

J. S. NEGUS & H. BLOSSOM.
BINNACLE FOR SUBMARINE BOATS.

APPLICATION FILED AUG. 27, 1904.

3 SHEETS—SHEET 1.

Fig. 1.

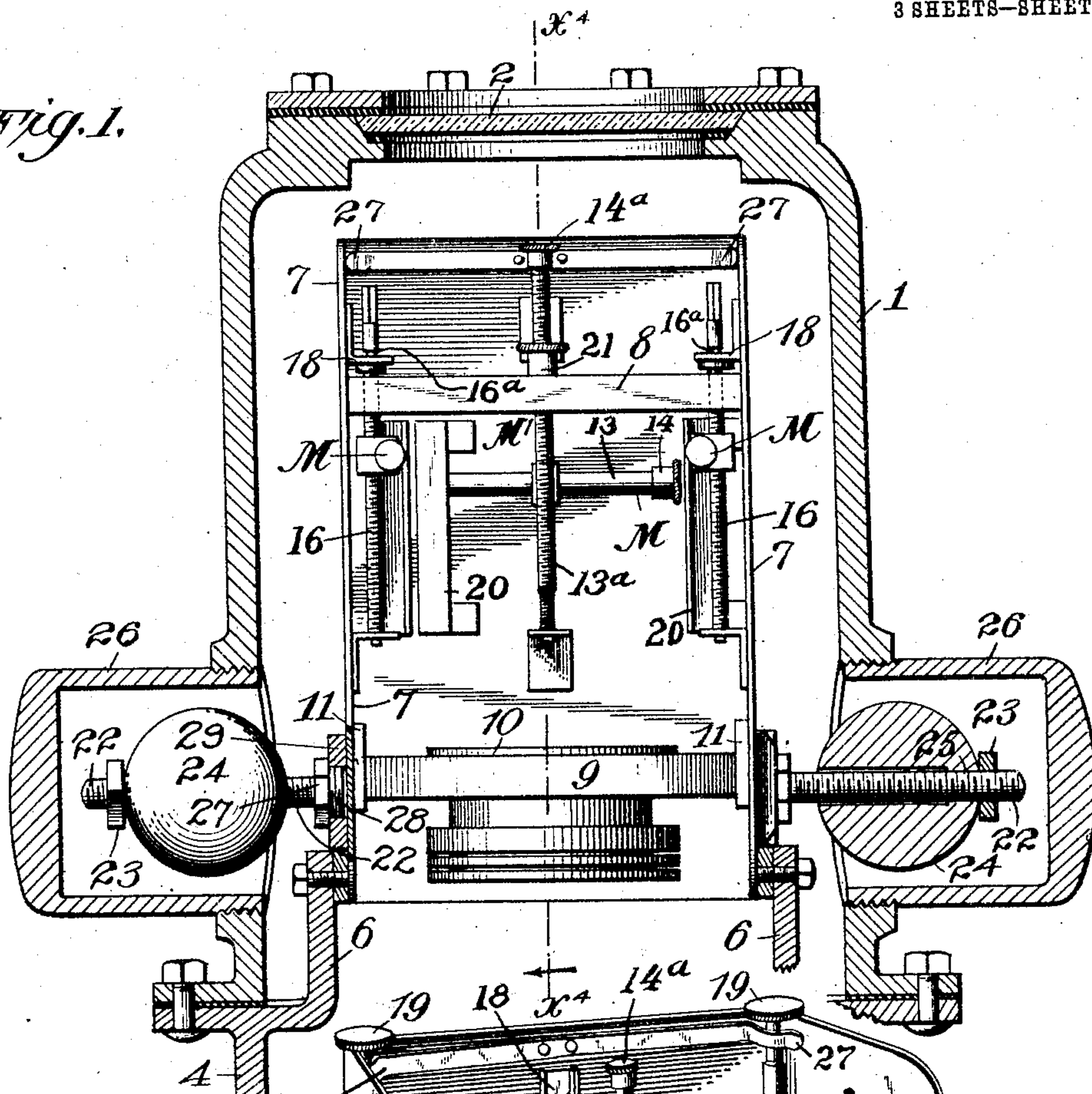
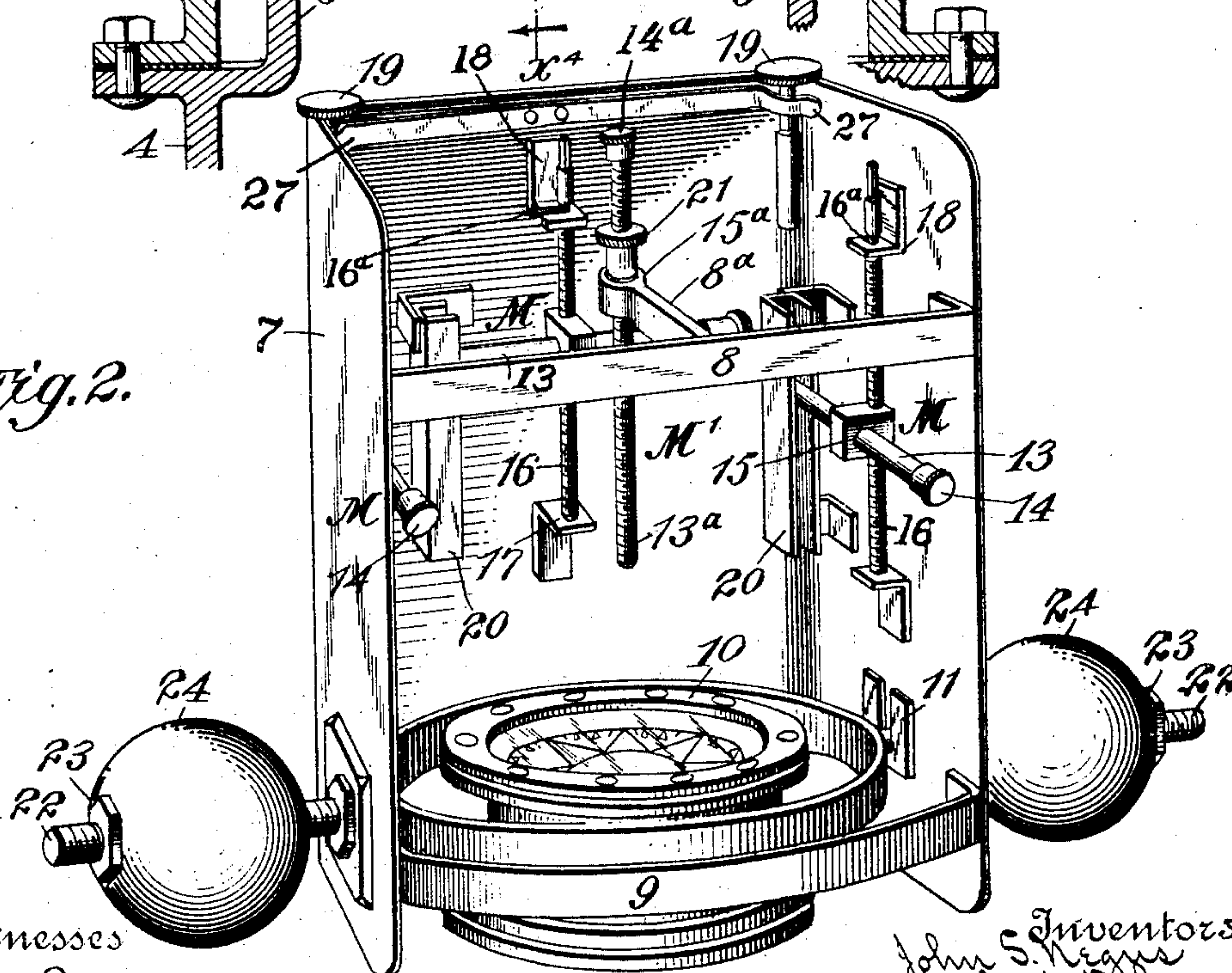


Fig. 2.



