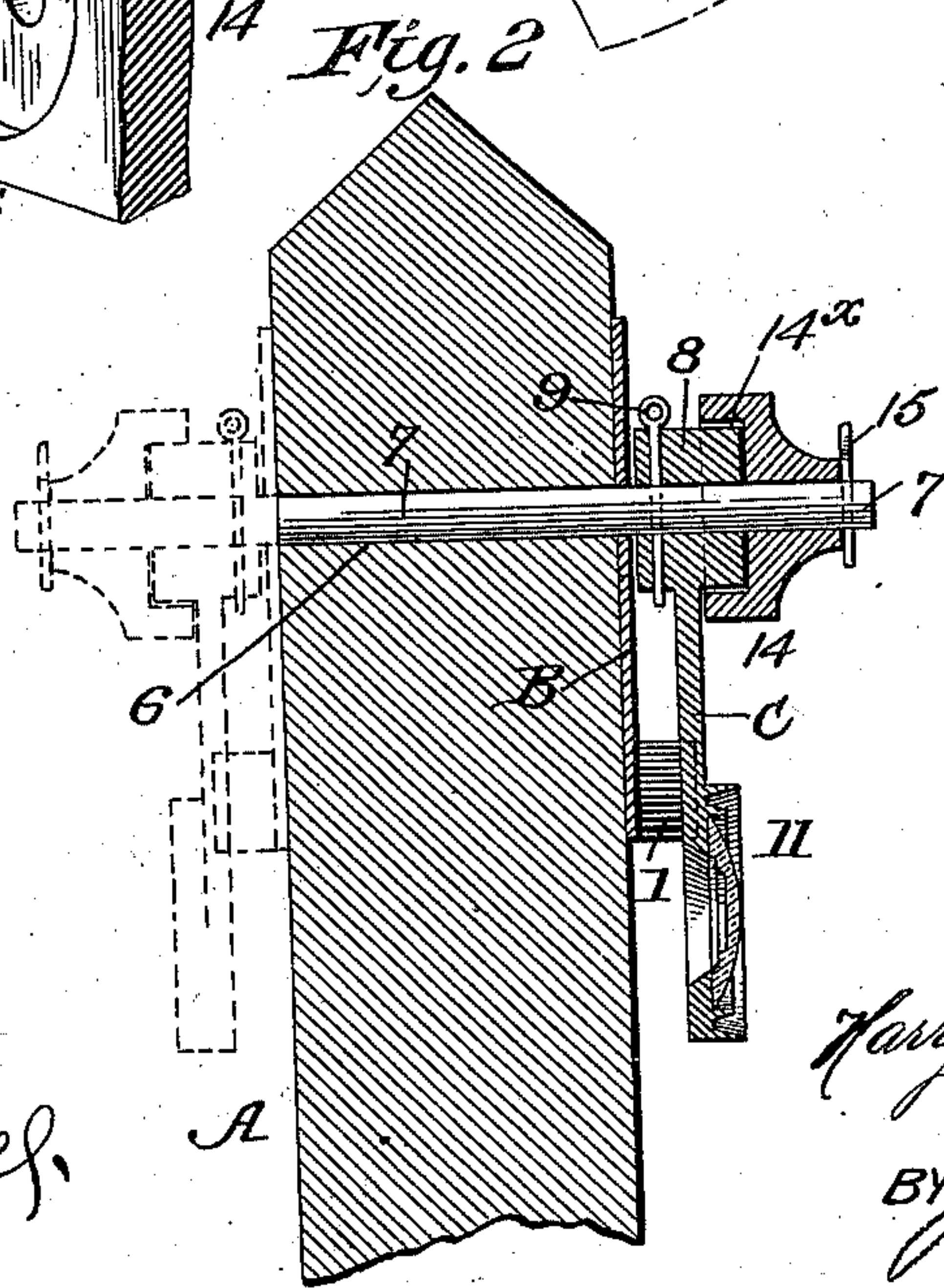
