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LOCK ALARM

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2 Sheets-Sheet 1

Fig. 1.

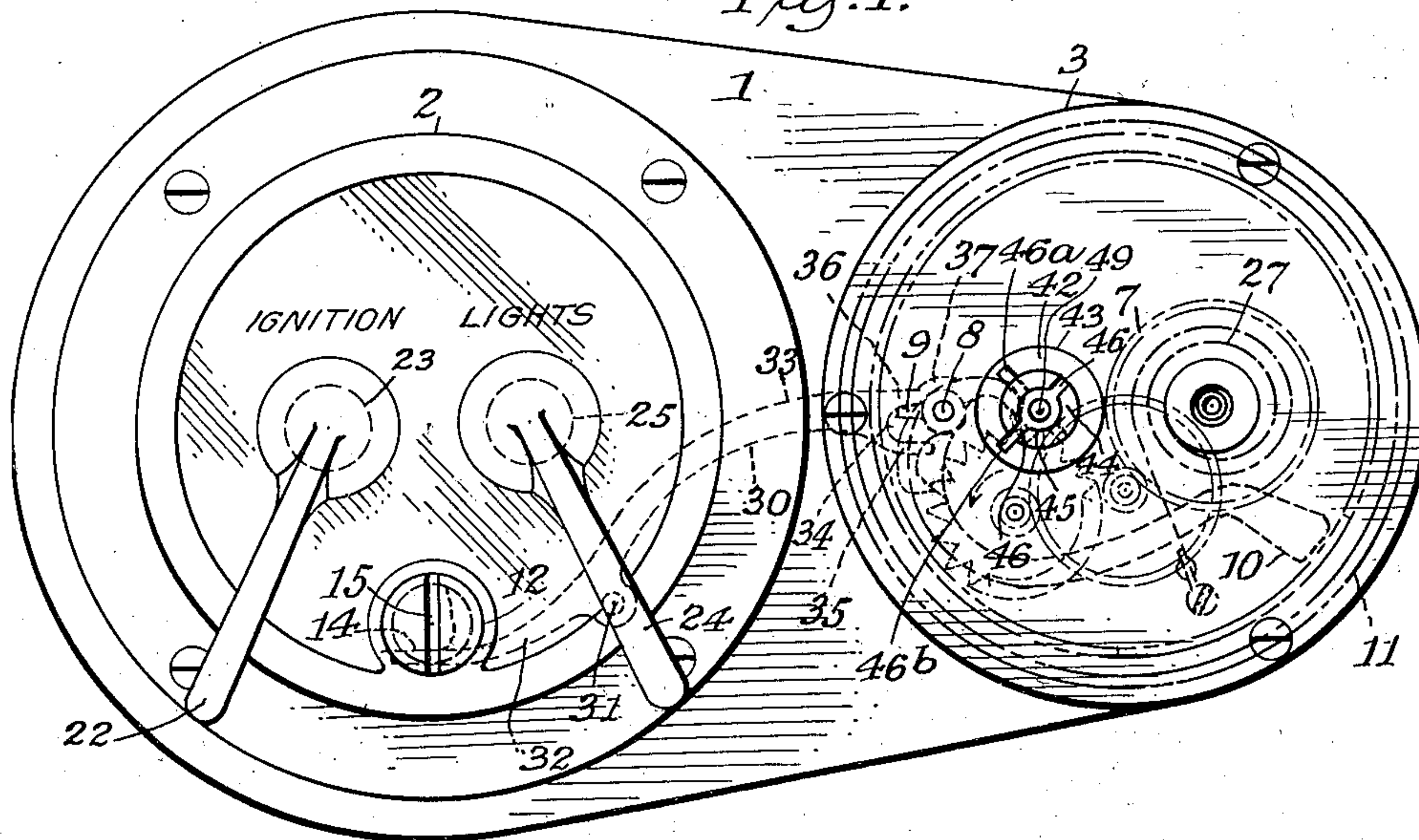
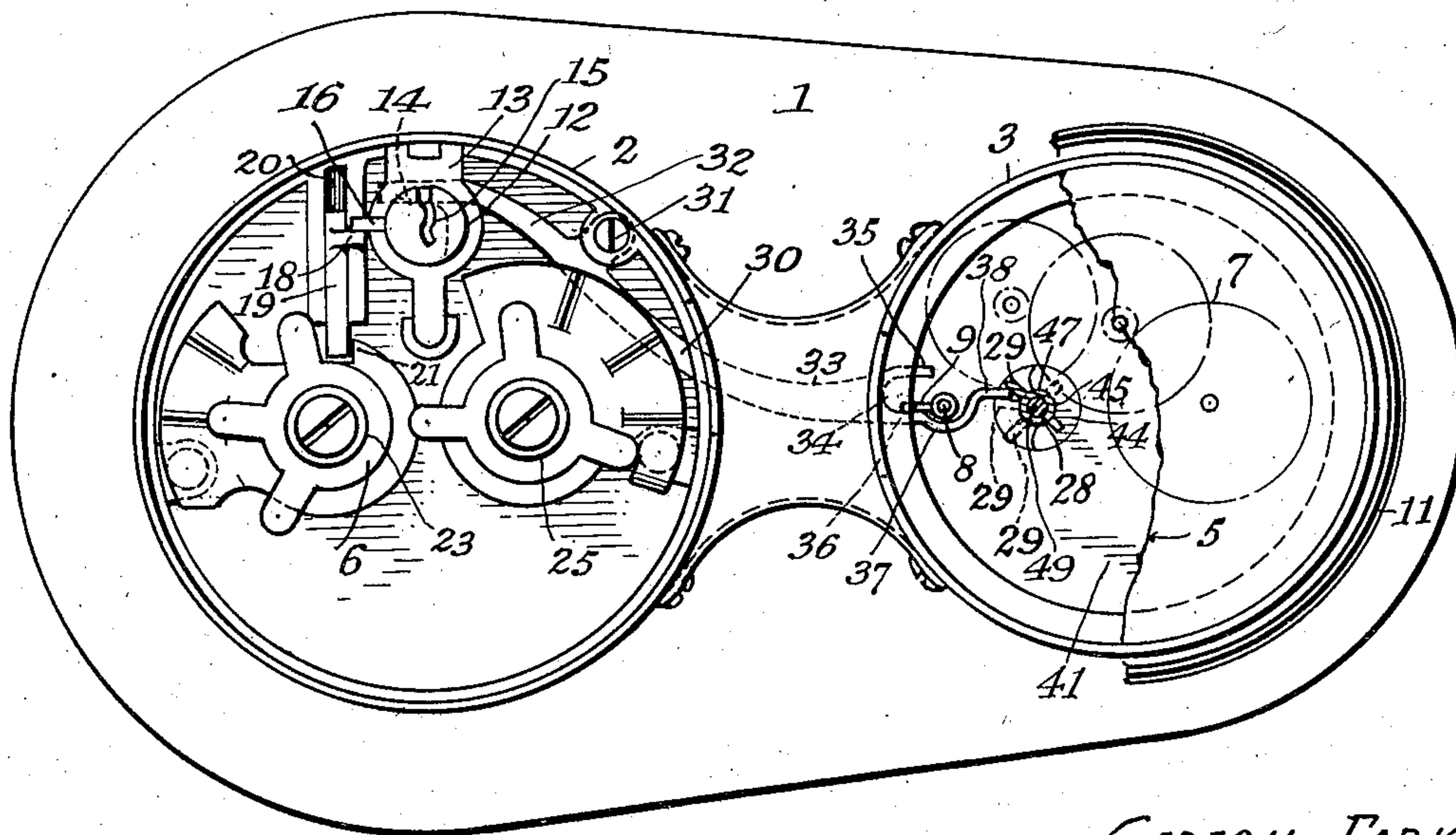


