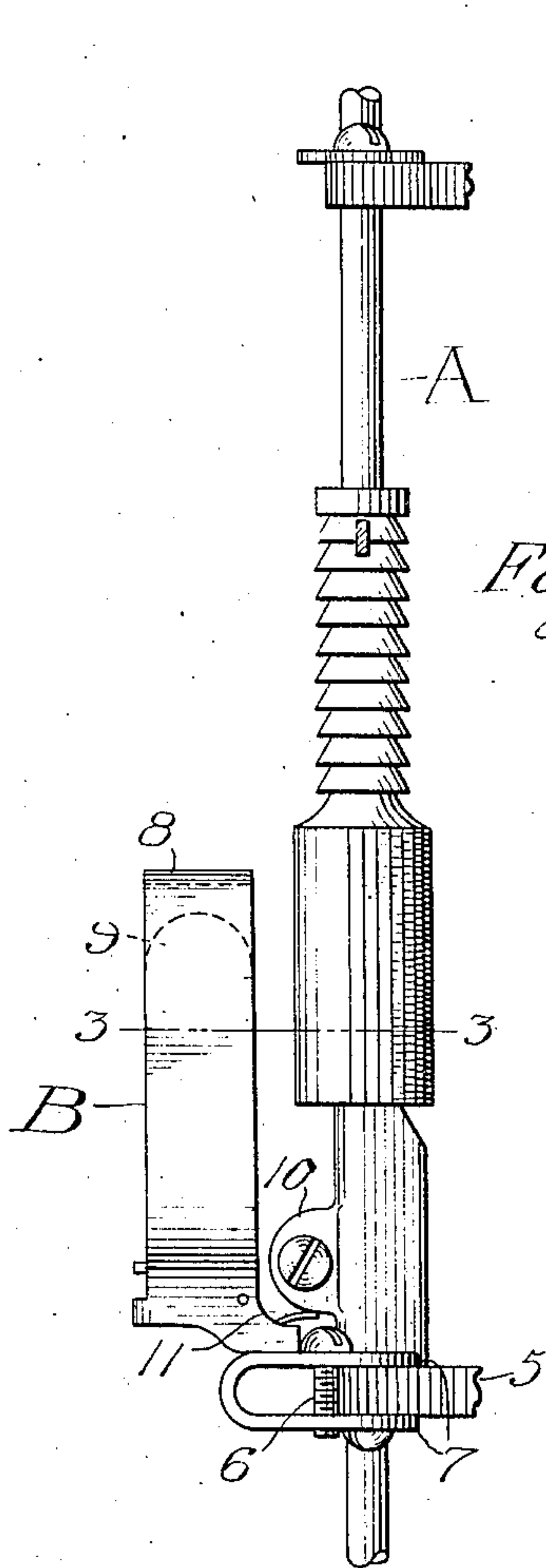


J. ERICKSON.  
SEMAPHORE.

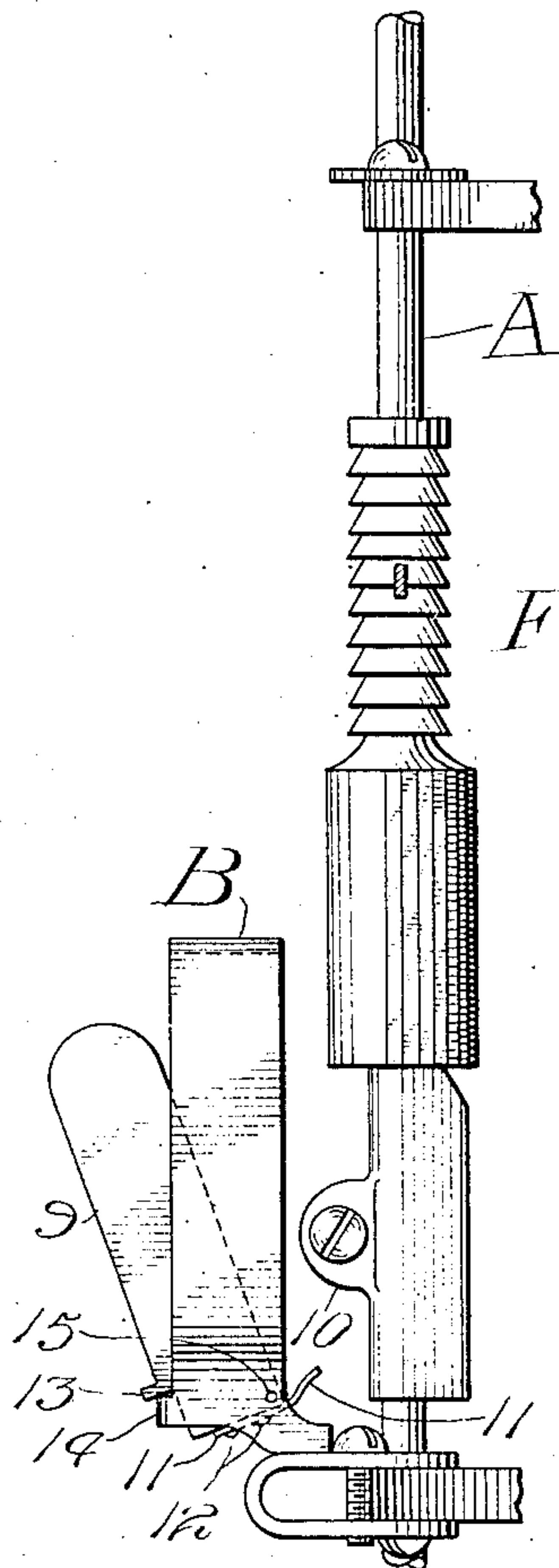
