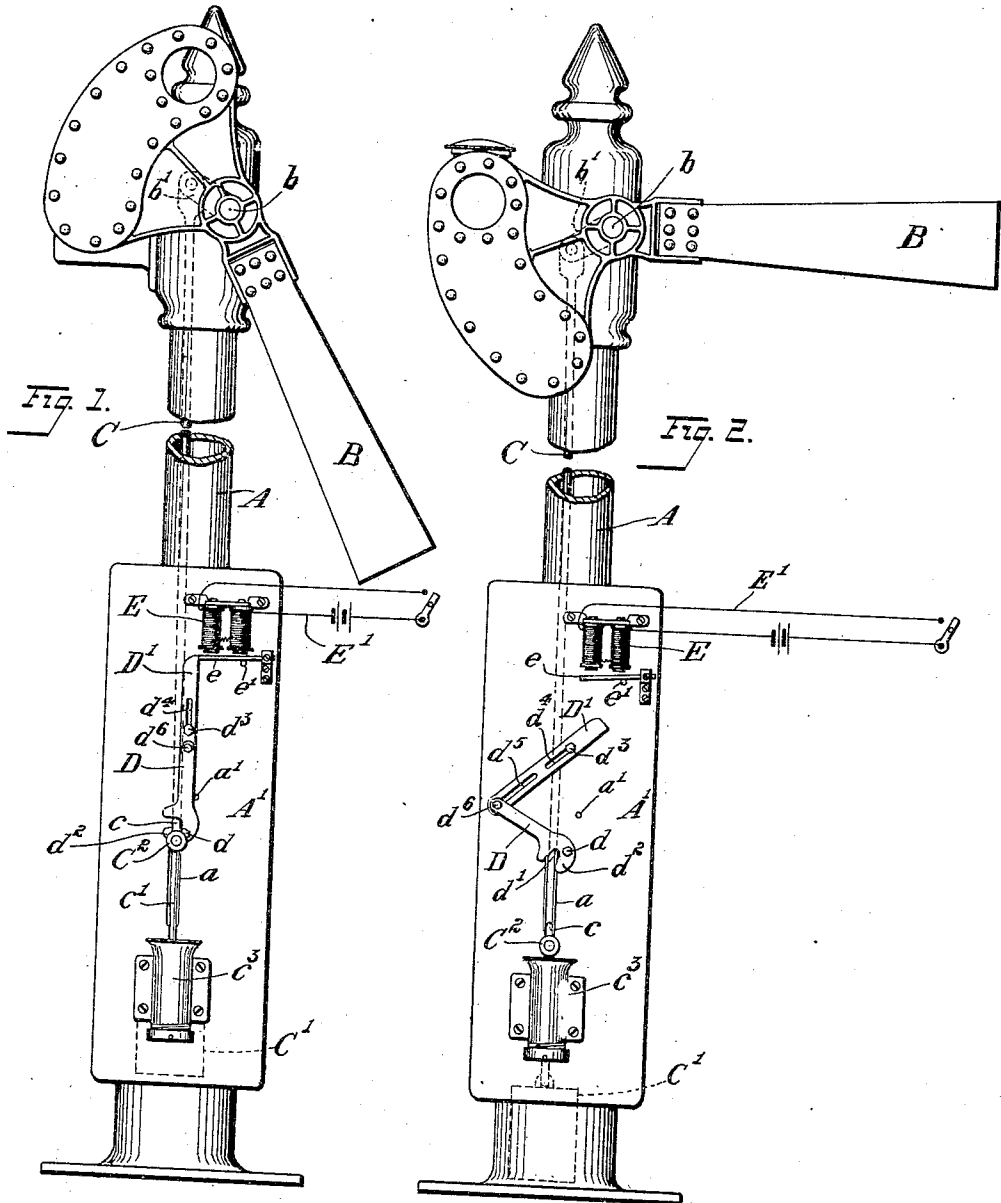


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TRIPPING MECHANISM.
APPLICATION FILED DEC. 4, 1908.

945,644.

Patented Jan. 4, 1910.
2 SHEETS—SHEET 1.