Fig. 2.



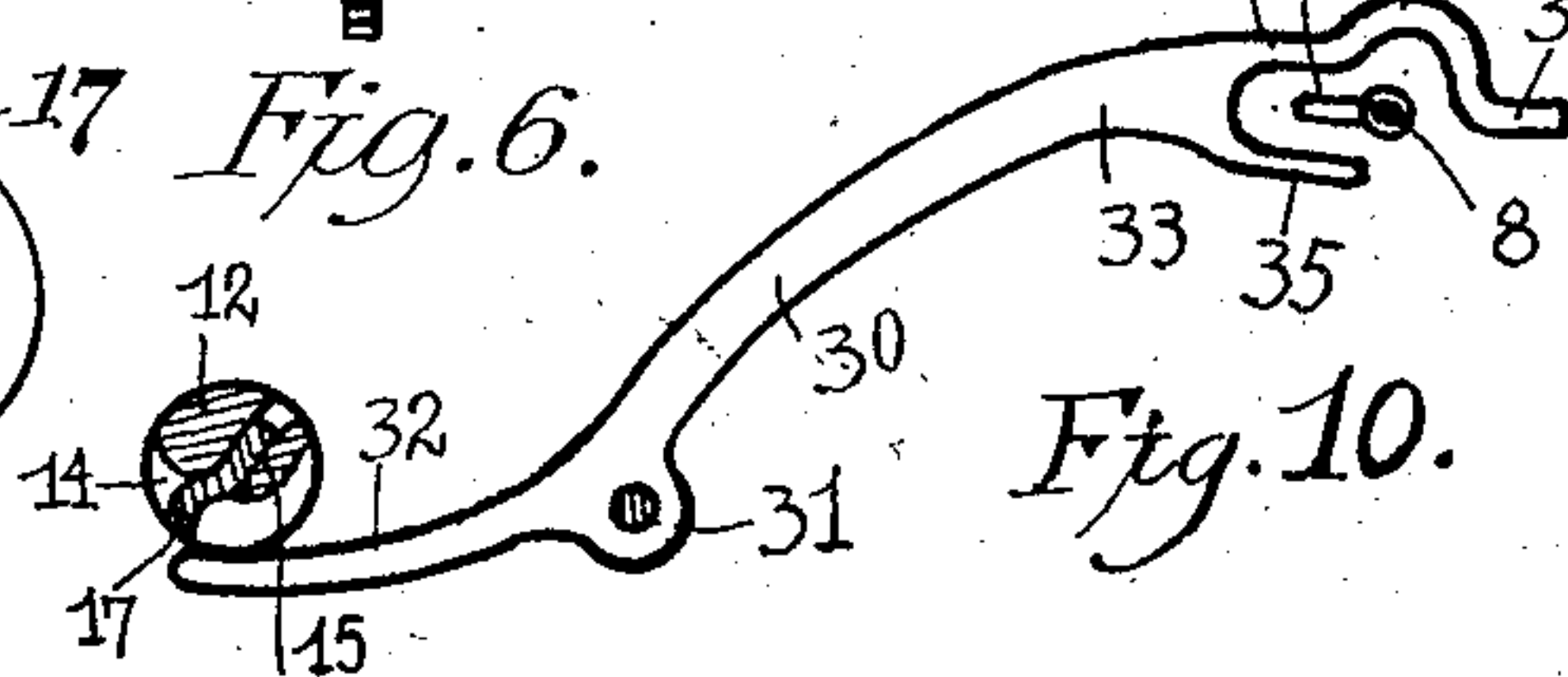
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LOCK ALARM

2 Sheets-Sheet 2



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## UNITED STATES PATENT OFFICE

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## LOCK ALARM

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10 Claims. (Cl. 116—33)

This invention relates to a "lock-alarm" device comprising interrelated devices or mechanisms for providing a lock controlling the action of electro-dynamic parts and means for controlling mechanically actuated alarm parts by employing separate keys for each of said groups.

The above broadly set forth lock-alarm device may be applied to automobiles if desired, or to house and other doors and windows; to sliding or swinging panels or closures of different types or characters.

More particularly, my invention relates to mechanisms, intercontrolled through a single mechanical element, extending operatively into both mechanisms to cooperate with parts of the respective keys employed i. e. a key to control an ignition system and a key for setting a mechanical alarm system.

A further inventive feature is the provision of a pivoted bar, which has a small end confined in an arcuate groove of an ignition lock control barrel and an opposite longer end formed with a fork or yoke and an extending finger, said fork straddling an oscillatory shaft of an alarm escapement, said shaft having a web or feather, against the sides of which, the sides of the fork or yoke are alternately or intermittently moved to hold the escapement shaft against releasing a clock-train of gearing which is continuously under spring urge in the usual manner.

