(No Model.) 2 Sheets—Sheet 1.

C. C. HENDERSON.

BURGLAR AND FIRE ALARM.

No. 398,254. Patented Feb. 19, 1889.

Fig. 1.

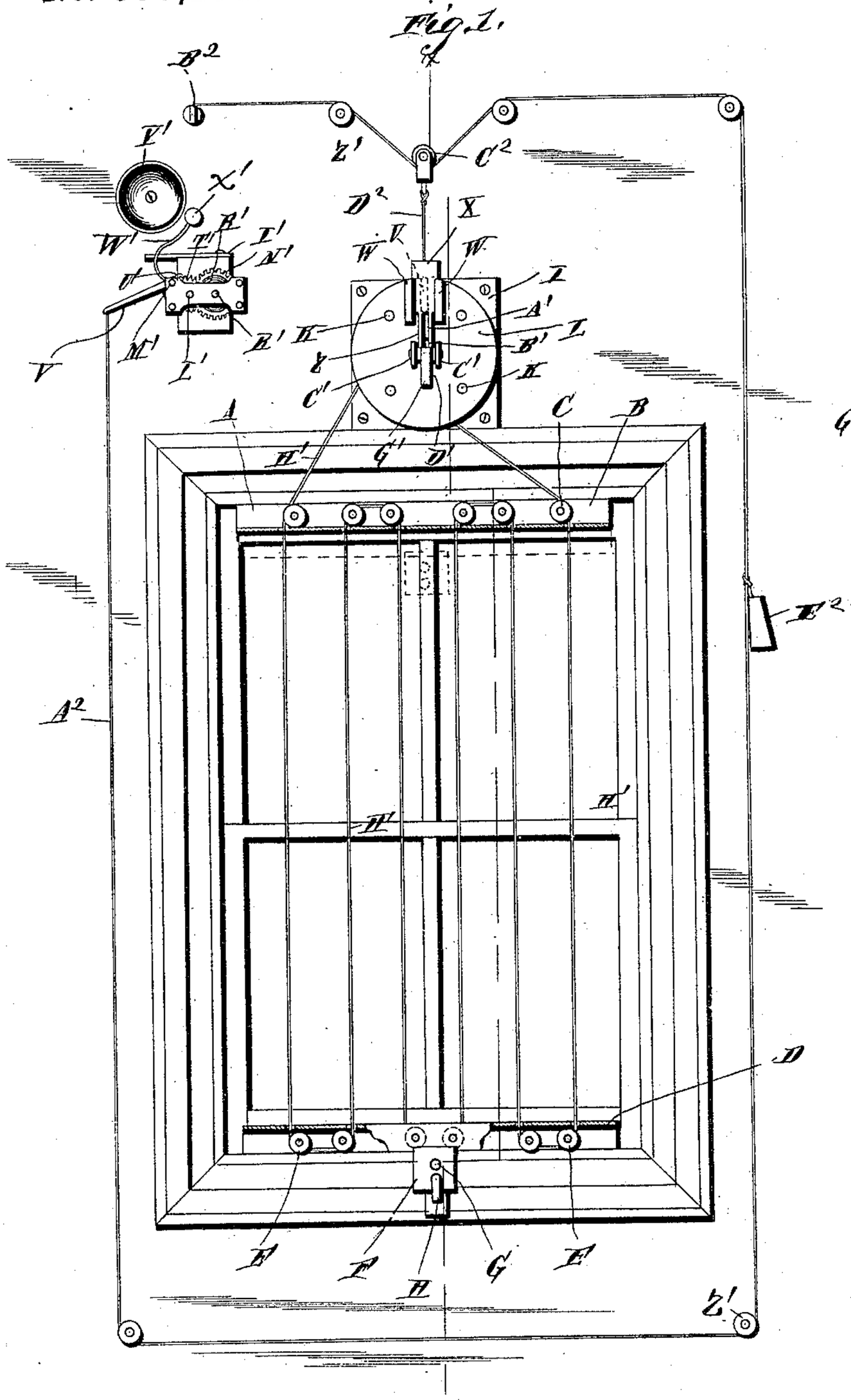
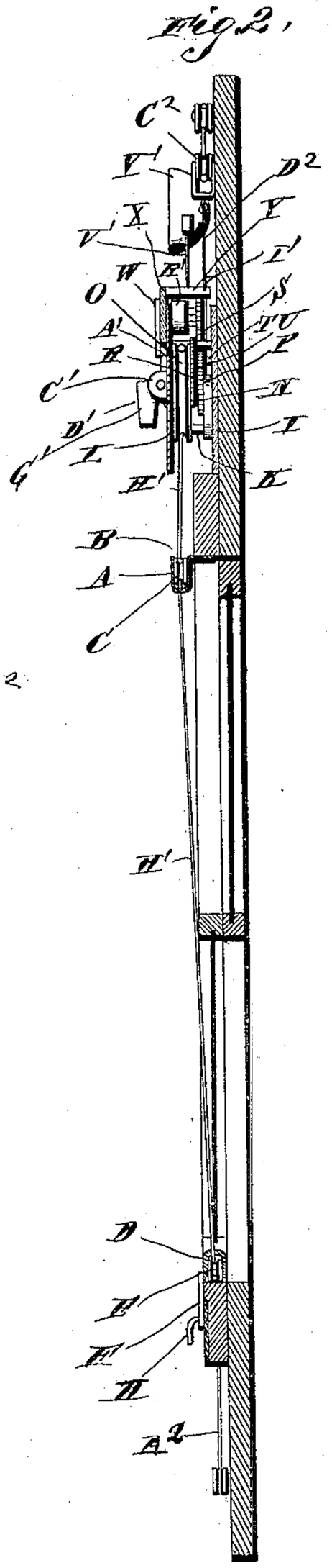


