W. H. TAYLOR.

TIME LOCK FOR SAFES AND VAULTS.

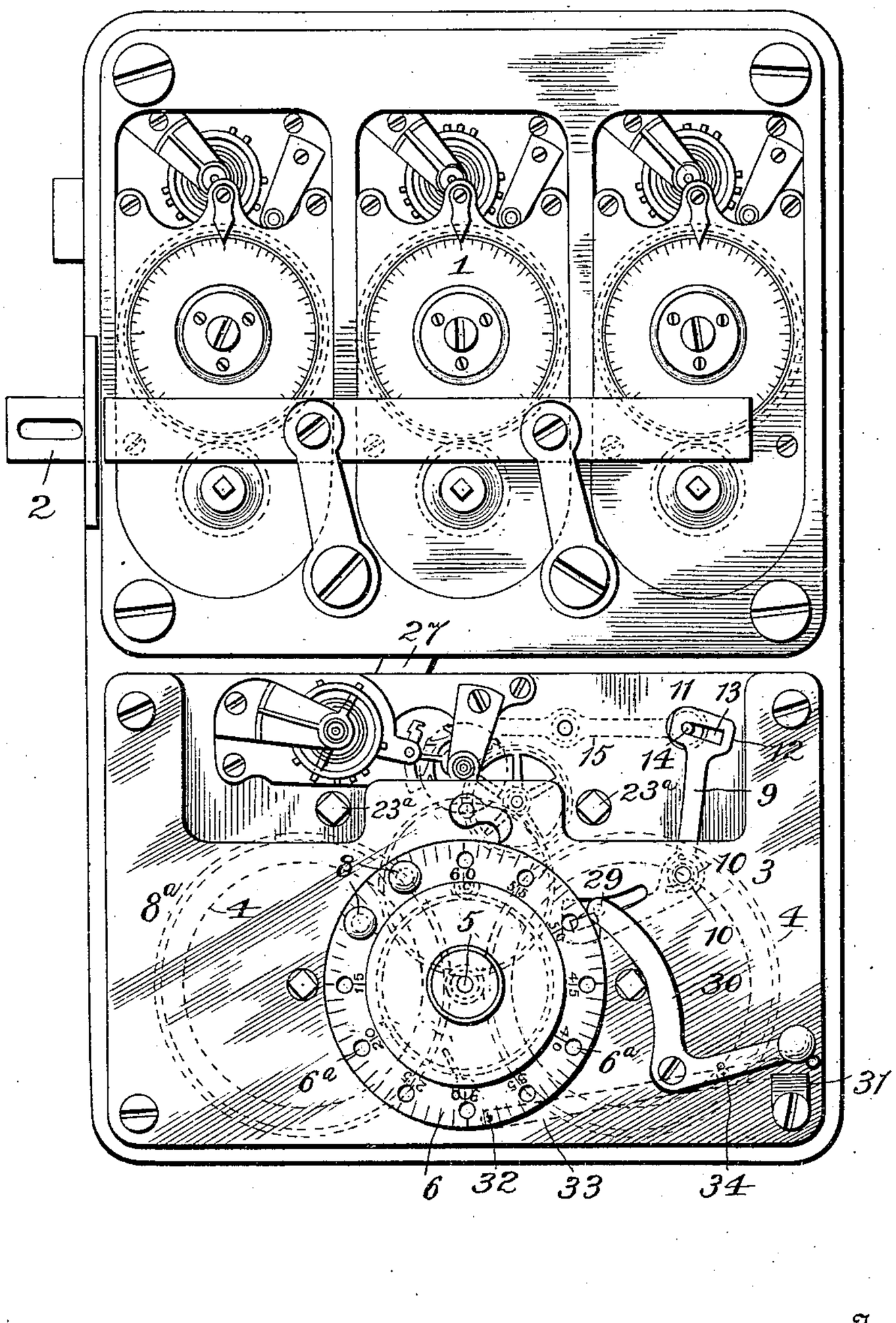
APPLICATION FILED JULY 25, 1910.

991,669.

Patented May 9, 1911.

4 SHEETS—SHEET 1.

Fig. 1.



Witnesses:

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4 SHEETS—SHEET 2.

