

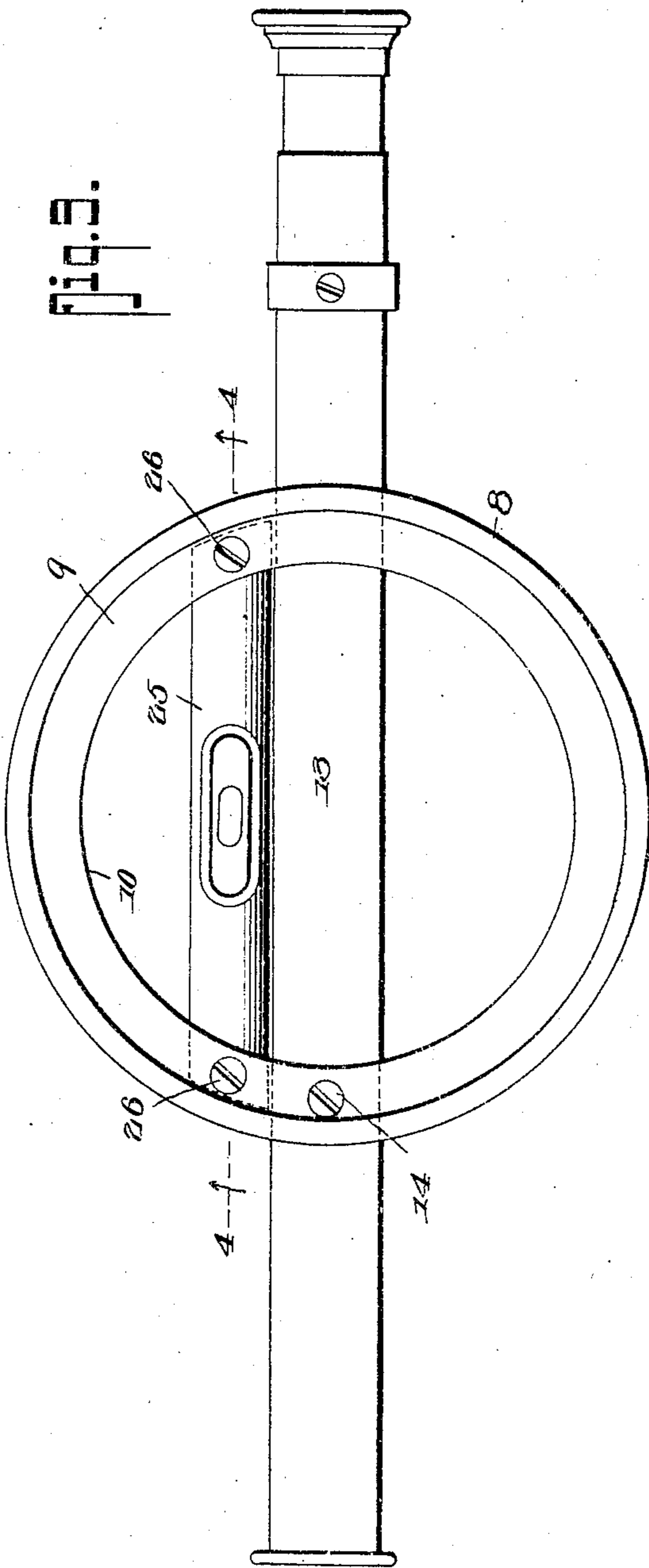
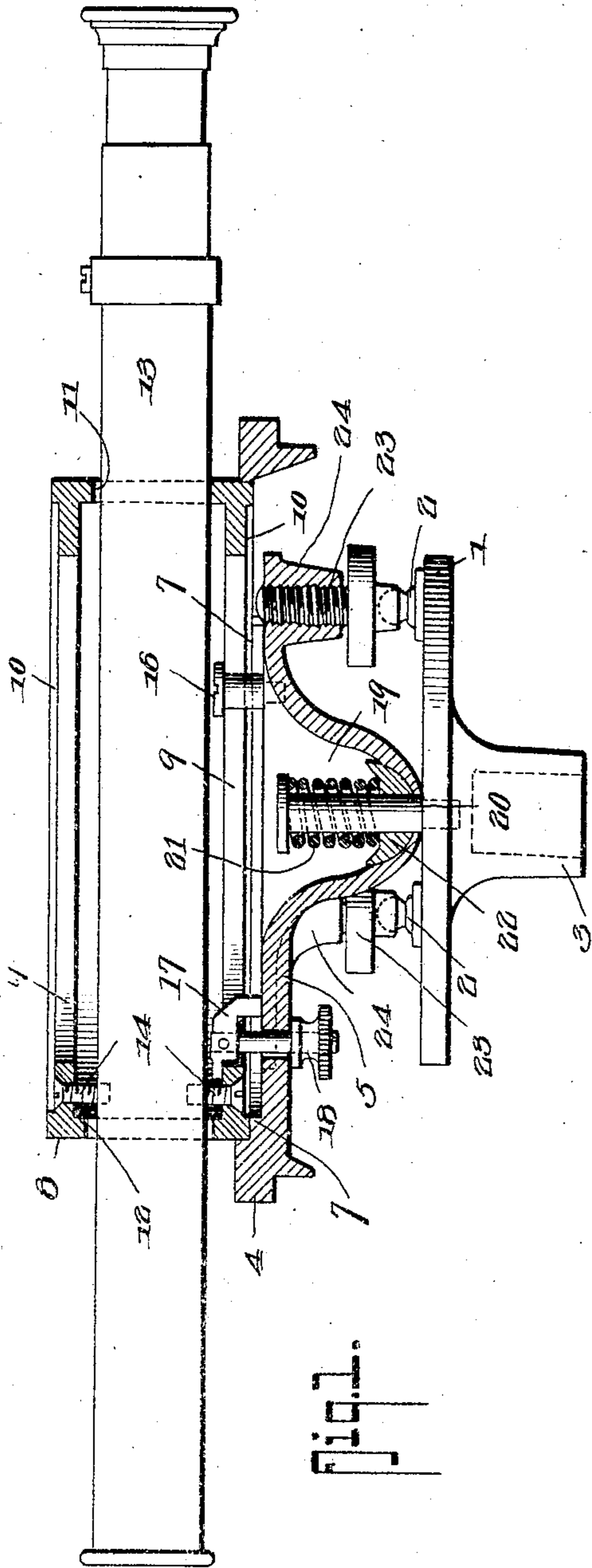
No. 786,093.

