

No. 730,830.

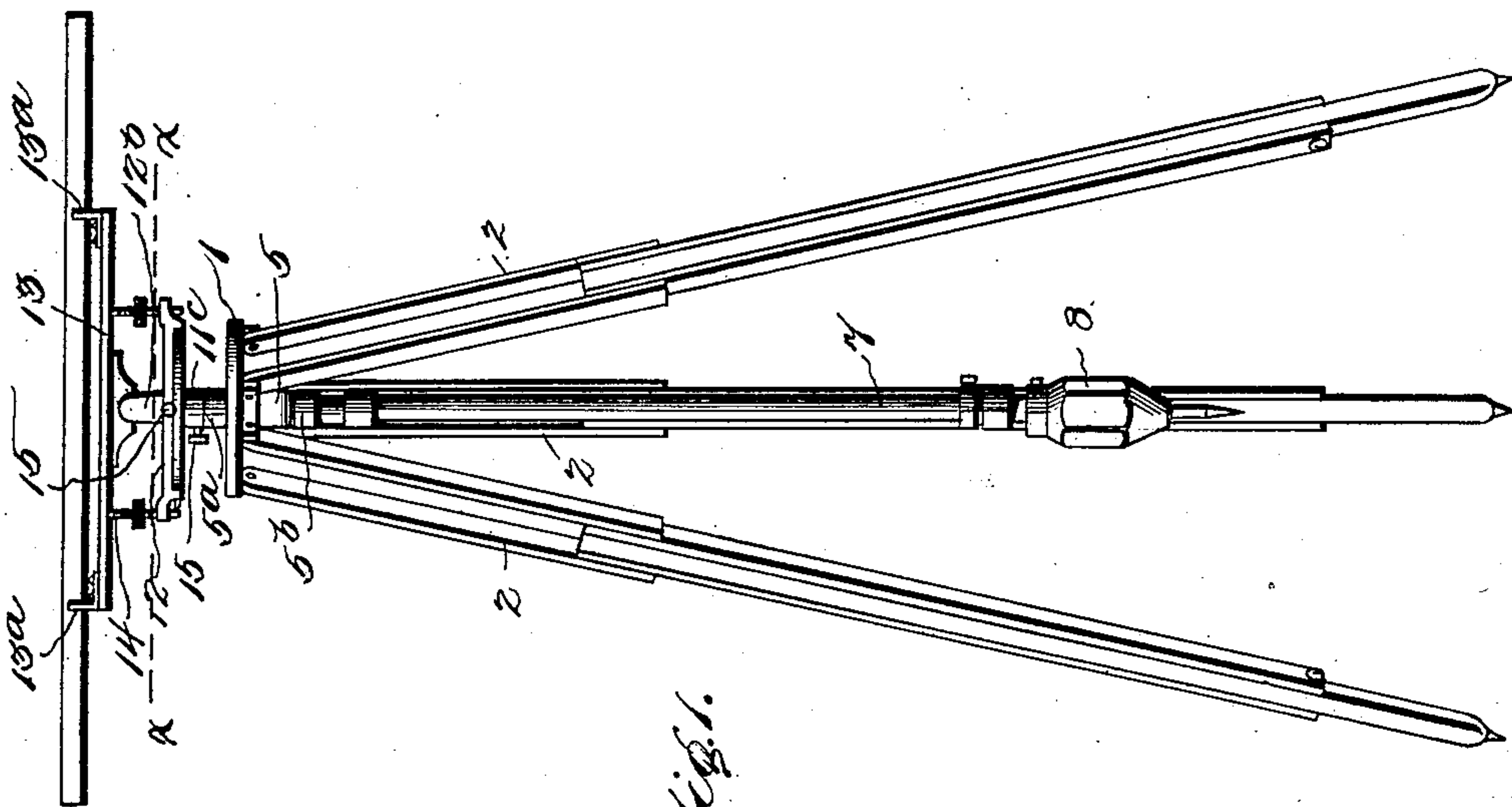
