(No Model.)

T. B. KEELER.

ELECTRIC SIGNAL APPARATUS.

No. 542,769. Patented July 16, 1895.

Fig. 2.

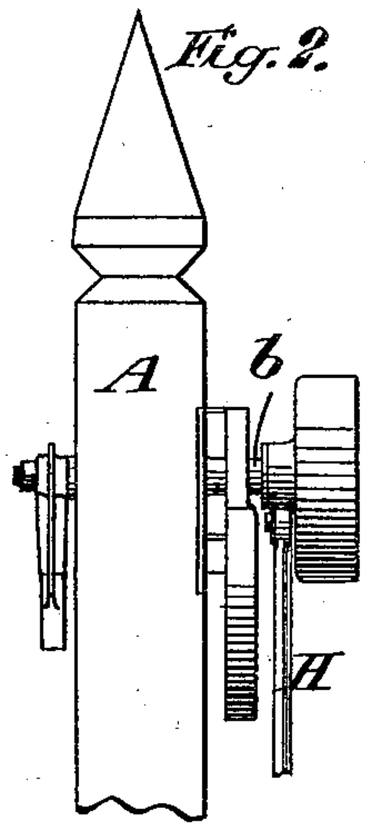


Fig. 1.

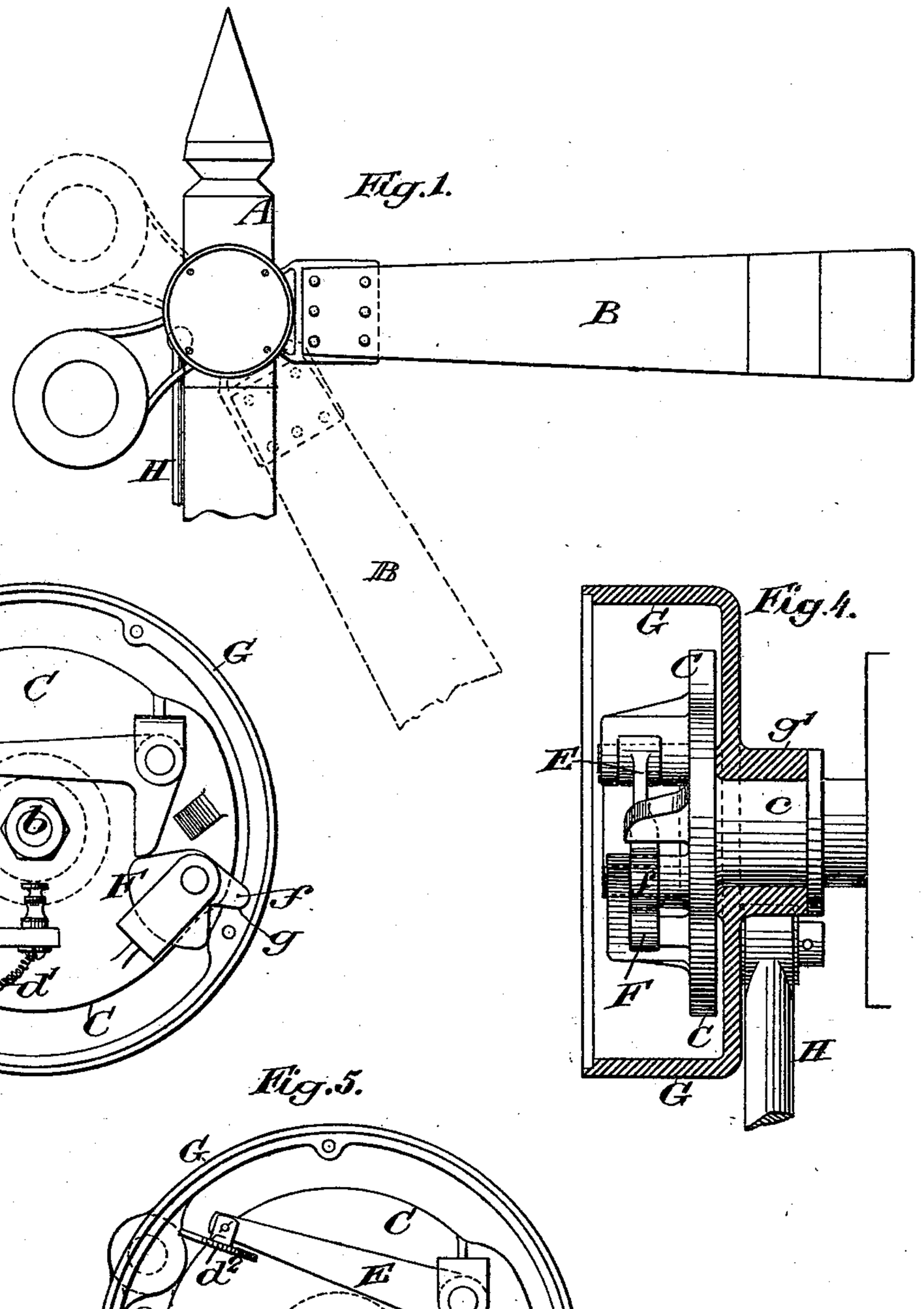
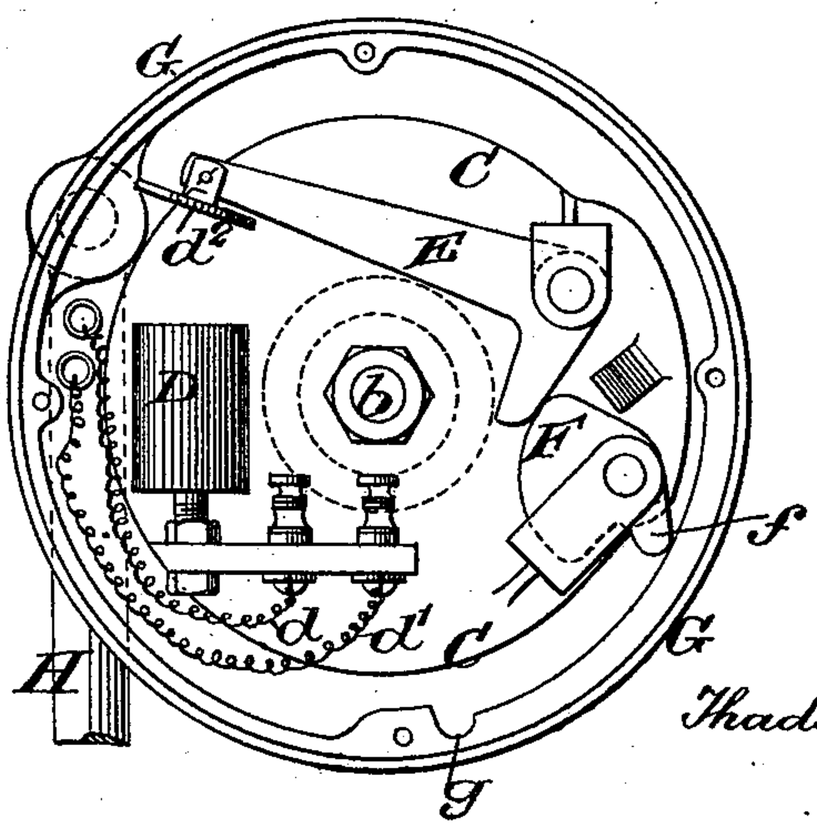


