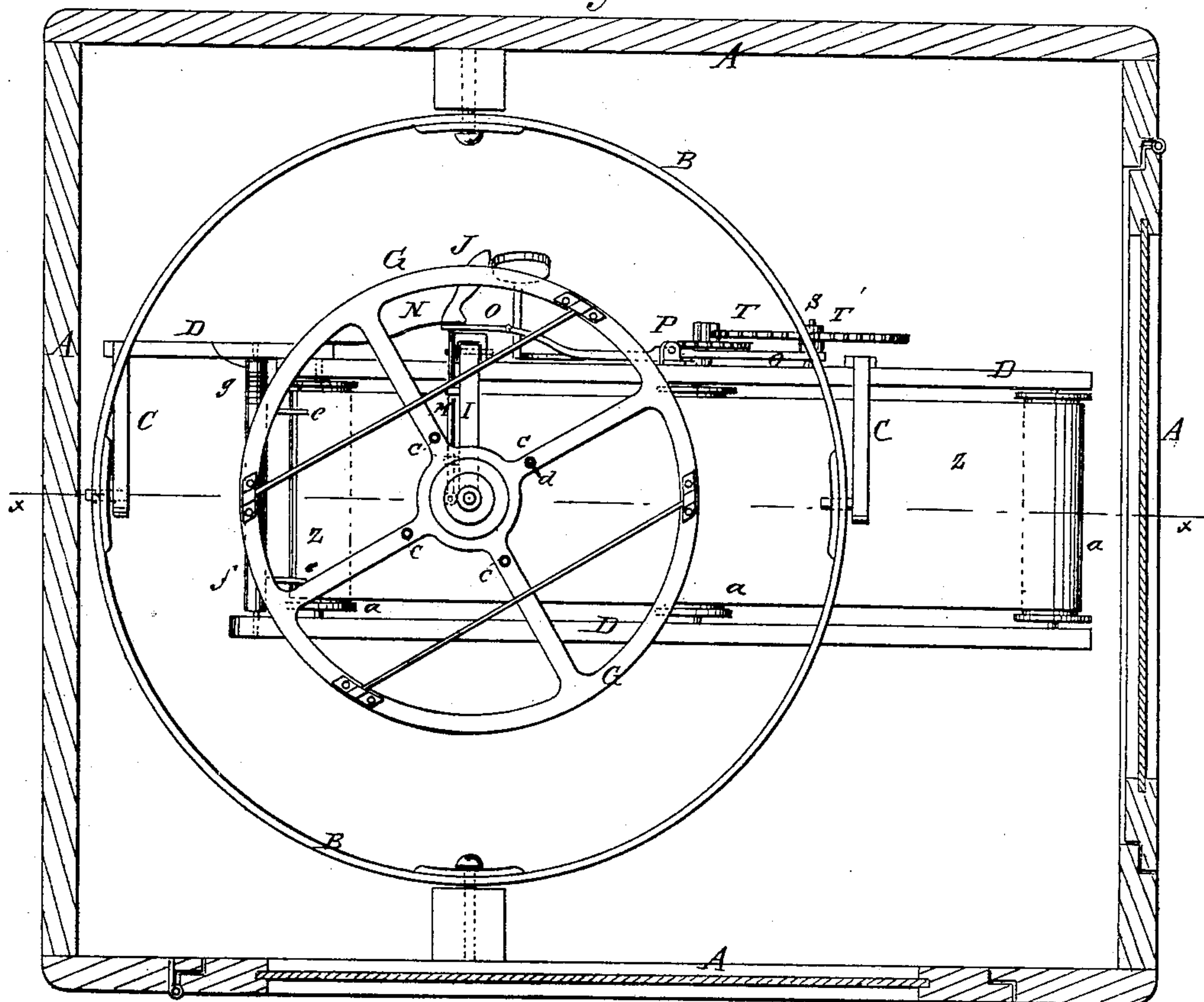
