No. 871,534. PATENTED NOV. 19, 1907.

W. H. TAYLOR.

TIME LOCK.

APPLICATION FILED JULY 30, 1907.

3 SHEETS—SHEET 1.

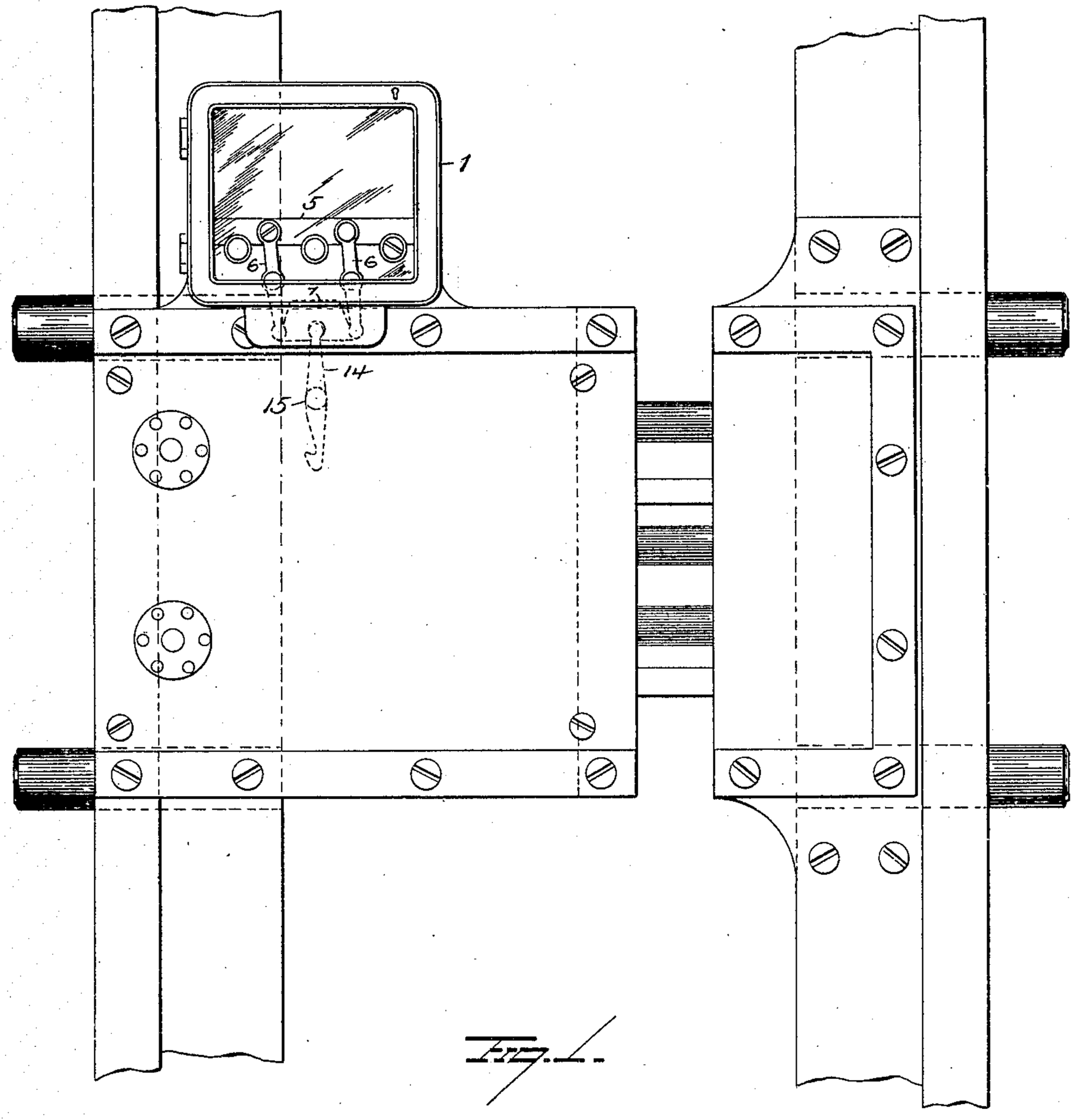

Fig. 1.