By employing an alarm or secondary key which contacts with the said finger beyond said fork, the pivoted bar or lever may be set at various positions, one position being a "dead" or "still" position when running the automobile or at other desired periods such as when in storage; in this position the pivoted bar is moved so that the small end thereof is rocked out of the arcuate groove entirely and free of the key barrel, but one side of the yoke is still in contact with the feather on the alarm escapement shaft. In this position of the bar, the alarm cannot be operated in any manner, except by using the secondary key to engage the said finger to throw it to the alarm-set position.

The pivot pin of the said bar exerts sufficient friction to hold it "where put", against the spring urge of the clock-train.

In the embodiment of the invention here shown in the drawings:—

Fig. 1 is a front elevation, indicating, in dotted lines, the clock-train and its associated escapement and alarm hammer, together with the interoperative pivoted oscillatory bar extending into the opposite mechanisms.

Fig. 2 is a back or rear view of the device as attached to an automobile, said device being turned vertically, or upside down; the parts being in the alarm set position with the small end of the bar extending across a portion of the ignition-lock key slot.

Fig. 3 is a partial vertical section taken about on the line 3—3 of Fig. 5, looking backwardly, as the arrows point, with the ignition parts in the locked position and the alarm set against tampering with the ignition lock and with the alarm set key in the position it occupies prior to moving the rock bar to the dead position.

Fig. 4 is a fragmentary detail view showing the ignition lock-control key in the act of turning its barrel to cause a projecting pin thereon to engage a projection on the ignition lock bar for sliding the bar out of engagement with an ignition control part for unlocking said ignition, prior to starting the automobile.

Fig. 5 is a top plan, or top edge view of the lock-alarm device, indicating in dotted lines, principal parts of the invention, to better disclose the interconnection of the rock bar or alarm control member.

Figs. 6, 7, 8 and 9, are detail views of the several keys employed in connection with the invention.

Fig. 10 is a diagram showing the position of a lock bar when the alarm is free to sound.

A detailed description of the construction of the lock-alarm as shown in the present embodiment may be set forth as follows:—

A base plate 1, has attached thereto in any desired manner casings or housings 2 and 3, which project backwardly from the front face of said plate 1, as best shown in Fig. 5, on the drawings. The casings are closed at the front as in Fig. 1 permanently and open at the back as shown in Fig. 2; the open ends being closed by suitable cap plates 4 and 5. (See Fig. 5.)

Within the casing 2, is located a portion 6 of the ignition system of an automobile, and within the casing 3, is located a clock-train alarm system 7 of any well known type, having an escapement shaft 8, provided with an outstanding wing or feather 9, said shaft being spring urged at all times in the usual manner. This shaft 8 also carries a hammer 10, for intermittent contact with a bell 11, when an alarm is initiated, as it is well known in this art.

A key barrel 12, preferably of the Yale type extends through the front wall of the casing 2, and is revolvably mounted in its tumbler cage 13; the barrel is formed with an arcuate slot or re-



cess 14 which crosses or intersects the key-slot 15, said key slot having the usual curved cross-section at most of its length (Figs. 3 and 4) but a wider straight opening portion at its outer end (Figs. 1 and 5) to permit the insertion of its matching key therinto but still conceal the actual curvature thereof from ready inspection from the outside.

The key barrel 12, also carries a projecting pin 16, located close to the rear edge of the tumbler cage 13, and when locking the ignition system, a key 17 of the Yale type may be employed to turn the barrel 12 in one direction causing said pin 16, to engage a lug or extension 18, on a slide bar 19, operating in a guide-groove 20, for moving said slide bar into locking position behind a shoulder 21 of the ignition parts to prevent the same from being turned into operative igniting position by a hand-lever 22, (Fig. 1) on an ignition shaft 23; and by a reverse turning movement of the lock-barrel 12, the pin 16 will be carried around to engage the opposite side of the lug 18 to move the slide-bar 19, out of engagement with the shoulder 21 of the ignition system to release the same so that the automobile may be operated, all this also being well known in the art.

At the front of the ignition casing 2, is another hand lever 24, for controlling the lights of the automobile through a shaft 25, but these parts form no part of this invention and will not be further described.

A key 26, (Fig. 9) is employed for winding a spring 27 (Fig. 1) of the alarm train 7, in the usual manner, and a third or set key 28, having a web or wing 29, is employed to set a rock-bar or pivoted lever 30 for controlling the action of the alarm apparatus, as hereinafter described.