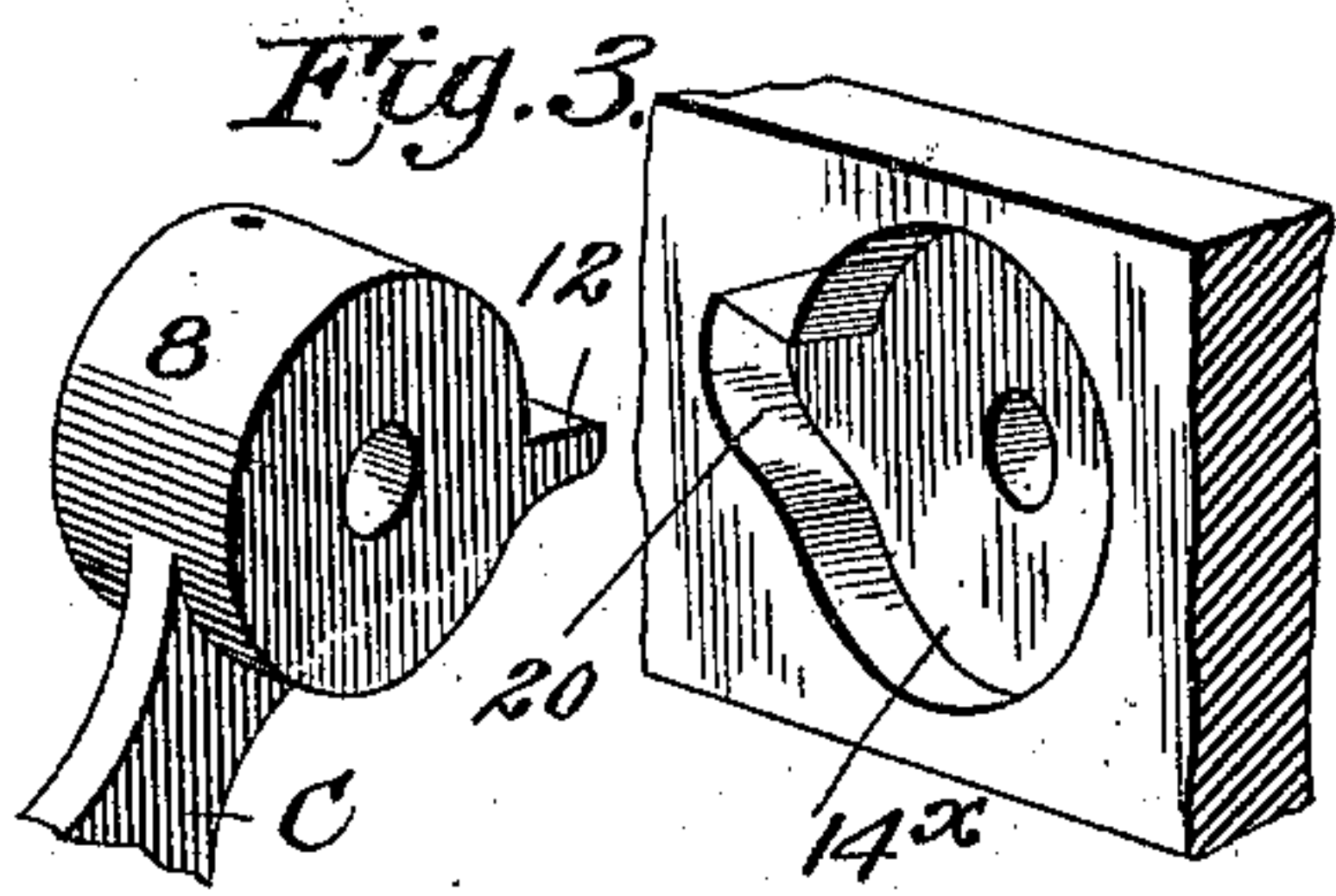