PATENTED MAR. 28, 1905.

E. A. BOSTROM.
DITCHING AND TERRACING LEVEL.

APPLICATION FILED AUG. 11, 1904.

2 SHEETS—SHEET 1.



Witnesses

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Fig. 2.

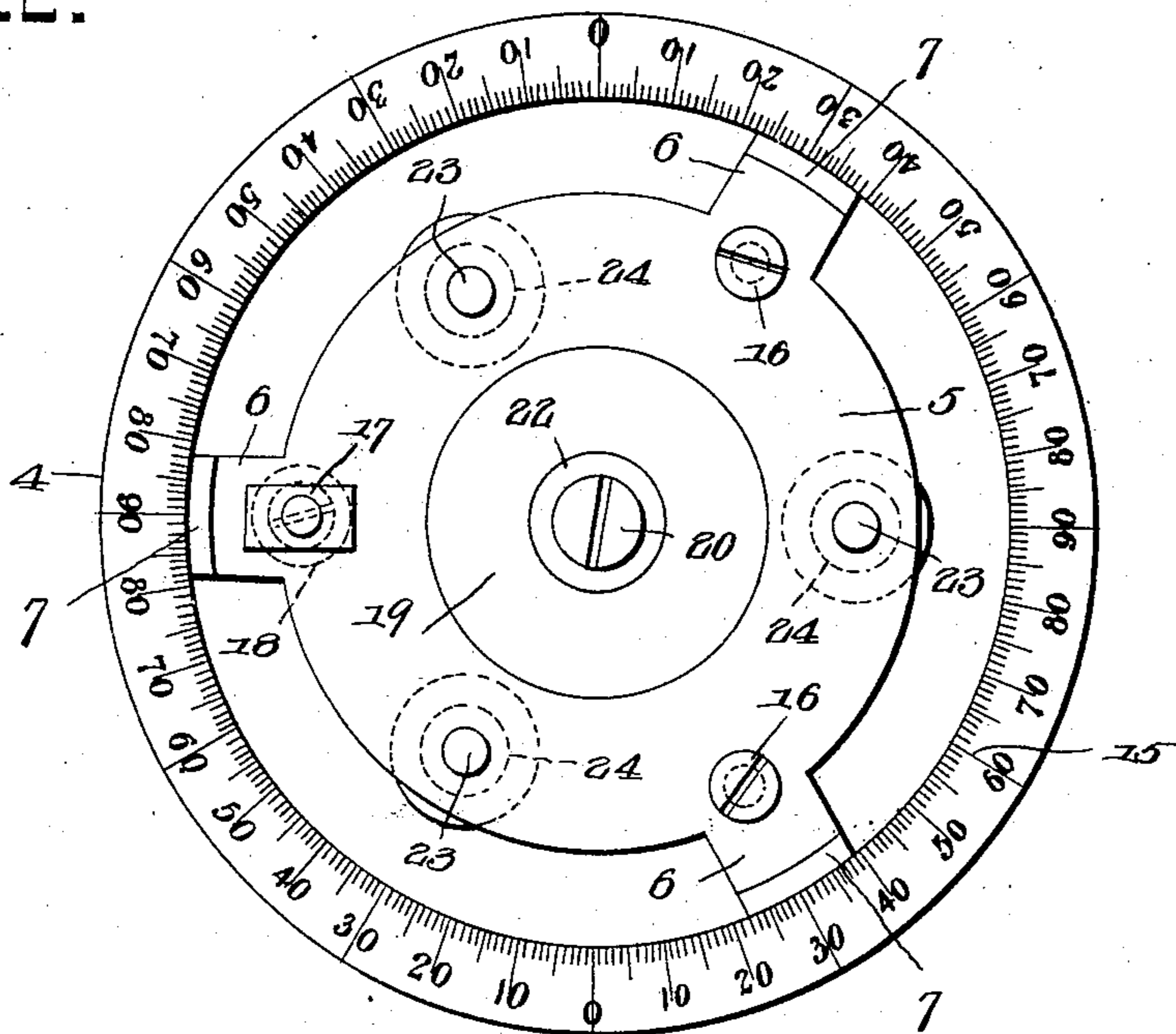
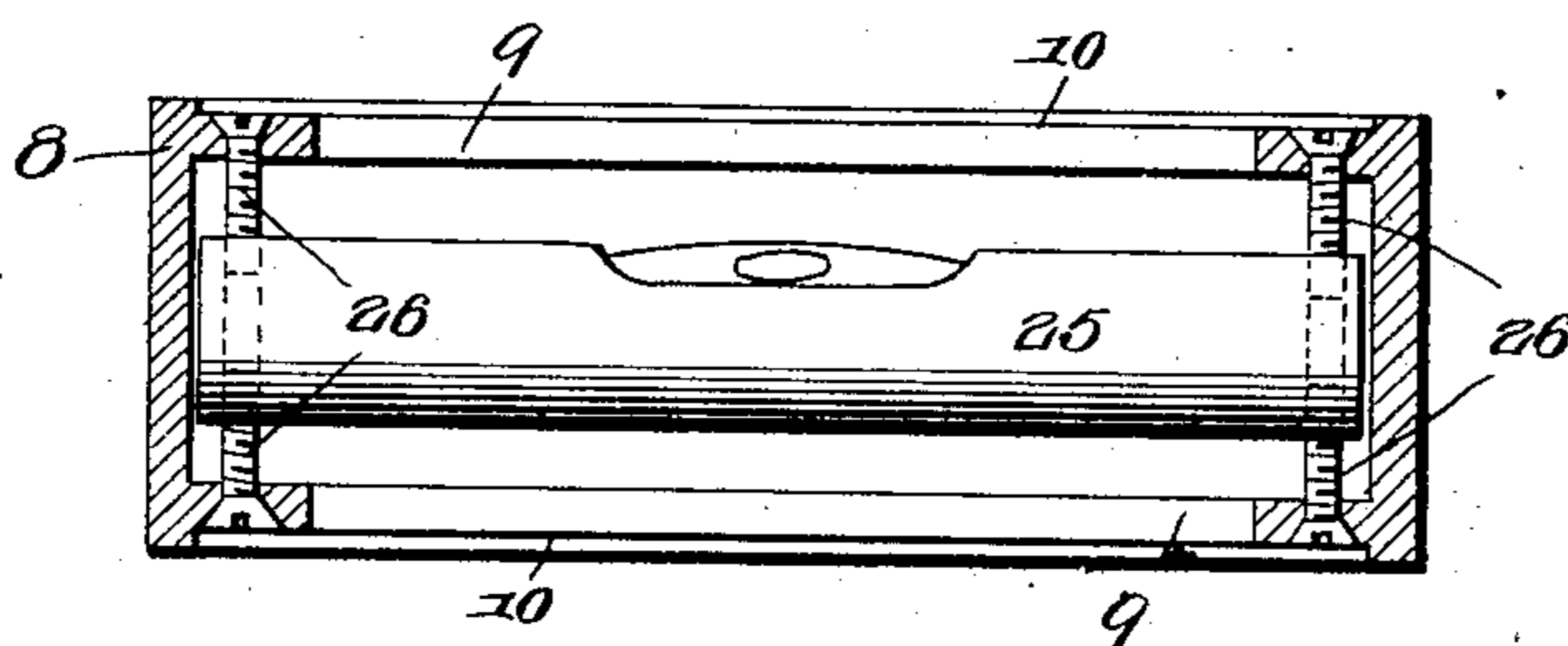