APPLICATION FILED SEPT. 19, 1906.

907,482.

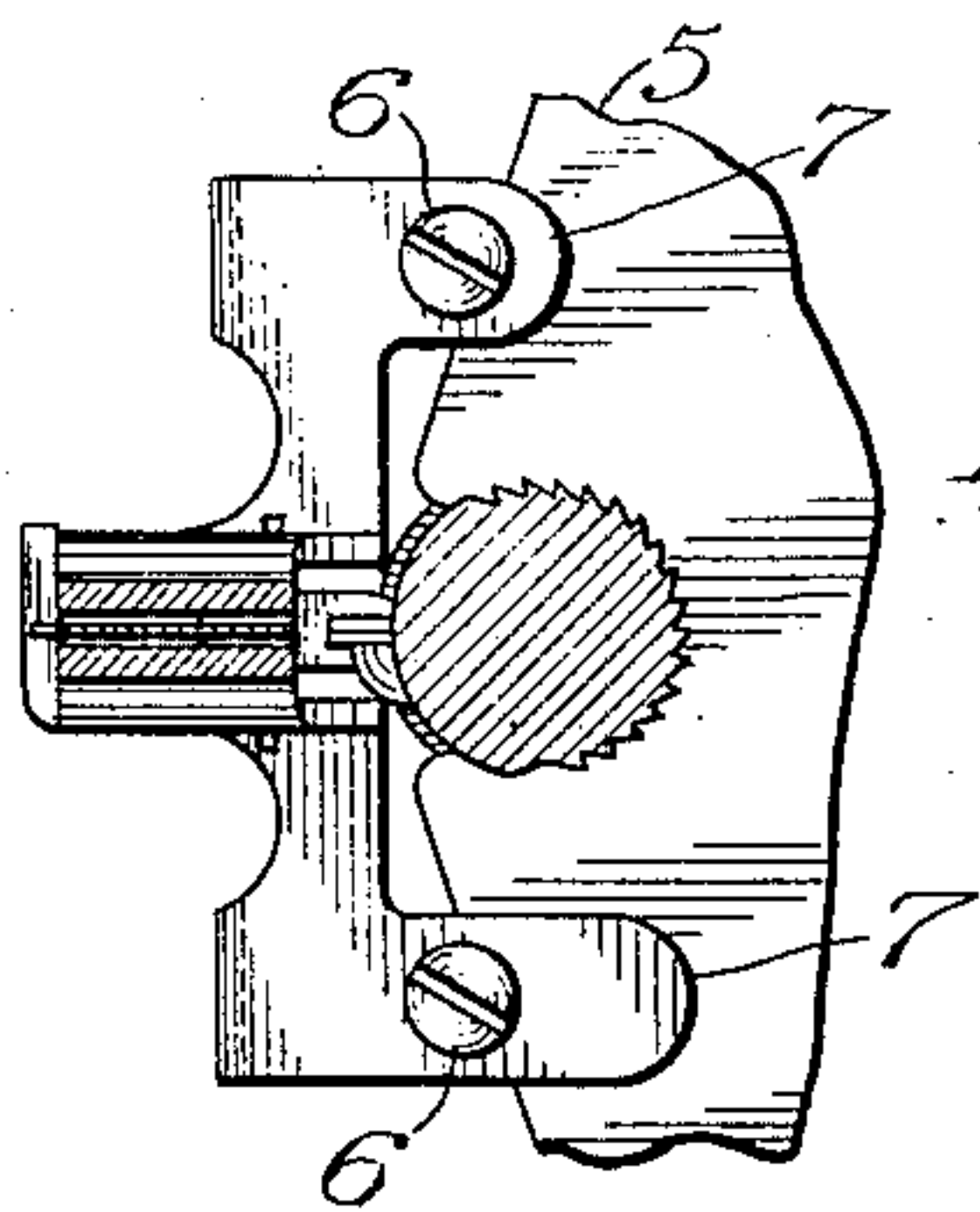
Patented Dec. 22, 1908.