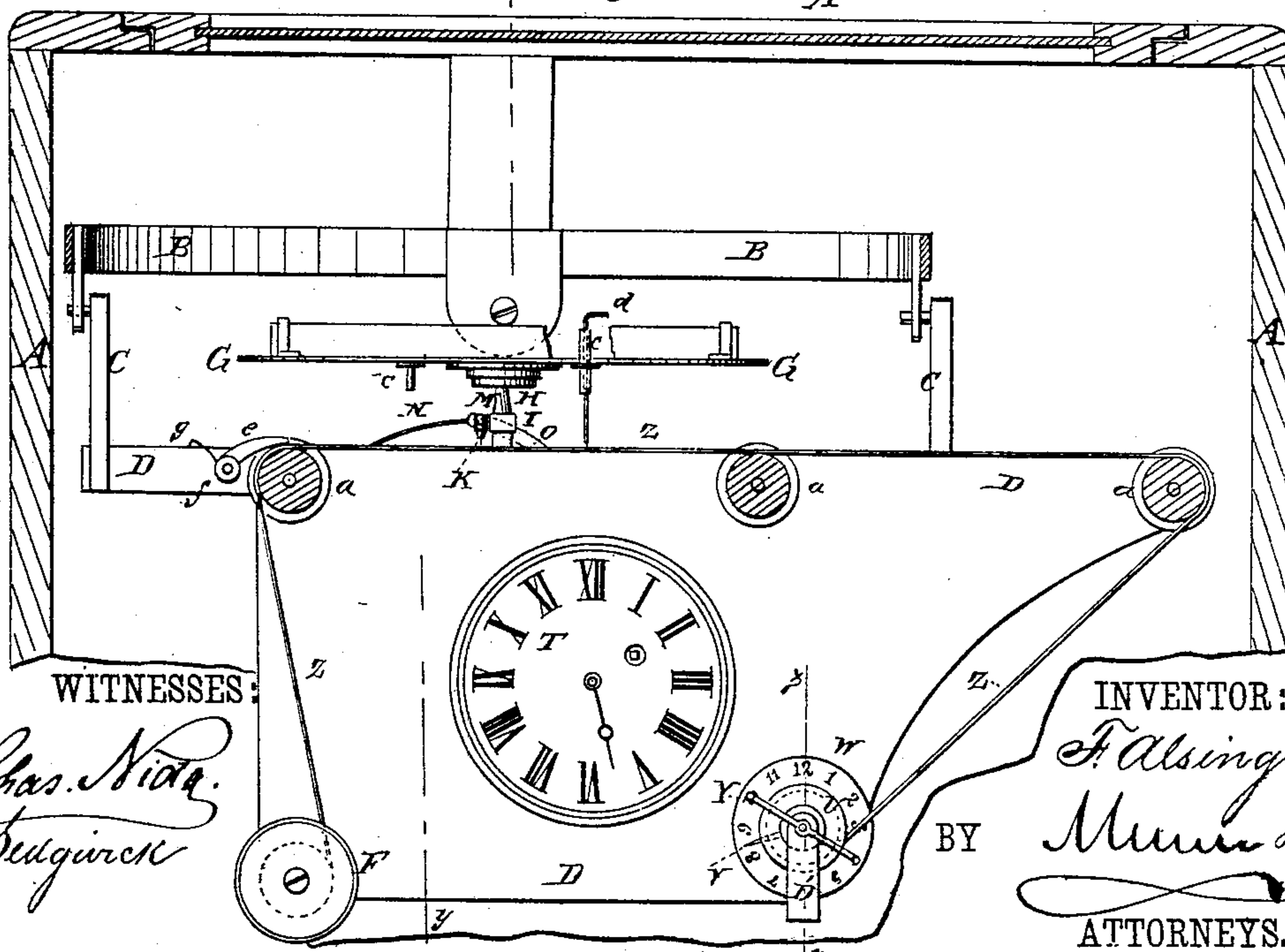