Fig. 4.



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UNITED STATES PATENT OFFICE.

ERNST A. BOSTROM, OF ATLANTA, GEORGIA.

DITCHING AND TERRACING LEVEL.

SPECIFICATION forming part of Letters Patent No. 786,093, dated March 28, 1905.

Application filed August 11, 1904. Serial No. 220,398.

To all whom it may concern:

Be it known that I, ERNST A. BOSTROM, a citizen of the United States, residing at Atlanta, in the county of Fulton and State of Georgia, have invented a new and useful Ditching and Terracing Level, of which the following is a specification.

My invention relates to ditching and terracing levels of the type disclosed in Patent No. 700,717, granted to me May 20, 1902, and has for its objects to produce a comparatively simple inexpensive device of this character wherein the turret carrying the sighting-tube may be readily and accurately adjusted upon its supporting ring or base and securely clamped in position to prevent accidental dislodgment, one wherein the construction of the turret will be generally improved and simplified, one in which the construction and manner of mounting the turret-supporting ring or base is improved and simplified, and one wherein the spirit-level and sighting-tube are mounted and sustained in the turret in a simple efficient manner which permits of their ready adjustment.

To these ends the invention comprises the novel features of construction and combination of parts more fully hereinafter described.

In the accompanying drawings, Figure 1 is a vertical sectional elevation of the improved device complete. Fig. 2 is a plan view of the device with the turret and its attendant parts removed. Fig. 3 is a top plan view of the turret with the sighting-tube and spirit-level in position. Fig. 4 is a sectional elevation taken on the line 4-4 of Fig. 3.

Referring to the drawings, 1 designates the primary supporting member or head, preferably in the form of a horizontal disk-like plate, provided upon its upper face with a plurality of (preferably three) ball projections 2, arranged marginally around the plate at appropriately-spaced intervals, while upon the under side of the supporting-plate is a depending internally-threaded hollow boss 3, designed for the reception of the central screw or stem arising from the head of a tripod. (Not shown.)

Arranged above the supporting member or head 1 is a secondary supporting base or platen

4, preferably in the form of a horizontal ring or annulus having disposed centrally therein a bearing portion or spider 5, permanently connected with the ring 4 by three radial arms or webs 6, having upon their upper faces and at the inner margin of the ring 4 raised or elevated bearing portions or faces 7, upon which the turret 8 seats and rests when in position, attention being directed to the fact that by this construction the turret will be firmly and evenly supported, while at the same time the area of the bearing-surface and the friction between the parts is minimized, as is also liability of dust and other foreign matters lodging and accumulating upon the bearing portions. The turret 8 is, as in my former patent, in the form of a tubular body of perfect circular or annular form and having its end edges faced off perfectly true and parallel one to another. In the present instance the internal bosses of the former construction are dispensed with and the turret is provided instead with a pair of inwardly-projecting marginal flanges 9, which extend wholly around the interior of the turret and respectively adjacent to and parallel with its end edges 10, which normally lie in a horizontal plane and either one of which may seat upon the bearing portions 7 when the turret is in position upon the supporting-platen. The turret has formed through its side wall at diametrically opposite points a pair of openings or perforations 11 12 for the reception of a sighting-tube 13 and of which the normally rearward opening 12 is of elongated or elliptical form to permit adjustment of the tube through the medium of adjusting-screws 14, arranged above and below the tube 13 through openings in the flanges 9, the ends of the screws being tapped into the wall of the tube. It may be mentioned that the tube 13 is properly adjusted or sighted, as in my former patent, by manipulating the screws 14 and reversing the turret upon the platen 4 until the same sight-point is marked through the tube with the turret in either position. For determining the proper rotation of the turret upon the platen in projecting a horizontal plane there is provided upon the side wall of the turret a pointer or vernier and