Fig. 2.

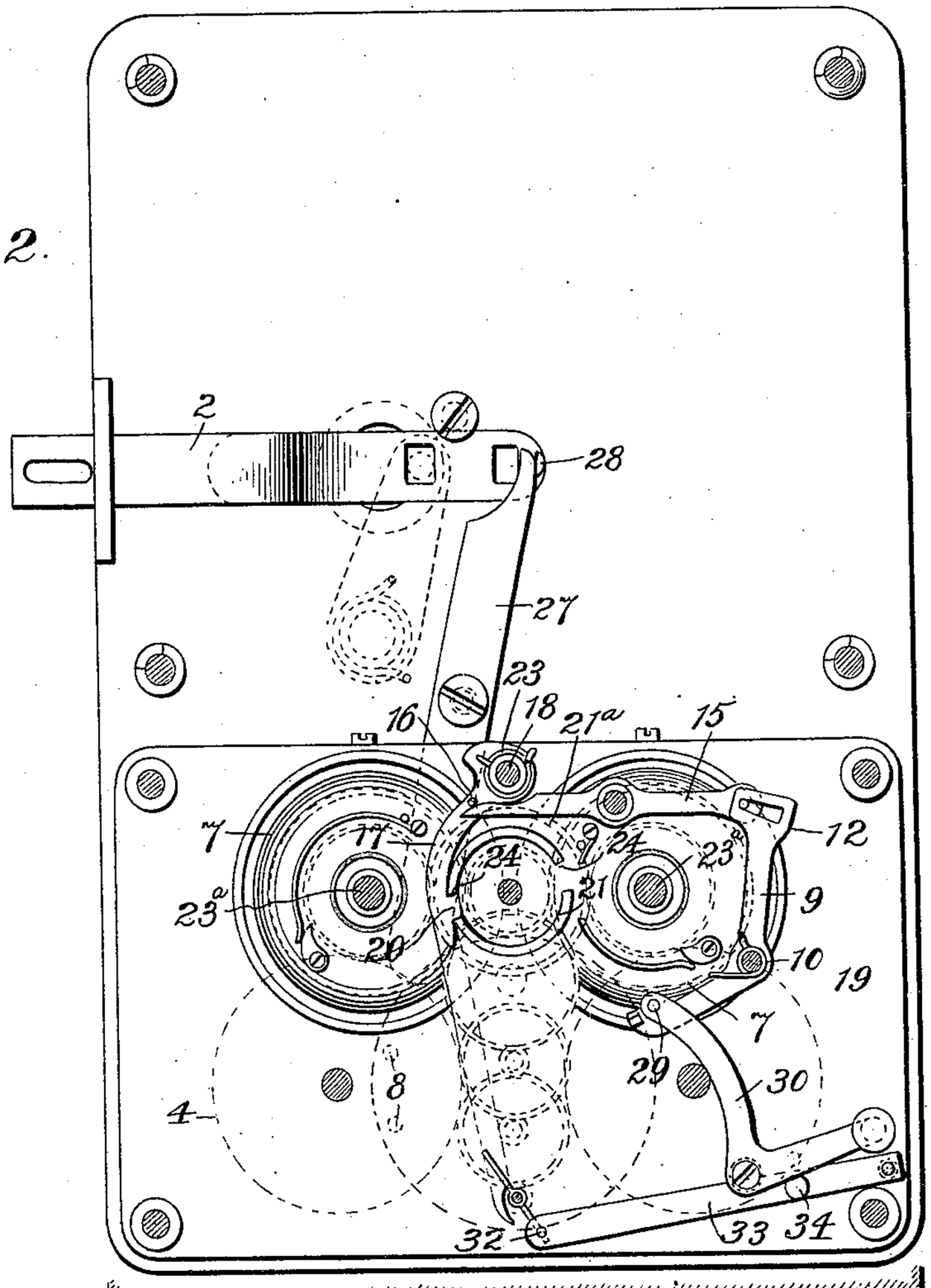
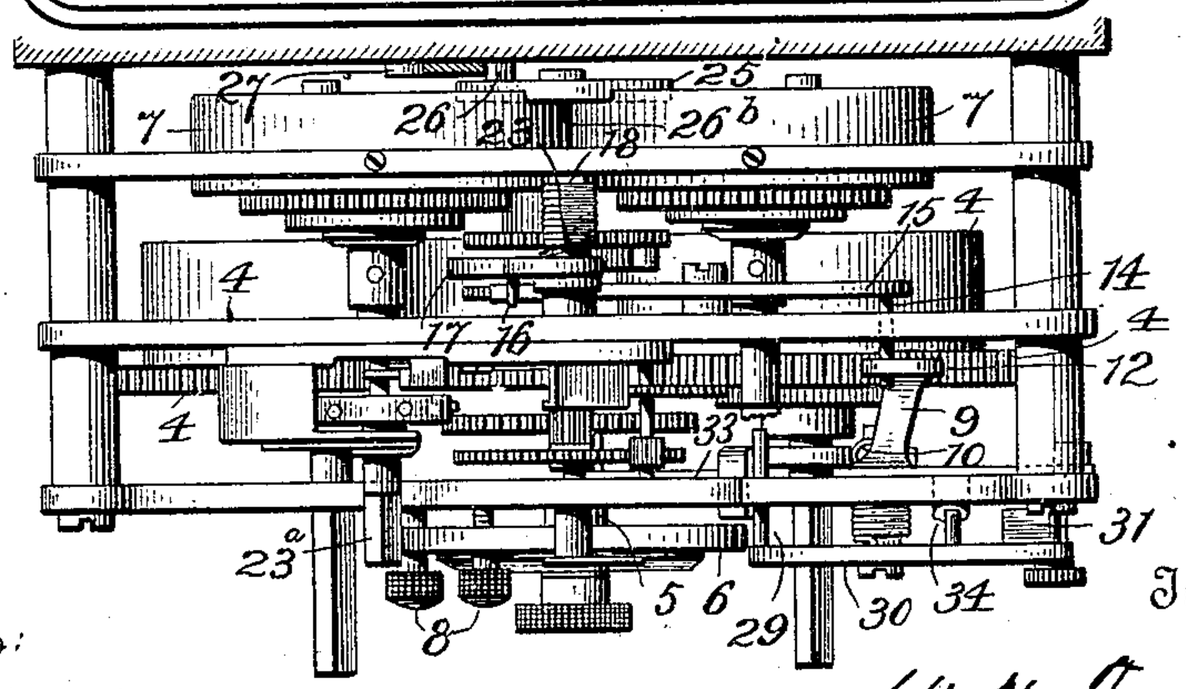


