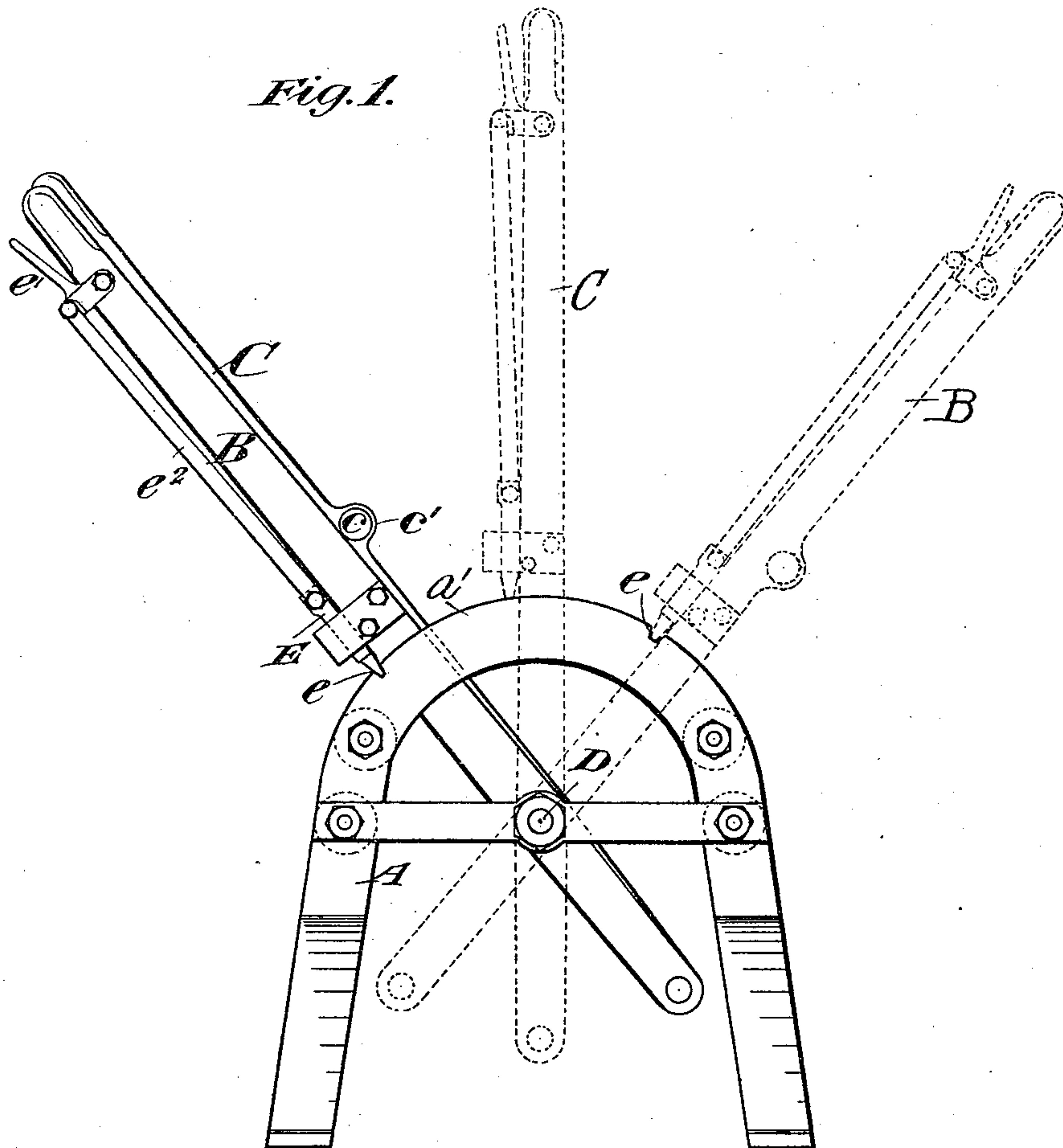
