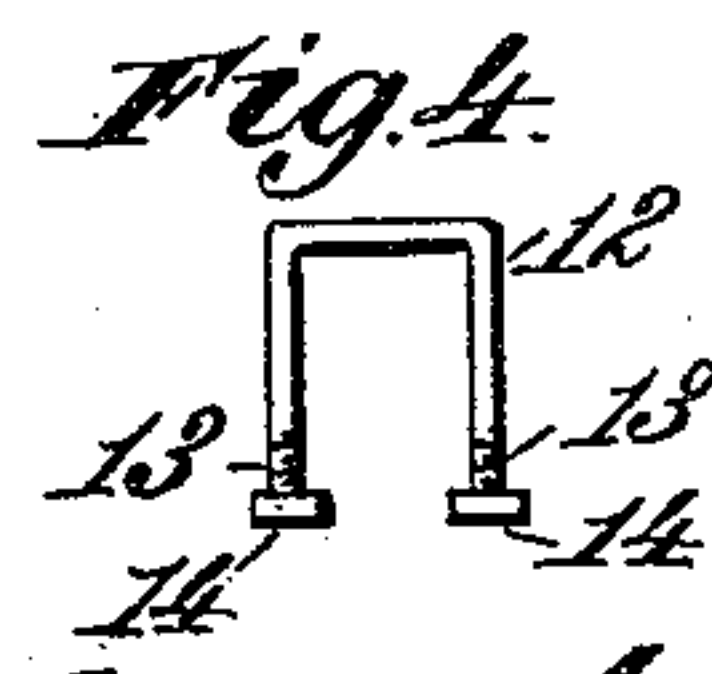
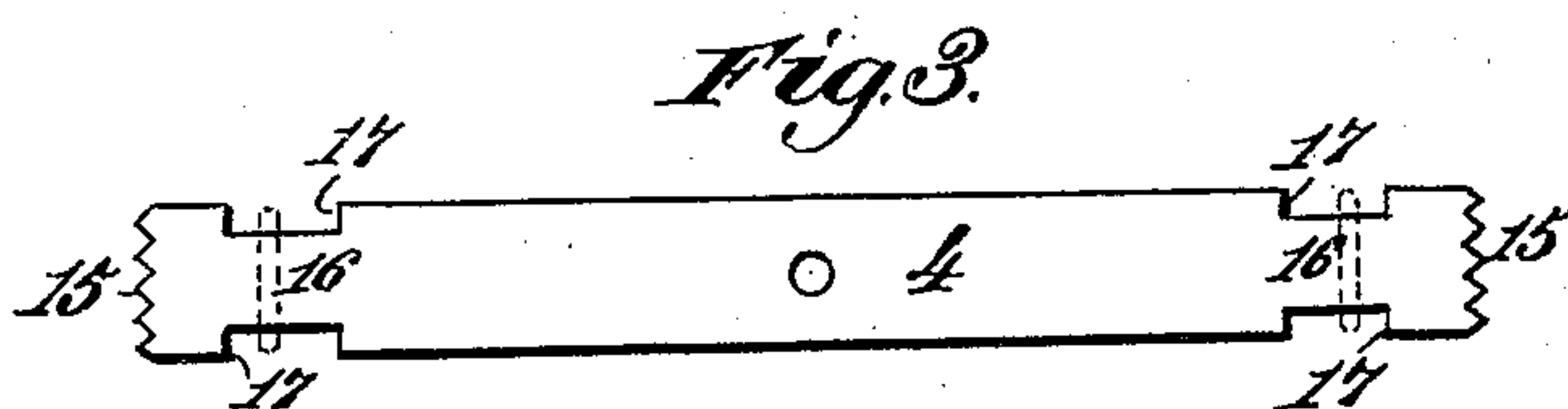