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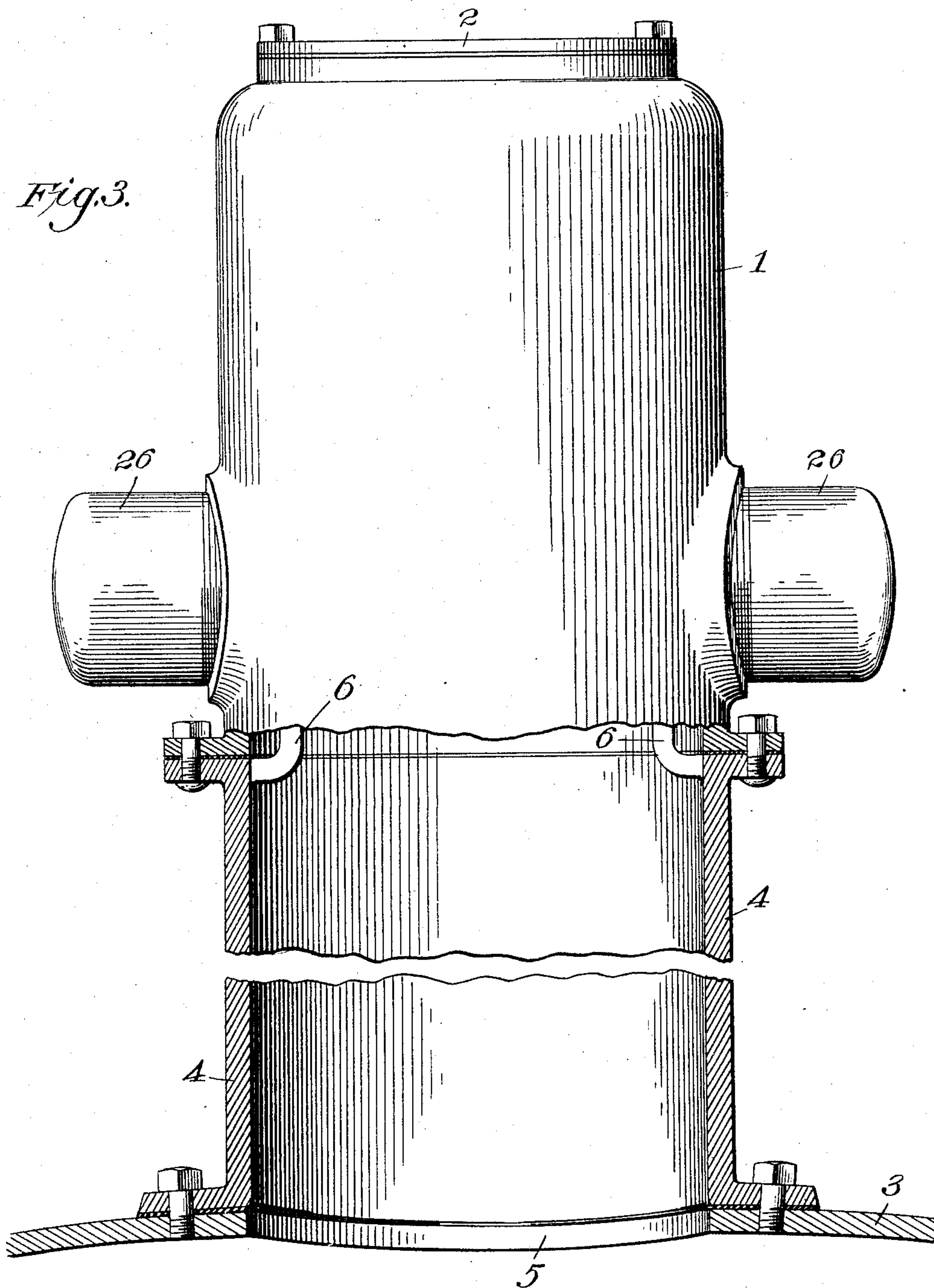
No. 780,374.