Fig. 3.



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4 SHEETS—SHEET 3.

Fig. 4.

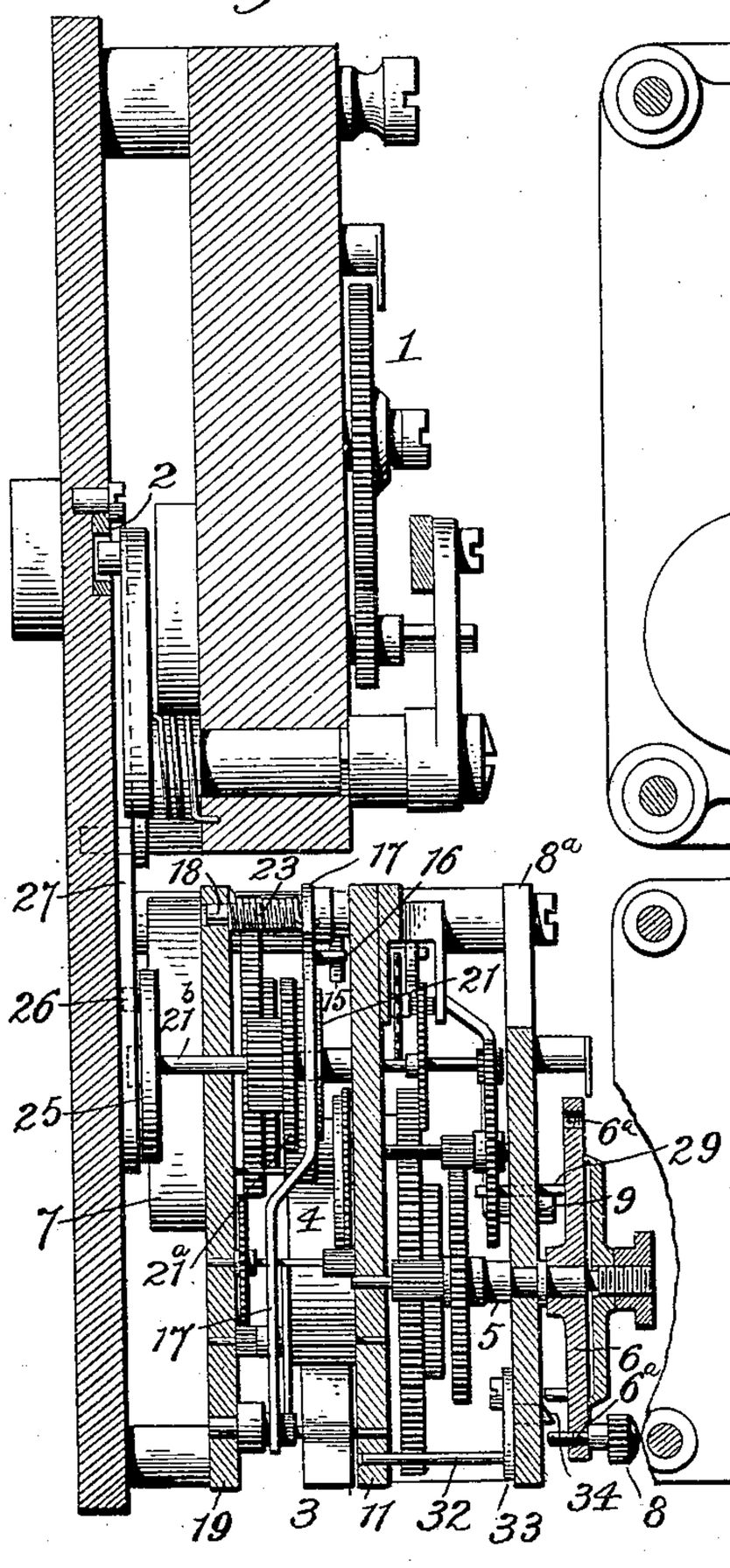
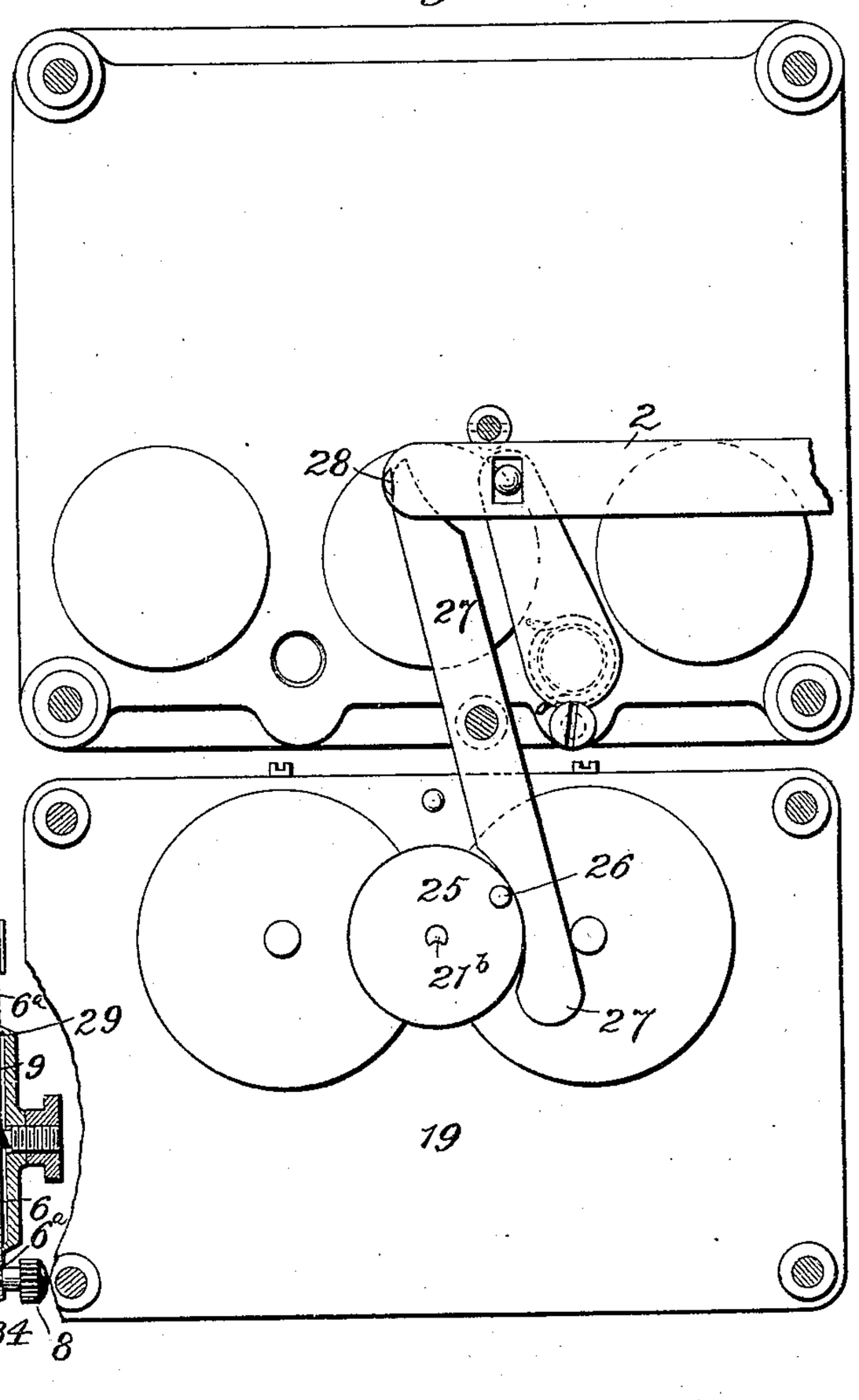


