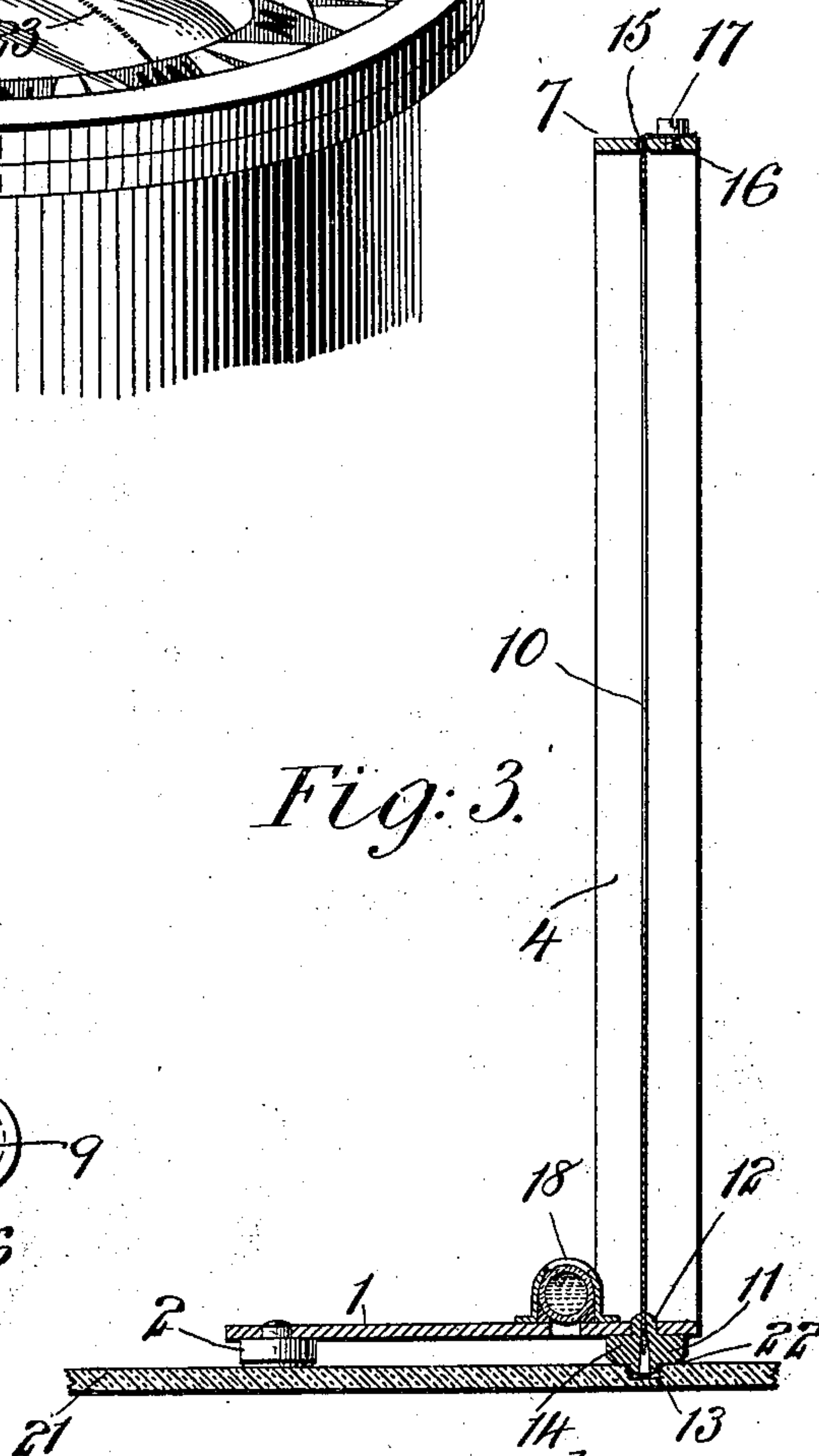
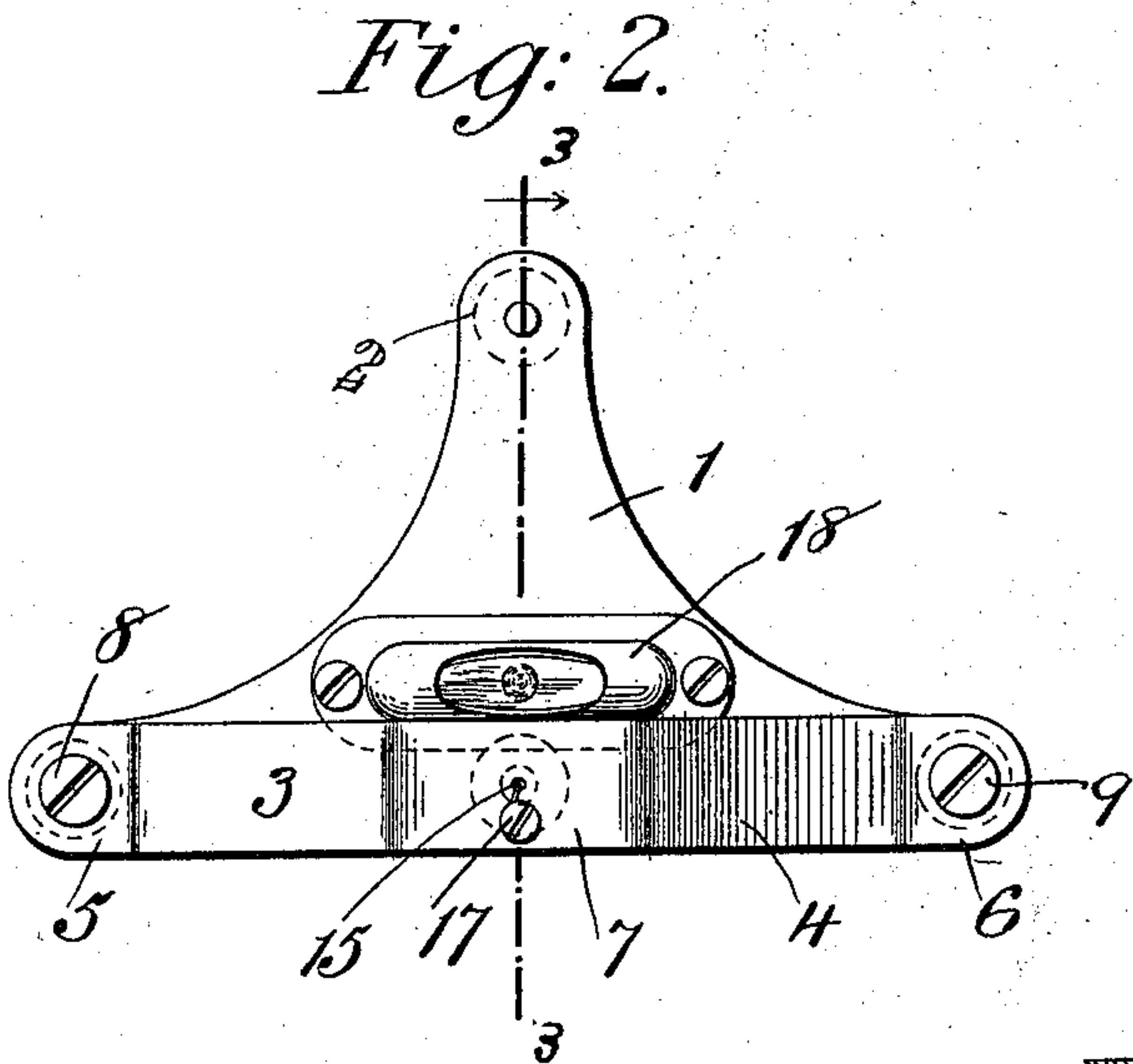