Fig. 2.



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(No Model.) 2 Sheets—Sheet 2.

C. C. HENDERSON.

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Fig. 3.

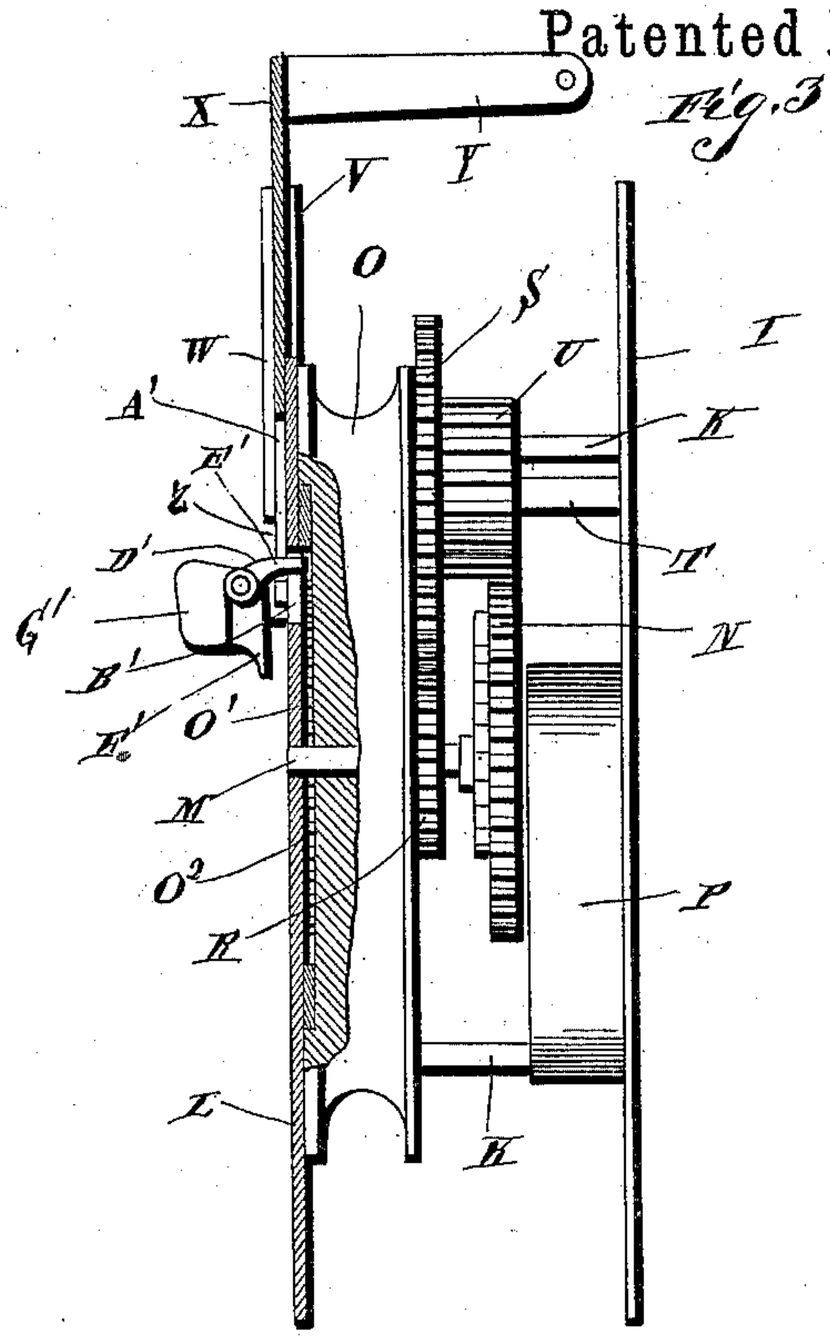


Fig. 4.

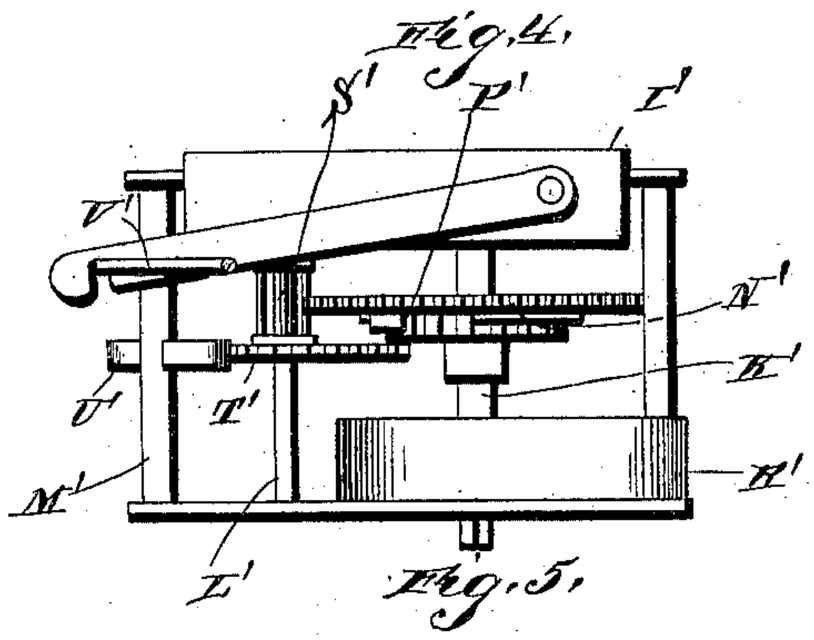
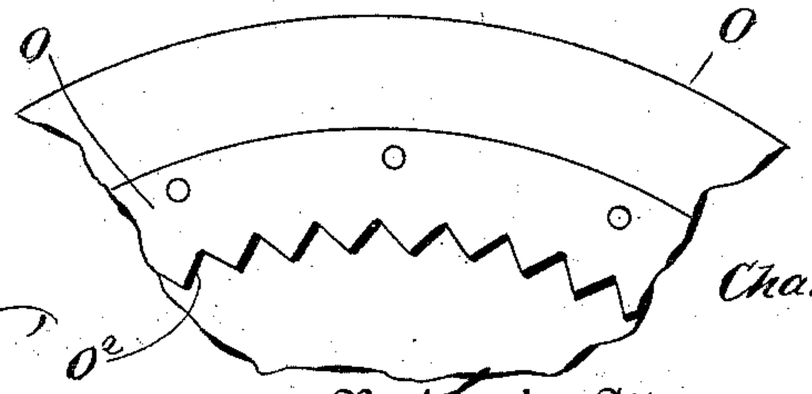


Fig. 5.



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UNITED STATES PATENT OFFICE.

CHARLES CARROLL HENDERSON, OF JAMESTOWN, NEW YORK.

BURGLAR AND FIRE ALARM.

SPECIFICATION forming part of Letters Patent No. 398,254, dated February 19, 1889.

Application filed November 6, 1888. Serial No. 290,107. (No model.)

To all whom it may concern:

Be it known that I, CHARLES CARROLL HENDERSON, a citizen of the United States, residing at Jamestown, in the county of Chautauqua and State of New York, have invented a new and useful Improvement in Burglar and Fire Alarms, of which the following is a specification.

My invention relates to an improvement in fire and burglar alarms; and it consists in the peculiar construction and combination of devices that will be more fully set forth hereinafter, and particularly pointed out in the claims.

