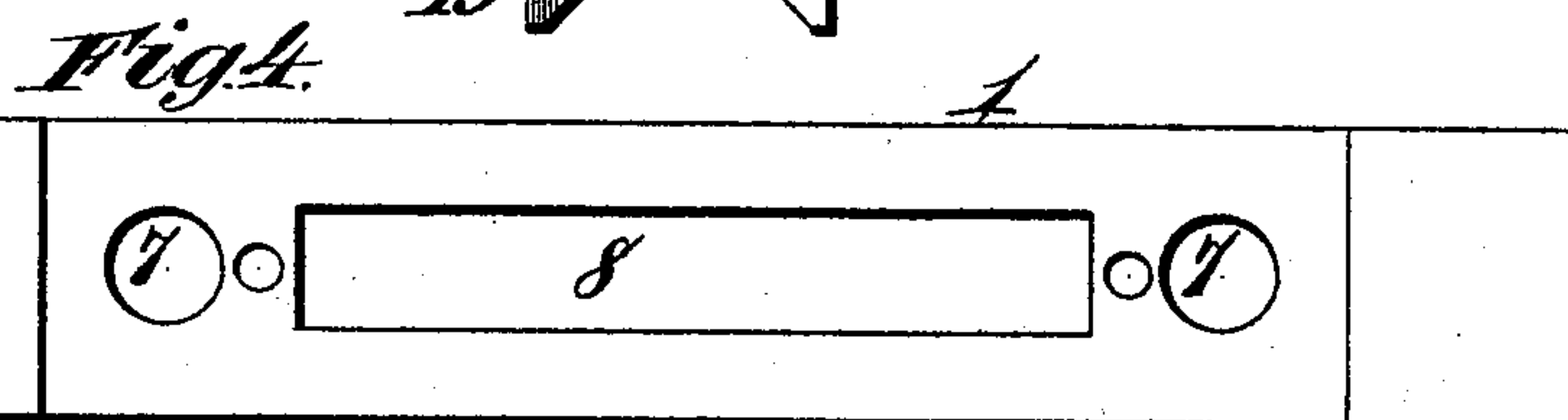