PATENTED JAN. 17, 1905.

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3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

Fig. 4.

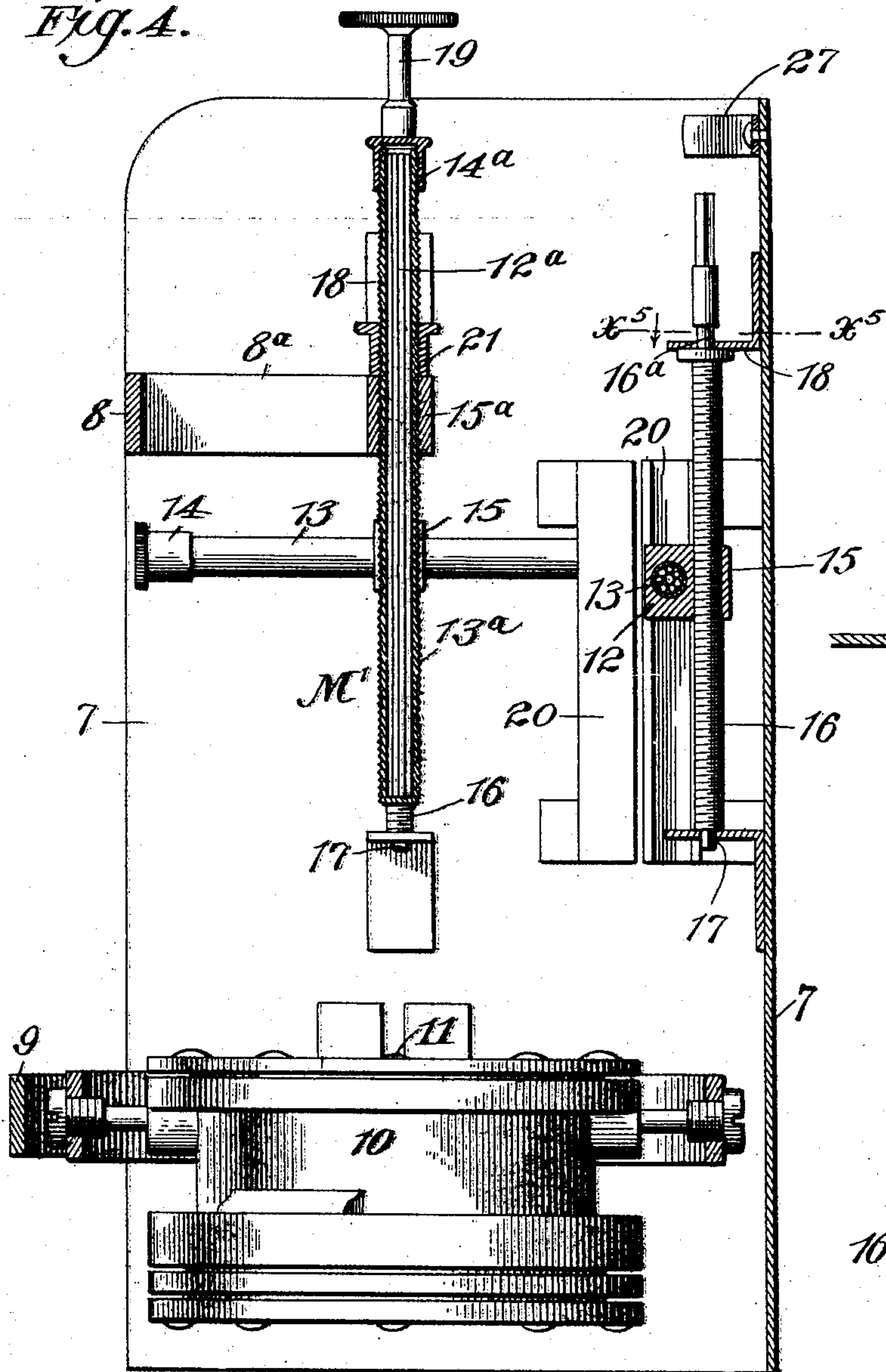


Fig. 5.