Fig. 5.



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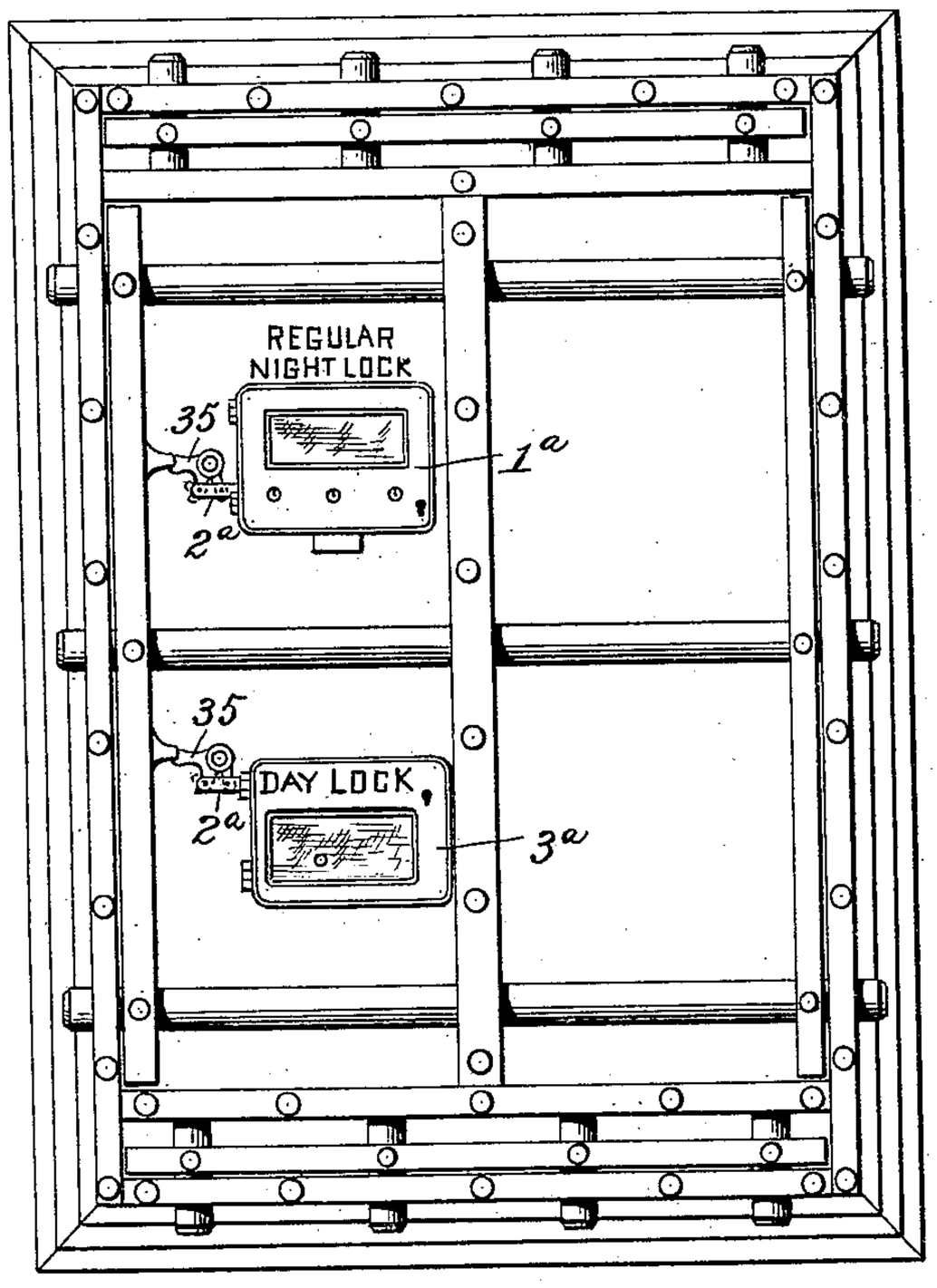
4 SHEETS—SHEET 4.