Witnesses

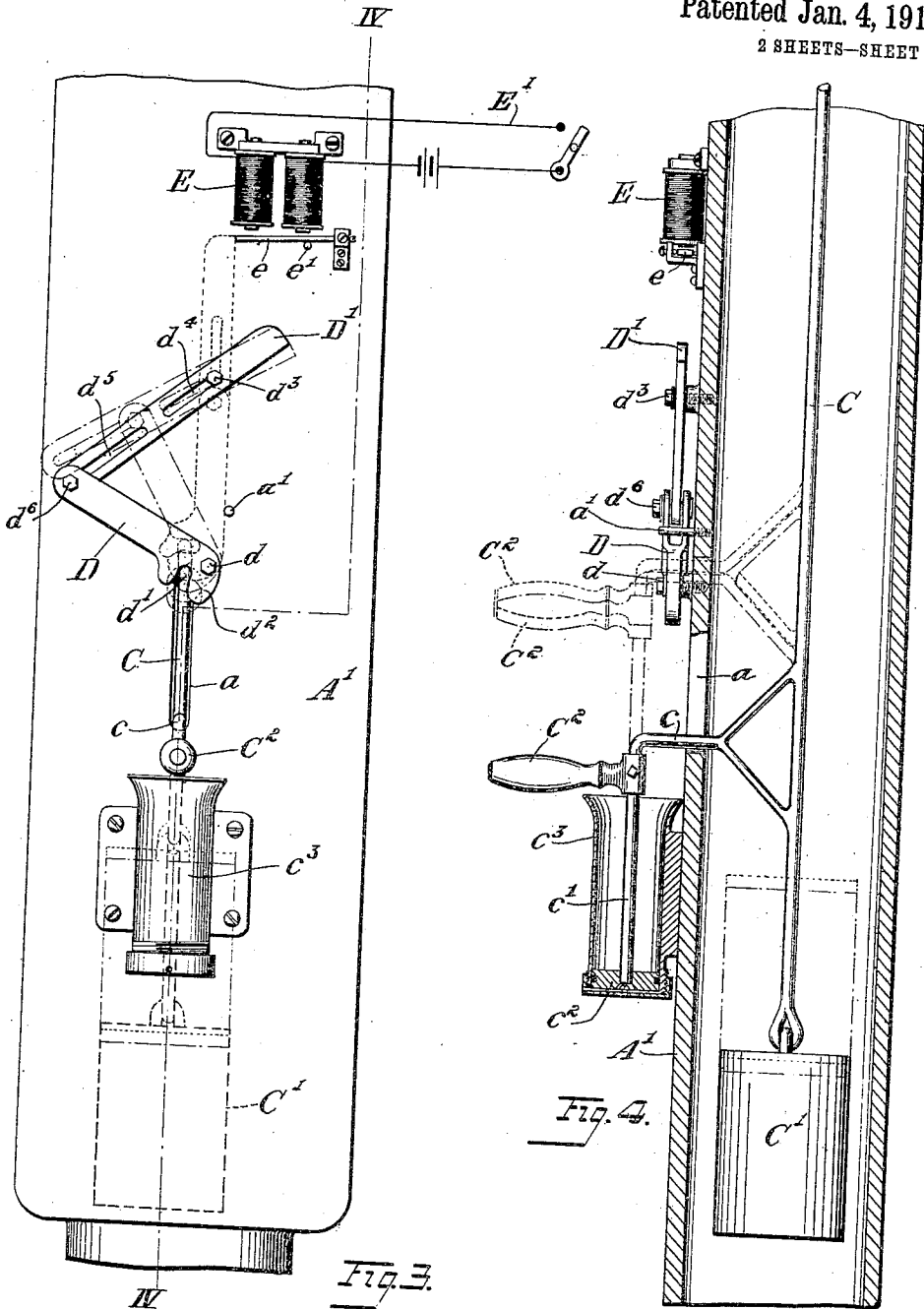
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UNITED STATES PATENT OFFICE.

PETER VLIET, OF CANTON, OHIO.

TRIPPING MECHANISM.

945,644.

Specification of Letters Patent.

Patented Jan. 4, 1910.

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To all whom it may concern:

Be it known that I, PETER VLIET, a citizen of the United States, resident of Canton, county of Stark, and State of Ohio, have invented a new and useful Improvement in Tripping Mechanism, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

My invention relates to tripping mechanism and particularly to tripping mechanism used in connection with the semaphores of a railway signaling system, whereby said semaphores may be actuated from a distance to assume a signaling position.

The object of said invention is to provide a tripping mechanism which will be unfailling and simple in its operation.

The said invention consists of means hereinafter fully described and particularly set forth in the claims.