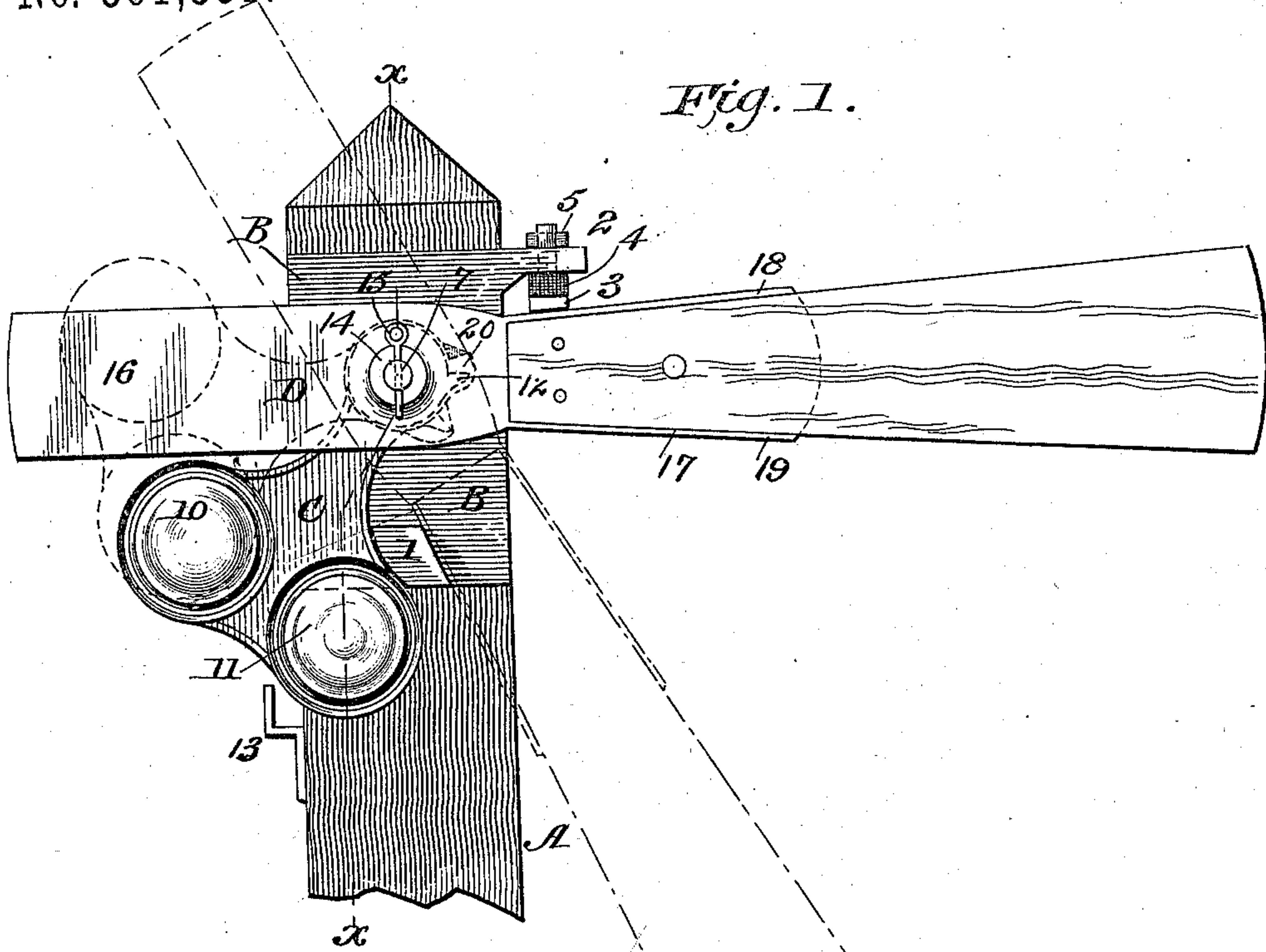


