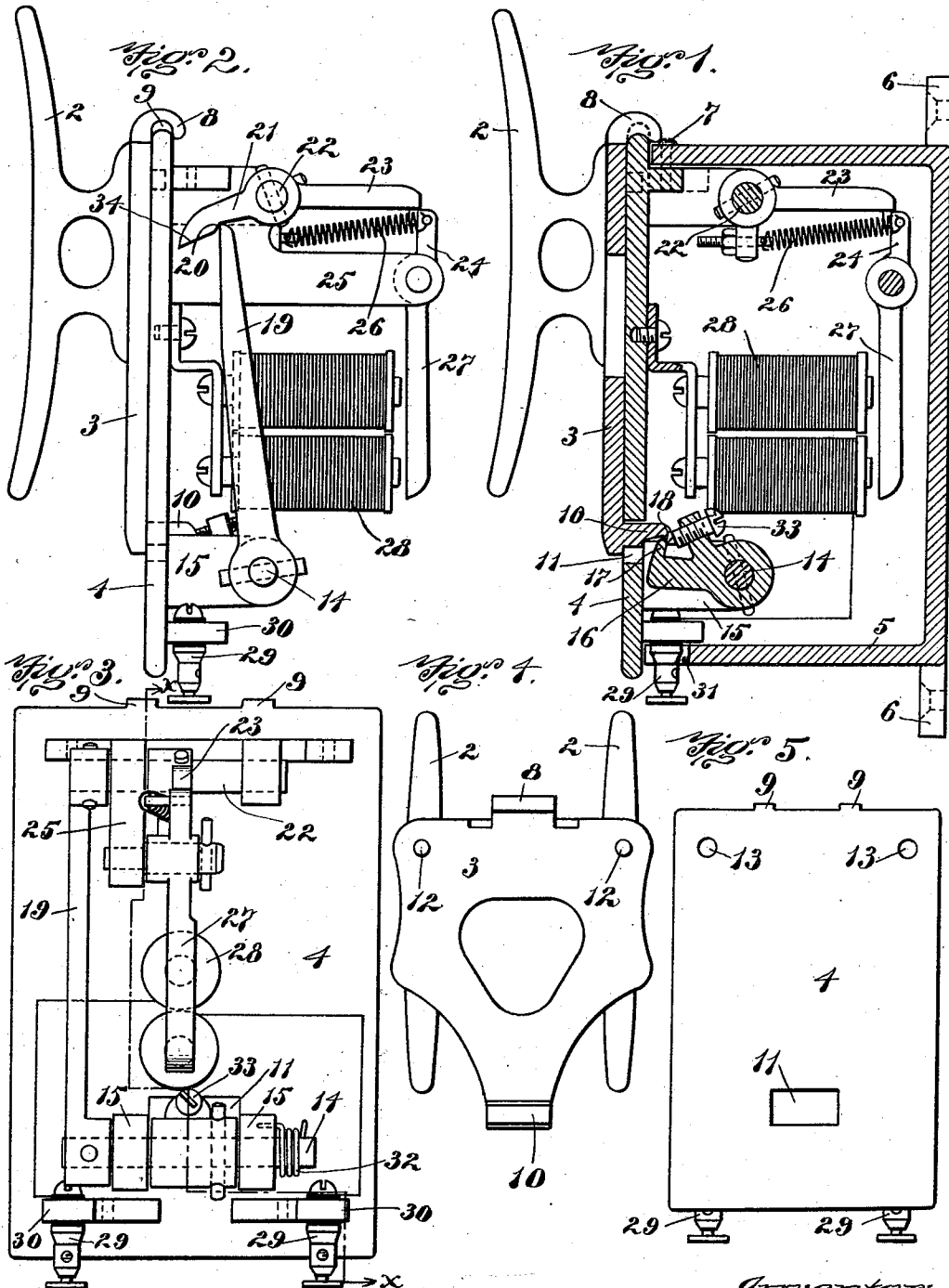


E. D. CHADWICK.
 RELEASING DEVICE.
 APPLICATION FILED OCT. 8, 1906.

1,000,895.

