To all whom it may concern:

Be it known that I, William Henry, a citizen of the United States, residing at Columbia, in the county of Richland, State of South Carolina, have invented certain new and useful Improvements in Fire or Burglar Alarms, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in alarms, and, while it is designed more particularly for a fire-alarm, it may with slight changes be used as a burglar-alarm. I arrange a plurality of cords leading to different rooms or different parts of one room or of a building, as the case may be; or it may be to different parts of a ship or other body upon which it is employed, said cords being designed to normally hold the trip-levers from contact with the alarm-actuating catch or detent and arranged to actuate the same either by the burning or breaking of the cords or by the pulling or slackening of the same by the opening or closing of a door or window. A continuous alarm is sounded upon the release of the lever or levers. An indicator is displayed. A single trip-bar serves for all the levers. The device is compact, simple, durable, and very efficient in operation.

Other objects and advantages of the invention will hereinafter appear, and the novel features thereof will be specifically defined by the appended claims.

The invention is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this specification, and in which—

Figure 1 is a side view of my improved device with a portion broken away to better disclose other parts. Fig. 2 is a view at right angles to Fig. 1, also with parts broken away.

Like letters of reference indicate like parts in both figures of the drawings.

In the present instance I have shown my improvement as designed for use as a fire-alarm, the cords being shown as extended and being supposed to be held taut in any suitable or preferred manner, either by being fastened to some fixed support or provided with weights at the ends, the latter being preferred, as it provides automatic means for compensating for the stretching of the cords.

Referring to the details of the drawings by letter, A designates a base-piece adapted to support the operating parts, although, of course, this base-piece might be dispensed with and the device secured directly to the floor or other support. I will describe it as attached to the base-piece.

A' are standards or uprights secured to the base-piece by suitable means, as the screws α, and C' are cross shafts or rods connecting the uprights near the lower ends thereof. Above the said shafts or rods and connecting the 65 uprights are the end plates A', in which is journaled the longitudinal rock-shaft B, to which is secured the rocking bar B', as seen best in Fig. 2. Depending centrally from this rock-bar is a lug or arm b, to which is connected a spring B', which is also connected with a shaft or rod B, connecting the uprights, and arranged and acting to normally keep the rock-bar B' horizontal, as indicated by full lines in Fig. 2, and yet allow it to tilt, as indicated by dotted lines in said Fig. 2.

C are shafts or rods extending parallel with the rock-shaft and supported in the end pieces or plates A', and C' are a plurality of levers fulcrumed on said rods, with their major portions working through slots c in the standards or uprights, as seen best in Fig. 1, with their short arms arranged to contact with the under side of the rock-bar and tilt it into the position in which it is shown by dotted lines in Fig. 2. The outer ends of these levers have attached thereto cords, wires, or rods D, which extend upward through suitable openings or guides in the horizontal bars D', secured to the upper ends of the uprights or standards and adapted to work freely therethrough. The upper ends of these cords, wires, or rods are connected by any suitable combustible material or connection E, such as a cord, which may be readily severed by contact with the fire, and these cords or connections are designed to be run to different rooms or parts of the building and disposed in any suitable manner. As this is a matter which will have to be determined by the disposition of the rooms or the construction of the building in which the alarm is em...
ployed, I have not undertaken to show any such disposal of the cords in the present instance. The other ends are designed to be fastened or held by weights, so as to hold the cords taut and keep the levers normally with their lower inner ends out of contact with the rock-bar, as shown in full lines in Fig. 2. The cords should be run over suitable pulleys, as shown.

When employed in a building, I attach to the outer ends of the levers weights which are normally held up by the cords; but in case the cord should be burned or otherwise broken the weight will fall and carry with it the outer arm of the lever into the position indicated by dotted lines in Fig. 2, causing the inner arm to come in contact with the under side of the rock-bar and tilt the same and sound the alarm through the medium of the mechanism soon to be described.

When employed upon a vessel, as I sometimes propose to do, I replace the weights by springs which are connected at one end to the base-piece or some similar fixed support and at the other end connected to a hook on the outer end of the lever, the action being the same as in the case of the weights, but springs being preferable upon board ship, as the weights would have too much motion, owing to the rocking of the vessel. The cords normally hold the spring distended, and when the cord is broken the tendency of the spring is to pull the outer arm of the lever down, and thus throw up its inner arm into contact with the rock-bar and rock it on its shaft and sound the alarm. The weights are preferably provided with some indicating character—such, for instance, as numbers—to designate the location or place of the fire. For instance, the cords might run to different rooms and each room have a number corresponding to the number on its weight: or any other means might be employed to determine the location of the fire.

A suitable enclosing case may be provided to protect and enclose the working parts, as indicated by dotted lines, in which case the weights would be disclosed through suitable openings or a transparent medium therein, as will be readily understood.