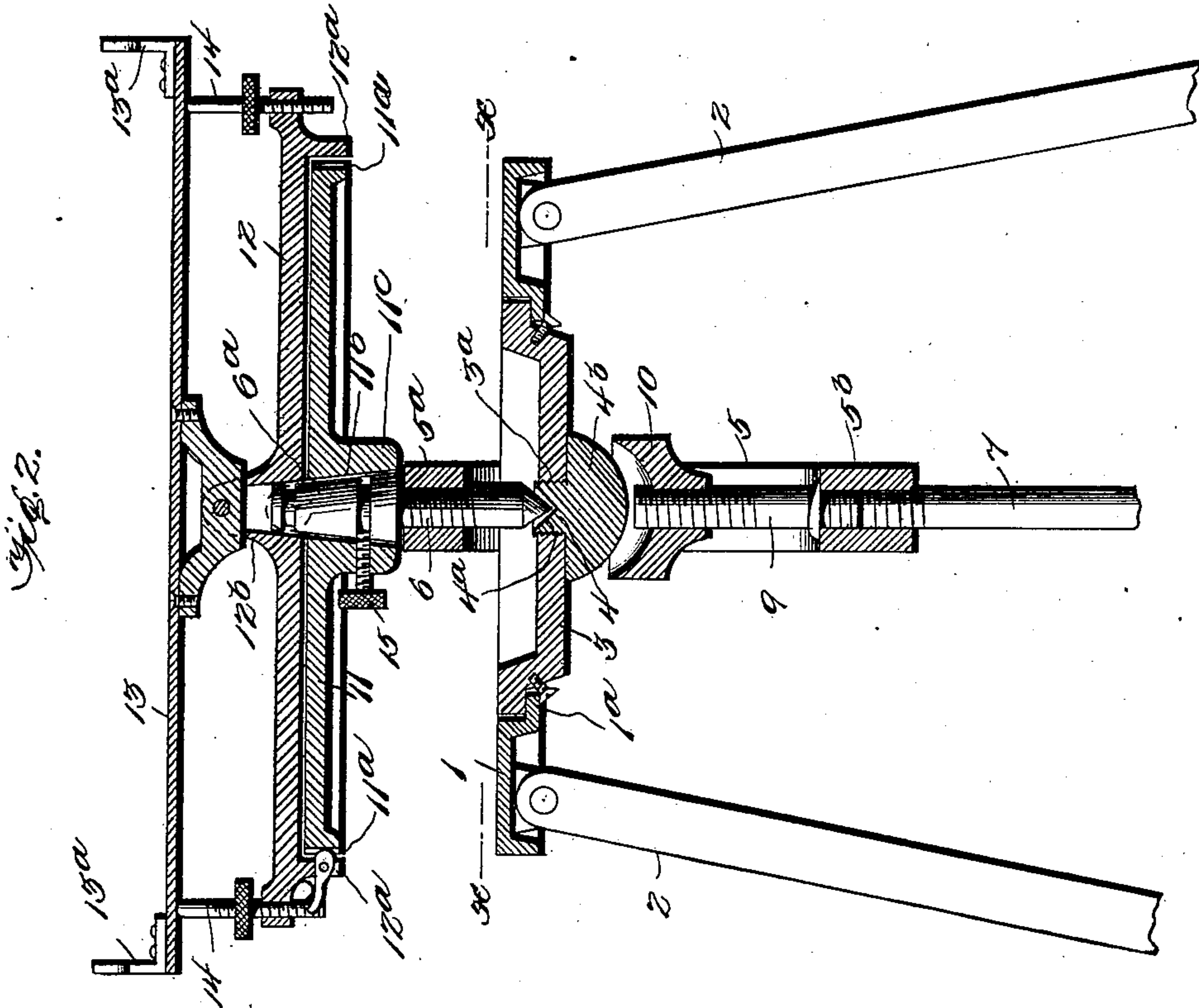
PATENTED JUNE 9, 1903.