WITNESSES

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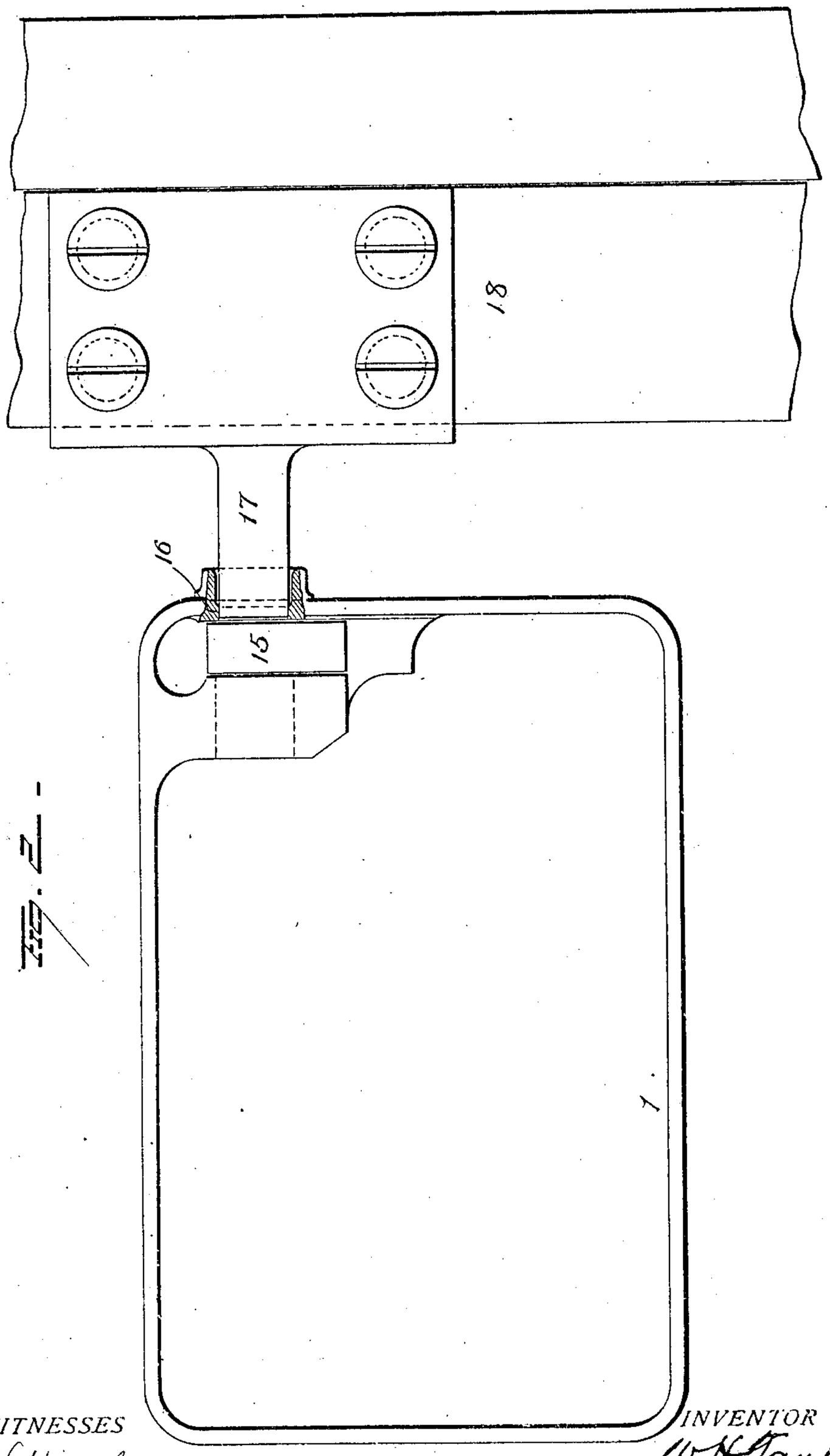