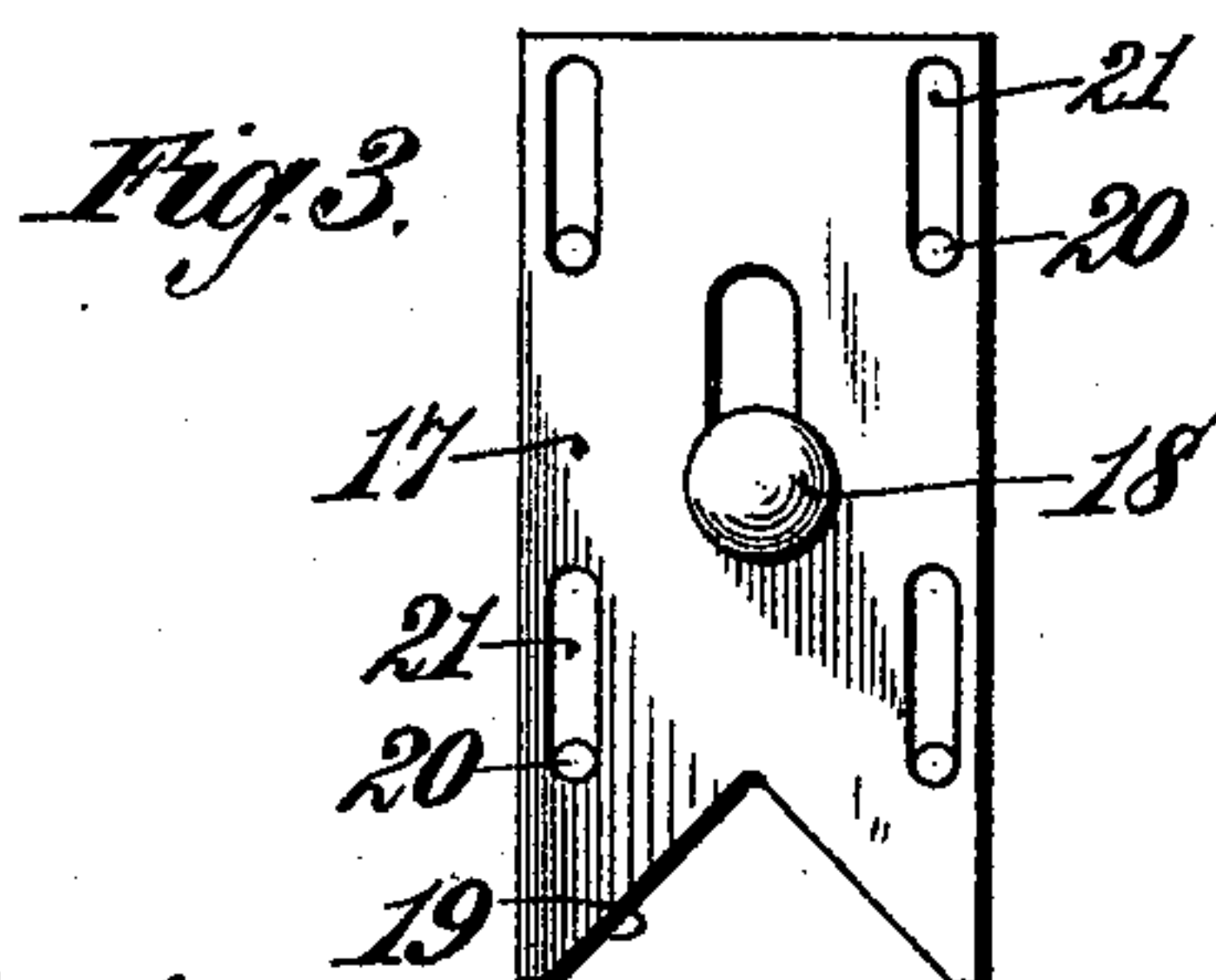
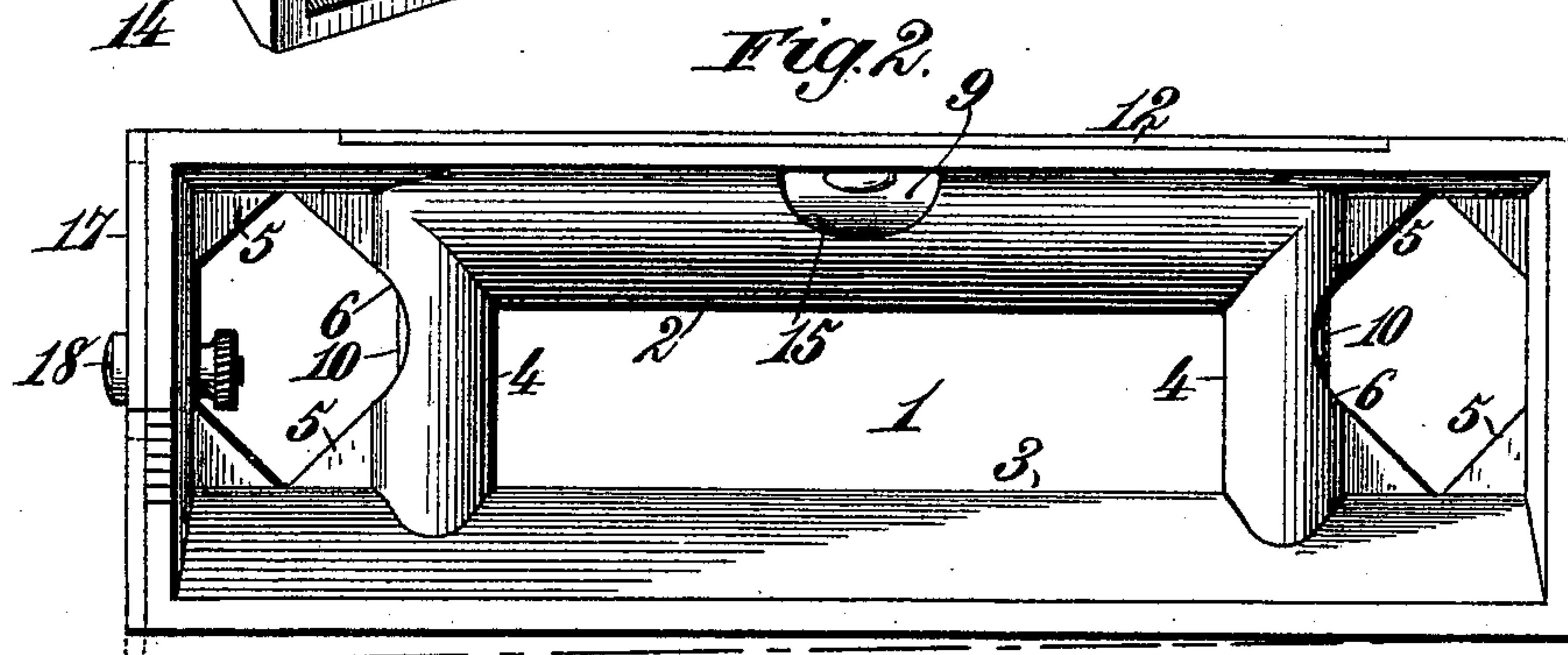