G. W. LINGLE.
TRIPOD.

APPLICATION FILED OCT. 9, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



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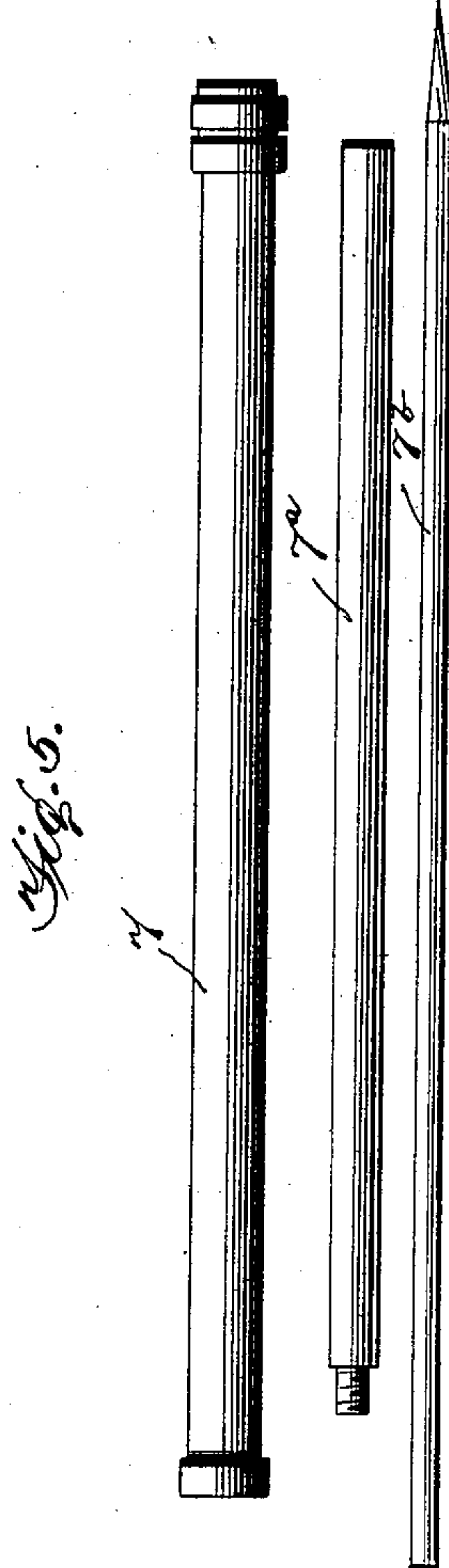