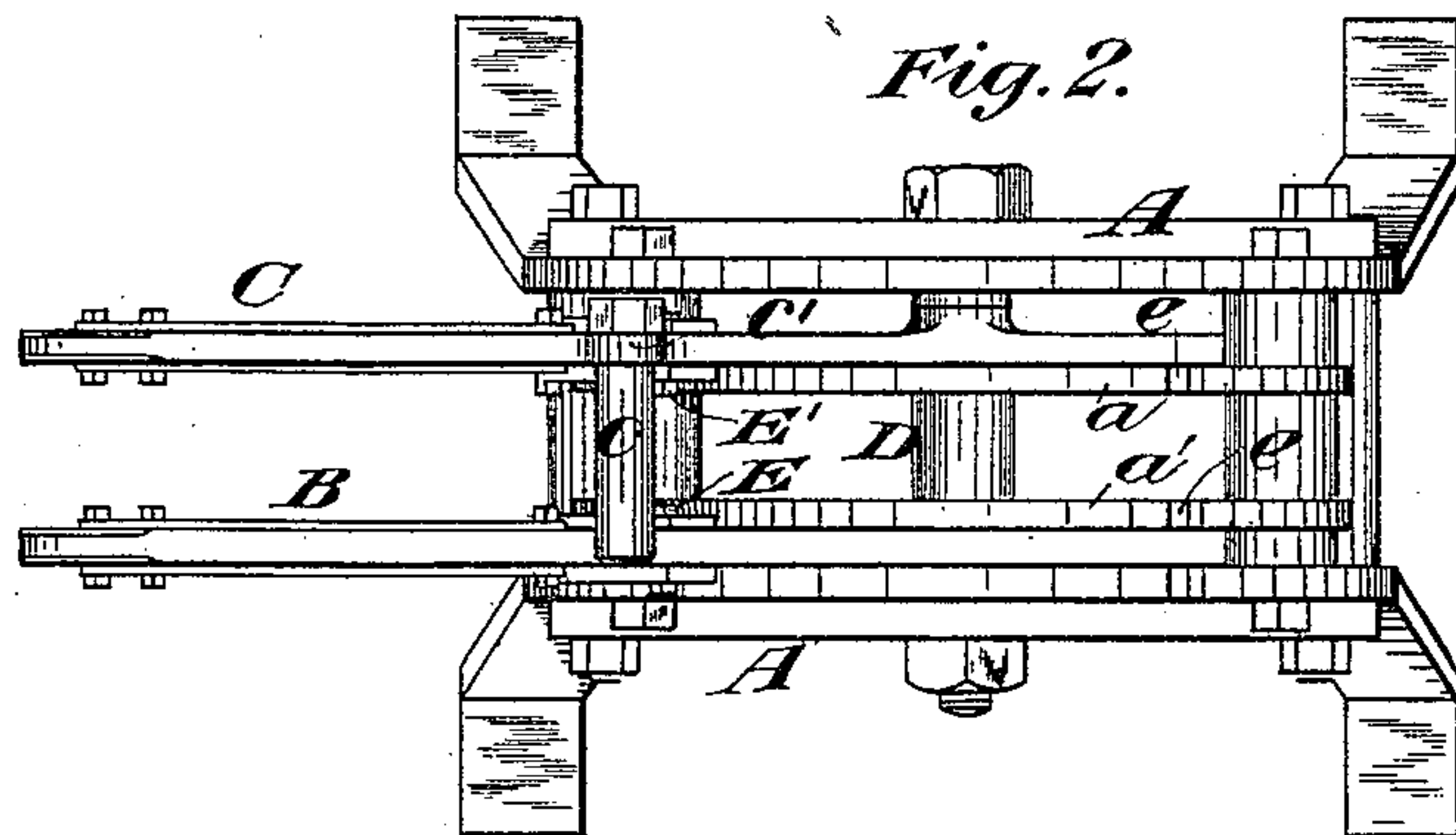