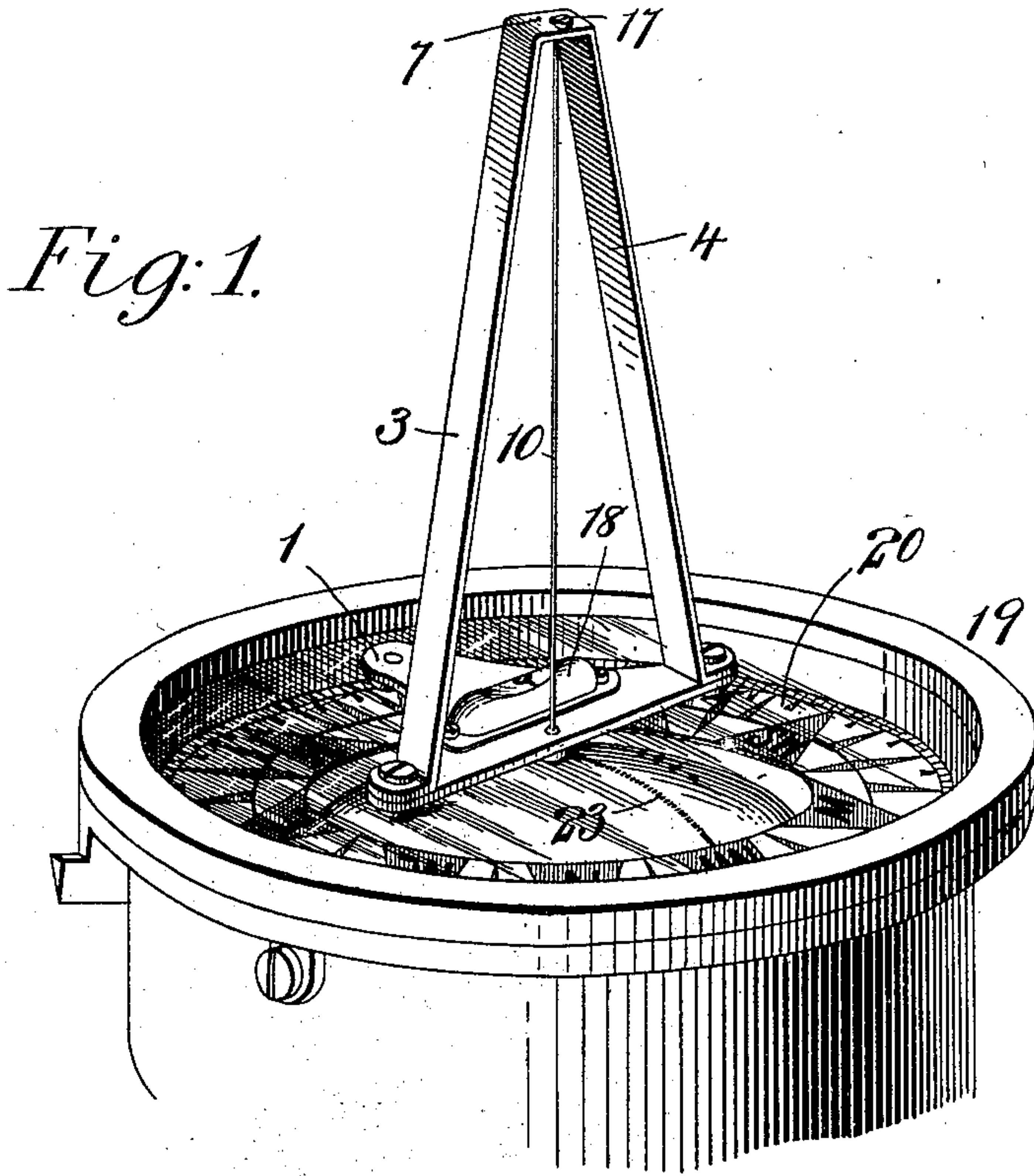