Fig. 3.

Fig. 4.

Fig. 5.



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UNITED STATES PATENT OFFICE.

THADDEUS B. KEELER, OF RAHWAY, NEW JERSEY, ASSIGNOR TO ARTHUR H. JOHNSON, OF SAME PLACE.

ELECTRIC SIGNAL APPARATUS.

SPECIFICATION forming part of Letters Patent No. 542,769, dated July 16, 1895.

Application filed March 11, 1895. Serial No. 541,234. (No model.)

To all whom it may concern:

Be it known that I, THADDEUS B. KEELER, of Rahway, in the county of Union and State of New Jersey, have invented a new and useful Improvement in Electric Signal Apparatus, of which the following is a specification.

My invention relates to an improvement in electric signal apparatus, and more particularly to what is known as "electric slot mechanism," in which the semaphore-blade and its operating mechanism are connected and disconnected by a device under the control of an electric circuit.

A practical embodiment of my invention is represented in the accompanying drawings, in which—

Figure 1 is a view of the semaphore-blade, the portion of the post where it is secured with the slot mechanism in position as in use, the view being taken in side elevation. Fig. 2 is a view of the same in rear end elevation. Fig. 3 is an enlarged view in detail of the slot mechanism, the cover of the locking cap-piece being removed. Fig. 4 is a transverse vertical section through the same; and Fig. 5 is a view similar to Fig. 3, showing the position of the parts when the controlling electromagnet is de-energized and the cap-plate rocked into the position which it assumes to throw the semaphore to "safety," the disk which rotates with the semaphore-blade remaining in this instance at its "safety" position.