upon the upper horizontal face of the ring 4 a graduated scale 15, indicating degrees, and in which the graduations are arranged as illustrated in Fig. 2, while for retaining the turret upon the platen to prevent its accidental dislodgment and for securing it in adjusted positions I employ a pair of shoulder-screws 16, engaged at their lower ends with the spider 5, and a clamp 17, carried by a clamping-screw 18, also extended through the spider, the heads of the screw 16 being adapted to overlap the flange 9, with which latter the clamp also engages, it being apparent that by manipulating the milled nut upon the clamping-screw 18 the turret will be fixed against rotation.

The spider 5 has a central concaved portion or depression 19, centrally of which there is disposed a screw or stem 20, tapped at its lower end into the base 1, there being mounted upon the stem a spring 21, bearing at its upper end upon the head of the screw and at its lower end upon a semispherical bearing member or washer 22, seated in a corresponding recess at the bottom of the depression 19, by which arrangement the supporting ring or platen 4 will have substantially universal movement upon the supporting-head 1 and may thus be readily adjusted for truing the turret and sighting-tube by means of adjusting-screws 23, tapped into bosses 24, formed upon the lower face of the spider 5, the screws having at their lower ends sockets which receive the ball-heads 2, whereby the screws are likewise supported for universal movement upon the base 1 and may thus readily conform to the movements of the platen in adjusting the latter.

Within the turret 8 and parallel with the sighting-tube 13 there is arranged a spirit-level 25, the tube of which is adjustably sustained at each end by means of upper and lower adjusting-screws 26, extending loosely through the horizontal flanges 9 and tapped at their ends into the wall of the tube.

It is apparent from the foregoing that I produce a comparatively simple device which in construction and operation is a decided improvement over my former patented device and one wherein the various adjustments necessary to the operation of the mechanism may be readily and quickly obtained. In attaining these ends it is to be understood that I do not wish to limit myself to the precise details herein set forth, inasmuch as minor changes may be resorted to without departing from the spirit of the invention.

Having thus described the invention, what is claimed is—

1. In a device of the class described, a platen,

a turret supported thereon and having upper and lower inwardly-projecting marginal flanges and a pair of opposite openings, a sight-tube extended through said openings, and adjusting-screws extended through the flanges for acting upon the tube.

2. In a device of the class described, a platen, a turret seated thereon and having an internal flange, a sight-tube carried by the turret, and retaining devices carried by the platen and engaging the flange to maintain the turret in position.

3. In a device of the class described, a platen, a turret seated thereon and having an internal flange, a sight-tube carried by the turret, retaining members carried by the platen for detachably engaging the turret-flange, and a clamping device also carried by the platen and engaging said flange.

4. In a device of the class described, a supporting-base, a platen arranged above the base and having a concavity, a stem arising from the base within the concavity, a semispherical bearing member seated upon the stem within the concavity, adjusting-screws in threaded engagement with the platen and having universal-joint connections with the base, and a turret seated upon the platen.

5. In a device of the class described, a supporting base and platen, a yieldable universal-joint connection between said parts, adjusting-screws in threaded engagement with one of the parts and having ball-and-socket connection with the other, a turret seated upon the platen, a sight-tube carried by the turret, and means carried by the platen and engaging the turret for clamping the latter in adjusted position.

6. In a device of the class described, a base, a platen connected therewith and comprising an outer ring, an inner spider, and connecting-webs between the spider and ring, said webs being provided near the inner margin of the ring with raised portions or seats, a turret adapted to rest upon said seats, and a sight-tube carried by the turret.

7. In a device of the class described, a platen, a reversible turret seated thereon and having upper and lower internal flanges, a sight-tube carried by the turret, and retaining devices carried by the platen and designed for engagement with either of the flanges to maintain the turret in position.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

ERNST A. BOSTROM.

Witnesses:

ROBERT W. MUNK,
E. F. NASH.