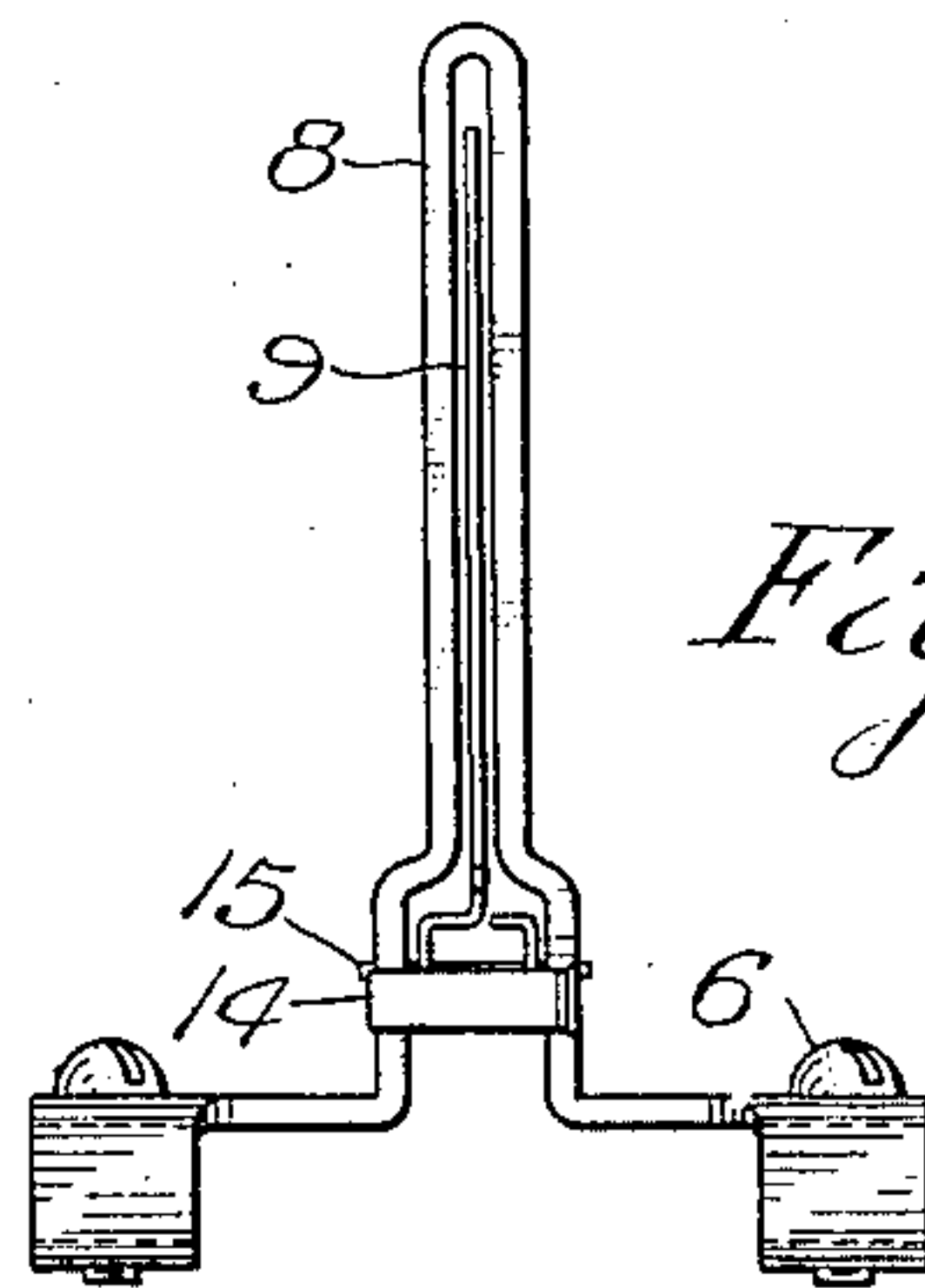
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