Journalized in the sides or uprights A is a shaft F, one end of which projects through one side as shown at f, and is provided with a winding-key. (Not shown.) To this shaft is affixed one end of a spring G, the opposite end of which is attached to some fixed part, as a rod g, held between the sides. On this shaft F is a gear-wheel G', loosely held thereon and provided with a spring-actuated pawl g' of known construction, which engages a ratchet-wheel G'', fast on the shaft, in such a manner that the spring may be wound up without revolving the gear-wheel, but providing for the turning of said wheel with the shaft in the opposite direction. This gear-wheel meshes with a gear-wheel H on a shaft h, which shaft carries a larger gear-wheel H', which in turn meshes with a gear-wheel I on the shaft i, which also carries a second gear-wheel J, which actuates the gear-wheel J' on the shaft j', which carries a fly wheel or fan j, the said wheel j meshing with a gear-wheel k on the shaft k, to the outer end of which is affixed a disk l, provided with a crank or wrist pin l'. On this same shaft is a wheel or disk m, which is provided with a plurality of notches n, with which a lug or finger n on the upper face of the rock-bar is designed to engage at predetermined periods. The crank or wheel l' works in an elongated slot o in the lower end of the arm I, which is fulcrumed on a stud or lug n' on the outside of the upright, and at its upper end bent inward and provided with a bell-hammer o', as shown.

O is a bell affixed to the side in any suitable manner, so as to be struck by the bell-hammer as its arm is oscillated.

The operation will be readily understood. The spring is wound up and the cords all drawn taut, the rock-bar being horizontal, and the lug or finger n on the upper face of said rock-bar engaged with one of the notches n in the disk m, serving to keep the train of gearing from moving. When a cord is burned, its weight will fall and its lever be thrown up into contact with the rock-bar, which is thereby tilted from a horizontal, as shown by dotted lines in Fig. 2, and the lug or finger n withdrawn from its notch, which leaves the spring to wind up again, to again throw up the cord, and so on until the alarm is set motion it imparts an oscillatory movement to the arm I, which causes the bell-hammer to contact with the bell and sound a continuous alarm.

The gearing may be multiplied or otherwise changed to obtain greater or less power, as may be desired, and the number of cords may be varied as will, and so may also the character of the connections D and E.

It is deemed important that the rock-bar be centrally arranged and that the levers C' be arranged to contact directly with the rock-bar, whereby intervening mechanism is dispensed with and the construction simplified.

What I claim is—

1. In an alarm, the combination, with a pivoted lever arranged to engage directly with the rock-bar, of a centrally-arranged rock-bar disconnected from said lever and arranged in the path thereof, connections holding the lever normally out of contact with the rock-bar, and an alarm actuated by the tilting of the rock-bar, as set forth.

2. In an alarm, the combination, with a pivoted lever, cords holding the same, and a rock-bar independent of and arranged in the path of one arm of the lever, of a looking-wheel connected with a train of gearing and normally held from rotation by the rock-bar, and an alarm actuated by the release of the looking-wheel through the tilting of the rock-bar, substantially as specified.
3. The combination, with the pivoted levers arranged upon opposite sides of and arranged to directly engage the rock-bar and the cords connected therewith, of the rock-bar independent of said lever and arranged to be engaged and tilted by the same, the train of gearing, the locking-wheel arranged to hold the same from movement and thus held by the rock-bar, the weights connected with the levers, and the alarm actuated by the tilting of the rock-bar, substantially as specified.

4. The combination, with the pivoted levers, the cords and weights connected thereto, and the rock-bar pivoted between the levers and arranged to be engaged directly thereby, of the upwardly-extending finger on the rock-bar, the notched locking-wheel engaged by said finger, the train of gearing held by said wheel and finger, and the alarm operated by the gearing, substantially as described.

5. The combination, with the rock-bar arranged to be engaged directly by the lever, the vertical finger thereon, the train of gearing, the alarm, the locking-wheel engaged by said finger, the pivoted lever independent of the rock-bar, and the weight and cord connected therewith, of the spring connected with a lug depending from the rock-bar to normally keep it horizontal, substantially as specified.

6. The combination, with the centrally-arranged rock-shaft and the horizontal rock-bar carried thereby, of the pivoted levers having their pivots upon opposite sides of the rock-bar and arranged to contact therewith when moved on their pivots, connections holding the levers normally out of contact with the rock-bar, and an alarm actuated by the tilting of the rock-bar, as set forth.

7. The combination, with the train of gearing, the locking-wheel therefor, the disk provided with crank-pin, the bell, and the hammer-arm provided with elongated slot in which the crank-pin works, of the rock-bar provided with finger, the lever pivoted with one arm in the path of the rock-bar, and the cord connected to the other arm of the lever, substantially as specified.

8. The combination, with the uprights and the guide-bars D', of the train of gearing, the rock-bar, the levers independent of and disconnected from the rock-bar, the weights on the levers, the rods D, connected with the outer ends of the levers and passing loosely through the guide-bars, and the cords connected to the said rods, substantially as specified.

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

WILLIAM HENRY.

Witnesses:

JOHN ALEXANDER,

J. F. LIVINGSTON, Jr.