protecting the interior of the said housing. This end plate i is provided with one or more openings i^2 , through which the numbers of the registering mechanism may be seen.

Proceeding to describe the registering mechanism, a worm-shaft j is mounted in a suitable frame J, and it is provided at its inner end with an operating-dog j' , having its arms in position to be engaged by the crank-pin h of the driving-spindle D. This worm-shaft j is connected by a train of reducing-gearing K with a spur-gear l on an indicating-disk-carrying shaft L. Upon this shaft L are located a series of disks l^1, l^2, l^3, l^4 , and l^5 , having numbers on their faces in position to be consecu-

tively exposed through the aperture or apertures ² through the end plate ¹. These disks are connected in the usual manner, and in the present instance are shown as being of
 5 sufficient number to indicate distances up to ten thousand (10,000) miles and also representing fractions of a mile.

Some of the advantages of the construction as above described are as follows: By arranging
 10 the registering mechanism so that it may be read through the front of the log instead of on the top of the same, as has heretofore been common, the numbers may be read with great facility by a person facing the log, and
 15 the transparent plate is protected from damage by falling bodies, such as broken spars, and it is also protected from rain or snow. Furthermore, the mechanism arranged as above described is very compact and may
 20 be constructed to register distances to a larger extent than has heretofore been possible with the arrangement of a face-dial and pointers, and at the same time the actual number is presented, thereby doing away with the ne-
 25 cessity of converting the position of the hands of a dial into numbers, as is now common.

By causing the outer bearing to become the thrust-bearing of the spindle the inner bearing serves to steady the spindle and take up
 30 its lateral stress at a point where it is of importance that the driving connection with the registering mechanism should be positive and steady. This arrangement also permits the spindle to be made so that the thrust-cone is
 35 held by a solid shoulder cast or forged solid with the spindle. It also permits the adjusting-cup to be carried by the casing rather than by the spindle, thereby permitting the said bearing-cup to be adjusted while the log
 40 is in use. The bearings are also thoroughly protected from dust, dirt, and other foreign matter, and it is not necessary to secure the ball-races in position by any special means.

As by far the greatest amount of wear
 45 comes upon the outer or thrust bearing, the ball-race of the said bearing may be quickly and readily removed by removing the adjusting-cup and a new one replaced when found necessary.

50 While I have described the disks of the

registering mechanism as being provided with the registering-numbers on their peripheries and the said disks being mounted on a single shaft, it is evident that the disks may have the numbers upon their faces and be mounted
 55 upon separate shafts geared together, if found more desirable.

It is evident that changes might be resorted to in the form and arrangement of the several parts without departing from the spirit
 60 and scope of my invention. Hence I do not wish to limit myself strictly to the structure herein shown and described; but

What I claim is—

1. In a ship's log, a bearing-casing, a suitable support therefor, and a driving-spindle mounted to rotate in the said casing in inner and outer antifriction-bearings, the said inner antifriction-bearing being located at the inner end of the spindle in position to take
 70 the lateral stresses thereof and the outer antifriction-bearing being located intermediate the ends of the spindle and serving as a thrust-bearing for taking the longitudinal stress of the spindle, substantially as set forth. 75

2. In a ship's log, a casing, inner and outer antifriction-bearings therein, and a spindle mounted to rotate in the said bearings, the outer bearing comprising a cone carried by the spindle, an adjusting-cup having a screw-threaded engagement with the casing and a ball-race within the cup between which and the cone are located the antifriction-balls, substantially as set forth.

3. In a ship's log, a casing, a rotary spindle mounted therein, a housing carried by the casing, and a registering mechanism within the housing under the control of the spindle the numbers of the said registering mechanism being exposed through the front end of
 90 the housing, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 17th day of February, 1898.

JOHN L. BLISS.

Witnesses:

FREDK. HAYNES,

W. L. BLISS.