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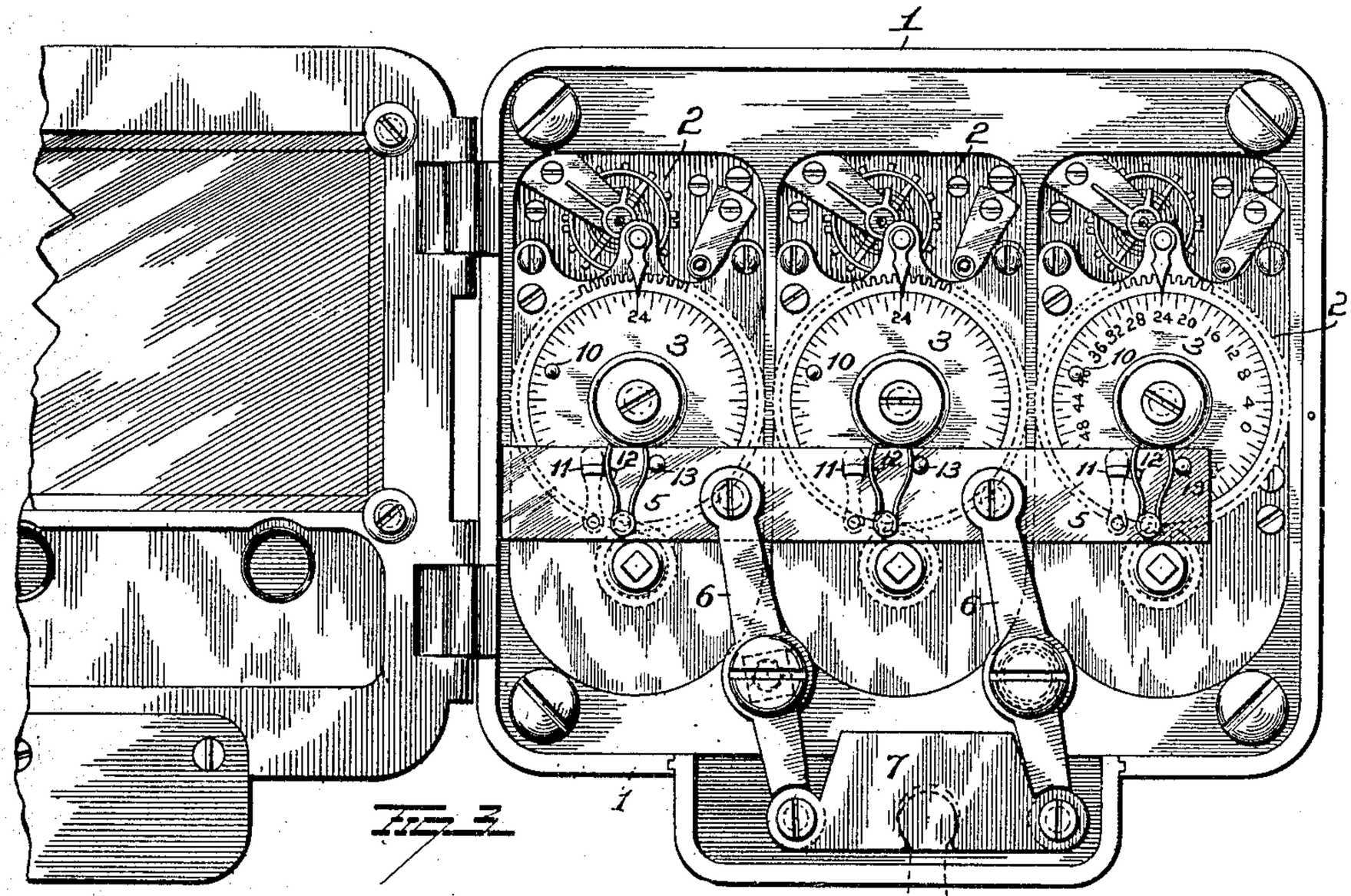

FIG. 3.