In the drawings, Figure 1 is an elevation of a window provided with a fire and burglar alarm embodying my improvements. Fig. 2 is a vertical sectional view taken on the line *x x* of Fig. 1. Fig. 3 is a detail view of the alarm-actuating mechanism. Fig. 4 is a similar view of the mechanism for sounding the alarm. Fig. 5 is a face view of a portion of the toothed drum.

A represents a bar which is secured to the upper side of the window-partition, and has a longitudinal groove, B, in its upper side, in which groove are mounted a series of pulleys, C.

D represents a similar bar, which has a groove on its lower side, in which are mounted a series of pulleys, E. From the center of the bar D depends a plate, F, having a series of notches, G, that are adapted to engage a catch, H, at the lower side of the window-frame.

I represents a rectangular plate made of metal, which is secured to the wall just above the center of the window-frame, and is provided with four or more posts, K, which extend inward therefrom, and to the inner ends of which are secured a circular plate, L.

M represents a shaft which has its bearings in openings in the center of the plates I and L, and rigidly secured to the said shaft is a spur-wheel, N.

O represents a drum or pulley which is loosely mounted on the said shafts, bears against the front plate, L, and has on its front side a circular plate, O′, provided with inwardly-extending V-shaped teeth or serrations O^2.

P represents a volute spring, which has one end secured to the shaft M, and has its opposite end attached to one of the posts K. On the inner side of the pulley O is secured a pinion, R, which meshes with a large spur-wheel, S, on a shaft, T, the said shaft having its bearings near the upper sides of the plates I and L. A pinion, U, is also secured to the said shaft and engages the wheel N. In the upper side of the plate L is a vertical recess, V, and on the front side of the said plate and arranged on opposite sides of the said recess are vertical guideways W.

X represents a vertical slide-plate, which is guided by the ways W, and has at its upper end a rearwardly-projecting arm, Y. From the lower end of the slide-plate depends an arm or extension, Z, which has a vertical groove or slot, A′, the same registering with a slot, B′, in plate L.

Journaled in a pair of ears, C′, which project from the front side of the plate L, is a detent, D′, which has an arm, E′, extending through the slots A′ and B′ and engaging the teeth or serrations O^2 of the drum or pulley. The said detent is further provided with a downwardly-extending arm, F′, which is adapted to engage the arm Z of plate X at the lower ends of slot A′, the detent being further provided with a counter-weight, G′, the function of which is to normally keep the arm F′ in engagement with said arm Z.

H′ represents a cord which is passed backward and forward between the bars A D, around the pulleys C E in said bars, and has its ends attached to the drum or pulley O, and adapted to be wound thereon. When the bar D is at the upper end of the window and in contact with the lower side of the bar A, the cord is almost entirely wound on the drum or pulley and the spring P is almost unwound.

I′ represents a frame in which is journaled a main shaft, K′, a counter-shaft, L′, and a rock-shaft, M′. The shaft K′ has a spur-wheel, N′, loose thereon and connected thereto by a pawl-and-ratchet mechanism, P′, and also secured to the said shaft is one end of a volute spring, R′, the opposite end of the spring being secured to one of the corner-posts of the frame. The said shaft K′ has one end squared and adapted to be turned by a key in order to wind up the spring.

Secured to the shaft L′ is a pinion, S′, that engages the wheel N′, and an escape-

ment-wheel, T′, that engages a pallet, U′, on the shaft M′; also projecting from the said shaft is an arm, V′, and an arm, W′, which has a hammer, X′, the latter being adapted to strike and sound a gong, Y′.

Arranged on the wall of the room or apartment and extending around all of the walls thereof, or any single wall, as may be required, are a series of pulleys, Z′. A cord, A^2, is secured to the arm V′, is passed around the pulley Z′, thereby making the entire circuit of the wall or walls, and the opposite end of the said cord is secured to a pin or tension device, B^2, by means of which the cord may be drawn as tightly as required. A pulley, C^2, is suspended on the cord at a point above the center of the window, and is connected to the arm Y of slide-plate X by a cord, D^2.

E^2 represents a weight which is attached to one of the vertical portions of the cord A^2, and serves to tighten the upper horizontal portion of the cord on the upper supporting sheaves or pulleys, Z′, and thereby cause the pulley C^2 and cord D^2 to exert a constant upward pressure on the plate X. The length of the cord A^2 is such that when thus arranged the end thereof which is attached to the arm V′ will keep the latter drawn downward and one arm of the pallet in engagement with the escapement-wheel, thereby preventing the alarm mechanism from sounding.