Fig. 6.



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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 FOR SAFES AND VAULTS.

991,669. Specification of Letters Patent. Patented May 9, 1911.

Application filed July 25, 1910. Serial No. 573,667.

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 for Safes and Vaults; 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, for safes and vaults.

In certain sections of the country where hold-ups or robberies are liable to occur during the day time, it is desirable to safeguard the regular time mechanism of the lock, by means that will release or set free the bolt mechanism of the safe or vault at regular intervals, say once each hour, and permit said bolt mechanism to remain free or unguarded for a stated number of minutes and then lock up again. It is evident that in robberies of this character, quickness is necessary, and with the safe door guarded and locked, say eleven twelfths of the time during the day, the chances would be largely in favor of the attempt being made at a time when the door was locked.

The object of this invention is to provide, in addition to the customary timelocks which guard a safe door ordinarily from the close of one banking day to the opening of the following banking day, an improved device whereby when desired, the safe may be kept locked all the time except at certain desired short intervals, the customary timelock taking care of the locking at night. The improved supplementary device may then go into operation so that the safe or vault may be locked during the larger portion of the day; *i. e.*, for instance, for the whole of every hour during the day except that there may be one, two, or more minutes out of each hour when the safe can be opened, but if the safe should not be opened during that predetermined period then the time lock would automatically lock up again. This special supplementary device may be used either in connection with the customary time lock, and arranged to operate on the locking lever of said timelock, or it may be employed in connection with said ordinary timelock but have an independent locking mechanism of its own; or, it may be employed by itself separately on a door.

In the accompanying drawings, Figure 1 is a view in plan of an improved lock embodying my invention. Fig. 2 is a view in plan parts being removed and showing particularly the motors and mechanism for tripping the latter. Fig. 3 is a view in elevation of the supplemental time mechanism. Fig. 4 is a view in transverse vertical section of Fig. 1. Fig. 5 is a bottom plan view, the bottom or base plate being removed, and Fig. 6 is a view in elevation showing each lock provided with independent bolt releasing and locking mechanism.

1 represents a regular triple movement time lock, and 2 the unlocking lever, the latter being designed for connection with the bolt mechanism of the safe or vault door, and actuated by the time mechanism 1 for releasing the bolt mechanism at a predetermined time, in the usual and well known manner.