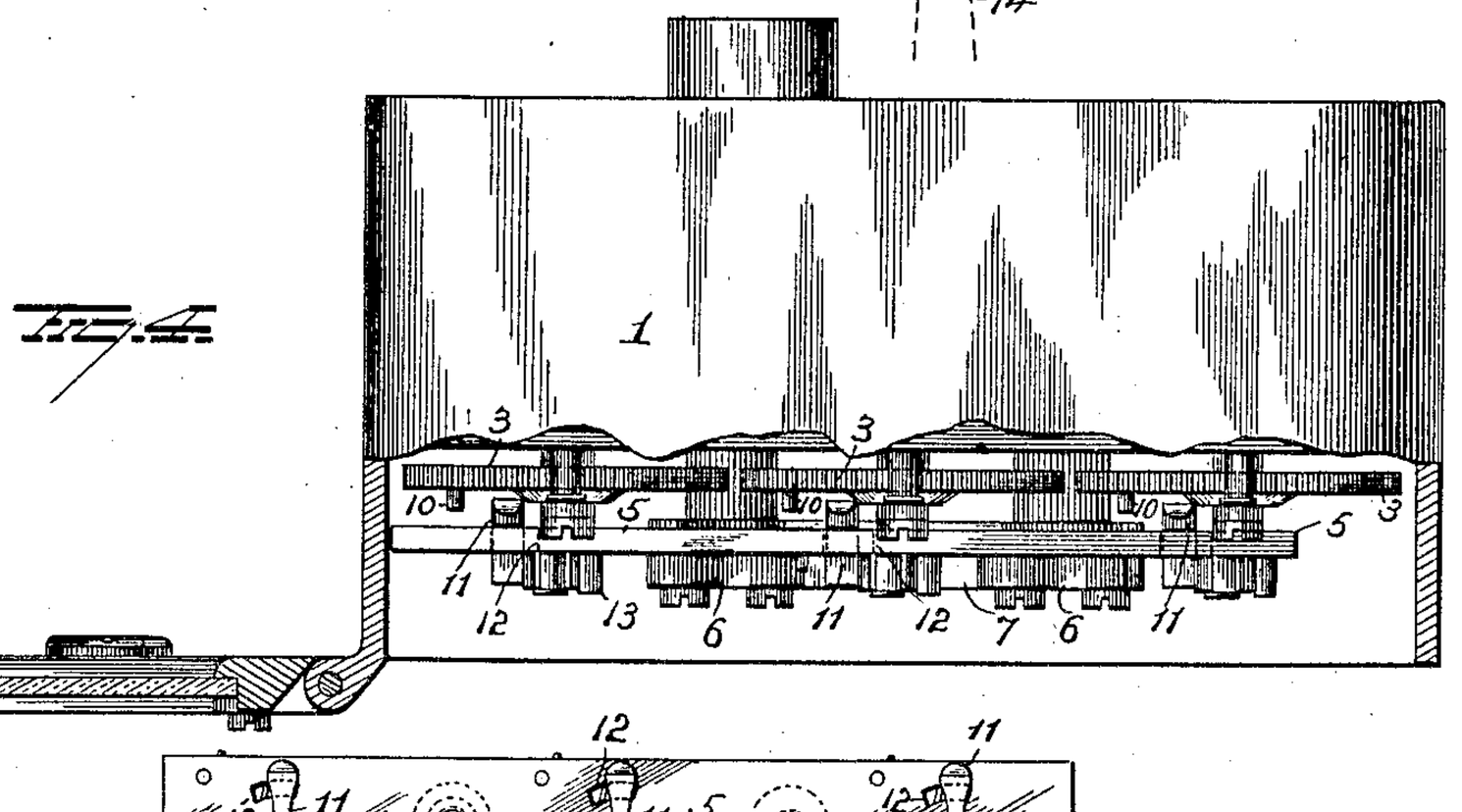

FIG. 4.

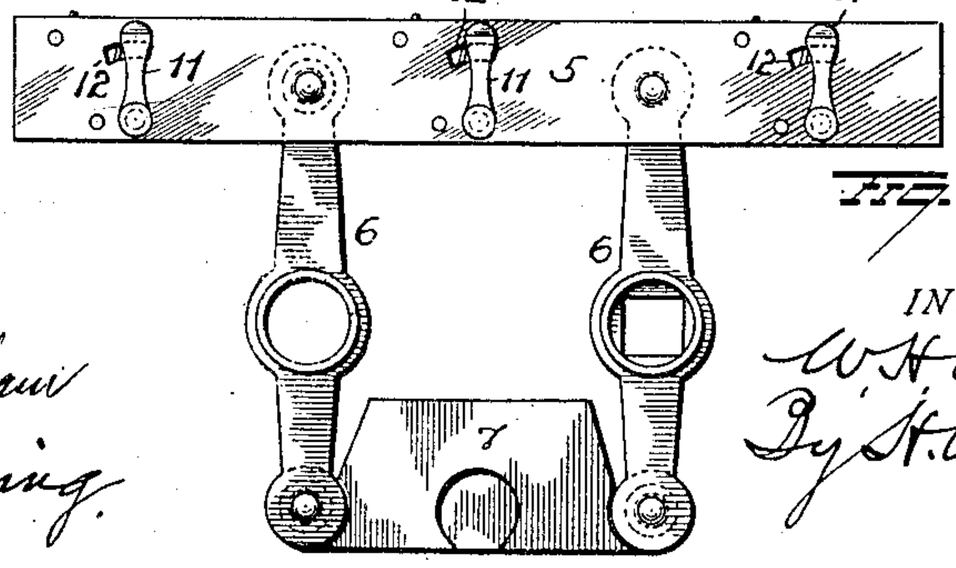

FIG. 5.