No. 725,399.

PATENTED APR. 14, 1903.

J. L. BLISS.  
COMPASS ATTACHMENT.  
APPLICATION FILED APR. 18, 1902.

NO MODEL.



Witnesses:  
Henry Thime  
George Barry Jr

Inventor:  
John L Bliss  
By Brown & Devereux  
his Attorneys



# UNITED STATES PATENT OFFICE.

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

## COMPASS ATTACHMENT.

SPECIFICATION forming part of Letters Patent No. 725,399, dated April 14, 1903.

Application filed April 18, 1902. Serial No. 103,505. (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 the borough of Manhattan, in the city and State of New York, have invented a new and useful Compass Attachment, of which the following is a specification.

My invention relates to a compass attachment for use in adjusting the compass by the sun.

The object is to provide a simple device which may be set on or removed from the glass over the face of a mariner's compass and which will cast a true shadow on the face of the compass, so that the compass direction and known direction of the sun from any point where the observation is made may be compared without liability of error.

In the accompanying drawings, Figure 1 represents the instrument located on the face of the compass as in use. Fig. 2 is a top plan view of the attachment in detail, and Fig. 3 is a vertical section taken in the plane of the line 3 3 of Fig. 2.

The frame of the attachment consists of a base 1, having a general triangular form and provided near the three apexes with short legs 2, preferably faced with some suitable soft material—such, for example, as rubber or felt—which will not be liable to scratch the glass over the face of the compass.

The base 1 is provided at its front with an uprising bracket, the legs 3 and 4 of which gradually converge from the foot portions 5 and 6 to the head portion 7, which latter portion is intended to span the central axis of the base 1. The uprising bracket is fastened to the base 1 by means of screws 8 and 9, which pass through the feet 5 and 6 into the base.