F. ALSING.  
Recording Ship's Compass.  
No. 230,215. *Fig. 1.* Patented July 20, 1880.



*Fig. 2.* A



WITNESSES:

*Chas. Nida.*  
*C. Sedgwick*

INVENTOR:

*F. Alsing*  
*Munroe & Co.*  
ATTORNEYS.

F. ALSING.  
Recording Ship's Compass.  
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Fig: 3.

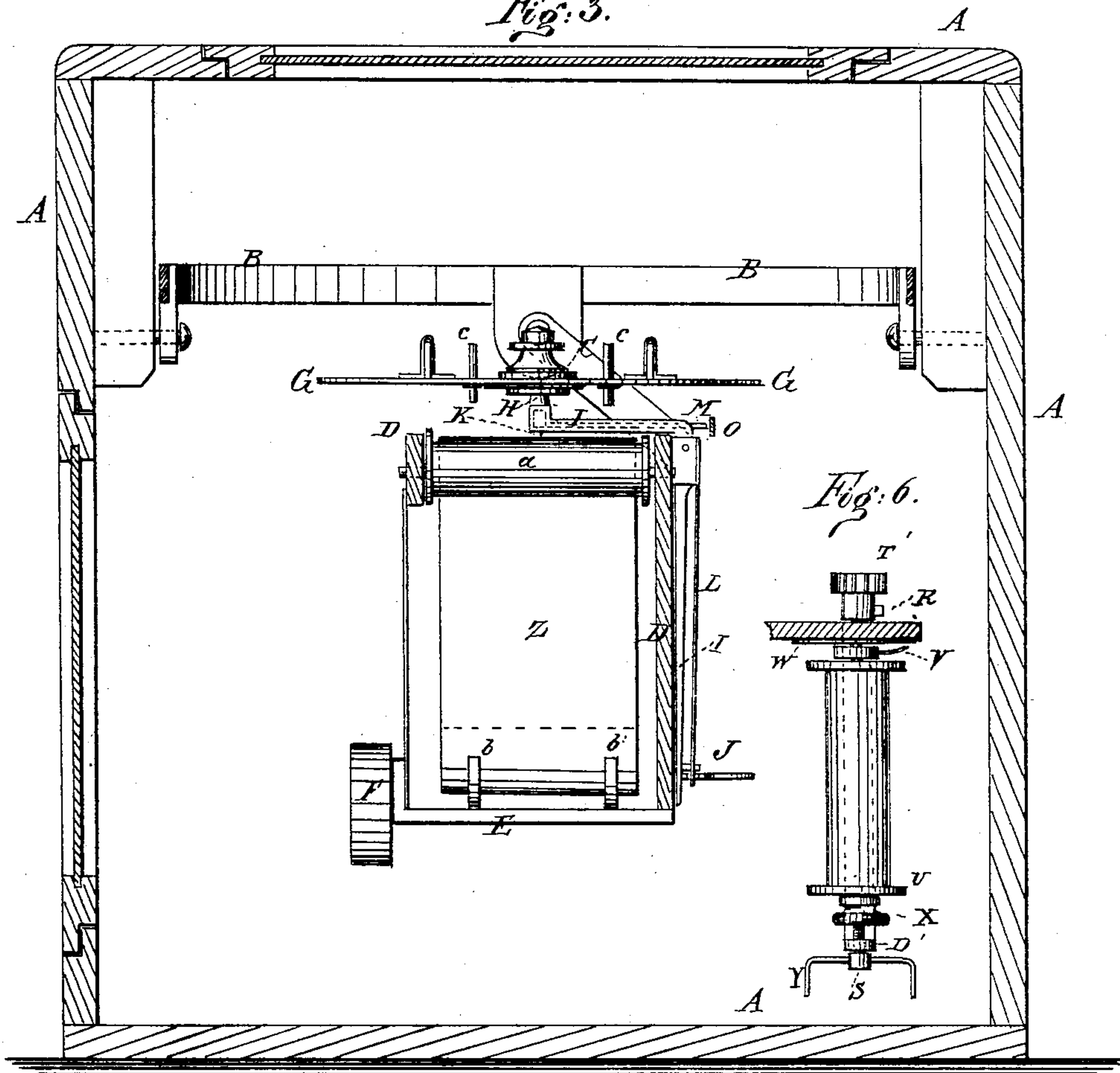


Fig: 6.

