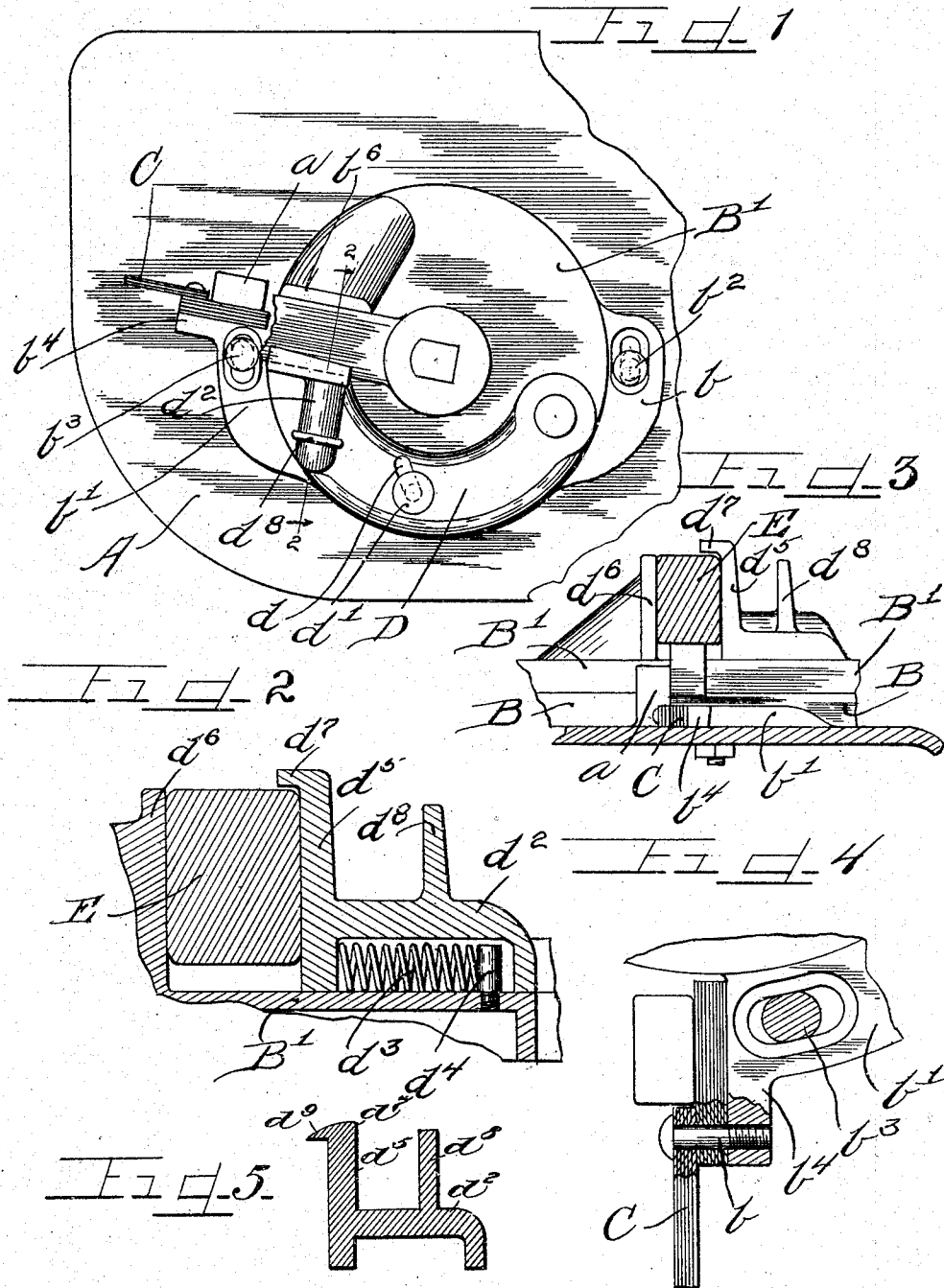


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 CONTROLLER REGULATOR.
 APPLICATION FILED DEC. 4, 1907.

949,755.

Patented Feb. 22, 1910.



WITNESSES

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CONTROLLER-REGULATOR.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM P. COSPER, a citizen of the United States, and a resident of Chicago, Cook county, Illinois, have invented certain new and useful Improvements in Controller-Regulators; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in controller regulators.