(No Model.)

H. McL. ABERNETHY.
RAILWAY SEMAPHORE SIGNAL.

Patented June 9, 1896.

No. 561,551.



WITNESSES:

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UNITED STATES PATENT OFFICE.

HARRY MCLEAN ABERNETHY, OF BEAVER FALLS, PENNSYLVANIA,
ASSIGNOR OF ONE-HALF TO H. H. FULTON, OF SAME PLACE.

RAILWAY SEMAPHORE-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 561,551, dated June 9, 1896.

Application filed May 9, 1895. Serial No. 548,634. (No model.)

To all whom it may concern:

Be it known that I, HARRY MCLEAN ABERNETHY, a citizen of the United States, residing at Beaver Falls, in the county of Beaver and State of Pennsylvania, have invented certain new and useful Improvements in Railway Semaphore-Signals; and I do 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 appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention has relation to that class or style of railway-signals wherein a pivotally-mounted semaphore is used to indicate the signal by day, and illumined lenses, of proper color and associated with the semaphore, are used to indicate the signals at night; and the object is to provide a railway-signal which will accurately and promptly furnish the required indications of "safety" and "danger," and to associate with the swinging or tilting semaphore a lens-signal which is independently mounted from but arranged to be operated by the movement of the semaphore.

A further object of my invention is to construct a simple, economical, and durable signal device of such a character that the said signal device may be readily attached to and removed from any of the ordinary signal-posts now in use.

The above-named objects and such others as may occur from the ensuing description are attained by my improvements, illustrated in the accompanying drawings, in which—

Figure 1 is a view of the upper portion of the signal pole or post having my improved signaling apparatus connected thereto, the "safety" position of the semaphore being shown in dotted lines. Fig. 2 is a vertical section taken on the line xx of Fig. 1, the adaptability of the apparatus to either side of the pole being indicated by showing a lens-frame in dotted lines; and Fig. 3 is an enlarged perspective view of my improved lens-frame hub and the cored-out or recessed hub of the semaphore-casting.

A designates the signal staff or pole, of the usual construction and dimensions, capable

of holding and sustaining the mechanism constituting the signal and its operating devices. To the face of the pole A is secured a substantial metal plate B, made strong enough to withstand the strains to which it may be subjected by the movements of the signals which it supports. On the plate B, at the lower portion thereof, is formed a lug or stop-piece 1, the respective sides of which are adapted to hold the arms of the signals, as hereinafter specified, and at the upper portion of the plate is formed an extension or arm 2, arranged in alinement with the semaphore and having a hole formed therein, in which is disposed a buffer 3, on the stem of which, between the head of the buffer and the lower face of the arm 2, is arranged an elastic cushion or spring 4. The buffer is held in place by means of a key 5 or any suitable fastening.

Through the signal-pole and plate B is a hole 6, in which a shaft or supporting-bar 7 has its bearings, and on the projecting portion of this shaft 7, adjacent to the plate B, is detachably mounted to turn with the shaft a lens signal or frame C, the hub 8 of which I have shown as being keyed to the shaft by a pin 9, projected through the hub and passed through the shaft; but any other proper and usual means for keying or fastening the hub to the shaft may be used. The lens-signal in this instance is shown as consisting of an arm having two lenses 10 11 framed therein; but it is readily perceived that only one lens may be used if the requisites of the service will be fulfilled thereby.

On the hub of the lens-signal C is formed a stop-lug 12, which engages with a counter-stop in the hub, band, rim, or shell of the semaphore. The arm of the lens-signal when in normal or "danger" position rests on the side of the lug or stop-piece 1, substantially as shown in the drawings, and it will be perceived that when it is in this position there is no strain whatever on the semaphore, but the latter is supported by the shaft. At a convenient point on the signal-post is fixed a lamp support or bracket 13, on which or to which the lamp (not shown) may be secured in a position to throw the rays of its light through a lens of the lens signal or frame.

D designates the semaphore-casting, consisting of a hub 14, cored out substantially as shown at 14^x, so that its hub, band, rim, or shell shall take loosely over the hub of the lens-signal. This casting D has its hub journaled or mounted on the shaft 7 and is secured thereon against lateral displacement by a pin 15 or other suitable means. From the hub 14 extends the counterbalance-arm 16 of the semaphore, and the other arm, 17, thereof is formed to hold the blade of the semaphore as usual.

I have shown the arm 17 as having edge flanges 18 19 along its upper and lower edges, between which the semaphore is held against the face of the casting. The bore of the hub 14 is recessed, as at 20, adjacent to the stop-piece 12, as clearly shown in Figs. 1 and 3, the upper portion of the recess being flattened to aline with the face of the lug 12 when the two surfaces are in contact. When the semaphore stands at "danger," as shown in Fig. 1 of the drawings, the upper edge of the blade abuts against the buffer, and when swung down to "safety," as seen in dotted lines, it rests on the inclined edge of the stop-piece or lug 1.

By the construction and arrangement of elements hereinbefore described it is intended to obviate the usual sagging of the semaphore, which happens when no provision is made to prevent it. If the connections in the ordinary constructions become loose from wear or bent or distorted, so as to change the length thereof, or even broken, the semaphore will descend from the horizontal position or "danger" position to a position of uncertainty; but by the connections utilized in my improvements the semaphore will not affect the lens-signal on account of any disconnection or distortion of the mechanism connecting the same with the operator. The semaphore-arm, owing to the counterbalancing weight or casting, normally rests in a horizontal position and will so remain regardless of its connections or operating mechanism until intentionally moved by the operator, and should it assume under any circumstances what is termed a "sagging" position it will not affect the signal furnished through the medium of the lenses, since contact is not made with the lens-frame or lug unless the operator intends to furnish a definite or "safety" signal.

