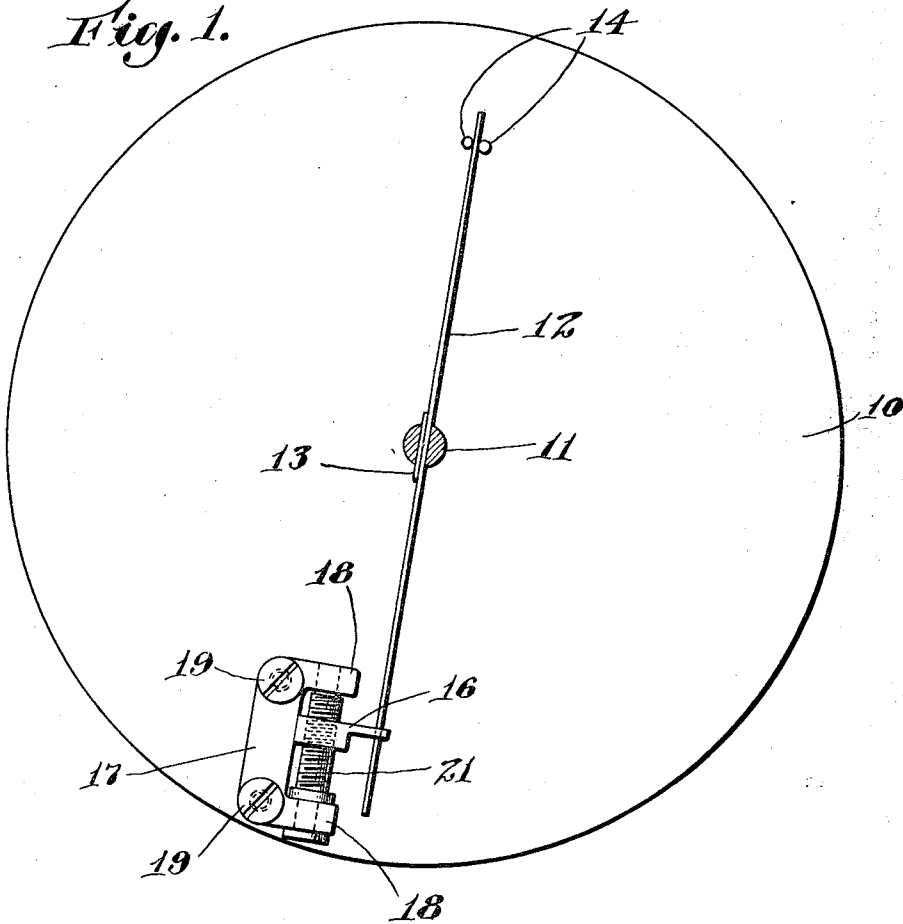
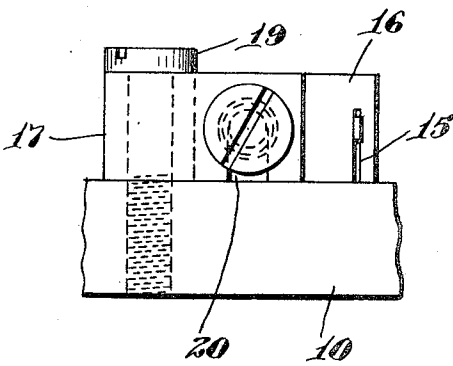


F. W BOLD  
SPRING REGULATOR  
Filed Jan. 2, 1925

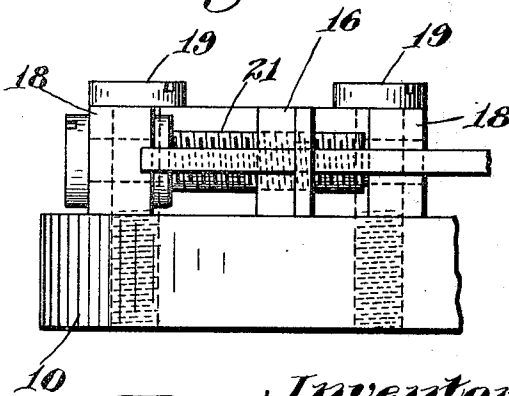
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



*Inventor*  
*Frederick W. Bold*  
*by James R. Hodder*  
*Attorney*

# UNITED STATES PATENT OFFICE.

FREDERICK W. BOLD, OF CHELSEA, MASSACHUSETTS, ASSIGNOR TO CHARLES H. PEARSON, OF BROOKLINE, MASSACHUSETTS.

## SPRING REGULATOR.

Application filed January 2, 1925. Serial No. 286.