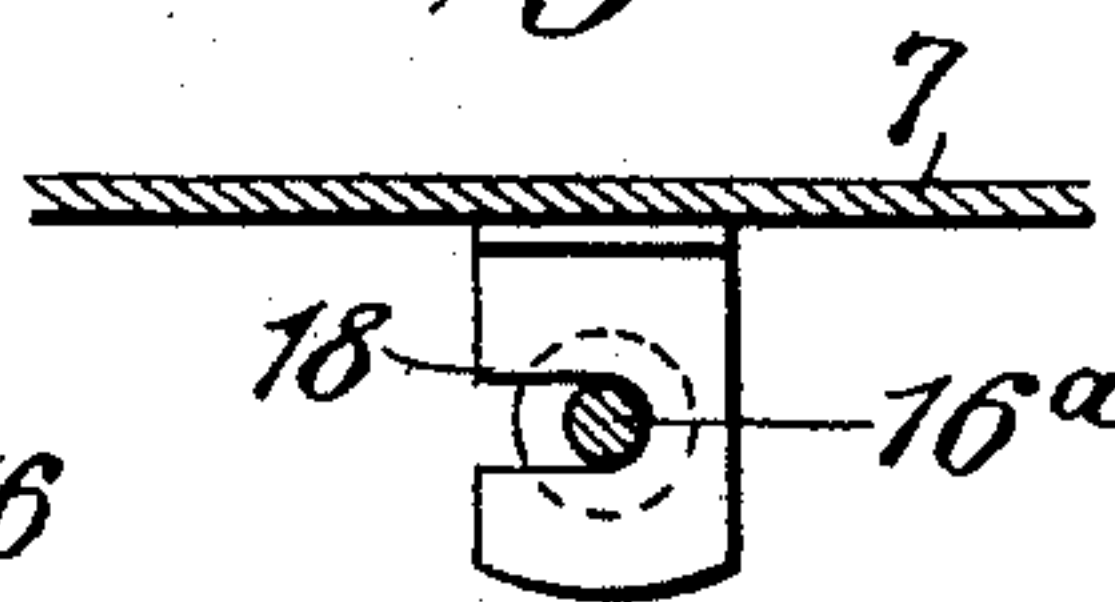