*Fig. 4.*

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# UNITED STATES PATENT OFFICE.

JOHN ERICKSON, OF CHICAGO, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO FIRST TRUST AND SAVINGS BANK, TRUSTEE, OF CHICAGO, ILLINOIS.

## SEMAPHORE.

No. 907,482.

Specification of Letters Patent.

Patented Dec. 22, 1908.

Application filed September 19, 1906. Serial No. 335,261.

*To all whom it may concern:*

Be it known that I, JOHN ERICKSON, a citizen of the United States of America, and resident of Chicago, Cook county, Illinois, have invented a certain new and useful Improvement in Semaphores, of which the following is a specification.

My invention relates to semaphores in general, but more particularly to mechanical semaphores for indicating off-normal positions of machinery or devices, and especially to semaphores for giving a signal whenever an automatic telephone switch, such as a selector or connector, is moved to an off-normal position.

The object of my invention is the provision of an improved and highly efficient form of semaphore adapted more particularly for use on automatic telephone switches, such as selectors and connectors, and for use in connection with other kinds of machinery and devices.

To the foregoing and other useful ends, my invention consists in matters hereinafter set forth and claimed.

In the accompanying drawings, Figure 1 is a side elevation of a semaphore embodying the principles of my invention, showing the adjacent parts of an automatic telephone switch, such as a selector or connector. Fig. 2 is a similar view showing the semaphore in its displayed or signaling position. Fig. 3 is a horizontal section on line 3—3 in Fig. 1. Fig. 4 is a front or edge view of the said semaphore and its mounting.

As thus illustrated the selector or connector or other automatic switching machine is provided with the usual rotatable and endwise-movable switch-shaft A. Normally said shaft is in the position shown in Fig. 1. As is well understood, however, the said shaft may be raised to the position shown in Fig. 2. Normally the said shaft is supported by the switch-frame 5, the shaft having the well-known cam 10 which rests upon the said frame. The vertical motion, as is well known, is for the selection of groups or divisions or subdivisions of the exchange, while the rotary motion is to enable the switch to seize a line in the selected group, which line may be either a trunk or a subscriber's line, depending upon whether the switch is a selector or connector.