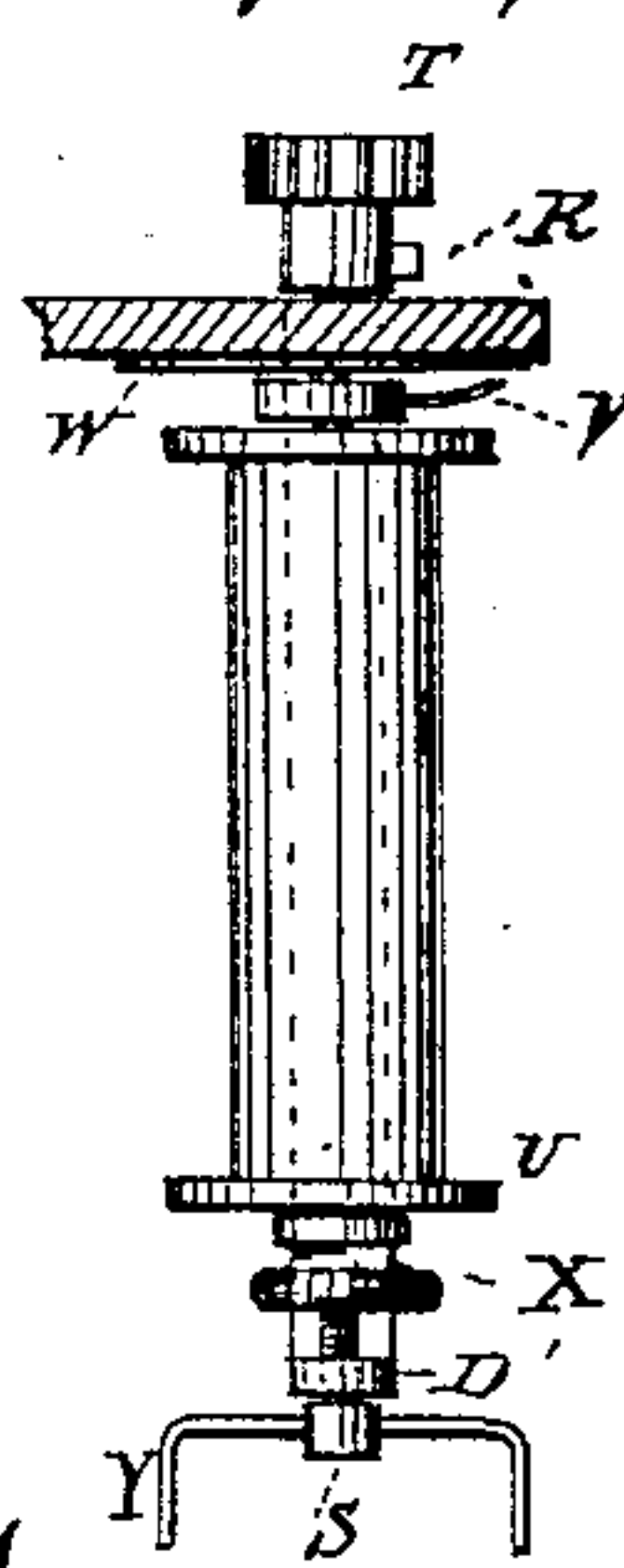
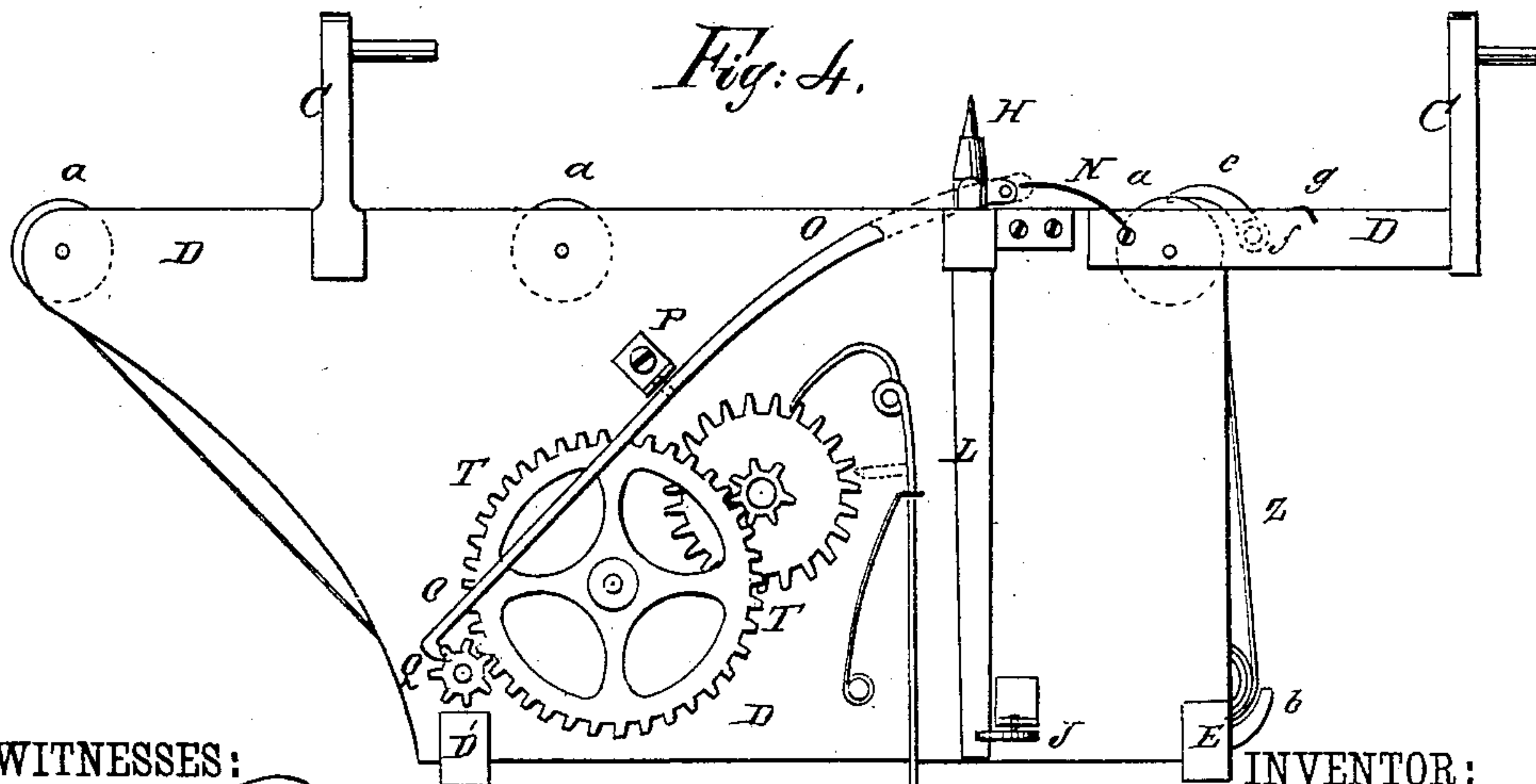