The rock-bar 30 is pivoted on a screw or pin 31, which sets up sufficient friction in the joint to hold or maintain the rock-bar where set, in the several adjustments, under normal conditions. The rock-bar 30 is formed into the curve shown; the shorter end 32 being reduced in width to form a safety gate across the key slot of the ignition lock and rest in the arcuate groove 14 of the barrel 12 of said lock and this position is maintained when the automobile is unattended. This gate portion acts against theft through the rock-bar to sound an alarm should a key or other instrument be inserted in the key slot 15 of the lock barrel 12, for such key or instrument would raise this gate slightly thereby partially rocking said bar on its pivot and release the alarm, as will be described presently.

At the extremity of the longer end 33 of the rock-bar 30, is formed a fork or yoke 34, one prong or side 35 of the fork being comparatively short, while the other or opposite prong 36, is outcurved to clear the escapement shaft 8, as at 37, and terminates in a trip finger or extension 38, which is engaged by the web portion 29 of the set-key 28, in the operation of setting the position of the bar or lever 30.

As indicated in Fig. 5 of the drawings, a circular block 39 having a central bore 40, is fixed to the bottom or outer wall 41, of the alarm casing 3. The block has a reduced tubular portion 42, which extends forwardly through said wall 41 and base plate 1, as at 43, and located within the central bore 40 of the block, is a rotary key barrel 44, itself provided with a central bore 45, (Figs. 1 to 5) and diametrically opposite side slots 46 which register with properly located notches 46a and 46b in the reduced tubular por-

tion 42 in the use of the key 28 for the passage of the web 29 thereof, said bore and slots being adapted to receive a tubular body 47, and opposite wings 48, of the key 28 for setting the lever 30. A fixed pin 49 projects through the central bore 45 and over which the tubular body 47 of the key 28 rotates, to center said key-body in said bore 45, when operated. The web portion 29 of the key 28 is the only portion thereof which performs any important function, the wings 48 merely acting to turn the barrel 44 to properly position the slots 46.

A portion of the block 39 and of the key barrel are cut away, as at 51 and 52, respectively, to form a cavity or space for the web 29 of key 28 to operate and further to receive the finger 38 of the rock bar.

The gate portion of the small end 32 of the rock-bar 30 is lowered by the beveled surface 50 at the forward end of the ignition key 17 (Fig. 7) as said key enters the slot 15.

The operation of my device may be described as follows:

As above stated, the alarm can operate only when the rock-bar is rocked a part of its full movement up or down and in this partial movement the yoke 34 will straddle the feather 9 with both arms 35 and 36 out of contact therewith thus permitting said feather and its supporting escapement shaft to vibrate and through the hammer 10 to sound an alarm (Fig. 10). When, however, the lever is moved to the limit of its throw, to one side or the other, either one of said fork prongs 35 or 36 will be in locking contact with said feather 9 to hold the escapement against action.

In the views of Figs. 1 to 3, the ignition is shown as locked against operation as when the car is standing in a street unguarded. When it is desired to start the car, the owner thrusts the alarm setting key 28 into the slots 46, and 46b (Figs. 1, 2, 3 and 8), after first bringing one of the slots 46 into registering relation with slot 46b, and, with wing 29 engaging the under side of lock bar finger 38, the owner then executes about a quarter turn with said key in an upward direction, (Fig. 3). This will cause the forked end of bar 30 to move upwardly, the other end 32 moving downwardly out of the recess 14 of key barrel 12 and the ignition key 15 may now enter its slot and rotate barrel 12 without disturbing said bar 30 (Fig. 4). At the same time key 28 will cause the fork branch 35 to engage the feather 9 on escapement shaft 8 and lock the alarm against operation. Key 28 will also be given a reverse one quarter turn to return to slot 46b and there to be removed from its barrel 44.

When the owner again wants to leave the car unguarded and set the alarm into operative position against unauthorized tampering therewith, slot 46 will be brought into juxtaposition with slot 46a (Fig. 1) and key 28 entered in that position above the finger 38 and given about a quarter turn downwardly with its wing 29, as indicated, in Fig. 2 and, by dotted lines, in Fig. 3, and the lock bar 30 will be returned into the position shown in Figs. 1 to 3, and any instrument inserted into the key slot 15 of the ignition to an operative depth will rock said bar 30 into a middle position, as described hereinbefore and illustrated in the diagram of Fig. 10, and the alarm will constantly operate, thereby informing the people that the car is a stolen one. After this second style of setting also, the key 28 must be



given a reverse quarter turn to return to the slot 46a and there to be removed from the alarm setting mechanism.