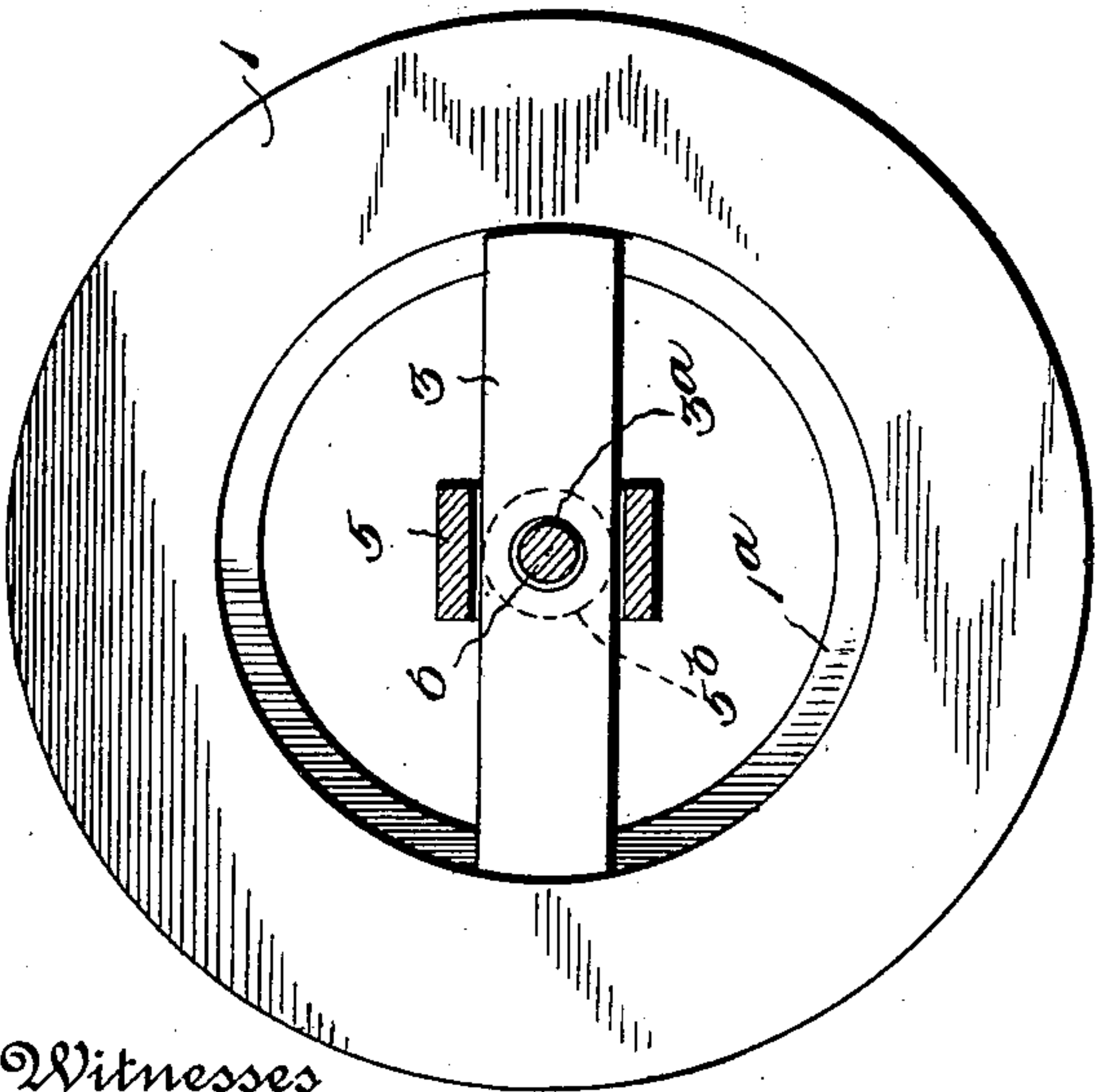
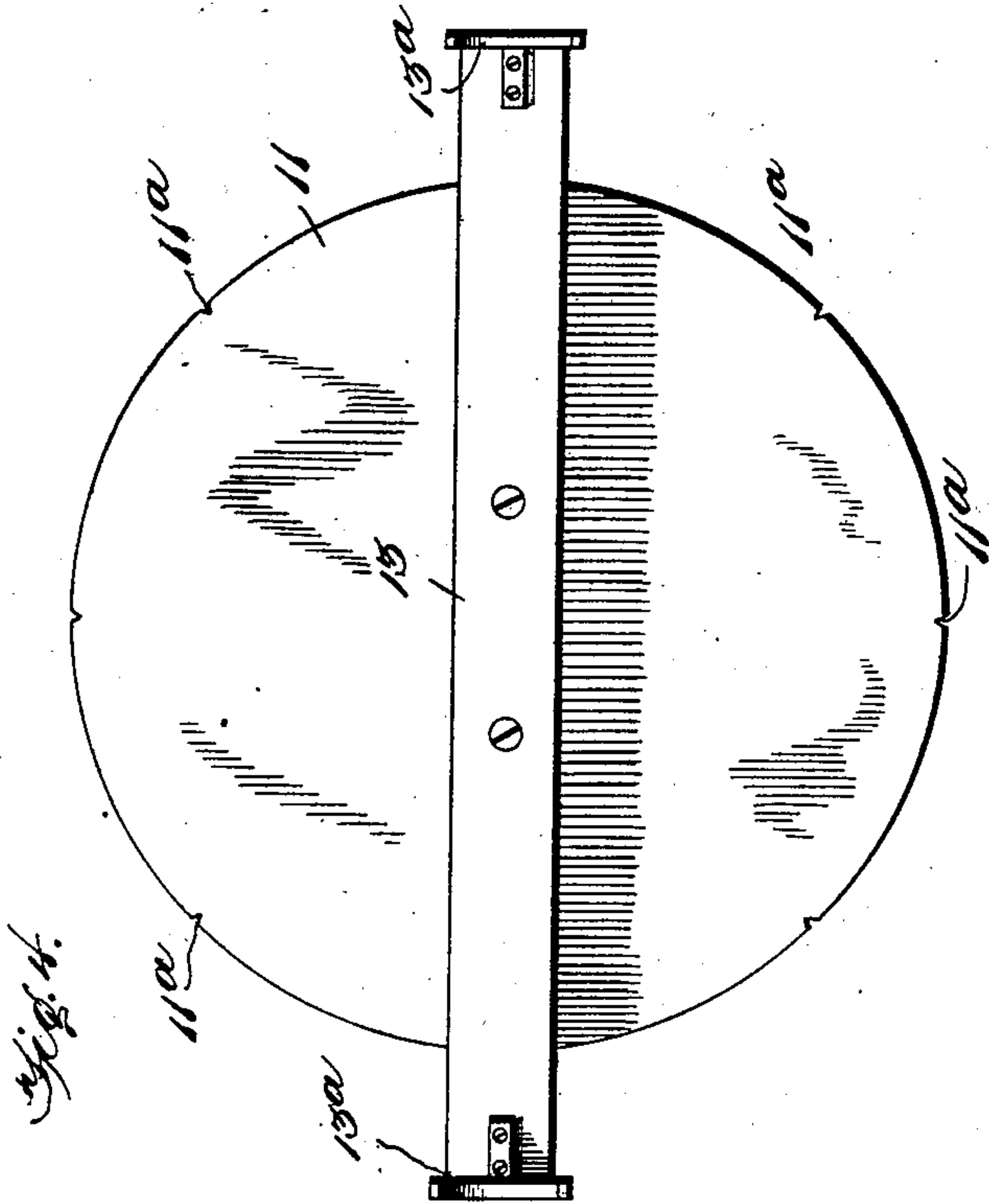
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Witnesses
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UNITED STATES PATENT OFFICE.