WITNESSES

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UNITED STATES PATENT OFFICE.

WARREN H. TAYLOR, OF STAMFORD, CONNECTICUT, ASSIGNOR TO THE YALE & TOWNE MANUFACTURING COMPANY, OF STAMFORD, CONNECTICUT.

TIME-LOCK.

No. 871,534. Specification of Letters Patent. Patented Nov. 19, 1907.

Application filed July 30, 1907. Serial No. 386,307.

To all whom it may concern:

Be it known that I, WARREN H. TAYLOR, of Stamford, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Time-Locks; 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 appertains to make and use the same.

My invention relates to an improvement in time locks.

Time locks as constructed have a plurality of time movements, each having a rotary front dial provided with a tripping pin, each pin adapted to engage a lug on the movement bar, the movement of the latter, at the proper time effecting the release of the locking mechanism as is well understood.

It is conceivable, that if the lugs on the movement bar be stationary or rigidly fixed to the bar, as has been the universal custom, and the time movements not being exactly in time with one another, or not being wound up exactly alike, the pin on the front dial of one movement, would make contact with its lug on the rear face of the movement bar, in advance of the others, thus throwing all the work on the one movement. If under such conditions the movement bar be blocked, or greater power required to move it than can be exerted by one time movement alone, it might result in a stoppage of this one movement, before the next fastest movement could catch up to it. This second time movement, would then have all the work to do and might in turn stop, thus throwing the entire work on the third movement which would also be likely to stop.

The object of the present invention is to minimize the danger of stoppage of any of the time movements, in advance of the engagement of the tripping pins of the other movements with the lugs on the movement bar, and my invention consists in yielding means interposed between the time work mechanism and a part operated thereby, whereby if the several time movements are not accurately set, and the movement bar be blocked, a part of the mechanism actuated by the tripping pins on the front dials, will give or yield, thereby permitting the tripping pin on the fastest time movement to continue its movement, until the second and third movements have caught up and are exerting their pressure upon their respective lugs on the movement bar.

My invention further consists in the parts and combinations of parts as will be more fully described and pointed out in the claims.

In the accompanying drawings; Figure 1 is a view in elevation showing the time lock combined with an automatic unlocking device which at the proper time and when released by the time lock furnishes the power to withdraw the locking bolts. Fig. 2 is a similar view showing the time lock having a device for dogging the bolt work mechanism, the latter being operated by hand. Fig. 3 is a face view of my time lock. Fig. 4 is a view in elevation of the front dials, movement bar, and supporting levers for the latter, the casing being broken away so as to expose the parts and Fig. 5 is a view of the rear face of the movement bar showing the yielding lugs supporting levers and secondary bar.

In the drawings I have shown a triple time lock movement, but I would have it understood that double or quadruple movements may be used.

1 represents a casing, and 2, the time lock movements therein. The movements shown, are of the Yale & Towne Manufacturing Company type, each being provided with a front dial 3 carrying a tripping pin 10.

5 is the movement bar pivotally mounted on the upper ends of the levers 6, the latter being pivotally mounted intermediate their ends, and connected at their lower ends by a secondary bar 7 of substantially equal weight to the operating bar so as to counterbalance same.

The front dial of each time movement is provided with a tripping pin 10, each of which moves in the path of a lug 11, the several lugs being pivotally mounted on the rear face of the movement bar 5. The upper end of each lug 11 is bent at right angles to its body, and said bent ends pass through elongated slots 12 in the movement bar and project beyond the front face thereof.

Secured to the front face of the movement bar are a series of approximately V-shaped springs, one for each time movement. One member of each spring bears against a pin 13 secured to the front face of movement bar 5, while the other member of each spring bears

against the projecting end of its pivoted lug and yieldingly holds same against one end of the slot, and permits the lug to yield in the direction of travel of the tripping pins on the front dials. This yielding movement of the lugs can represent the distance traveled in one or more hours, by the tripping pin on the dial, hence it will be seen that if one movement be faster than the other, and movement bar 5 be blocked from any cause whatsoever, the spring will yield, thus permitting the dial of the faster movement to continue until the tripping pins of one or both of the other dials engage their respective lugs on the movement bar, thus transmitting to the latter, the combined power of all the springs. Each V-shaped spring is strong enough to permit the tripping pin 10 to move the movement bar, when said pin engages the spring, and it is only when the movement bar is blocked that any compression of the spring takes place.