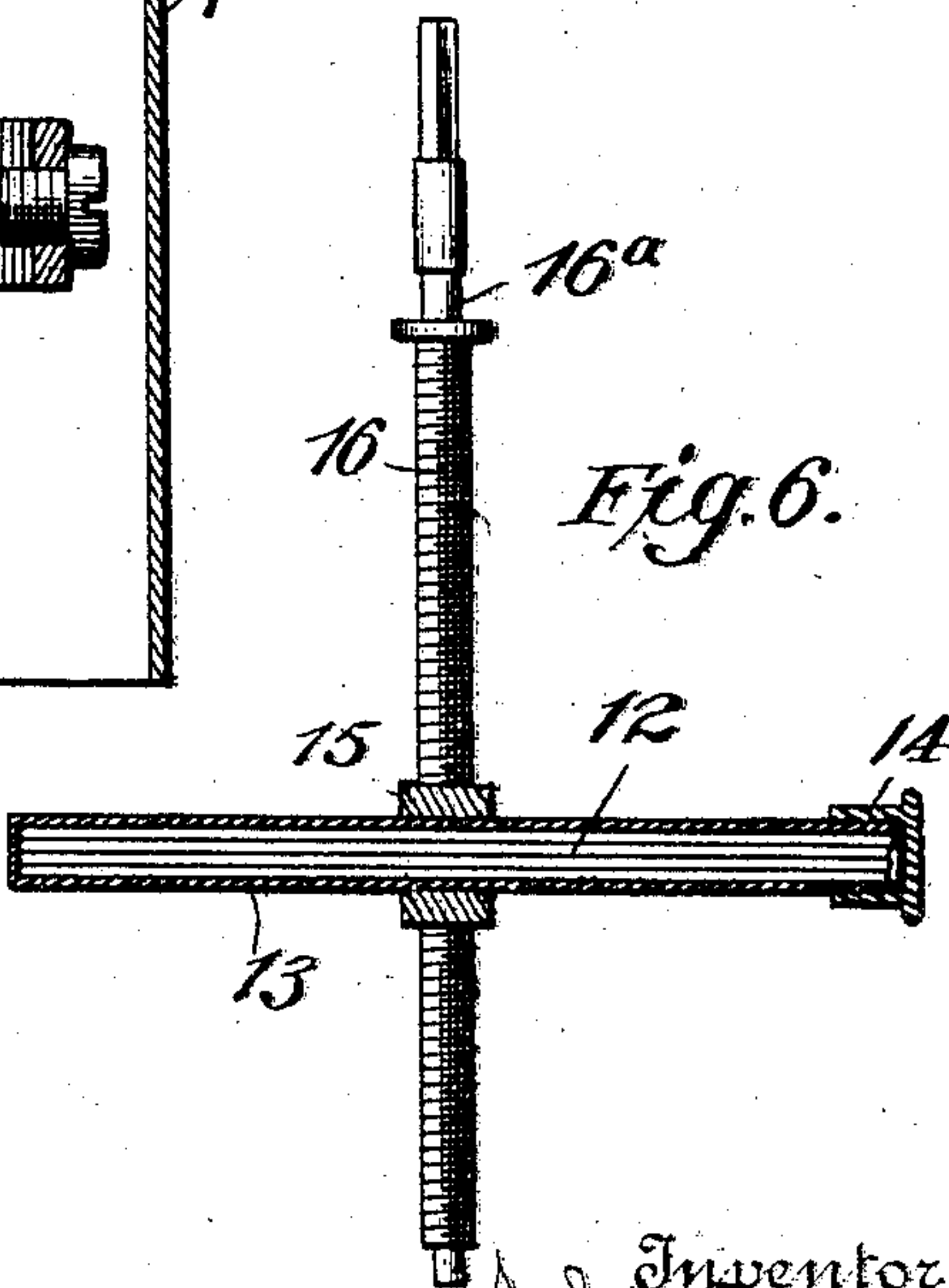