The annexed drawings and the following description set forth in detail certain mechanism embodying the invention, the described means however constituting but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawings:—Figure 1 is a broken front elevation of a semaphore embodying my invention, showing said semaphore in its non-signaling position. Fig. 2 is a similar view showing the semaphore in its signaling position. Fig. 3 is a broken front elevation, upon an enlarged scale, illustrating various positions which the mechanism may assume. Fig. 4 is a vertical section taken upon the planes indicated by lines IV—IV, Fig. 3.

The semaphore to which my invention is shown, in the drawings, to be applied is of the usual general construction in which a vertical hollow standard A is provided, at the top of which is pivoted the semaphore arm B. That portion of the pivotal pin b on the interior of the standard is provided with a crank arm b' upon the end of which is pivotally secured a downwardly extending rod C, to whose lower end is secured a suitable weight C' as shown in Figs. 3 and 4.

Secured to or integrally formed with the standard A and near the bottom portion thereof is a plate A' which is pierced by a vertical slot a, Figs. 1, 2 and 4. The rod C

is provided with a laterally projecting portion or bar c which projects through the slot a and then turns downwardly to form a piston rod c'. The lower extremity of this piston rod is provided with a piston c² which operates in a dash pot c³ suitably secured upon the face of the plate A'. A handle C² is secured to the piston rod c' at any position in which it will not interfere with the downward movement of the piston in the dash pot. It will therefore be seen that by means of a handle C², the weight C' and rod C may be raised upwardly, such upward movement being however limited by the length of the slot a, as will be understood. The downward movement of the rod and weight is limited by the contact of the piston c² with the bottom of the dash pot.

Having its path of movement intersecting the slot a and therefore intersecting the path of movement of the projecting member c is an arm D pivoted upon a pin d secured to the plate A'. This arm is provided, Fig. 3, with an eccentrically located notch d' adapted to receive the projection c whereby the latter may be held by resting upon the lip d² formed by said notch, when the arm is in its vertical position as shown in Fig. 1. Above the pin d is a fixed pivotal pin d³ which passes through a slot d⁴ formed in a second arm D', said slot being of a width sufficient to permit the arm to slide freely on said pin. A second slot d⁵ is provided in said arm D' through which passes and slides a pin d⁶ secured to the outer or swinging end of the arm D. The said two arms D and D' therefore constitute a collapsible member and when it is in its collapsed position as shown in Figs. 2 and 3, the slot d' is in a position such that the projection c may freely disengage itself therefrom as a result of the action of gravity upon the weight C'.

Upon the upper part of the plate A' is secured an electro-magnet which is located in a circuit E'. A suitable pivoted armature e, constituting a latch, is mounted upon the plate A' and in suitable proximity to the magnet. The downward movement of this armature is limited by a suitable pin e'. The path of movement of the outer end of the armature is intersected by the path of movement of the upper end of the arm D' and the upward swinging movement of arm D is limited by a pin a'. The positions of this pin and the pin d³ are such that when

the arm D is in contact with the pin a' , it will be in a vertical position as will the arm D', as shown in Fig. 1. The position of the upper end of arm D' will, when the latter occupies this vertical position, be such as to permit the armature e to drop down and intercept the said arm D'. It will therefore be seen that when the projection c is supported in the notch of arm D the weight C' will tend to maintain the upper end of arm D' in contact with the armature e . The position of the pin d^3 and slots d^4 and d^5 are further such that when the arms occupy their vertical position, pins d^3 and d^6 will be in comparative proximity. Considering the arm D' in this position as a lever, pin d^3 is the fulcrum and the weight operated upon is therefore applied at the position indicated by the action of pin d^6 . The operating lever arm is therefore comparatively long and the force exerted by the end of arm D' will therefore be comparatively small. A moderate amount only of force is therefore required to disengage the armature e from the arm D'.

The parts are so arranged with reference to the semaphore arm B that when the latter is in its downward or non-signaling position, the weight and rod will be in their raised positions and held therein by the holding mechanism above described, as shown in Fig. 1.