Key 26 serves to wind up the alarm spring, as usual.

It is thought the operation and utility of the lock-alarm device will be apparent without further description, and while in the drawings there is illustrated a preferred embodiment of the invention it is to be understood that the structural elements thereof are susceptible to such variations and modifications as fall within the scope of the broader claims.

What I claim is:—

1. A lock-alarm device comprising in combination; means controlled by a removable key for locking and releasing parts of the ignition system of an internal combustion engine; key controlled means for setting an alarm, and means located in operative connection with each of the said key controlled means adapted to be set for releasing said alarm control means to sound an alarm when the ignition control lock is entered by a key.

2. A lock-alarm for automobiles, having an ignition lock with a revoluble barrel, an outstanding pin on said barrel, a lock bar mounted to slide at one side of said barrel; said lock bar having a projection against which the pin of said barrel operates to slide the lock bar into and out of locking position with a part of the ignition system of said automobile; an alarm device; said barrel having an arcuate groove, and normally inoperative means mounted to extend into said arcuate groove of the said lock barrel and into said alarm device respectively, and adapted to release said alarm device when the ignition lock is entered by a key.

3. A lock-alarm comprising a lock for the ignition system of an automobile; an alarm mechanism having an oscillatory shaft; and a swingable bar, an end thereof having operable connection with a part of said lock, the opposite end of said bar having a fork for operative action with a part of said oscillatory shaft of the alarm mechanism for controlling the same.

4. A lock-alarm for automobiles embodying a pair of casings; a base plate for supporting both casings in side-by-side relation; a key operated lock for controlling the action of an ignition apparatus located within one casing; a key controlled alarm apparatus in the other casing; and a normally inoperative rock-bar extending through the walls of said casings from one apparatus to the other, adapted to be set to release the alarm apparatus when the ignition control lock is entered with a key.

5. A lock-alarm for automobiles, comprising,

a device for locking the ignition system; alarm means; a pivoted element having a reduced curved end and an enlarged forked end terminating in a projecting finger, the reduced end in one position, mounted to extend across the key slot in said ignition lock, the forked end straddling an oscillatory part of the alarm means and controlled by a key operating against said finger for the purpose set forth.

6. A lock-alarm for automobiles, comprising a face plate; ignition and alarm apparatus, carried by and separately placed on said face plate; key controlled means for locking the ignition apparatus; a rock-bar frictionally pivoted near the ignition locking means and away from its longitudinal center to provide a short and a longer end; an escapement shaft in the alarm apparatus; a wing on said shaft; said rock-bar operatively engaging at one end the ignition lock and at the other end the said wing of alarm apparatus, and key means operable in the alarm apparatus for setting the rock-bar in several positions as desired.

7. A lock-alarm for automobiles, comprising a lock embodying a fixed tumbler cage and a barrel revoluble therein, said barrel being formed with an arcuate slot extending partially around it; a projecting pin on said barrel; a slide bar having a projection in the path of said projecting pin when the lock barrel is rotated to urge said slide bar into locking contact with a part of the ignition system of an automobile; an alarm device; and normally inoperative means adapted to be set to extend into said slot for causing the alarm device to be initiated when said means is disturbed by a key entering said lock.

8. The combination with a lock and devices for controlling the ignition system of automobiles; of a mechanical alarm mechanism; and a key controlled rock bar extending from a frictional pivoting center in one direction into operative relation with said ignition lock, and in the opposite direction into controlling relation with said mechanical alarm mechanism, for the purpose set forth.

9. A lock-alarm for automobiles comprising a lock for the ignition system; an alarm device; a connection between the ignition lock and the alarm device; and key operated means for adjusting said connection, for initiating an alarm when the ignition lock is entered by a key.

10. A lock-alarm device, comprising an ignition lock having a key slot; an alarm mechanism; a vibratory element therein; and a rockable member, one end thereof forming a locking gate disposable across said key slot and the other end normally in locking contact with said vibratory element.

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