Under ordinary conditions a pull of less than one pound is required to release the bolt mechanism; each time movement is tested under a pull of not less than ten pounds and will continue to its unlocking point under this dead pull, consequently with the three movements, I get a combined pull exceeding thirty pounds which is an ample margin of safety, and by introducing the yielding lugs between the dials and the bolt work unlocking or releasing device, I insure the help of the other time movements in the event the faster movement be unable to alone shift the movement bar. The yielding means shown for accomplishing this end, is only one of many that could be used for accomplishing the same end, hence I would have it understood that I do not confine myself to the construction shown but claim broadly yielding means of any kind interposed between the dials and unlocking bar for accomplishing the desired end.

In Fig. 1, I have shown the time locks connected by a hook 14 with an automatic device for retracting the bolts. This hook 14 is pivoted at 15 and its upper end rests within a slot in the lower face of the secondary bar 7. As the secondary bar is moved longitudinally by the time movements as explained, it turns the hook 14 thus disengaging the latter from the levers by which the operating springs of the automatic bolt retracting mechanism are held under tension, and permitting the springs to withdraw the bolts.

In the construction shown in Fig. 2 the movement bar actuates a dog 15 which when set closes the opening 16 and dogs the movement of the tongue piece 17 on the bolt carrying bar 18. At the proper time, the movement of the movement bar withdraws the dog 15 out of the path of movement of the tongue 17, thereby permitting the carrying bar 18 to be shifted by hand in the ordinary manner.

It is evident that many slight changes might be resorted to in the relative arrangement of parts shown and described without departing from the spirit and scope of my invention hence I would have it understood that I do not wish to confine myself to the exact construction of parts shown and described, but,

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

1. In a time lock, the combination of a time movement, and devices operated thereby for releasing the bolt work of the lock, the said devices including a part constructed to yield in the event the free movement of any of the parts between the time movement and the bolt work be blocked.

2. In a time lock, the combination of a plurality of time movements and devices operated thereby for releasing the bolt work of the lock, the said devices including a device for each time movement, constructed to yield or give and permit of the continued operation of the time movements, in the event the free movement of any of the parts between the time movements and the bolt work be blocked.

3. In a time lock the combination of a plurality of time movements each having a front dial carrying a tripping pin, a movement bar common to all of said time movements, and yielding means on said movement bar adapted to be engaged by the tripping pins on the dials to move said bar in a direction to release the bolt work.

4. In a time lock, the combination of a plurality of time movements each carrying a tripping pin, a bolt work unlocking device, a movement bar common to all the time movements, means for transmitting motion from the movement bar to the bolt work unlocking device, and yielding parts on the movement bar adapted to be engaged by the tripping pins of the several time movements to move said bar in a direction to release the bolt work.

5. In a time lock, the combination with a plurality of time movements each having a tripping pin, of a movement bar common to all the time movements and a yielding lug for each tripping pin, carried by the said movement bar the said lugs adapted to be engaged by the pins whereby the bar is moved in a direction to release the bolt work.

6. In a time lock, the combination with a plurality of time movements each carrying a tripping pin, of a movement bar common to all the time movements, a movable lug for each time movement, carried by said movement bar, and a spring support for each movable lug.

7. In a time lock, the combination with a

plurality of time movements each carrying a tripping pin, of a movement bar common to all the time movements, a lug for each time movement, pivoted to the movement bar, and a spring support for the free end of each pivoted lug.

8. In a time lock, the combination with a plurality of time movements each carrying a tripping pin, of a movement bar common to all the time movements, a series of lugs pivoted to said movement bar, each lug having a bent end passing through a slot in the movement bar, and a spring supporting the bent end of each lug.

9. In a time lock the combination of a plurality of time movements, means for releasing the bolt work of a safe or vault door, and a yielding device interposed between the bolt work releasing device and one or more of said time movements and through which movement is imparted to said bolt work releasing means from the time movements.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

WARREN H. TAYLOR.

Witnesses:
W. E. WESSON,
CHARLES E. VAIL.