The above described device operates as follows:—Assuming the parts to be in the positions illustrated in Fig. 1, and that it is desired to raise the semaphore arm into its signaling position, the circuit E' is closed by a suitable push button or other device. Such closure actuates the armature e upwardly so as to free the outer or upper end of arm D'. This release is immediately followed by the downward movement of the weight C' and therefore of the extension c . The eccentric location of the latter with reference to the pivotal pin d causes the arm D to move into the position shown in Figs. 2 and 3 in which the said extension c is released from the notch d' and further downward movement of the weight is permitted. This downward movement is however controlled and checked by the dash pot and piston and the lowermost end of the downward stroke is reached without any deleterious jar on the mechanism. This action brings the semaphore arm B into the signaling position as shown in Fig. 2. When it is desired now to re-adjust the mechanism so as to cause the semaphore arm to assume its non-signaling position, the handle C² is grasped and by its means the weights C' and C are raised. This raising action causes the extension c to reengage the notch c and thereby turn the arm D back into its vertical position. This movement is accompanied by the resumption of its vertical po-

sition on the part of arm D' whereby armature e is again permitted to introduce itself so as to maintain the holding position of the mechanism as before, it being of course understood that the circuit has again been broken so as to release the said armature. In this manner an efficient and simple mechanism is provided which is effective in its operation and which does not introduce that factor of unreliability which usually accompanies the employment of springs.

What I claim therefore and desire to secure by Letters Patent is:—

1. In a device of the character described, the combination with a member in a suspended position to be released; of mechanism for holding said member and comprising a latch and a pivotal arm normally held in a given position by said latch, said arm formed with an eccentrically located notch in which said member is normally seated and adapted to maintain the holding relation between said latch and engaging means.

2. In a device of the character described, the combination of a member to be released; means for actuating said member in a suspended position when released; and mechanism for holding said member and comprising an electrically operated latch together with a pivotal arm normally held in a given position by said latch, said arm formed with an eccentrically located notch in which said member is normally seated and adapted to maintain the holding relation between said latch and arm.

3. In a device of the character described, the combination of a member to be released; gravity actuated means for moving said member when released; and mechanism for holding said member in a suspended position and comprising a latch and a pivotal arm normally held in a given position thereby; said member engaging said arm eccentrically, detachably and in a manner such as to normally maintain the holding relation between said latch and arm.

4. In a device of the character described, the combination with a member to be released; of mechanism for holding said member and comprising a latch, and a compound member consisting of a part having a fixed pivotal axis and an eccentrically located notch for engaging and holding said first named member, together with a second part slidably and pivotally connected with the free end of said first part and having a path of operation intersecting that of said latch, whereby the latter may engage and hold said second part and thereby maintain the holding relation between said holding mechanism and said first named member.

5. In a device of the character described, the combination of a suitable support; a latch mounted upon said support; an arm having a fixed pivotal axis on said support

and provided with an eccentrically located notch; a second arm slidably and pivotally secured to said first named arm, said second named arm being pivotally and slidably mounted on said support and having a path of movement intersecting that of said latch.

6. In a device of the character described, the combination of a suitable support; a latch mounted upon said support; an arm having a fixed pivotal axis on said support and formed with an eccentrically located notch; a second arm provided with two longitudinal slots; a pin passing through one end of said slot and mounted upon said first named arm; and a pivotal pin passing through the other slot fixed to said support; said second named arm having a path of movement intersecting that of said latch.

7. In a device of the character described, the combination of a holding member, a suitable support; a vertically movable member to be released and mounted in said support, said member being provided with a laterally projecting portion; mechanism for engaging said laterally projecting portion comprising a latch and a compound arm fulcrumed on one end and at the other engaging said laterally projecting portion and means for actuating said vertically movable member when released; said actuating means adapted to maintain the engagement of said latch with said holding member.

8. In a semaphore actuating device, the combination of the semaphore support; a movable semaphore mounted thereon; means connected with said semaphore for actuating

same to assume a signaling position; a laterally projecting handle connected with said actuating means; and means for holding said actuating means in a position such as to impart a non-signaling position to said semaphore, said holding means comprising a latch mounted upon a support, an arm having a fixed pivotal axis on said support and provided with an eccentrically located notch; a second arm slidably and pivotally secured to said first-named arm, said second-named arm being pivotally and slidably mounted on said support and having a path of movement intersecting that of said latch.

9. In a device of the character described, the combination of a suitable support; a semaphore movably mounted upon said support to assume a signaling or a non-signaling position; means for actuating said semaphore to assume a signaling position; and comprising a vertically movable rod; a laterally extending portion; a pivotal arm mounted upon said support and having a portion intersecting the upper part of the path of movement of said laterally extending portion of said rod; movable means for holding said arm in said intersecting position whereby said rod may be held in a suspended position and released therefrom when said arm is released.

Signed by me, this 21st day of November, 1908.

PETER VLIET.

Attested by—

WINIFRED WALTZ,
WM. R. MILLER.