*To all whom it may concern:*

Be it known that I, FREDERICK W. BOLD, a citizen of the United States, and a resident of Chelsea, in the county of Suffolk and State of Massachusetts, have invented an Improvement in Spring Regulators, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

My present invention relates to regulators, and more particularly to a regulator for use in connection with the controlling spring of mechanical time fuses.

An important element in connection with mechanical time fuses is the controlling spring for controlling the movement of the oscillatory pallet associated with the timing train. The timing train mechanism in a mechanical time fuse must be exceedingly rugged in character and yet all working parts must cooperate so accurately and sensitively as to measure time intervals within extremely close limits in order that the time of detonation of a fuse may be accurately predetermined. The timing train mechanism is controlled by, ordinarily, an oscillatory pallet which, in order to avoid the disturbing effects of centrifugal force set up by the rotation of the fuse in its field, is mounted in the axis of the fuse. It is customary, therefore, to employ a straight length of spring for controlling the oscillatory pallet and the question of regulating the same becomes of prime importance. Such regulating device should be relatively simple in character and positive in operation and must not be disturbed by mechanical jars, shaking of the fuse, or any other ordinary disturbing influence. No regulator of which I am aware has all these desirable features and it is, therefore, an object of the present invention to perfect a regulating device of this character.

In carrying out my invention I provide a bridge member in which is rotatably mounted a threaded shaft and associated with such shaft, with the bridge, and with the controlling spring is a saddle which slidably engages with the controlling spring and is movable longitudinally thereof to alter the effective length of such spring.

In the accompanying drawings illustrating the preferred embodiment of my invention,

Fig. 1 is a plan view of one of the plates of a timing train;

Fig. 2 is an end elevation of the regulating mechanism, and

Fig. 3 is a side elevation of such mechanism.

Referring to the drawings, 10 designates a plate of a timing train in which is rotatably mounted a staff 11 and on which the usual oscillatory pallet (not shown) is mounted. The upper end of this staff 11 is slotted to receive the controlling spring 12, a wedge 13 associated therewith firmly locking such controlling spring 12 in position. One end of the spring is confined by stops 14 secured in the plate 10, and the other end of the spring 12 passes through a slot 15 in a saddle 16.

Numeral 17 designates a bridge having formed integral therewith and extending laterally outward therefrom at each end projections 18. The bridge 17 is secured to the plate 10 by screws 19. The projections 18 are provided with slots or grooves 20 in alignment with each other and these slots or grooves form bearings for a regulator screw 21. This regulator screw is reduced in diameter adjacent to the slotted head thereof and at the end in order to fit into the bearing slots 20. Also, the shoulders formed at the head end of the adjusting screw 21 prevent longitudinal movement of the same in the grooves or slots 20. The adjusting screw 21 lies parallel to, but spaced apart from, the bridge 17, and that portion thereof between the projections 18 is threaded, as shown. Mounted on the adjusting screw 21 so as to be engaged by the threads thereon is a saddle 16 which, as stated above, is provided with a slot 15 that slidably engages with the spring 12. The lower face of the saddle 16 engages with the top face of the plate 10 and the rear end of the saddle engages with the bridge 17 and in this manner rotative movement of the saddle 16 about the adjusting screw 16 is prevented. The head of the adjusting screw 21 is slotted so that the same may be rotated by means of a screw driver, and in this manner the saddle 16 moved longitudinally thereof so as to alter the effective length of the spring 12. By thus altering the effective length, the force that such spring exerts to return the pallet (not shown) after each displacement thereof is

also altered. Further, there is no danger of a jarring action on the part of the mechanism rotating the adjusting screw 21 to thereby accidentally move the saddle 16 on the spring 12. By my device, therefore, I positively and accurately adjust the effective length of the pallet controlling spring in a simple, positive, and expeditious manner.

10 While I have necessarily shown and described the preferred embodiment of my invention somewhat in detail, it is to be understood that I may vary the size, shape, and arrangement of parts within wide limits without departing from the spirit of the invention.

Having thus described my invention, what I claim as new is:

20 1. An improved regulating device for timing trains and the like, comprising a

bridge, lateral extensions formed integral therewith and at each end thereof, an adjusting screw rotatably mounted in said extension, a saddle associated with said screw and movable longitudinally thereof by the rotation of the screw, and a spring, said saddle being slidably engaging with said spring.

2. An improved regulating device for timing trains and the like, comprising a bridge, lateral projections on said bridge at either end thereof, means for securing said bridge to a timing train, an adjusting screw lying parallel to the bridge and rotatably mounted in said lateral projections, and a spring controlling saddle operatively associated with said adjusting screw.

In testimony whereof, I have signed my name to this specification.

FREDERICK W. BOLD.