Fig. 6.



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UNITED STATES PATENT OFFICE.

JOHN S. NEGUS AND HERBERT BLOSSOM, OF NEW YORK, N. Y

BINNACLE FOR SUBMARINE BOATS.

SPECIFICATION forming part of Letters Patent No. 780,374, dated January 17, 1905.

Application filed August 27, 1904. Serial No. 222,427.

To all whom it may concern:

Be it known that we, JOHN S. NEGUS and HERBERT BLOSSOM, residing in the borough of Brooklyn, in the county of Kings, in the city and State of New York, have jointly invented certain Improvements in Binnacles for Submarine Boats, of which the following is a specification.

This invention relates to the class of binnacles employed on submergible and submarine boats built almost wholly of magnetic metal, such a binnacle having in some instances a telltale-compass, a heeling-magnet, other lateral correcting-magnets, and means for quadrantal correction. It is unavoidable in binnacles for use on this class of boats that the space permitted is limited, and it is extremely difficult to so dispose the parts about the compass that they may be reached conveniently for regulation and adjustment.

The object of the present invention is the improvement of the construction and mounting of the parts, as will be hereinafter described, and in their relative arrangement with a view to ease of access for adjustment.

In the accompanying drawings, which serve to illustrate an embodiment of the invention, Figure 1 is a front elevation of the binnacle, showing the hood and some other parts in section. Fig. 2 is a perspective view of the binnacle. Fig. 3 is an elevation of the hood of the binnacle with its support and attaching parts in section. Fig. 4 is a vertical mid-section of the binnacle on a larger scale than Fig. 1, the plane of the section being indicated by line x^4 in Fig. 1. Figs. 5 and 6 are detail views, the former being a section at x^5 in Fig. 4 and the latter a longitudinal section of one of the magnet-cases.

The drawings illustrate a suitable form of hood for inclosing the binnacle; but the present invention is not restricted to this particular form of hood. The object is to inclose the parts in a water-tight compartment so constructed as to permit of inspecting the compass from the interior of the boat and also from above and also to provide access to the parts from above for adjustment.

In the drawings, 1 designates the hood with an aperture in its top closed water-tight and

provided with a glass covering-plate 2. The hood is shown as connected with the deck-plates 3 of the boat by a pedestal 4, Fig. 3, there being an aperture 5 in the deck of the boat at the point where the hood is mounted. Within the hood is mounted the binnacle, (seen detached in Fig. 2,) the latter being secured to the pedestal by means of suitable brackets 6 on the latter. The binnacle as herein shown comprises a casing 7, having a back and two upright sides, with ties 8 and 9 across the front, and in this casing is mounted a telltale-compass 10. This is a double-card transparent compass, and it is pivotally mounted at the sides of the casing in bearings at 11. On the respective sides of the casing are mounted, above the compass, the magnet devices M. These are alike, and the construction and accessories of one magnet device will be described with especial reference to Figs. 4, 5, and 6. The magnets proper, 12, are inclosed in a tubular casing 13, having a screw-cap 14. On this casing 13 is secured a nut 15, through which passes an upright screw 16, disposed at right angles, substantially, to the magnets. This screw 16 has a step-bearing at 17 in a bracket on the casing, and above it has a neck 16^a, which has an open or slotted bearing, Fig. 5, in a bracket 18 on the casing. Thus the screw is rotatable in collared bearings, and when rotated by a key 19 (seen in Fig. 2) the magnet device is caused to move up or down, as the case may be, to set it nearer to or farther from the compass. To prevent the nut 15 from turning with the screw and to maintain the magnet device in its proper position with respect to the casing some form of guide will be employed for the tubular casing 13, and, as herein shown, this is an upright guideway 20, secured to the main casing 7 and receiving the end of the magnet-casing.

To remove the magnet device, it is run up until the tube is free from the guideway 20, when the screw 16 is tilted sidewise to disengage its neck 16^a from the upper slotted bearing in the bracket 18, when the screw and magnet-casing may be lifted out of the main casing 7. The square on the upper end of the screw enters a square socket in the key 19. The key or keys are held by spring-clips 27,

(seen best in Fig. 2,) and in Fig. 4 a key is seen in place on the screw.

The heeling-magnet device M' is mounted above the compass where it will be easy of access in a bracket-arm 8^a on the tie 8. In this case (see Fig. 4) the tubular casing 13^a is screw-threaded and screws through a fixed nut 15^a on the arm 8^a and is provided with a lock-nut 21. The cap 14^a on the tubular casing 13^a prevents access of moisture to the inclosed magnets 12^a.

The heeling-magnet device may be readily adjusted up or down through the hand-hole in the top of the hood 1.

The quadrantal corrector of the binnacle is best illustrated in Fig. 1. On each side of the casing 7 is secured a threaded rod or screw 22, which projects out at right angles from the casing by preference and is provided with a nut 23. On the screw is slipped a ball 24, of iron, which has a bore extending through it, this bore being in the main large enough to slip freely over the screw, but having a short contracted portion of its length screw-threaded, as seen at 25 at the right in Fig. 1, where the ball 24 is shown in section to illustrate this feature.

As the screw and ball project considerably from the side of the casing 7, room is provided for them by a cup 26, screwed into the side of the hood. This cup, which forms in substance a part of the hood, is removable and affords access to the ball for adjustment along the screw.