3 represents the supplementary mechanism, which comprises a time mechanism consisting of two separate main springs inclosed in the casings 4 operating upon a spindle 5 carrying the dial 6, and two motors 7 which operate to actuate the unlocking lever 2, when tripped or released by the supplementary or day time mechanism.

The employment of two main springs in the time mechanism, and the same number in the motor is not essential, a plurality being employed simply as a precautionary measure or safeguard, so that if one should fail the other or others would operate to release the bolt work mechanism at the proper time.

The dial 6 makes one complete revolution in sixty minutes, and is marked off into sections, each section representing one minute and is also provided with threaded holes 6^a located at five minute intervals.

8 are pins adapted to be screwed into the holes 6^a in the dial, and project below same, each pin being provided with an enlarged head by which it may be grasped and manipulated. For the purposes of illustration I have shown the pins 8 located in two adjacent holes, thus representing an interval of five minutes that elapses in the travel of the pins past a given point.

Pivotally secured to the rear face of the outer plate 8^a of the supplementary mecha-

nism 3, is the lever 9 the lower end of which is bent upwardly, passes through an opening in plate 8ª and is normally held in the path of the pins 8, by the spring 10. The opposite end of lever 9 is bent rearwardly toward the intermediate plate 11 of the supplementary mechanism 3, and is provided with an enlarged end 12 having a cam slot 13 therein, in which rests the pin 14 carried by the releasing lever 15. This lever 15 is pivoted to the rear face of the intermediate plate 11, and the pin 14 carried thereby at one end, passes through a hole in the intermediate plate and rests within the cam slot in the lever 9.

The opposite end of the releasing lever 15, rests in contact with the pin 16 secured to the pawl 17, the latter being carried by a post 18 mounted at its outer end in the intermediate plate 11, and at its rear end in the rear plate 19. The pawl is provided with a tooth 20 which moves in contact with a circular flange 21 carried by a toothed wheel 21ª driven by the two spring motors 7 and is normally held in contact with said flange by the spring 23.

Each motor is provided with a key spindle 23ª which passes through the intermediate plate 11 so as to be accessible from the front.

The flange 21, is provided with diametrically located slots 24 into which the tooth 20 of the pawl 17 drops. When the tooth of the pawl is in either slot 24, the wheel carrying the flange, and consequently the motors, are held at rest. When however the pawl is pushed out of the slot by the releasing lever 15, the spring motors 7 are free to rotate the wheel 21ª and its shaft 21. Secured to the latter in rear of the inner plate of the supplementary mechanism, is the disk 25 carrying a rearwardly projecting pin 26 which latter engages one end of the lever 27 pivoted to the lock case, the opposite end of said lever resting in front of a lug 28 on the unlocking lever 2. This unlocking lever is normally held in its locking position by a spring, hence when lever 27 is actuated as hereinafter described, it retracts lever 2 and holds it retracted for a stated interval of time (five minutes in the construction as illustrated) and then release it, thus permitting it to move to its projected position.

As shown in the drawings, the pins 8 in the dial are located in two adjacent holes, representing an interval of five minutes. As this dial is revolved by the supplementary or day time mechanism 3, the first pin 8 strikes the upturned end of lever 9 and turns same slightly. This movement of the lever 9 causes its cam slot 13 to move the pin 14 carried by releasing lever 15 thus forcing the latter against the pin 16 on pawl 17, and moving the tooth of the pawl 17 out of the slot 24 in flange 21. This disengagement of the pawl and flange, releases the motors 7 and permits the latter to actuate the shaft 21ᵇ which as before explained carries the slotted flange 21. As the first pin on dial 6 leaves the end of lever 9, the parts being spring actuated assume their normal positions, thus releasing pawl and permitting its tooth to ride on the outer surface of flange 21, hence when the next slot 24 in latter reaches the tooth of the pawl, the latter drops into said slot and stops the motors. As there are two slots 24 located diametrically opposite each other, it will be seen that the shaft 21ᵇ makes but half a revolution at each release of the motors, and in the first half revolution, the pin 26 on disk 25 carried on the lower end of said shaft, shifts lever 27 in a direction to retract the unlocking lever 2, and holds same in its retracted position for the period of time represented by the distance between the pins 8, in the present instance, five minutes. At the expiration of the five minutes, the second pin 6 coming in contact with lever 9, shifts the parts as above explained, and again withdraws the tooth 20 of pawl 17 from the slot 24 in flange 21, thus permitting shaft 21ᵇ to make another half revolution, thus revolving lever 27 to its original position and permitting the unlocking lever 2 to move back to its normal projected or unlocking position. This release of the bolt mechanism will occur once each hour, and for a period of five minutes at each release. The lever 9 is also engaged by the pin 29 on lever 30 pivoted to the outer face of the outer plate 8ª of the supplementary mechanism 3. This lever is also spring actuated, but is designed to be moved by hand against the action of its spring, so as to move lever 9 out of the path of the pins 8, a spring catch 31 being provided for holding lever 30 depressed, thus disconnecting the supplementary mechanism from the regular time lock 1.

