

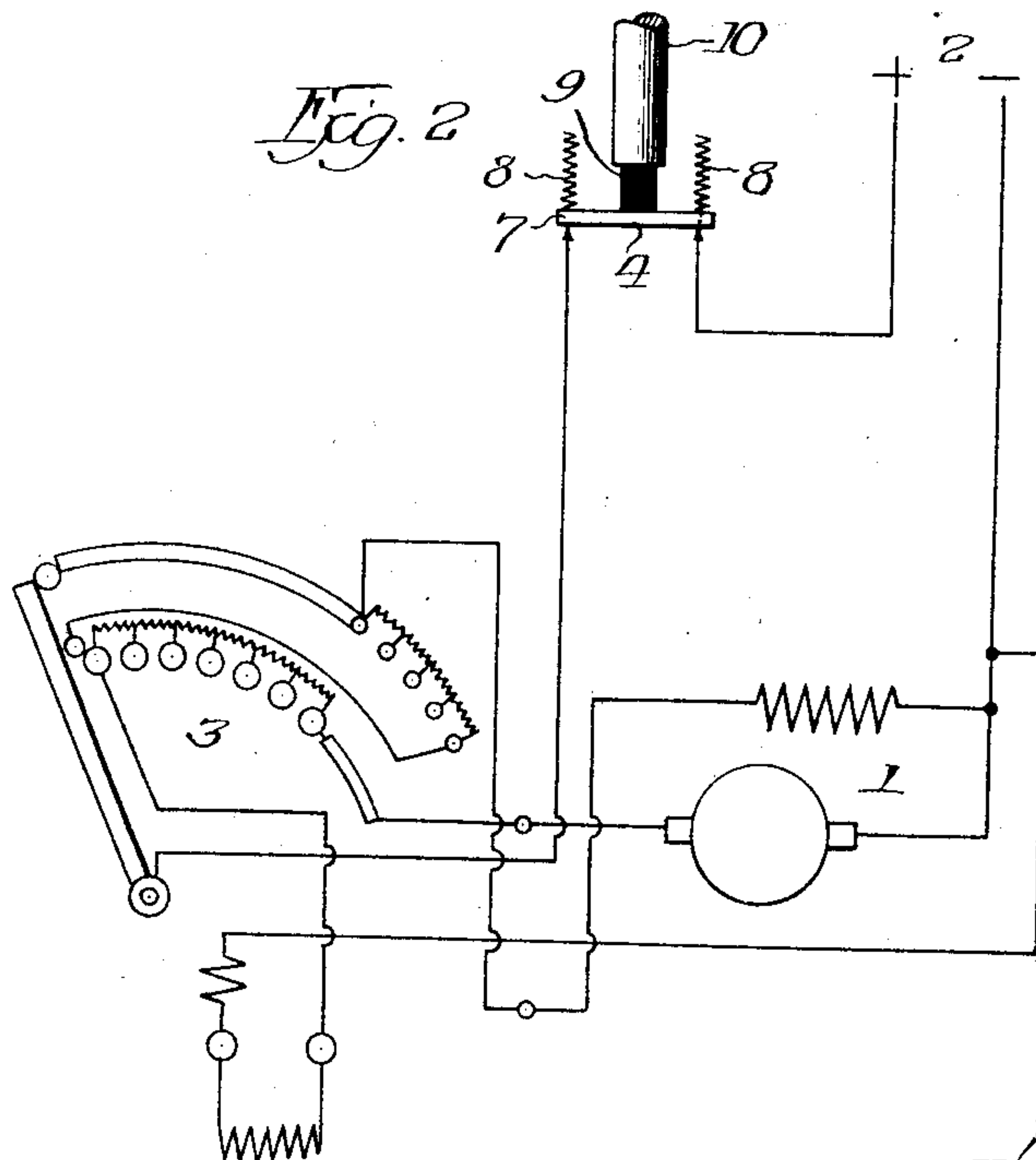
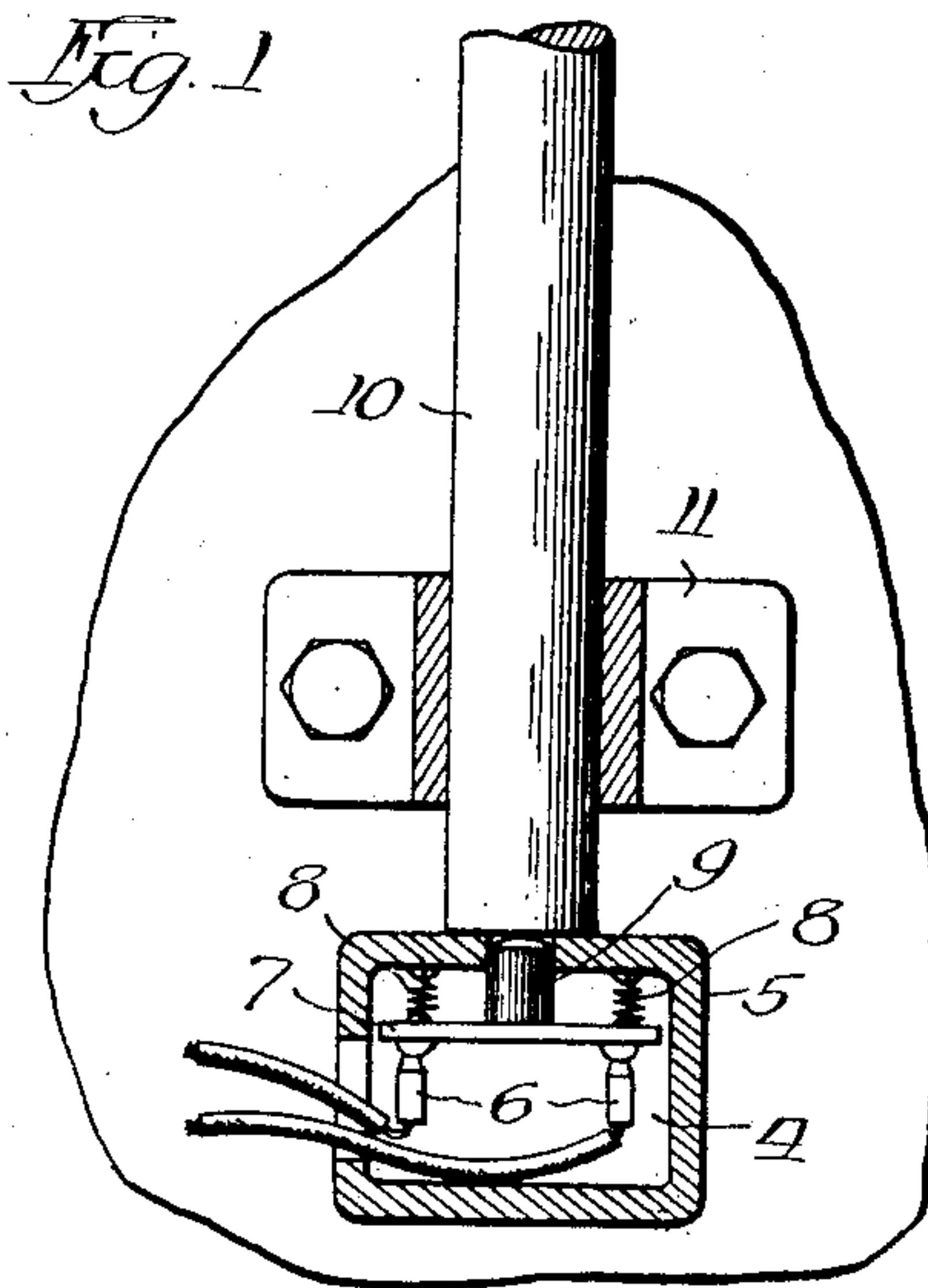
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S. HALVORSEN