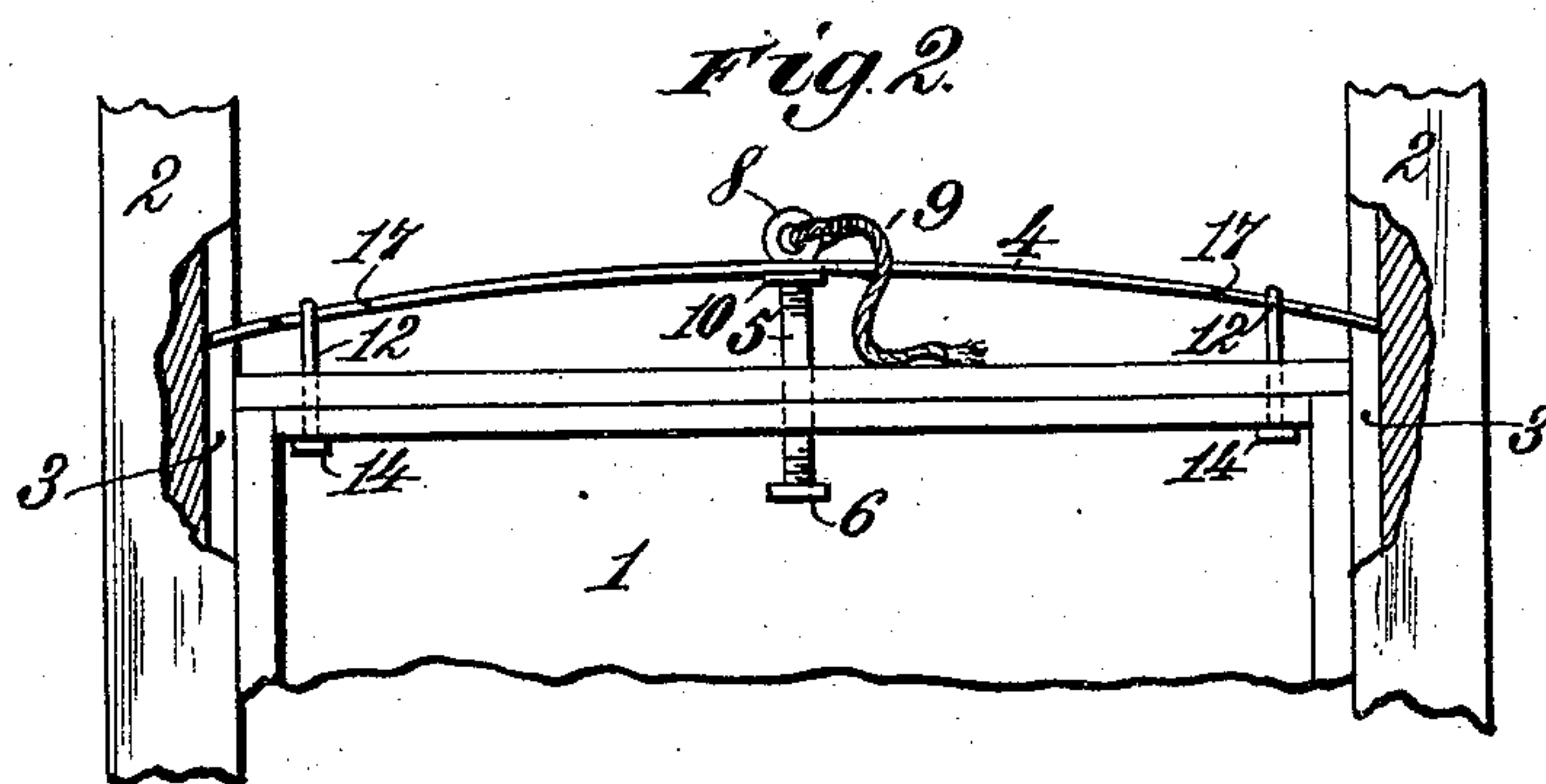
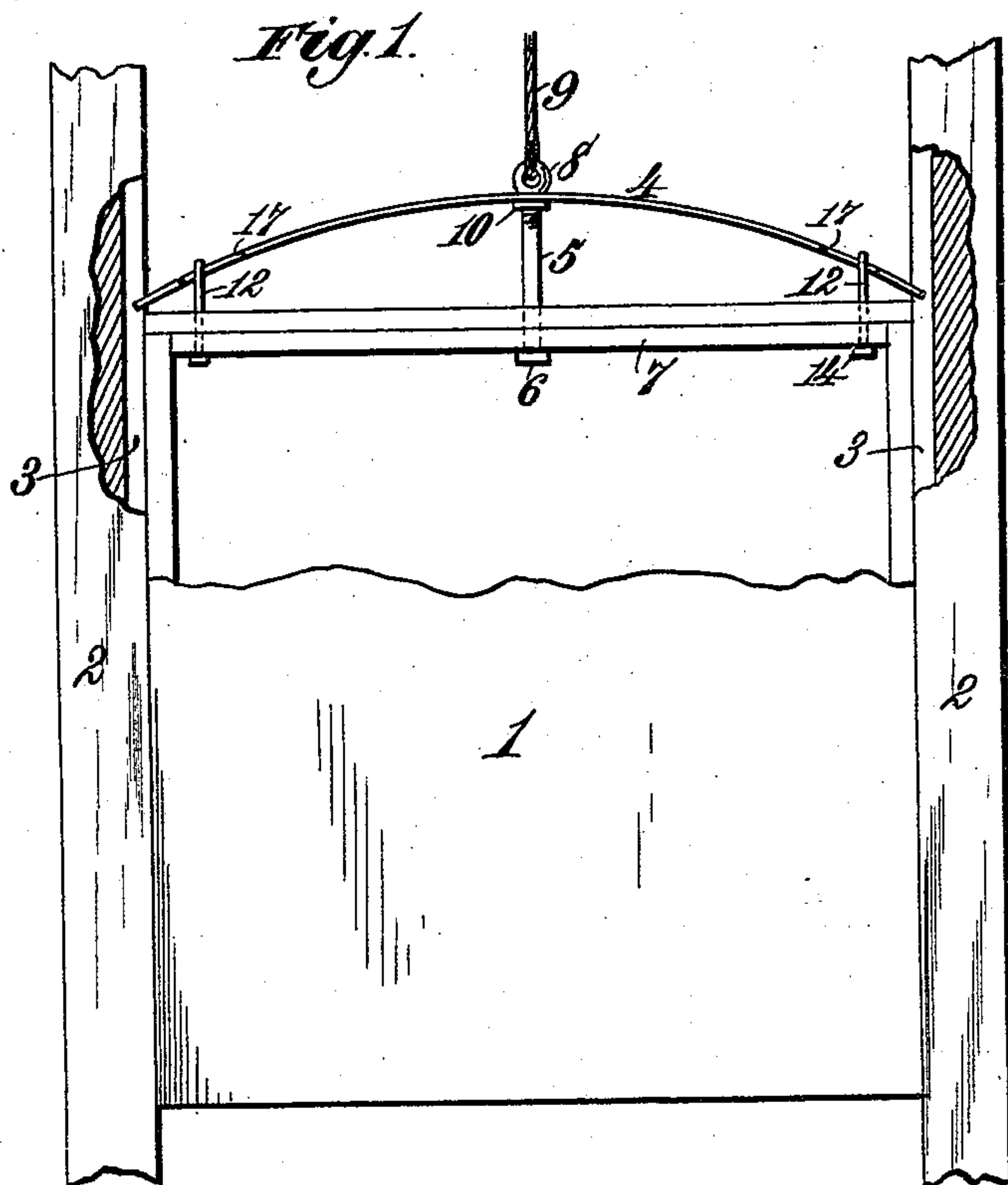