When the supplementary mechanism is disconnected as above described, the motor will be braked and restrained from acting, by the locking pin 32 carried by the spring arm 33, the latter being actuated by the lever 30, engaging lug 34 carried by said spring arm 33. This lug is located in the path of the lever 30 when the latter is moved to a position to carry lever 9 out of the path of the pins 8, and when engaged by said lever, will be depressed thereby and thus move the locking pin 32 into the path of a moving part of the motor and thus lock the latter against movement. By means of this lever 30 the attendant, can by slightly moving same test his supplementary mechanism before putting it into use for the day, which should of course be done to see that everything is working properly, and by moving it back until it engages the spring catch, he

disconnects the motors, thus leaving the bolt mechanism solely under the control of the main time lock, which is the condition the lock should be in after close of business for the day.

In the construction above described the main time lock mechanism may be set to unlock the lock at any predetermined time, and the supplemental time movement unlock it and lock it at regular intervals prior to the time it is set to be released by the main time movement, hence when the time arrives for the bolt mechanism to be unlocked by the main mechanism, the latter retracts the unlocking lever in the usual manner and holds it retracted until the movements are again wound up and set for another period.

In the construction shown in Fig. 6, the main and supplemental time movements 1^a and 3^a are separately secured to the safe door and each is provided with its own bolt releasing lever 2^a acting upon pivoted bell crank dogs 35 which latter engage the bolt mechanism and lock and release the latter as above described. With this construction when the bolt mechanism is guarded by the main lock 1^a, the dog 35 of the supplemental or day lock 3^a should be in its unlocking position so as to permit the bolts to be retracted at the time when the main time movement releases the bolt mechanism, and likewise when the supplemental or day lock 3^a goes on guard, the bolt locking mechanism of the main time lock should be in its unlocking position.

I make no claim in this application to the particular mechanism of the supplemental or day mechanism shown in Figs. 1 to 5 as the latter alone and in combination with a main time lock forms the subject matter of an application filed by Charles A. Miller October 24th, 1909, Serial No. 523,896.

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 and arrangement of parts shown and described, but,

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

1. The combination with a releasing means for the bolt work of a safe door, of a main time mechanism arranged to actuate said releasing means at a predetermined time to release the bolt work, and a supplemental time mechanism arranged to actuate releasing means for said bolt work at stated shorter intervals to release said bolt work for a definite period, and at the end of such period permit said releasing means to automatically assume its locking position.

2. The combination with releasing means for the bolt work of a safe door, of a main time mechanism for actuating said releasing means at a predetermined time to release the bolt work, a supplemental time mechanism, including adjustable devices controlled by said supplemental time mechanism for actuating releasing means for the bolt work at shorter intervals which may be varied by the adjustable devices, and at the ends of such intervals permitting said releasing means to assume its locking position.

3. The combination with a main time lock for releasing the bolt work of a safe at a fixed period, of a supplemental time mechanism for releasing the said bolt work mechanism for a fixed period and then permitting the automatic relocking of the same at fixed intervals prior to the time the main time mechanism has been set to unlock the bolt mechanism.

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

WARREN H. TAYLOR.

Witnesses:
CHAS. E. NAIL,
SCHUYLER MERRITT.