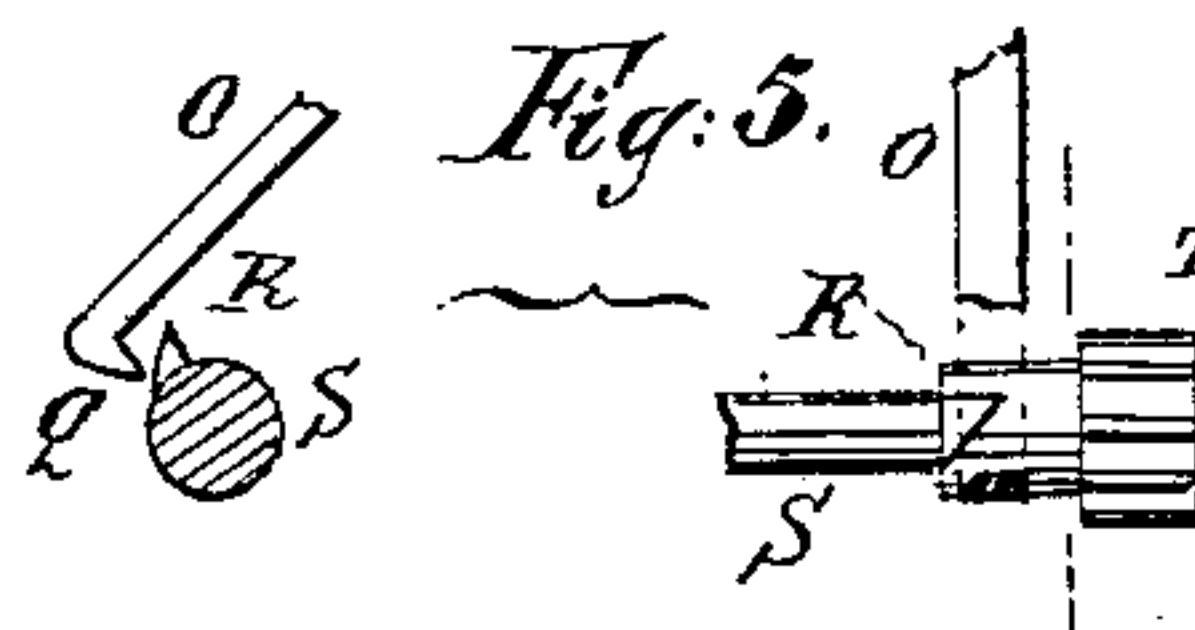
Fig: 4.