The operation of my invention is as follows: By drawing the bar D downward to the bottom of the window and attaching it to the catch H the cord H′ will be uncoiled from the drum O, so as to rotate the latter, and thereby wind the spring P, and those portions of the cord H′ between the bars A and D will be strung up and down across the window, as shown in Fig. 1. It will be understood that the said bars and cords are arranged on the outer side of the window-curtain out of sight from the interior of the room. The constant upward pressure exerted by the weight of the cord on the plate X causes the latter to keep the arm E′ of the detent in engagement with one of the teeth or serrations O^2, and the arm F′ of the detent is kept in engagement with the plate X to prevent the latter from rising. In the event that a burglar in attempting to enter a window should thrust his hand between the cords H′ or break one of the said cords, or in the event that one of said cords should be burned by fire or that the same thing should happen to the cord A^2, the spring P will instantly cause the drum O to rotate, inasmnch as the disarrangement or breakage of the cord H′ releases the latter, and the initial movement of the said drum will cause one of its teeth or serrations to depress the detent-arm E′, and thereby disengage the detent-arm F′ from the bottom of slot A′. The weighted cord A^2 will then instantly raise the pulley C^2 and carry the slide-plate X upward a sufficient distance to prevent the arm F′ from again engaging therewith, and the weight E′ will be caused to descend a sufficient distance to slacken the ends of the cord A^2, attached to the arm V′, thereby releasing the escapement-pallet and permitting the spring alarm mechanism to be set in motion and sound the gong Y′, as will be readily understood.

During the day and when it is not desired that the alarm shall be operated a detent, F^2, pivoted to frame I′, will be caused to engage the arm W′, and the bar D will be disengaged from the catch F and run to the top of the window, as shown in dotted lines in Fig. 1, where it will be out of the way.

It will be understood from the foregoing description that the cord H^2 may be carried around the walls of every room in the house, or from the house to a barn or other outhouse to adapt the alarm to protect any room or building on the premises.

Having thus described my invention, I claim—

1. The combination of the spring-actuated drum O, the detent operated by the drum, the cords attached to the drum and adapted to be wound thereon, the plate X, engaged by the detents, the alarm mechanism having detaining-arm V′, and the cord A^2, connected to said arm and to plate X, and normally drawn taut by the latter, for the purpose set forth, substantially as described.

2. The combination of the alarm mechanism having the arm V′, the cord A^2, attached to the said arm, the weight attached to the cord, the drum O, the spring to rotate the same in one direction, the cords H′, attached to the drum and adapted to coil thereon in the opposite direction, the detent engaging the drum, the plate X, engaged by the detent, and connections between the said plate and the cord A^2, substantially as described.

3. The combination of the drum O, having the teeth or serrations O^2, the spring and gears to rotate the drum in one direction, the slide-plate X, the detent having the arm E′, engaging the teeth O^2, and the arm F′, engaging the plate X, the cords H′, attached to and adapted to be coiled on the drum, the alarm mechanism, and connections, substantially as set forth, between the plate X and the alarm mechanism, substantially as described.

4. The combination of the drum O, the spring to rotate the same in one direction, the detent to engage the drum, the plate X to trip the detent, the bar D, having the pulleys E, the pulleys C, journaled to a fixed point, the cords H′, attached to the drum and connecting the pulleys E C, the alarm mechanism, and connections between the same and the plate X, substantially as described.

5. The combination, with the alarm mechanism, of the shaft M and bearings therefor, the spring to rotate the shaft, the wheel N, rigid with the shaft, the drum O, loose on the shaft, having the teeth or serrations O^2, and the pinion R, the shaft T, journaled in

suitable bearings and having the wheel S, and pinion U, engaging the pinion R and wheel N, respectively, the plate X, the detent having the arm engaging said plates and the arm engaging the teeth O^2, the cords H′, attached to the drum and adapted to be wound thereon, the alarm mechanism, and connections between the same and the plate X, substantially as described.

6. In a fire and burglar alarm, the bar A, secured at the top of the window, the bar D, secured at the bottom of window, the bar A, having the pulleys C, and the bar D, having the pulleys E, and the continuous cord H′, passed backward and forward between the bars A D, around the pulleys C E, the spring-actuated revoluble drum to which the ends of the cord are directly attached, and the alarm mechanism, and connections, substantially as specified, between the same and the drum, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

CHARLES CARROLL HENDERSON.

Witnesses:

M. D. STONE,

CHAS. F. KELSEY.