When the safety-signal shall have been furnished by the operator and it is desired to return the semaphore to its normal position, it is only necessary to release the operating-lever, when said semaphore will automatically return to the "danger" position, owing to the counterbalance, and one arm of the semaphore-casting will contact with the buffer, and thus avoid the strain on the wooden semaphore-arm to which the latter is ordinarily subjected.

The semaphore as shown in Fig. 1 indicates "danger," and when it is desired to move the semaphore to a position of "safety" the usual

connecting-rods are operated to throw the signal to the position shown in dotted lines. It will be observed that as the semaphore moves to the inclined position the lug and shoulder of the recess of the respective hubs engage, and after this engagement the lens-signal arm is carried upward until the lower edge of the semaphore lodges against the edge of the lug or stop-piece on the face of the supporting-plate, and, further, that in the normal positions of the respective signal-arms the lug on the hub of the lens-signal and the bearing-surface of the recess in the hub of the semaphore stand free and disengaged from each other, in which position the lens-signal arm exerts no strain upon the semaphore, but rests against the lug or stop-piece on the supporting-plate, as clearly illustrated in the drawings.

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

1. In a railway-signal, the combination with the signal-post, of a plate secured thereto, a shaft journaled through the plate and post, a lens-signal fixed on the shaft and having a stop-lug formed on its hub, and a semaphore journaled on the said shaft and having a hub formed with an annular rim-flange to set over and surround the hub of the lens-signal and having a shouldered recess in the rim of the hub to engage with the stop-lug on the hub of the lens-signal, substantially as described.

2. In a railway-signal, the combination with a signal-post, of a plate secured to the post, a shaft projecting through the plate and having its bearing thereon, a lens-signal fixed on the shaft and provided with a stop-lug adjacent to its hub, and a semaphore journaled on the shaft and having a recess formed in its hub, whereby when the semaphore is lowered to the "safety" position the lens-signal will be raised, substantially as described.

3. In a railway-signal, the combination with the signal-post, of a plate secured thereto and formed with a stop-piece at its lower portion, a shaft journaled in and projecting from the plate, a lens-signal fixed to the shaft and resting normally against the stop-piece on the plate, and having a stop-lug on its hub, and a semaphore journaled on the said shaft and having a recess in its hub to be engaged by the lug on the lens-signal and adapted to rest against the stop-piece on the plate when standing at "safety," substantially as described.

4. In a railway-signal, the combination with the signal-post, of a plate secured thereto and formed with a stop-piece at its lower portion against which the signal-arms lodge when at their lower positions, and an arm projecting from the top of the plate in alinement with the blade of the semaphore, a shaft journaled in and projecting from the plate, a lens-signal arm mounted on the shaft to turn therewith, and having a lug projected from its hub, a semaphore mounted on the shaft to turn

thereon and formed with a recess in its hub arranged to be engaged by the lug on the hub of the lens-signal, and a spring-buffer in the arm of the plate disposed in the path of the semaphore, substantially as shown and described.

5. In a railway-signal, the combination with the signal-post, of a shaft journaled therein, a semaphore-casting carried by said shaft, said semaphore-casting being provided with a recess in its hub, and a lens-signal having a lug projected from its hub, substantially as shown and described.

6. In a railway-signal, the combination with the signal-post, of a plate secured thereto, a shaft journaled therein, a lens or signal frame suitably keyed to said shaft adjacent to said plate, a semaphore supported by said shaft, loosely journaled thereon and adjacent to the said lens or signal frame, and means on the hub of the lens-frame adapted to engage with the said semaphore, substantially as shown and described.

7. In a railway-signal, the combination with the signal-post, of a plate secured thereto provided at its upper portion with an extension and at its lower portion with a lug or stop-piece, a shaft journaled in said post and projecting from the plate, a lens signal or frame suitably secured to said shaft, and a semaphore supported by the shaft and loosely journaled thereon, substantially as described.

8. In a railway-signal, the combination with the signal-post, of a shaft journaled therein, a lens signal or frame suitably secured thereto, a semaphore supported by said shaft and loosely journaled thereon, and a stop for limiting the downward movement of both the semaphore and lens-signal, substantially as described.

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

HARRY McLEAN ABERNETHY.

Witnesses:

C. F. COX,

J. A. ABERNETHY.