WITNESSES:

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C. Sedgwick

Fig: 5.



INVENTOR:

F. Alsing

BY

Munn & Co

ATTORNEYS.



# UNITED STATES PATENT OFFICE.

FREDERIK ALSING, OF COPENHAGEN, DENMARK, ASSIGNOR TO HIMSELF,  
HARALD SACHMANN, AND CHRISTIAN DONS, OF SAME PLACE.

## RECORDING SHIP'S COMPASS.

SPECIFICATION forming part of Letters Patent No. 230,215, dated July 20, 1880.

Application filed February 6, 1880. Patented in Germany October 11, 1877, and in England July 16, 1879.

*To all whom it may concern:*

Be it known that I, FREDERIK ALSING, of Copenhagen, Denmark, have invented a new and useful Improvement in Self-Registering  
5 Compasses, of which the following is a specification.

Figure 1, Sheet 1, is a plan view of the improvement. Fig. 2, Sheet 1, is a sectional side elevation taken through the line *x x*, Fig. 1.  
10 Fig. 3, Sheet 2, is a sectional end elevation taken through the line *y y*, Fig. 2. Fig. 4, Sheet 2, is a side elevation, showing the mechanism. Fig. 5 is a detail view of the device for operating the time-pencil. Fig. 6 is a side  
15 elevation of the mechanism for connecting the paper with the gear-wheels of the chronometer, taken through the line *z z*, Fig. 2.

Similar letters of reference indicate corresponding parts.

20 The object of this invention is to furnish compasses provided with a mechanism so constructed as to record all changes of direction in the ship's course and divide the diagram of the course into hour-spaces.

25 A represents a box of convenient size, which is provided with glass doors in its top, front, and end, to give convenient access to the interior of the box and to allow the mechanism to be inspected without opening the box A. To  
30 the sides of the box A, or to supports attached to the said sides, are pivoted the opposite sides of a ring, B. To the opposite sides of the ring B, midway between its supporting-pivots, are pivoted the upper ends of two arms, C, which  
5 incline to the rearward, and their lower ends are rigidly attached to the rear side bar of the frame D.

To the lower part of the frame D is attached a forwardly-projecting arm, E, having a weight,  
40 F, attached to its forward end to balance the weight of the frame D and its attachments and cause it to hang horizontal.

The ring B and frame D work as a gimbal to hold the compass-card G always horizontal.  
45 The compass-card G is pivoted in the usual way upon a point, H, which is attached to the end of the upper arm of a right-angled bar, I.

The bar I is hinged at its angle to the upper edge of the rear side of the frame D, and its

long arm extends downward along the rear  
50 side of the said frame. The lower end of the long arm of the bar I is held by a notched lever, J, so that it may be operated to raise the pencil K connected with the short arm of the  
55 said bar I away from the paper when desired. The bar I and lever J are held forward by a spring, L, attached to the support for the said bar I. To the side of the short arm of the bar I are attached keepers, in which slides a rod, M.