Patented Aug. 15, 1911.



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RELEASING DEVICE.

1,000,895.

Specification of Letters Patent. Patented Aug. 15, 1911.

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To all whom it may concern:

Be it known that I, EVERETT D. CHADWICK, a citizen of the United States, and resident of Winchester, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Releasing Devices, of which the following is a specification.

My invention relates to devices for securing and releasing when desired a rope or like connection which is normally under tension, and is herein represented as embodied in a "release box" adapted for use in connection with automatic ventilators for theaters, halls and the like, for controlling the opening of said ventilators, my invention being particularly intended to provide a simple and practical device for this purpose.

A preferred form of my invention, as constructed for use in connection with an automatic ventilator such as above referred to; is illustrated in the accompanying drawings, in which,—

Figure 1 is a vertical section through the complete device, the plane of section being indicated by the line $x-x$ in Fig. 3; Fig. 2 is a side elevation of the operating parts; Fig. 3 is an elevation of the parts shown in Fig. 2, as viewed from the right hand side of the latter figure; and Figs. 4 and 5 are elevations on a reduced scale, showing respectively the rear or inner face of the attachment member hereinafter described and the front or outer face of the fixed or base member.

Ventilators such as above referred to are usually operated by means of ropes, and it is desirable to provide for securing them in partly-open position for purposes of ventilation without interfering with the operation of the device which releases them to permit their complete opening in case of fire. To this end my device is preferably so constructed as to provide for the attachment thereto of a rope or the like at any desired point in the length of the rope, being herein represented as including what I term an "attachment member" comprising an ordinary cleat 2 rigidly secured to a plate 3, and since in some instances it is convenient to secure two or more ropes to a single releasing device, I have shown my attachment member in Fig. 4 as comprising two such cleats secured to the same plate 3, each cleat being adapted to receive a rope independently of the other.

4 represents a fixed part of the device to which the plate 3 and its cleat or cleats are detachably secured, said fixed member 4 forming in this instance the cover of a box 5 adapted to contain the operating parts of the device and protect the same from accident as well as from being tampered with by unauthorized persons. The box 5 is adapted for permanent attachment to the wall of the building or the like by means such as perforated lugs 6, and the cover 4 is detachably secured to said box by means of screws 7 or otherwise.

The mode of connection of the attachment member of my device with the cover 4 is such that the pull exerted by the rope or ropes connected to the plate 3 will effect the complete disconnection of the latter from the cover 4 when said plate is unlatched as hereinafter described. This is accomplished in the particular construction illustrated, in which the pull on the cleats 2 is supposed to be exerted in an upward direction, by providing the plate 3 with a hook 8 located at its upper end and adapted to hook over the upper edge of the cover 4, between two positioning lugs 9, and with a latch member 10 located at its lower end and adapted to pass through a perforation 11 formed in the cover 4 and enter the interior of the box 5, where said member 10 is normally locked by suitable means such as hereinafter described. The upward pull on the plate 3 is preferably resisted by pins 12, Fig. 4, adapted to enter perforations or recesses 13 formed in the cover 4 a short distance below the upper edge of the latter, these pins and recesses being so located that the member 10 passes freely through the perforation 11 without touching the upper edge of the same, thus avoiding any frictional resistance to the movements of said member.