GEORGE W. LINGLE, OF EAGLEGROVE, IOWA, ASSIGNOR OF ONE-HALF TO
CHARLES R. JOHNSON, OF LANESBORO, IOWA.

TRIPOD.

SPECIFICATION forming part of Letters Patent No. 730,830, dated June 9, 1903.

Application filed October 9, 1902. Serial No. 126,519. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. LINGLE, a citizen of the United States, residing at Eagle-grove, in the county of Wright and State of Iowa, have invented certain new and useful Improvements in Tripods; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it ap-
 10 pertains to make and use the same.

My invention relates to improvements in tripods, more especially those designed for supporting surveyors' instruments.

The invention has for its object to provide
 15 a device of the character described in which the position of the support for the instrument being used will be controlled by a pendulum and in which said support may be readily adjusted to different angles with re-
 20 lation to said pendulum.

The invention consists of the arrangement, combination, and construction of parts as hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, illustrating the preferred embodiment of my invention, and in which like figures of reference denote corresponding parts in the several views, Figure 1 is an elevation of my device. Fig.
 25 2 is a vertical section through the upper portion of the device. Fig. 3 is a cross-section taken on the line *xx* of Fig. 2. Fig. 4 is a plan view, and Fig. 5 is a detached view, of the pendulum-rod, showing several sections separated one from the other.
 30

In carrying out my invention I provide a plate or table 1, to which are pivoted the legs 2 of the tripod. This plate or table has a preferably central opening, around which is
 40 an annular depression 1^a, in which rests a cross-pin 3, which spans said opening and is held against displacement preferably by screws, which enter said cross-piece and have their heads abutting against the bottom of
 45 said plate. Said cross-piece is provided with a screw-threaded hole 3^a, in which is screwed a plug 4, having a preferably conical depression 4^a in its upper face and having an enlarged, preferably semispherical, head 4^b. A
 50 link 5, having internally-screw-threaded tu-

bular extensions 5^a 5^b, is arranged around and suspended from said cross-piece by a pin 6, which is preferably screw-threaded in the upper tubular extension 5^a and has a preferably conical point, which bears or rests in the
 55 conical depression in said plug.

To the lower tubular extension 5^b of the link is screw-threaded an extensible rod 7, having a pointed lower end provided with a weight or bob 8. As will be seen in Fig. 5 of
 60 the drawings, the bob-suspending means may comprise several sections 7 7^a 7^b, detachably connected together. Projecting upwardly in said link and secured thereto, preferably by being screw-threaded in said lower tubular
 65 extension, is a pin 9, having an upper screw-threaded portion on which is a thumb-nut 10, having a preferably concave upper face adapted to engage said semispherical head 4^b
 70 of said plug 4.

An annular disk 11, having a series of niches 11^a in its periphery and a central tapered opening 11^b, around which is a depending sleeve 11^c, correspondingly tapered internally
 75 to said central opening, is supported by an upper tapered portion 6^a of said pin 6, passing up through the sleeve and central opening of said annular disk. The upper end of the tapered portion of said pin 6 extends
 80 above the upper surface of said disk and forms a pivot for a plate 12, which has preferably lugs 12^a, which depend over the periphery of said disk. One of these lugs has pivoted thereto a spring-pressed pawl 12^x, adapted to engage with either of the niches
 85 or recesses in said disk. Pivoted to an up-standing central lug 12^b of said plate 12 is a beam 13, having an arm 13^a at its outer end for supporting a telescope or other surveying instrument and which beam is adjustable
 90 upon its pivot by screws 14, supported, preferably, in longitudinal extensions of said plate 12 and bearing against the under side of said beam. Said plate 12 has its sleeve
 95 11^c provided with thumb-screws 15, adapted to engage annular grooves in the tapered upper portion of said pin 6 and retain said plate upon said pin.

In using my device the beam is adjusted by the screws 14, so that the instrument sup-
 100

ported thereon will be at right angles to the perpendicular, which is ascertained by the pendulum.