(No Model.)

A. G. LEONARD.  
INTERLOCKING SWITCH.

No. 459,497.

Patented Sept. 15, 1891.



*Witnesses:-*  
*F. C. Fischer*  
*George Barry*

*Inventor:-*  
*Arthur G. Leonard*  
*by attorneys*  
*Brown & Howard*

# UNITED STATES PATENT OFFICE.

ARTHUR G. LEONARD, OF NEW YORK, N. Y.

## INTERLOCKING SWITCH.

SPECIFICATION forming part of Letters Patent No. 459,497, dated September 15, 1891.

Application filed May 9, 1891. Serial No. 392,148. (No model.)

*To all whom it may concern:*

Be it known that I, ARTHUR G. LEONARD, of the city and county of New York, in the State of New York, have invented a new and  
5 useful Improvement in Interlocking Switches, of which the following is a specification:

My invention relates to an improvement in interlocking switches in which a switch-operating lever and a signal-operating lever are  
10 so interlocked that the switch can only be thrown out of its normal position after the signal has been set to "danger," and the signal set to "safety" only after the switch has been thrown into its normal position.

15 The object is to provide a simple and effective device for use in connection with a pair of operating-levers located side by side, one serving as an operating-lever for a switch and the other as an operating-lever for a signal to indicate the position of that switch.

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

Figure 1 is a view of the interlocking switch  
25 and signal levers in side elevation, showing in full lines the levers in normal position and in dotted lines the signal-operating lever full thrown to set the signal to "danger" and the switch-lever partially thrown; and Fig. 2 is a  
30 top plan view.

A represents the supporting-stand, shown in the present instance as a pair of inverted-U-shaped frames bolted firmly together and having sector-bars  $a a'$ , fixed between their  
35 upper ends and spaced from each other and from the frames to admit of the swing of the operating-levers between them.

The switch-operating lever is represented by B and the signal-operating lever by C.  
40 They are fulcrumed upon a common pin or shaft D, secured to a pair of cross-bars of the frame, and are locked in their positions at the limits of their strokes by means of spring-actuated dogs E E', adapted to engage notches  $e$   
45 in the outer edges of the sector-bars  $a a'$ . The dogs E E' may be operated at the moment of grasping the handle of the levers by means of angle-levers  $e'$ , pivotally secured to the levers B and C near the handles and con-

nected with the dogs by rods or bars  $e^2$ , as is  
50 common. One of the levers, in the present instance the signal-operating lever C, is provided with a pin  $c$ , fixed in a projection  $c'$  at the edge of the lever and extending laterally therefrom in front of the lever B, so that the  
55 lever B cannot be moved from its normal position until the signal-operating lever C moves.

I have assumed as the normal position of the levers that position which they occupy when the switch is in the position to make  
60 the main track intact and the signal for the switch set to "safety." It will therefore be impossible to move the switch-operating lever to throw the switch, so as to break the main  
65 track without first releasing the signal-operating lever C and allowing it to swing and hence the danger signal to be set.

It is to be assumed that the levers B and C are connected with the switch and signal, respectively, by any well-known and ap-  
70 proved mechanism. As such connecting mechanism forms no part of my present invention, I have omitted it in the drawings. When the signal-operating lever has been  
75 first thrown into the position shown in dotted lines, Fig. 1, and the signal thereby set to "danger," the switch-operating lever may then be freely swung to complete its stroke and throw the switch to the side track. On the  
80 other hand, when the switch-operating lever has been thrown to set the switch to the side track, the signal-operating lever is locked by it, the locking-pin  $c$  being now located behind the lever B with respect to its return  
85 throw, so that the signal can only be set to "safety" after the switch-operating lever has been moved to set the switch to the main track or to its normal position.

The device is simple, it provides a very positive reminder to the operator, and un-  
90 skilled operators are by it successfully prevented from fatal mistakes.

What I claim is—

In an interlocking switch, the combination, with a switch-operating lever and a signal-  
95 operating lever mounted upon the same axis and free to swing simultaneously in the same direction and means for holding the levers



at the limits of their strokes, of a stop se-  
cured to the signal-operating lever and ex-  
tending across the path of the switch-oper-  
ating lever, so as to prevent the movement  
5 of the switch-operating lever before the move-  
ment of the signal-operating lever in one di-  
rection and prevent the movement of the sig-

nal-operating lever in advance of the switch-  
operating lever in the opposite direction, sub-  
stantially as set forth.

ARTHUR G. LEONARD.

Witnesses:

HUGH F. HENRY, Jr.,  
THOS. S. WINSLOW.