With automotoneers or controller regulators as heretofore constructed it has been exceedingly difficult to adjust the base or fixed timing element accurately with respect to the controller to which said regulator is attached. Also after the timing element (which may be constructed as shown in my application for patent for "Electric controllers," filed June 27, 1907, Serial No. 380,998) has been removed for any purpose and replaced, it heretofore has been quite difficult to reset the same accurately and requires numerous trials and adjustments to effect the proper adjustment. Further, different makes of handles vary in size and often two handles of the same make are not of uniform size, consequently some handles are too large and others too small to properly fit the regulator as heretofore made. In the latter case considerable play is afforded which is objectionable, not only decreasing the efficiency of the device but rendering it more difficult and dangerous to operate the controller, for the handle may slip off at a critical time placing the car out of control.

It is true of all timing and regulating devices heretofore constructed for controllers that the handle may be accidentally pulled off by the frantic efforts at control of a frightened operator facing impending disaster.

It is a very important object of this invention to provide a device of the class specified in which the pocket or opening for receiving the shank of the handle is adjustable to fit any size of handle and in which accidental removal or detachment of the handle is an impossibility, though the handle may be instantly removed when desired.

It is further an important object of this invention to provide means whereby the

fixed timing device can be set up to the most accurate adjustment with respect to the controller and in which the same can be quickly and accurately reset if removed.

It is also an important object of this invention to provide improvements of the class described which may be secured to any controller regulator or timing device now in use and at slight expense.

It is finally an object of this invention to provide a device in which absolute safety is assured, the utmost accuracy of adjustment and which is cheap to manufacture and install, practically indestructible and cannot get out of order.

The invention consists of the matters hereinafter described and more fully pointed out and defined in the appended claims.

In the drawings: Figure 1 is a top plan view of a device embodying my invention. Fig. 2 is an enlarged sectional detail taken on line 2-2 of Fig. 1. Fig. 3 is a fragmentary side elevation. Fig. 4 is an enlarged fragmentary detail illustrating one manner of securing the blades or plates to the fixed timing element or base of the controller regulator. Fig. 5 is a transverse section of the adjustable arm illustrating one form of cam by means of which the arm may be automatically retracted when attaching the handle.

As shown in the drawings: A indicates the top plate of the controller casing and B the base of a regulator or fixed timing element rotatably secured on which is the movable timing element or cover B' all of which may be constructed as shown in my application for patent for "Electric controllers," filed June 27, 1907, Serial No. 380,998.

Integral with said base B are horizontal, oppositely disposed lugs or flanges $b-b'$, each of which is provided with an elongated slot approximately tangent to the periphery of the base B and adapted to receive the attaching bolts b^2-b^3 therethrough which engage the base to the controller. Said flange b' is provided with an outwardly directed extension or lug b^4 to which are pivotally secured by means of a pintle or bolt b^5 a plurality of flat blades or plates C adapted to be either adjusted inwardly between the lug b^4 and a lug a integral with the top of the controller casing or swung outwardly away from the same to exactly adjust the base to the controller. Said cover rotates on the base with

the controller shaft when actuated by the handle E. As shown an arm D is pivoted at one end to the cover B' and is curved complementally with the periphery of the cover and concentric therewith. Said arm is provided approximately centrally between the ends thereof with a transverse slot d , adapted to receive a pin d' which is rigidly secured to the cover and limits the adjustment of said arm. A transverse housing or groove d^2 is provided in the under side of said arm near its end remote from the pivot, in which is secured a strong pushing spring d^3 , which bears at one end against a stop or pin d^4 , rigidly secured to the cover, and at its opposite end bears against the end wall of the slot and acts to hold said arm or lever inwardly. An upright flange d^5 provided at its top with a forwardly hooked flange d^7 is constructed integral with the free end of said arm. Opposed to said flange d^5 and adapted to receive the shank of the operating lever E, therebetween is a flange d^6 integral with the base. Said flange d^6 engages over the shank E and prevents withdrawal thereof except by first retracting the arm D by engaging the lug d^8 thereon and forcing the arm D outwardly against the pressure of the spring d^3 until the retaining flange or rim d^7 clears the shank.

The operation is as follows: In attaching or setting up the controller regulator a few blades or plates C are first shifted to engage between the lug a , of the controller top plate and the lug b^4 of the controller regulator base plate. The device is then tried and more blades or plates shifted between the lug a and lug b^4 or removed from therebetween until the desired adjustment is obtained. The holes for the bolts if not previously drilled, are then drilled at the center of the slots in the lugs $b-b'$, and the bolts inserted and set up. If the adjustment of the controller regulator is not accurate, say a sixteenth or thirty-second of an inch off, the bolts are loosened and blades shifted between the lug a and lug b^4 or removed from between the same until accuracy is attained.