The instrument may be adjusted to different lateral angles by swinging the plate carrying the beam around the disk. The niches or recesses in the periphery may be disposed to mark different angles in order that any desired angle may be obtained by engaging the pawl with the corresponding niche or recess. The pendulum when it reaches center of gravity may be held against movement by turning the thumb-nut 10 until its concave upper surface binds upon the head of the plug 4.

I am aware that various changes may be made in the details of construction of parts herein described as one way of carrying out my invention without in any way departing from the spirit thereof, and therefore I hereby reserve the right to make such changes as fairly fall within the scope of my invention.

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

1. In a device of the character described, the combination of a suitable support, a pendulum pivoted to said support and having an upward extension provided with a tapered terminal, a screw-threaded actuated means for locking said pendulum to said support, and a disk mounted upon said terminal.

2. In a device of the character described, the combination of a support, a pendulum suspended therefrom and having an upward extension provided with a tapered terminal, a disk carried by said terminal, a plate pivoted upon the upper end of said terminal and adapted to be engaged by said disk and carrying a holder, and a thumb-nut screw-threaded to said pendulum adapted to lock the pendulum to said support.

3. In a device of the character described, the combination of a support, a pendulum having an upward extension provided with a tapered terminal, a disk carried by said terminal, a plate pivoted upon the upper end of said terminal and adapted to be engaged by said disk and carrying a holder, said support having a central opening and around said opening an annular depression receiving the ends of a cross-piece adapted to receive the pivot of said pendulum.

4. In a device of the character described, the combination of a suitable support, a pendulum pivoted to said support, means for locking said pendulum to said support, a disk carried by said pendulum and having a series of niches or notches, a pivoted plate provided with a suitable holder for a surveying or other instrument, and a pawl pivoted to said plate and adapted to engage the niches or recesses in said disk.

5. In a device of the character described, the combination of a support, a pendulum suspended therefrom and having an upward

extension provided with a tapered terminal, a disk carried by said terminal, and a plate pivoted upon the upper end of said terminal and adapted to be engaged with said disk and carrying a holder.

6. In a device of the character described, the combination of a support, a pendulum suspended therefrom and having an upward extension with a tapered terminal, a disk carried by said terminal, a plate pivoted upon the upper end of said terminal, and a holder pivoted upon said plate.

7. In a device of the character described, a support, a pendulum having the upper end of its rod portion carried by a link having arms sustained from said support and provided with an upward-extending conical portion or terminal, a disk carried by said terminal, a plate pivoted upon said terminal, and a holder pivoted upon said plate.

8. In a device of the character described, the combination of a support having a hemispherical head or lug depending therefrom, a pendulum comprising a rod and a link encompassing said support and provided with a tapered upward extension, a pin carried by said link adapted to engage said lug or head, and means carried by said tapered extension for the support of a holder for a surveying instrument.

9. In a device of the character described, the combination of a support, a pendulum comprising a link having its parts encompassing said support and provided with an upward tapered extension or terminal adapted to afford means for the support of a surveying instrument, and a pin arranged in connection with said link, adapted to bear upon said support.

10. In a device of the character described, the combination of a support having a depending hemispherical head or lug, a pendulum having its point of suspension above said support and an adjusting-pin adapted to engage said lug or head, and means for the support of said pendulum in connection with its point of suspension, and means for supporting a surveying instrument arranged in connection with said support and pendulum.

11. In a device of the character described, the combination of a support having a depending hemispherical head or lug, a pendulum, a link comprising tubular extensions, one of which receives the upper end of the rod portion of said pendulum, and a pin engaging the other of said tubular extensions and adapted to bear upon said lug or head, said link having an upwardly-tapered portion, a disk carried upon said tapered portion, and a plate pivoted upon the upper end of said tapered portion and carrying a holder for a surveying instrument.

12. In a device of the character described, the combination of a support having a depending hemispherical lug or head, a pendulum having an adjusting-pin adapted to en-

5 gage said head, a link having tubular extensions adapted to carry said pendulum and having an upwardly-tapered extension, an additional pin carried by said link and bearing upon the upper surface of said head, a disk carried by said tapered extension, a plate pivoted upon the upper end of said tapered extension, and means for effecting the engagement between said disk and plate, and

a holder for supporting a surveying instrument pivoted upon said plate.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE W. LINGLE.

Witnesses:

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R. O. PARKMAN.