The means for locking the plate 3 to the cover 4 are preferably so constructed that they will be automatically unlocked or released by closing an electric circuit at any convenient point or points, and to this end I provide a rock shaft 14 journaled in lugs 15 carried by the inside of the cover 4, said rock shaft having rigidly secured thereto an arm 16 terminating in an upwardly-extending finger 17 adapted to engage the rear or outer face 18 of the part 10, as shown in Fig. 1. Said shaft 14 also carries an arm 19 extending upward and adapted to engage at its free end behind a beveled face 20 formed

on the under side of an arm 21, Fig. 2, this latter arm being rigidly secured to a second rock shaft 22 journaled on the cover 4 and provided with another arm 23 extending inward, or toward the back of the box. A trip lever 24 is pivoted to a fixed support 25 carried by the inner face of the cover 4, the upper end of said lever 24 being adapted to pass beneath the free or inner end of the arm 23, and is provided with a light spring 26 tending to hold it in the last-mentioned position. The lower portion 27 of the lever 24 carries or forms the armature of an electro-magnet 28, also secured to the cover 4, the terminals of this magnet being led to binding posts 29 carried by and insulated from lugs 30 secured to or formed integral with the inner face of the cover 4 near its lower end. The box 5 is notched as at 31 to receive said binding posts, and the latter thus project from the lower end of said box, without touching the same, in position for the convenient attachment of the circuit wires.

In operation, assuming that an upward pull is put upon the cleat or cleats 2 by means of one or more ropes secured thereto, the resulting upward strain on the plate 3 will evidently tend to turn said plate about the upper edge of the cover 4 as an axis and thus withdraw the member 10 from the perforation 11, since the direction of said strain is offset or located at one side of said upper edge of the cover 4 and the pins 12 prevent a direct upward movement of the plate 3. Such a turning movement of said plate is resisted, however, by the engagement of the finger 17 with the face 18 on the part 10, but as said finger 17 is located slightly above the axis of the rock shaft 14 there will be a tendency for said rock shaft to turn and thus release said part 10, which tendency is preferably increased by the action of a spring 32 applied to the rock shaft. Said rock shaft 14 is normally prevented from so moving by the engagement of the upper end of the arm 19 with the beveled face 20 on the arm 21, but since said face 20 is located slightly below the pivotal axis of the rock shaft 22 the pressure exerted on the face 20 will tend to turn said rock shaft 22, and this tendency is positively resisted by the engagement of the arm 23 with the upper end of the lever 24 on which said arm rests. The result of this arrangement is that the considerable pull likely to be exerted on the cleats 2 is supported mainly by the various bearings of the movable parts of the device, so that the trip lever 24 may be turned to release the arm 23 by the exertion of a slight force such as will exist when the circuit through the electro-magnet 28 is closed, and assuming that such closing of the circuit has occurred the arms 23 and 19 will be successively released in an obvious

manner, thus permitting the disengagement of the finger 17 from the part 10, whereupon the lower end of the cover 3 will swing outward until the pins 12 have been withdrawn from the recesses 13. Thereupon the entire plate 3, with the cleat or cleats attached, will be completely separated from the cover 4 and lifted bodily upward by the attached rope or ropes, thus permitting the closing or other movement of the ventilator or other part or parts to which said ropes are attached.

The resetting and relocking of the parts of the device may be accomplished by the act of hooking the plate 3 over the upper edge of the cover 4 and then thrusting the part 10 through the perforation 11 into the position shown in Fig. 1, to which end the arm 16 is provided with an adjustable abutment such as a screw 33 located in position to be engaged by the inner end of the part 10 and thus caused to rock the shaft 14 and bring the parts 17 and 19 carried thereby into their respective positions of engagement with the beveled faces 18 and 20. In this case the arm 21 is provided with a guiding face 34 extending outward from the face 20 and adapted to rest upon the free upper end of the arm 19 during the movements of the latter, the arm 21 being made heavy enough to overbalance the arm 23 and thus lift the same, whenever such movement is permitted, sufficiently to cause the upper end of the trip lever 24 to be drawn into its engaging position beneath said arm 23, whereupon the parts are restored to their locked or normal position, in readiness for another operation.