(No Model.)

H. K. SMITH.
SAFETY CATCH FOR DUMB WAITERS.

No. 485,569.

Patented Nov. 1, 1892.



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UNITED STATES PATENT OFFICE.

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SAFETY-CATCH FOR DUMB-WAITERS.

SPECIFICATION forming part of Letters Patent No. 485,569, dated November 1, 1892.

Application filed February 29, 1892. Serial No. 423,206. (No model.)

To all whom it may concern:

Be it known that I, HARRIS K. SMITH, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented new and useful Improvements in Safety-Clutches for Dumb-Waiters, of which the following is a specification.

This invention has for its objects to provide a novel, simple, and efficient spring-clutch device for stopping the descent of a dumb-waiter in the event of breakage of the hoisting rope or cable and to provide an arrangement of parts for this purpose which will not materially increase the expense of the apparatus, which will not in any way interfere with the carrying capacity of the dumb-waiter or offer an obstruction to the convenient loading and unloading of the same, which can be readily applied to dumb-waiters now in use in wells of ordinary construction, and wherein the clutch device is susceptible of engaging the usual vertical guides or the brickwork or other walls of the well to stop the descent of the waiter if the hoisting rope or cable breaks.

To accomplish these objects, my invention consists in the combination, with a dumb-waiter or car, of a bolt or rod adapted to slide vertically in the top cross bar or frame thereof and secured to the hoisting rope or cable, a half-elliptic clutch-spring arranged above the dumb-waiter or car, attached at its center to the upper end of the bolt or rod to be held under tension by strain thereon and having its ends resting on the said top cross bar or frame, and guide staples or yokes acting as retaining-guides for the opposite ends of the clutch-spring and serving to sustain the dumb-waiter or car if the hoisting rope or cable breaks and the spring is projected at its ends into engagement with parts of the well.

The invention is illustrated by the accompanying drawings, in which—

Figure 1 is a detail side elevation of a dumb-waiter provided with my improved spring-clutch device, parts of the guide-posts being broken away and the clutch device being in normal or inoperative position. Fig. 2 is a detail view showing portions of the dumb-waiter and guide-posts with the clutch-spring acting to stop the descent of the waiter when the hoisting rope or cable is broken. Fig. 3

is a detail plan view of the clutch-spring engaged with the guide staples or yokes, and Fig. 4 is a detail side view of one of the guide staples or yokes.