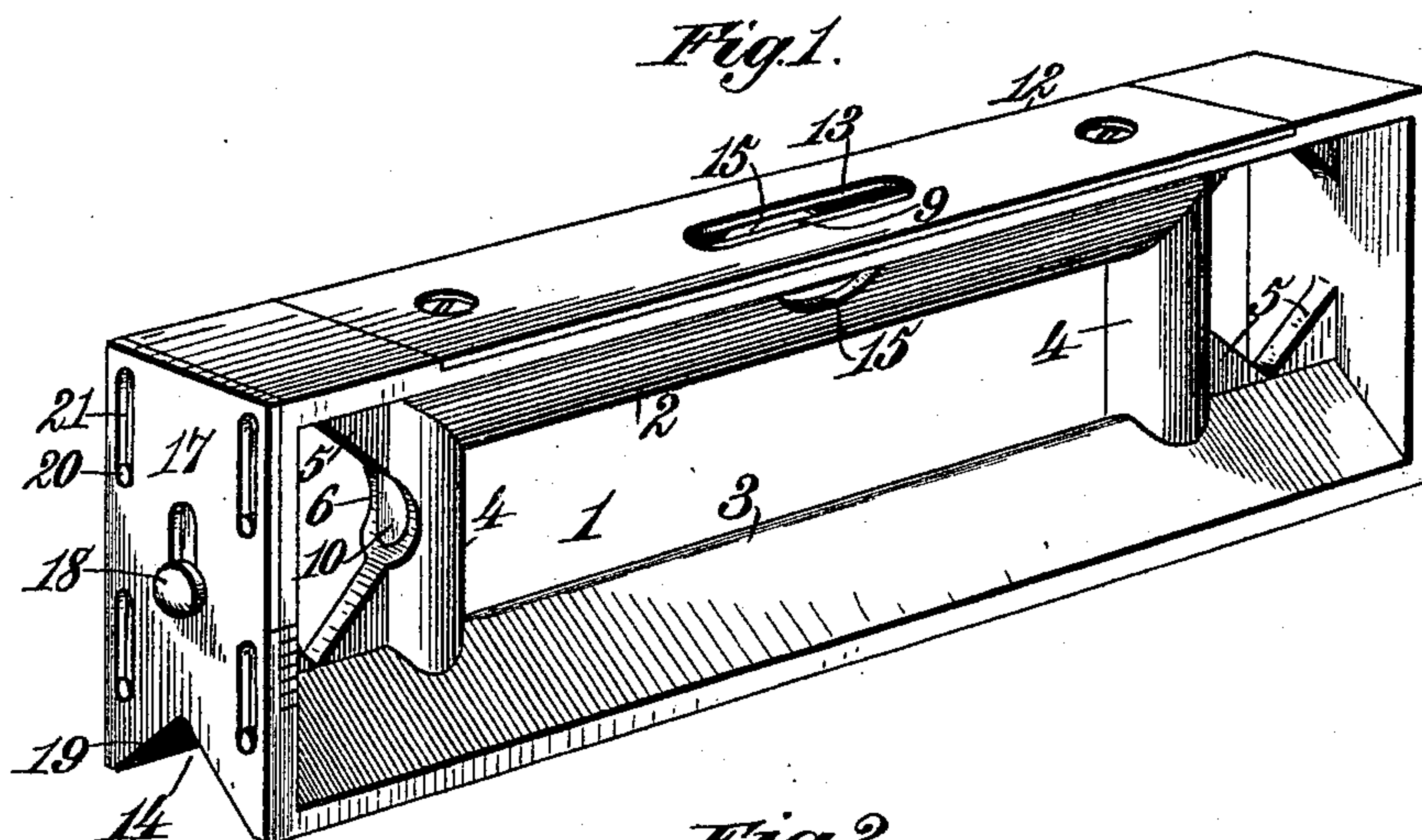