It will be seen that my invention provides a simple and practical device which may be used for the purpose of releasing one or more ropes or the like in a variety of situations where the same are normally under tension, and that such release may be effected, if desired, from any desired number of distant points, but it is to be understood that the locking and unlocking of the attachment member may be provided for in a variety of ways other than that herein shown and described without departing from my broad invention. It is one of the features of the particular construction illustrated that all the moving parts are carried by the cover 4 and may be withdrawn bodily from the box 5 by simply removing said cover, thus rendering said parts conveniently accessible for the purposes of inspection, adjustment, repair and the like. At the same time said parts are protected under normal conditions from accident as well as from being tampered with, the arrangement being such that although any rope may be connected to its cleat at any point in its length, or disconnected therefrom at will, yet the removal of the plate which carries said cleat cannot be effected except by pur-

posely closing the electric circuit which controls the magnet 28, or by removing the cover 4.

I claim as my invention:

5 1. A device of the character described, comprising a fixed base, a plate having a detachable pivotal engagement with said base and provided with a latch member, means for detachably connecting said latch member to the base, and means carried by said
10 plate for attaching a rope or the like thereto.

2. A device of the character described, comprising a fixed plate having a perforation therein, a movable plate provided with
15 means adapted to hook over the edge of said fixed plate and also with a latch member adapted to pass through said perforation, means located behind said fixed plate for detachably engaging said latch member, and
20 means carried by said movable plate for detachably securing a rope or the like thereto.

3. A device of the character described, comprising a fixed plate having recesses near one edge and a perforation at a distance
25 therefrom, an attachment member adapted to hook over one edge of the plate, adjacent to said recesses, and provided with pins adapted to enter said recesses and with a latch member adapted to pass freely
30 through said perforation, means carried by said attachment member for detachably securing a rope or the like thereto, and means for detachably engaging said latch member.

4. A device of the character described, comprising a box and a removable cover therefor, an attachment member located on the exterior of the cover and having means for detachably securing a rope or the like
35 thereto, a latch member carried by the attachment member and arranged to pass through the cover, means within the box for detachably engaging the latch member, and means for releasing the same when desired.

5. A device of the character described, comprising a box and a removable cover therefor, an attachment member located on the exterior of the cover and having means for detachably securing a rope or the like
45 thereto, a latch member carried by the attachment member and arranged to pass through the cover, means carried by said cover, within the box, for detachably engaging the latch member, and means for releasing the same when desired.

6. A device of the character described, 55 comprising a box and a perforated cover therefor, an attachment member having means for pivotal engagement with said cover and provided with a latch member arranged to pass through the perforation
60 therein, a latch arm pivotally supported within the box and adapted to engage said latch member, a re-setting abutment carried by the latch arm, means for normally holding said latch arm in its position of engage-
65 ment, and means for releasing the same when desired.

7. A device of the character described, comprising a box and a perforated cover therefor, an attachment member having
70 means for pivotal engagement with the cover and provided with a latch member adapted to pass through the perforation therein, and means contained within the box for engaging and releasing said latch mem-
75 ber, said means comprising an electro-magnet, a movable armature therefor, a stop movable with said armature, and connections between said stop and the latch member for normally holding the latter in locked
80 position.

8. A device of the character described, comprising a fixed base, an attachment member provided with means for securing a rope or the like thereto and having a de-
85 tachable pivotal engagement with said base, a latch adapted to hold the attachment member in engagement with said base, means for relieving the latch from the strain imposed on the attachment member
90 by said rope, and means for releasing said latch.

9. A device of the character described, comprising a fixed base, a plate having a detachable pivotal engagement therewith,
95 means for detachably holding said plate in engagement with the base, and a cleat carried by said plate and located at one side of the point of pivotal engagement of the plate and the base, with reference to the direction
100 of the strain on the cleat.

In testimony whereof, I have hereunto subscribed my name this twenty-ninth day of September, 1906.

EVERETT D. CHADWICK.

Witnesses:

JOSEPH T. BRENNAN,
CHARLES D. WOODBERRY.