To the forward end of the rod M is attached  
60 a pencil, K, or other implement, the point of which rests upon the paper to be marked. The rod M and pencil K are held back by a spring, N, connected with the rear part of the rod M and attached to the frame D.  
65

Against the rear end of the rod M rests the  
upper end of the lever O, which is pivoted to a support, P, attached to the rear side of the frame D. Upon the lower side of the lower  
70 end of the lever O is formed an inclined or beveled projection or tooth, Q, to engage with a similar inclined or beveled projection or tooth, R, formed upon the shaft S. The shaft  
75 S is provided with a gear-wheel, T', connected with the gear-wheels of a chronometer, T, in such a way that the shaft S will make exactly one revolution each hour.

With this construction the inclined projec-  
80 tions R Q will come together each hour, and will operate the lever O to push the rod M forward and to cause the pencil K to make a transverse mark upon the paper. As the projections R Q separate the rod M is drawn back  
85 by the spring N, ready to be again pushed forward at the end of the next hour.

The shaft S revolves in bearings in the rear  
part of the frame D, and in the upwardly-projecting forward end of an arm, D', rigidly attached to the frame D, and upon the said shaft  
90 is placed a spool, U. The inner end of the spool U rests against a collar formed upon or attached to the shaft S, which collar is provided with a pointer, V, pointing to the division-marks of a dial-plate, W, attached to the  
95 forward side of the rear part of the frame D. The spool U is clamped against the collar or pointer V by a hand-nut, X, placed upon a screw-thread cut upon the shaft S, so that the



shaft S may be made to carry the spool U with it in its revolution or not, as may be desired, by tightening and loosening the nut X.

To the forward end of the shaft S is attached  
5 a crank, Y, or other handle, for convenience in turning the shaft S and holding the said shaft while turning the nut X on and off.

To the spool U is attached one end of a strip, Z, of paper or cloth, coated with lamp-black,  
10 or otherwise suitably prepared to be marked with the pencils or other marking implements. The paper should be so prepared that it may afterward be coated with varnish to preserve the marks. The paper Z passes over rollers *a*,  
15 pivoted to the frame D, and the roll of paper rests upon half-ring arms *b*, attached to the arm E, or upon other suitable support. The paper Z is held taut by arms *e*, attached to a shaft or rod, *f*, and held down upon the said paper  
20 by a spring, *g*, coiled around the said shaft. The shaft *f* is pivoted to the frame D. The spring *g* is attached at one end to the frame D and at its other end to the shaft *f*.

To the compass-cord G are attached one or  
25 more tubular holders, *c*, to receive a pencil or other marking implement, *d*, which is held down upon the paper Z by its own weight. The marker *d* may be placed in either of the holders *c*, as the general direction of the ves-  
30 sel's course may render most convenient.

With this construction the paper Z will be carried forward by the movement of the clock-work T, and the marker K will register the hours, and the marker *d* will register the course  
35 of the vessel during each hour of the voyage.

With this construction the captain, by an occasional look at the paper Z, can see at a glance in what direction the vessel has been sailing and whether she has been held to her  
40 proper course. At the end of the voyage the paper Z may be detached and kept for future reference.

The above-described invention was patented in England, July 16, 1879, No. 2,739, and in Germany, October 11, 1877, No. 1,532. 45

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The ring B, pivoted in box A, in combination with the frame D, suspended by pivoted  
50 arms C from said ring, and having the counter-balance-weight arm E, for the purpose described.

2. The right-angled bar I, carrying card-point H, hinged to frame D, and having short  
55 arm connected with pencil K, in combination with the notched lever J and spring L, for the purpose specified.

3. The combination, with the gear-wheels of a chronometer, T, and the bar I, that carries  
60 the compass-card G, of the gear-wheel and shaft S T', provided with the inclined projection R, the lever O, provided with the inclined projection Q, the sliding rod M, provided with a marker, K, at its forward end, and the spring  
65 N, substantially as herein shown and described, whereby the marker K will be moved to mark a moving paper at regular intervals of time, as set forth.

4. The combination, with the shaft S, driven  
70 from the gear-wheels of a chronometer, T, and with the frame D of the gimbal, of the spool U, the index-finger V, the dial-plate W, the hand-nut X, and the rollers *a*, substantially as herein shown and described, so that the  
75 paper Z may be carried past the marker K at a uniform speed, as set forth.

FREDERIK ALSING.

Witnesses:

NIELS CHR. HOLM,  
CARL COLLERUP.