In order to enable those skilled in the art to make and use my invention, I will now describe the same in detail, referring to the drawings, wherein—

The numeral 1 indicates a dumb-waiter, and 2 the vertical guide-posts for the same, which parts may be of any construction suitable for the conditions required; but, as here shown, the inner sides of the guide-posts are constructed with vertical grooves or guide-ways 3 to receive the ends of a half-elliptic clutch-spring 4, which is attached at its center to the upper end of a bolt or rod 5, having a head 6 at its lower end and loosely extending through the top cross bar or frame 7 of the dumb-waiter. The upper extremity of the rod or bolt is provided with an eye 8, to which is secured the hoisting rope or cable 9. The rod or bolt is preferably screw-threaded and provided with a nut 10 for the purpose of clamping the central portion of the clutch-spring against the eye 8 or other shoulder at the upper end of the bolt or rod. The top cross bar or frame 7 is provided at opposite end portions with guide staples or yokes 12, the arms of which are screw-threaded, as at 13, and extended through the cross bar or frame to receive nuts 14, by which the staples or yokes are secured in position. The clutch-spring is provided with toothed extremities 15, and in juxtaposition thereto the edges of the spring are formed with recesses to provide a contracted portion 16 and offsets 17, which contracted portions extend through the guide staples or yokes, so that the offsets operate as stops against the latter to prevent displacement of the spring. The bolt or rod 5 is adapted to slide vertically in the top cross bar or frame 7, and when the parts are in operative position for the ascent and descent of the dumb-waiter the latter is sustained by the head 6 of the bolt or rod 5, and consequently the clutch-spring 4 is held under tension in the arched form illustrated by Fig. 1. If the hoisting rope or cable should break, the bolt or rod 5 instantly slides downward by the resiliency of the clutch-spring and the ends of

the latter are projected into the grooved guideways 3 to bite against the surfaces thereof for the purpose of stopping the descent of the waiter. When the clutch-spring 5 is acting to stop the descent of the waiter, the parts are in the position shown in Fig. 2 and the guide staples or yokes 12 serve as suspending-supports for the dumb-waiter and at the same time tend to project the end portions of the clutch-spring into firmer engagement with the guide-posts.

I have illustrated the clutch device as acting upon vertical guide-posts, which are intended to be arranged within and form parts 15 of the usual well in which the dumb-waiter travels; but it is possible for the clutch-spring to be so arranged that its toothed extremities will engage the brickwork or other walls of the well, and consequently I do not confine 20 myself to the grooved guide-posts.

In my invention the clutch-spring is arranged wholly above the dumb-waiter, and consequently it affords no obstruction to the convenient loading and unloading of the same, 25 which is a desirable feature in that if clutch devices are arranged beneath the top cross bar or frame of a dumb-waiter they interfere with the carrying capacity thereof and frequently render it inconvenient to load the 30 waiter to its full capacity.

The construction and arrangement described and shown provides a very simple and efficient spring-clutch particularly designed for dumb-waiters where complicated or expensive 35 clutch devices cannot be employed, as in ordinary passenger-elevators, owing to their expense, which would materially increase the cost of this type of apparatus.

Having thus described my invention, what I claim is—

1. The combination, with a dumb-waiter, of 40 a bolt or rod slidable in the top cross bar or frame thereof and secured to the hoisting rope or cable, a half-elliptic clutch-spring located wholly above the waiter, attached at its center 45 to the upper end of the bolt or rod to be held under tension by strain thereon and having toothed ends for engaging the guideways of the waiter, and guides rising from the top cross bar or frame of the waiter, engaging 50 the half-elliptic clutch-spring and serving to sustain the waiter if the hoisting rope or cable breaks and the toothed ends of the spring are projected into engagement with the guideways, substantially as described. 55

2. The combination, with a dumb-waiter, of a bolt or rod slidable in the top cross bar or frame thereof and secured to the hoisting rope or cable, a half-elliptic clutch-spring arranged 60 above the waiter, attached at its center to the upper end of the bolt or rod and having its end portions provided with recesses to form offsets, and guide staples or yokes secured to the top cross bar or frame, engaging the 65 spring between the offsets thereof and serving to sustain the dumb-waiter if the hoisting rope or cable breaks and the spring is projected at its ends into engagement with parts of the well, substantially as described.

In testimony whereof I have hereunto set 70 my hand and affixed my seal in presence of two subscribing witnesses.

HARRIS K. SMITH. [L. S.]

Witnesses:

ALBERT H. NORRIS,
J. A. RUTHERFORD.