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MACHINE CONTROL DEVICE

Original Filed May 20, 1922



Witness:

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UNITED STATES PATENT OFFICE

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MACHINE-CONTROL DEVICE

Original applications filed May 20, 1922, Serial No. 562,462, and September 10, 1923, Serial No. 661,816.
Divided and this application filed July 23, 1926. Serial No. 124,393.

My invention relates to machine control devices and particularly to electro-mechanical interlocks for machine starting devices.

One of the objects of my invention is to provide a simple, practical, and reliable control device.

Another object of my invention is to provide means for preventing the improper starting of a machine.

Another object of my invention is to provide means for permitting a machine to be started when an auxiliary starting member is in its proper place.

Other objects and advantages will be apparent from the accompanying specification and drawing, in which

Fig. 1 is a sectional view in elevation of one form of my invention, and,

Fig. 2 is a circuit diagram showing my invention in connection with a motor starting rheostat.

The subject matter of this application is a division of my application Serial No. 661,816 filed September 10th, 1923, which in turn was a division of my application Serial No. 562,462 filed May 20, 1922.

In large electrically operated machines such as printing presses, paper feed machines and the like, it is often necessary for men to work inside them for threading and adjusting. This work frequently requires a small definite advancement of the movable parts which can be accomplished neither readily nor safely with the electric power. A rod or bar is therefore used which engages apertures in a wheel on a drive shaft and by suitable leverage the desired movement is thus made manually. If, while the bar is engaged with the wheel or while a man is inside the machine, another workman should start the motor great injury and damage might result. To prevent this possibility is the purpose of this invention.