If for any reason the controller regulator is removed it may, of course, be reset instantly without again going through all of the above operation. If the blades or plates C between the lug a and lug b^4 are counted before the regulator is removed, replacement and adjustment may be practically instantaneous.

In attaching the handle the arm D is pressed back by means of the lug d^8 and the handle is inserted in place. The lug d^8 is then released and the spring d^3 forces the adjustable lug or flange d^6 inwardly to firmly engage the shank E between the same and fixed lug or flange d^6 . The lip or flange d^7 projects above the shank and prevents accidental removal. To remove the handle

the arm is forced outwardly until the retaining lug or rim d^7 clears the shank after which the lever may be released as is usual.

If desired, the retaining lug or rim d^7 may on its top be provided with a cam face d^9 in which case when placing the lever or handle in position it is simply necessary to force the handle upon the controller shaft and the shank of the lever or handle engaging the cam face on the lug d^7 forces the same outwardly permitting engagement in the pocket after which the lug automatically engages above the shank.

I therefore do not desire to limit this application for patent otherwise than necessitated by the prior art.

I claim as my invention:

1. In combination with a controller regulator adjustable means secured thereto for accurately adjusting the same to the controller.

2. A controller regulator embracing a base plate and adjusting blades or plates pivoted thereto.

3. In a device of the class described the combination with a controller top plate of a lug attached thereto, a controller regulator secured on said controller top plate and adjustable means adapted to engage between said lug and a part on the regulator for accurately setting the regulator.

4. The combination with a controller regulator of adjusting blades secured thereto, a lug rigidly secured to the regulator and a lug adjustable relatively thereto adapted to receive therebetween handles or levers of varying sizes.

5. In a device of the class described a controller regulator, a plurality of blades or plates adapted one or more for adjustment in accurately setting the controller regulator and to prevent shifting of the controller regulator when set.

6. In a device of the class described a base plate, lugs integral therewith having slots therein and adjusting blades or plates pivoted to one of said lugs.

7. In a device of the class described a rigid element, lugs integral therewith, each provided with a slot therein, an extension integral with one of said lugs and means pivoted thereto for accurately setting up the element.

8. In a device of the class described a rigid element, lugs integral therewith, each provided with a slot therein, an extension integral with one of said lugs, means pivoted thereto for accurately setting up the rigid element, a rotatable cover or element and adjustable means secured thereto for engaging handles of different sizes.

9. In a device of the class described the combination with the controller top plate of a lug integral therewith, a controller regulator comprising a rigid base, lugs integral

therewith provided with slots therein and a plurality of pivoted plates or blades adapted one or more to be adjusted between one of the lugs of the base and the lug on the top plate of the controller.

10. In a device of the class described the combination with the controller top plate of a lug integral therewith, a controller regulator comprising a rigid base, a lug integral therewith provided with slots therein, a plurality of pivoted plates or blades adapted one or more to be adjusted between one of the lugs of the base and the lug on the top plate of the controller, a rotatable element on said rigid base and means providing an adjustable pocket for receiving handles of varying sizes for turning said rotatable element.

11. In a device of the class described the combination with a rigid base of a rotatable element thereon, a lug or flange integral therewith and a lug or flange adjustable on said rotatable element adapted to receive between the same and rigid lug or flange handles of different sizes.

12. In a device of the class described the combination with a rigid base of a rotatable element thereon, a member integral therewith, means adjustable on said rotatable element adapted to receive between the same and said integral member, handles of different sizes and retaining means adapted to engage above the handle when in position on the controller shaft.

13. In a device of the class described the combination with a rigid base of a rotatable element thereon, a flange or lug integral therewith, a flange or lug adjustable on said rotatable element adapted to receive between the same and rigid flange or lug handles of different sizes, retaining means integral with one of the flanges or lugs adapted to engage above the handle when between said flanges or lugs and prevent removal thereof, a spring adapted to actuate the adjustable flange or lug to adjust said retaining means to engage above the handle and means for manually withdrawing said retaining means to permit removal of the handle.