It will be noted that all of the magnets are superposed or above the compass, so as to be readily and conveniently reached for adjustment, although the space in and about the binnacle is necessarily contracted by reason of the requirement for economizing space. The magnets 12 and 12^a are inclosed, so as to avoid wetting by condensed moisture, and the tubes containing the magnets are readily removable at will. One key 19 would of course serve for adjusting the lateral magnets; but it is preferred to have two, in case one should be lost, misplaced, or broken.

The binnacle described is especially designed for submarine boats; but obviously its use is not necessarily limited to this class of boats.

As the magnets proper, 12 and 12^a, are carried in tubes, the magnets, together with their inclosing casings or tubes and attached parts, have been referred to as "magnet devices" and designated by the letters M and M'.

At the left in Fig. 1 is shown the means for securing the screw 22 firmly to the casing 7 in a readily-removable manner.

The screw has on it a polygonal part 27 to receive a wrench and an enlarged screw-threaded extremity 28, which screws into a socket in a metal block or thickening-piece 29 on the side of the casing. This construction provides a firm and rigid fastening, and

yet permits of the ready removal of the screw 22. The part 27 may have any form adapted to receive an instrument for turning the screw.

It will be noted that in the present construction the magnets are not mounted on and carried by the compass, but on the casing 7, the compass being free to maintain its horizontal position, while the binnacle, which carries the magnets, may rock with the movements of the vessel.

Having thus described our invention, we claim—

1. A binnacle, having a compass pivotally mounted therein, magnets mounted on the binnacle above the level of the compass, and means for moving said magnets toward and from the compass.

2. A binnacle, having a compass pivotally mounted therein, upright collared screws 16 mounted rotatively in the binnacle-casing, horizontally-disposed magnets M, each provided with a nut which runs on one of said screws so as to be moved up or down by rotation of the screw, and upright guideways 20, one for each magnet, the ends of the magnets loosely engaging the respective guideways.

3. A binnacle, provided with a heeling-magnet mounted directly over the center of the compass in a rigid bearing, and having means for adjusting it up and down with respect to the compass.

4. A binnacle, having a casing, provided with a fixed nut, a compass mounted in said casing, and a heeling-magnet device mounted in the binnacle-casing directly over the compass, said heeling-magnet device comprising an upright, tubular, screw-threaded casing, magnets therein, and a cap closing the end of said magnet-casing, said magnet-casing screwing through said fixed nut for adjustment.

5. A binnacle, having a compass pivotally mounted therein, horizontally-disposed magnets mounted on the binnacle above the level of the compass, and means for moving said magnets toward and from the compass, said means and the magnets being mounted in a readily-removable manner and being accessible from above the binnacle.

6. A binnacle, having a casing and quadrantal correctors at respective opposite sides of same, said corrector comprising a screw-threaded rod projecting out laterally from the casing, a ball which is threaded on said rod, and means for securing said ball in place when set on the rod.

7. A binnacle, having a casing and quadrantal correctors, each of said correctors comprising a screw-threaded rod 22 which projects out laterally from the side of the casing, a ball 24 on said rod, said ball having a part only of its bore screw-threaded to engage the thread on the rod, and a nut 23 on said rod.

8. The combination with an inclosing hood having cups 26 screwing into it removably at

its opposite sides, of the binnacle, having a casing, screw-threaded rods 22 projecting out laterally from said casing into the respective cups on the hood, balls 24 on the respective rods, and nuts on said rods.

9. A binnacle, having a casing and removable quadrantal correctors, the latter each having a rod 22, provided with a part to receive an instrument for turning the rod, and a screw-threaded extremity, and the casing

having a screw-threaded socket to receive said extremity.

In witness whereof we have hereunto signed our names, this 25th day of August, 1904, in the presence of two subscribing witnesses. 15

JOHN S. NEGUS.
HERBERT BLOSSOM.

Witnesses:

ADOLPH F. SCHMIDT,
CHARLES BORCHERS.