In the accompanying drawings,

1 represents a motor driving a machine (not shown) such as a printing press or a paper feed machine, the motor being connected to a source of power 2 through a starting rheostat 3 and an auxiliary switch 4. Switch 4 comprises a body part 5, terminals 6, a con-

tactor 7, springs 8 and an insulating button 9 projecting through an aperture in body part 5. A bar 10 for mechanically operating the machine, when not so used is kept in a holder 11 over switch 4 in such a position that the button 9 is depressed and contact between the terminals is made through contactor 7. With the bar 10 in this position power is available at rheostat 3 and the machine may be started and run. When the bar is removed from its holder for manually operating the machine in connection with apertures in a drive shaft wheel, springs 8 lift contactor 7 away from terminals 6 and, the circuit being open at this point, the machine can not be started electrically.

It will thus be seen that a reliable and efficient locking and safety device is embodied in this invention. Whenever the bar is removed for adjustment or any other purpose the auxiliary switch is opened and the motor can't be started. The bar must be in its proper place in order to start the machine and removing the bar while it is running will stop the motor.

It will be understood that changes and modifications may be made without departing from the spirit of my invention.

What I claim is:

1. In a device of the class specified the combination of means for controlling the actuation of a machine, said means including a member whereby the machine may be operated manually and a switch with which said member is adapted to cooperate to prevent the actuation of the machine upon disassociation of said member and said switch.

2. In a device of the class specified, the combination of means for driving a machine, means for controlling the actuation of said driving means, said means including a switch and means whereby the machine may be actuated, said last mentioned means being adapted to engage the switch and permit the operation of said machine by said driving means.

3. In a device of the class specified including a switch and a motor-driven machine controlled thereby, a removable element normally associated with the said switch for rendering the motor operable, said element

when removed rendering the motor incapable of driving the machine, but said element being then available to advance the machine to any desired position.

4. In a device of the class specified a manually operable element for actuating a machine and means cooperable therewith for preventing operation of said machine by power means when said element and means are out of cooperative position.

5. In a device of the class specified a circuit controlling means whereby a circuit is inoperative when a bar cooperable therewith is out of its normal position and the said bar, when not cooperating with the circuit controlling means, being available for manually operating the machine.

6. In a device of the class specified a switch having a projection for operation, a member for actuating said projection, said member being detachable therefrom to operate a machine.

7. In a device of the class specified, a switch having an extended portion for operation, a member for actuating said extended portion, said member being detachable therefrom to prevent operation of devices controlled by said switch.

8. In a device of the class specified the combination of a switch having a movable contact member and a holder for a rod or bar, said holder being arranged above the switch so that when the bar is in position in the holder the contact member will be actuated and the switch having spring means for moving said contact member when the rod or bar is withdrawn.

9. In a device of the class specified the combination of an electric switch having a movable controlling member, a holder for a rod or bar associated with said switch, and a rod or bar adapted to fit into said holder and become associated with said controlling member for influencing the action of the switch.

10. The combination of an electric switch having a movable controlling member extending upwardly and provided with a contact portion and a holder for a rod or bar located above said switch so that a rod or bar in the holder may cooperate with said contact portion of said movable member to control the switch.

11. The combination of an electric switch provided with a vertically adjustable controlling member, spring means tending to move said controlling member upward, a contact portion on said controlling member, and a holder arranged above the switch and adapted to hold a rod or bar in position to cooperate with said member.

12. The combination of an electric switch having a vertically adjustable spring controlled controlling member provided with an upwardly extending contact portion, a holder

arranged above the switch, and a rod or bar adapted to fit into the holder and cooperate with said projection.

13. The combination of an electric switch provided with a vertically adjustable spring controlled contact member having an upwardly extending projection, said contact member being enclosed in a housing and said contact projection being extended through the housing and made of insulating material, and a holder mounted above said switch and having a vertically arranged aperture in alignment with said projection.

14. The combination of an electric switch provided with a vertically adjustable spring controlled contact member having an upwardly extending projection, said contact member being enclosed in a housing and said contact projection being extended through the housing and made of insulating material, a holder mounted above said switch and having a vertically arranged aperture in alignment with said projection, and a rod or bar adapted to fit into said aperture.

15. In a device of the class described, the combination of an element adapted when away from normal inoperative position to be utilized in mechanically operating a machine means for electrically operating the machine and means for preventing electrical operation of the machine when said element is away from said inoperative position.

In witness whereof, I have hereunto subscribed my name this 21st day of July, A. D. 1926.

SEVERIN HALVORSEN.

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