The semaphore B comprises a frame or

mounting 8 which is secured to the switch-frame by screws 6 inserted through the brackets or attaching portions 7 of the said semaphore frame. It will be seen that these screws do not pass through the switch-frame, and in this way the semaphore frame can be readily clamped upon the switch-frame of any selector or connector, as the case may be. In other words, the semaphore can be applied as an attachment to an automatic telephone switch of this general character. The said frame 8 comprises two parallel walls arranged close together with a slight space between, said space being sufficient to accommodate the flat sheet-metal semaphore 9. This semaphore or movable mechanical signaling device 9 is pivoted at 15 and provided with a spring or projection 11 which is secured in place by rivets 12. In addition, the said movable semaphore has a projection or shoulder 13 adapted to engage the stop 14 carried by the lower portion of the frame 8, thus limiting the outward tilting movement of the semaphore, as shown in Fig. 2. It will be seen that the said semaphore and its frame have an opening and closing or jack-knife action, so to speak, the movable semaphore 9 being adapted to swing between the two flat side portions of the semaphore frame 8. Thus, with the switch-shaft in the position shown in Fig. 1, the cam 10 engages the projection 11 and thus holds the movable semaphore 9 in its normal position between the flat side portions of the frame 8, indicating that the switch is in normal condition. A slight upward movement of the switch-shaft will, however, release the pivoted semaphore member 9, allowing it to fall outwardly, as shown in Fig. 2, indicating that the automatic telephone switch is off-normal. When the switch is finally returned to its normal position the semaphore is then also restored to normal position. In this way the attendant at the station where the switches are located can tell at a glance whether the switches are off-normal or in their normal positions. It will be understood, of course, that the opposite surfaces of the pivoted semaphore member 9 can be painted red or white, or otherwise made capable of readily attracting the eye when the semaphore is displayed. Thus it will be seen that the semaphore is operated by the movement of the switch to select a group of lines—either



trunks or subscribers' lines—and the semaphore indicates the off-normal condition of the switch in this respect.

What I claim as my invention is:—

- 5 1. In a device of the class described, in combination with a group-selecting switch, a semaphore frame having flat side members arranged close together, a flat semaphore pivoted at its lower end to swing between  
10 said side members, means for limiting the outward tilt or signaling movement of the semaphore, and means for releasing the semaphore from its normal position between  
15 said side members, by motion of said switch to select a group.
2. In a device of the class described, a rotatable and endwise-movable switch-shaft, a cam on said shaft, a semaphore frame, a pivoted semaphore adapted to gravitate out-  
20 wardly from between the sides of said frame, and means on the semaphore for engaging said cam, adapted to permit the semaphore to tilt outwardly when the said shaft is moved endwise.
- 25 3. In a device of the class described, a rotatable and endwise-movable switch-shaft for an automatic telephone switch, a frame for said switch, a semaphore provided with means for readily attaching it to said switch-  
30 frame, and means on said shaft for operating the semaphore and causing a display thereof when the shaft moves endwise.
4. In a device of the class described, an automatic telephone switch, and a sema-  
35 phore readily attachable to said switch, and detachable therefrom, adapted to be operated by initial movement of the switch from normal position.
5. In a device of the class described, an

automatic telephone switch, and a semaphore operated by said switch, adapted to be displayed by initial movement of the switch from normal position.

6. In a device of the class described, in combination with a group-selecting switch, a semaphore frame having flat side walls arranged close together, means for mounting the said frame, a stop carried by the frame, a pivot on said frame, a flat semaphore mounted at its lower end on said pivot and adapted to swing between the sides of said frame, means on said semaphore for engaging the stop to limit the outward swing of the semaphore, operating means, and means on said semaphore for engaging said operating means, whereby said semaphore is operated by motion of the switch to select a group.

7. In a device of the class described, an automatic telephone switch, a semaphore applied to said switch, and suitable means 6 for causing a display of the semaphore when the subscriber actuates the switch from its normal position, and for restoring the semaphore when the switch is released and restored to normal.

8. In a device of the class described, the combination of a rotatable and endwise-movable switch shaft, adapted by its end-  
wise motion to select a group, and indicating means responsive to the initial endwise mo- 70 tion of said shaft from normal position.

Signed by me at Chicago, Cook county, Illinois, this 14th day of September, 1906.

JOHN ERICKSON.

Witnesses:

EDWARD A. FALES,  
BERNARD D. WILLIS.