The object of the uprising bracket is to sustain a thread 10 in a taut condition between the base and the head 7 of the bracket. This is accomplished as follows: The base is provided with a foot-piece 11, having an upwardly-projecting teat 12, which is intended to pass upwardly through the base 1 at the middle point of the front of the base, the said foot-piece 11 being also provided with a depending nipple 13 for the purpose of centering the bracket in the glass plate. The foot-piece 11 is provided with a perforation 14 of

tapered form, gradually growing smaller as it extends from the end of the nipple 13 upwardly through the foot-piece and teat 12 with a view of clamping the end of the thread therein—as, for example, by tying a knot in the end of the thread or braiding its strands or otherwise enlarging the end, so that it may be drawn within the larger part of the perforation, but cannot be drawn through the smaller part.

The head 7 of the bracket is provided with a perforation 15 in direct alinement with the perforation 14 of the foot-piece 11 and has also a threaded perforation 16 a little distance from the perforation 15, in which threaded perforation a clamping-screw 17 is engaged for the purpose of holding the end of the thread against displacement after the thread has been passed upwardly through the perforation 15 under the head of the screw 17, as clearly shown in Figs. 2 and 3.

In order to be sure that the base 1 is level in the direction transverse to that in which the shadow of the sun is to be cast, I provide the base with a spirit-level 18.

The compass, or so much of it as is shown for the purpose of illustrating the practical operation of the attachment, is denoted by 19, its dial-plate by 20, and the glass over the face of the dial-plate by 21. The glass is provided directly over the center of the dial-plate with a conical or dished socket 22, (see Fig. 3,) in which the nipple 13 on the foot-piece 22 is received in order to center the thread 10 directly in alinement with the vertical axis of the compass-plate.

In operation the attachment is placed on the glass plate of the compass with the nipple 13 in the socket 22 and is then swung around by the fingers of the operator until the front of the attachment or the spirit-level lies transversely or about transversely to the direction in which the sun's shadow will be cast. If the spirit-level does not indicate that the base of the attachment is level or in a true horizontal position in a line transverse or about transverse to the direction in which the shadow will be cast, the compass should be tilted by pressure from the hand of the operator until it is level, and then the shadow (indicated at 23, Fig. 1) of the thread 10 cast by the sunlight across the face of the dial will



indicate by its position on the compass-dial the exact compass direction of the sun, or, rather, the shadow will indicate the exact opposite of the compass direction of the sun, from which the exact compass direction of the sun may be readily determined, and when this compass direction is compared with the true direction which the sun has from the point where the observation is taken, as determined from the tables computed for this purpose, it will at once be evident how much or how little the compass is in error, and the calculations for the course of the vessel may be made with this error in view.

The gist of my invention lies in means for insuring the position of that part of the attachment which casts the shadow exactly at right angles to the horizontal line transverse or substantially transverse to the direction in which the shadow is to be cast and the means for maintaining this shadow-casting part at all times perfectly straight, so that it shall cast a shadow which will truly indicate the compass position of the sun.

By the structure above described the thread may be tightened whenever from any cause it becomes slack by simply loosening the clamping-screw 17, then exerting a pull on the end of the string which passes under the head of the clamping-screw, and then tightening the said screw again. A new thread may also be readily placed in position when the old one becomes worn or frayed, and the attachment as a whole is extremely simple in structure and accurate in operation.

What I claim is—

1. The combination with the glass plate of a compass-box provided with a socket in its upper face, of a compass attachment for determining the compass position of the sun,

the said attachment comprising a bracket provided with a projection for entering the socket in the glass plate of the compass-box to center the bracket with respect to the compass-plate, a thread extending from the base to the head of the bracket, and means for permitting the adjustment of the thread to render it taut.

2. A compass attachment for determining the compass position of the sun comprising a base, a bracket consisting of legs and a head, the legs of the bracket being arranged to gradually converge from the base to the head, means for pivoting the base to the transparent plate of the compass, a spirit-level on the base, a thread for casting a shadow and means for permitting the adjustment of the thread to render it taut between the pivotal point of the base and the head of the bracket.

3. A compass attachment for determining the compass position of the sun comprising a base provided with feet, a bracket uprising from the base and having legs extending from the base to a cross-head, a foot-piece located on the under side of the base and provided with a projection for pivoting the base to the glass plate of the compass, a thread for casting a shadow, and means for permitting the adjustment of the thread to render it taut between the base and the head-piece, the said foot-piece forming, at the same time, a socket for the attachment of the thread.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 26th day of March, 1902.

JOHN L. BLISS.

Witnesses:

FREDK. HAYNES,  
HENRY THIEME.