A represents the signal-post; B, the counterbalanced semaphore-blade of any well known or approved form, secured to rock with a spindle *b*, mounted in suitable bearings on the post A.

The disk C is locked to rotate with the spindle *b* and semaphore B, and is located in the present instance on the spindle *b* upon the same side of the post with the semaphore B. The disk C has fixed thereto an electromagnet D and wires *d d'*, leading from the opposite poles of the magnet D to and through a battery of any well-known or approved form (not shown) for energizing the electromagnet D whenever the circuit in which the said battery and electromagnet are located is closed. The disk C has further pivoted thereto an angle-lever E in the nature of a latch, carrying at one end the armature d^2 of the electromagnet D, and the end of its opposite arm being located in position to engage and lock a swinging catch F when the said electromagnet D is energized and its armature drawn in contact with it. The swinging catch F is also mounted on the disk C and is provided with a nose *f*, adapted to enter a recess *g* in the inner face of the rim of the rocking cap-piece G. The rocking cap-piece G (see Fig. 4) is provided with a hub *g'*, which loosely surrounds the neck *c* of the disk C.

The signal-operating rod H is connected with the rocking cap-piece G, and when the said rocking cap-piece G is locked to the disk C the rocking of the cap-piece will at the same time rock the disk C, and hence the spindle and semaphore-blade B; but when the cap-piece G is released from the disk C it may be rocked without effect upon the disk C, and hence without disturbing the normal position of the semaphore-blade, which in the present instance is horizontal or at "danger." Furthermore, the catch F when opposite any other portion of the rim of the rocking cap-piece G than that portion *g*, where its nose is permitted to enter a recess, will be rocked into such position (see Fig. 5) that no matter whether the magnet D be energized or not the catch F will form no lock between the parts (the cap-piece and the disk) which are arranged to rotate relatively to one another.

In operation, supposing it be required to move the semaphore B into the position of "safety," (shown in dotted lines in Fig. 1,) it is necessary, first, that the operating-rod H should be in the position which it normally assumes when the semaphore is at "danger"—viz., that shown in Fig. 3—in order to permit the nose of the catch F to enter the recess *g* in the rocking cap-piece; and it is further necessary that the electromagnet D should be energized to hold the latch-lever E in the position shown in Fig. 3 to retain the nose *f* of the catch F in the recess G. These conditions being fulfilled, the upward movement of the operating-rod H will rock both the cap-piece G and the disk C and with them the semaphore B into the "safety" position. If, on the other hand, the magnet D be de-ener-

gized, no matter whether the latch-lever E be in the position shown in Fig. 3 or in that shown in Fig. 5, in either case the movement of the rod H will rock the cap-piece G idly without having any effect upon the semaphore.

Should the electric circuit which energizes the electromagnet be broken while the signal is at "safety," the signal will promptly turn to "danger" under the influence of its counterbalance-weight.

What I claim is—

1. The slot mechanism, comprising a rocking semaphore, parts mounted to move relatively to one another about the axis of the rocking semaphore, one of said parts being under the control of the semaphore operating mechanism and the other part connected with the semaphore, and a device under the control of an electric current for locking the said moving parts to and release them from one another, substantially as set forth.

2. In combination, a semaphore blade and a disk mounted to move therewith, a rocking piece mounted to move concentric with the said disk and semaphore, signal operating means connected with said rocking piece and means under the control of an electric current for locking the said rocking piece to and releasing it from the said disk, substantially as set forth.

3. A semaphore blade, a disk mounted to move therewith, an electromagnet carried by said disk, a part mounted to rock relatively to said disk, a swinging catch under the control of the electromagnet to lock the said rocking part to and release it from the disk and signal operating means connected with the said rocking part, substantially as set forth.

4. The semaphore blade, a disk mounted to move therewith, an electromagnet, a latch the said electromagnet and latch being carried by the said disk, a part mounted to move relatively to the said disk, a catch under the control of the latch to lock the said moving part to and release it from the disk and signal operating means connected with the said moving part, substantially as set forth.

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