(No Model.)

S. H. BELLOWS.
SPIRIT LEVEL.

No. 582,517.

Patented May 11, 1897.



Witnesses.
Robert G. Goulet,
Albert H. Norris.

Inventor.
Stephen H. Bellows.
By James L. Norris,
Atty.

UNITED STATES PATENT OFFICE.

STEPHEN H. BELLOWS, OF ATHOL, MASSACHUSETTS.

SPIRIT-LEVEL.

SPECIFICATION forming part of Letters Patent No. 582,517, dated May 11, 1897.

Application filed January 26, 1897. Serial No. 620,805. (No model.)

To all whom it may concern:

Be it known that I, STEPHEN H. BELLOWS, a citizen of the United States, residing at Athol, in the county of Worcester and State of Massachusetts, have invented new and useful Improvements in Spirit-Levels, of which the following is a specification.

The object of my present invention is to provide a novel, simple, economical, strong, and durable spirit-level particularly designed for leveling shafting, but susceptible of use for indicating horizontal and vertical adjustments of shafting and other objects. This object is accomplished in the manner and by the means hereinafter described and claimed, reference being made to the accompanying drawings, in which—

Figure 1 is a perspective view of a spirit-level in which my said invention is incorporated. Fig. 2 is a side elevation of the same. Fig. 3 is an end elevation, and Fig. 4 is a plan view showing the frame as it appears when prepared to receive the glass tubes or bottles.

The reference-numeral 1 in said drawings indicates the body or frame of the leveling instrument, which I construct by casting it in a single piece. It has the form of a rectangular parallelogram, the two long sides being the top and bottom and the short sides the ends.

Upon the inner faces of the upper and lower members of the frame are formed integral the longitudinal tubular portion or rib 2 and the longitudinal V-shaped rib 3, the former, which is upon the upper part, being nearly semicylindrical and extending centrally as far as tubular cross-posts 4, placed at a little distance from the ends, and with which the ends of the tubular rib 2 communicate. The inner face of the lower member of the frame is substantially in the form in cross-section of an inverted V, and it preserves this form throughout, the apex coinciding with the central longitudinal line of the lower member of the frame. The posts 4 are cylindrical, or substantially so, and parallel with the ends of the frame. Between the latter and said posts openings are formed of approximately hexagonal form, four of the six sides of each opening being formed by webs 5, which unite with the upper and lower parts of the frame and with the ends of the latter and the posts

4. Between the upper and lower webs the outer face of the post is cut away to form a concave recess 6, which intersects a circular chamber 7, formed concentrically in the post. This chamber is bored or drilled in each post and is parallel with the dressed outer face of the end wall of the frame.

In the semicylindrical rib 2 I provide a chamber 8, which opens through the outer face of the upper member of the frame in the central longitudinal line of the same. This chamber contains the glass tube or bottle 9, containing the fluid in which the bubble swims. This chamber extends nearly to the open ends of the chambers 7 in the posts, which also open through the face of the upper member in order to permit the insertion of the tubes 10, which constitute the means for setting vertical shafts. When properly inserted and embedded in cement, the open tops of the chambers are covered by a face-plate 12, having a central opening 13 to give a view of the bubble.

The lower member of the frame is provided with an angular channel 14, running its whole length. The angularity of this channel is preferably ninety degrees or thereabout, but I do not restrict my invention to any special angle.

For convenience a concave recess 15 is formed in the upper side of the rib 2 beneath the center of the opening in the face-plate, so that the air-bubble can be seen from either side of the frame as well as from the top.

Upon one end of the frame I mount a plate 17, which is adjustable by means of a set-screw 18, so that its end can be projected beyond the channeled face of the lower member of the frame or returned to a position in which it registers with said face. The end of said plate is provided with a notch 19, which is similar to the channel in the part referred to, so that by adjusting the plate properly a shaft or any surface can be set at any desired inclination. The plate is guided in its adjustments by pins 20, set in the end of the frame and lying in slots 21 in the plate.

What I claim is—

1. A spirit-level, consisting of a cast-metal body having separated parallel sides, tubular transverse posts constructed with sight-openings, and a longitudinal tubular rib in-

terposed between the posts, said tubular parts being cast integral with said parallel sides, glass tubes, or bottles arranged, respectively, in the longitudinal and transverse tubular parts, and a face-plate applied to one of the parallel sides and serving to retain the glass tubes, or bottles within the tubular rib and tubular posts, substantially as and for the purposes described.

10 2. A spirit-level, consisting of a cast-metal body having parallel sides connected by tubular transverse posts and one constructed with a longitudinal V-shaped groove, a longitudinal tubular portion or rib communicating at
15 its ends with said transverse tubular posts

and with said posts formed integral with the parallel sides, said tubular parts having sight-openings, the glass tubes, or bottles arranged, respectively, in said tubular parts, and a face-plate applied to one of the parallel sides to retain the glass tubes, or bottles in position, and having a longitudinal sight-opening, substantially as and for the purposes described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

STEPHEN H. BELLOWS.

Witnesses:

ALBERT F. ROBBINS,
ANDREW J. HAMILTON.