14. In a device of the class described a fixed element, a rotatable element thereon and coacting rigid and adjustable means secured to the rotatable element adapted to engage an actuating handle or lever though sizes vary.

15. In a device of the class described a fixed element, a rotatable element thereon, coacting rigid and adjustable means secured to the rotatable element adapted to receive actuating handles or levers of varying sizes and means for retaining the actuating lever or handle between said coacting means and preventing accidental removal thereof.

16. In a device of the class described a fixed element, a rotatable element thereon,

coacting rigid and adjustable means secured to the rotatable element adapted to receive actuating handles or levers of varying sizes, a housing integral with the adjustable means and a spring therein acting to force said adjustable means toward the rigid means.

17. In a device of the class described a fixed element, a rotatable element thereon, coacting rigid and adjustable means secured to the rotatable element adapted to receive actuating handles or levers of varying sizes, a housing integral with the adjustable means, a spring therein acting to force said adjustable means toward the rigid means, and manually actuated means for moving the adjustable means away from the rigid means to permit insertion of an actuating handle or lever or removal of a handle or lever.

18. The combination with a controller regulator of independently adjustable means attached thereto for accurately setting up the same when attaching.

19. The combination with a controller regulator of means for adjusting the same to the controller.

20. In a device of the class described a base, a cover, and automatically operating means for engaging handles of different sizes.

21. In combination with a controller regulator, mechanism for rigidly securing handles of varying sizes to operate said controller regulator.

22. In combination with a controller regulator, mechanism for engaging a handle to actuate the same and said mechanism adjustable to engage handles of different sizes.

23. In a device of the class described a base, a cover therefor and spring controlled means for connecting the cover to rotate with a handle.

24. In a device of the class described a rotatable element, a handle and means pivoted to the rotatable element adapted to be automatically adjusted by pressure on the handle to engage above the handle and retain said handle from removal.

25. In a device of the class described a rotatable element, a handle, means pivoted to the rotatable element, adapted to be automatically adjusted by pressure on the handle to engage above the handle, and retain said handle from removal and means for adjusting said pivoted means to release the handle.

26. In a device of the class described a handle, a rotatable element and means automatically adjustable by pressure of the handle for engaging the handle.

27. In a device of the class described a handle, a rotatable element, means automatically adjustable by pressure of the handle for engaging the handle and means exerting tension on said adjustable means to prevent accidental withdrawal of the handle.

28. In a device of the class described a rotatable element, coacting rigid and adjustable elements thereon providing a pocket and the adjustable element provided with a cam face.

29. In a device of the class described a rotatable element, a vertical member rigidly secured thereto, a vertical member adjustable on said rotatable element providing a space between the same and rigid member and a cam adapted for engagement by a handle to automatically adjust said adjustable member to permit the handle to engage between the same and rigid member.

30. In a device of the class described a rotatable element, a member rigidly secured thereto at a right angle therewith, an adjustable member on said rotatable element directed at a right angle therewith and providing a space between the same and rigid member, a cam adapted by engagement of a handle to automatically adjust said adjustable member to permit the handle to engage between the same and rigid member and a spring acting to force the adjustable member toward the rigid member.

31. In a device of the class described a base, flanges concentric therewith each provided with a slot to receive a bolt there-through permitting partial rotation of the base with the bolts in place and plates pivoted to one of the flanges adapted to aid in accurately attaching the base.

32. In a device of the class described a base, flanges concentric therewith each provided with a slot to receive a bolt there-

through adapting partial rotation of the base with the bolts in place and means adapted to indicate the adjustment of the base and permit removal of the base and reattachment of the base without readjustment thereof.

33. In a device of the class described a base, means adapted to indicate the adjustment of the base and prevent displacement thereof when properly adjusted.

34. In a device of the class described a base, means adapted to indicate the adjustment of the base and prevent displacement thereof when properly adjusted, a rotatable cover for the base and means adapted to automatically attach a handle to rotate the cover by pressure exerted on the handle.

35. In a device of the class described a base, means adapted to indicate the adjustment of the base and prevent displacement thereof when properly adjusted, a rotatable cover for the base, means adapted to automatically attach a handle to rotate the cover by pressure exerted on the handle, locking means preventing displacement of the handle except by manual operation and means normally holding the locking means in position.

In testimony whereof I have hereunto subscribed my name in the presence of two subscribing witnesses.

WILLIAM P. COSPER.

Witnesses:

K. E. HANNAH,
LAWRENCE REIBSTEIN.