

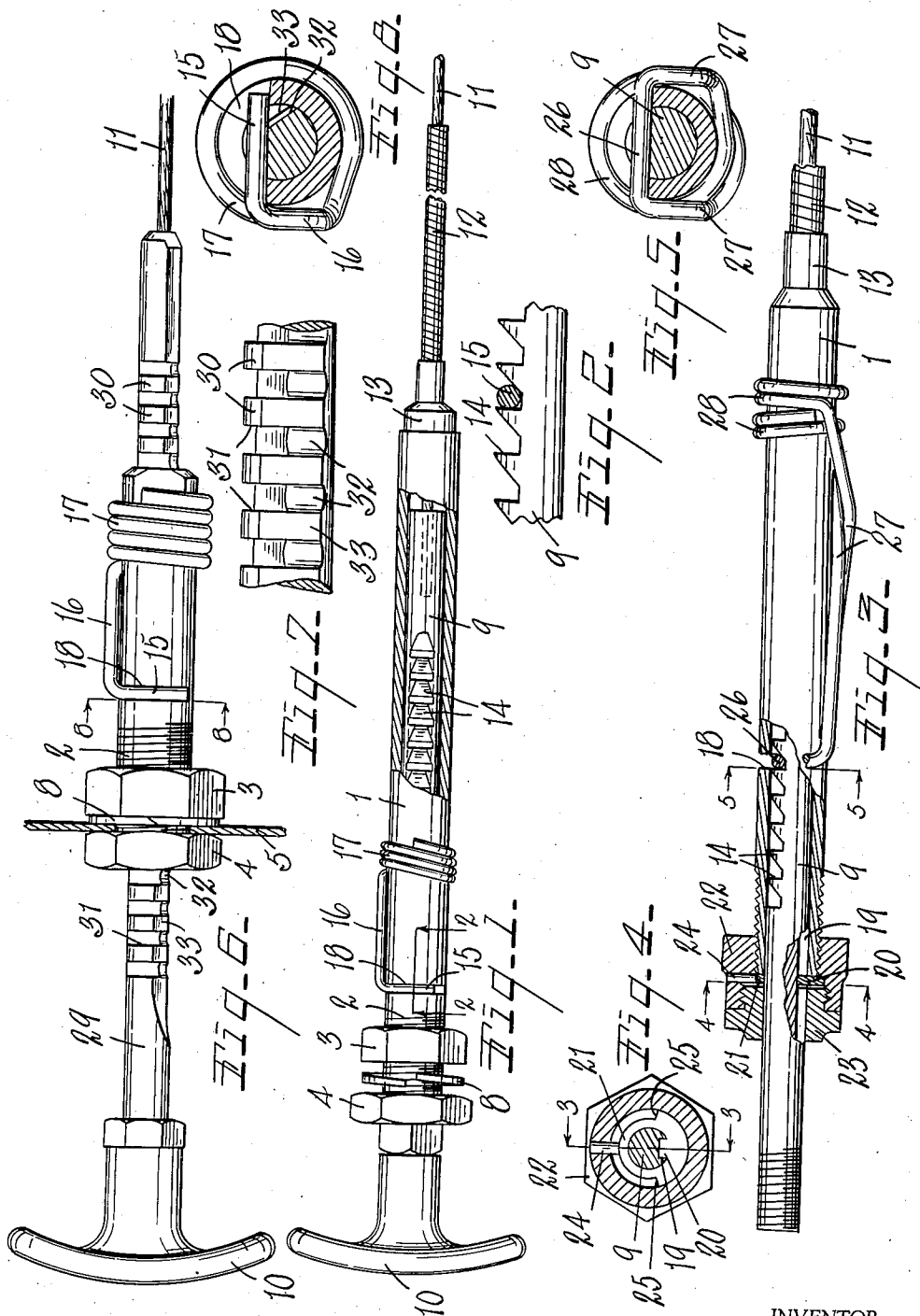
Sept. 23, 1941.

H. WEBER

2,256,696

REMOTE CONTROL

Filed April 13, 1940



INVENTOR.
HERMAN WEBER
BY *Carl O. Chaffell*
ATTORNEYS

UNITED STATES PATENT OFFICE

2,256,696

REMOTE CONTROL

Herman Weber, Kalamazoo, Mich., assignor to
Shakespeare Products Company, Kalamazoo,
Mich., a corporation of Michigan

Application April 13, 1940, Serial No. 329,451

9 Claims. (Cl. 74—502)

The main objects of this invention are:

First, to provide an improved remote control device which is positive in its locking or locked position but readily and simply released.

Second, to provide a device of the character described which is well adapted for heavy duty, such for example, as a brake control for motor vehicles, airplanes, and the like.

Third, to provide a device of the character described having these advantages which may be manipulated with comparatively little effort.

Fourth, to provide a device having these advantages which is very simple and inexpensive in its parts and at the same time strong and durable and readily installed.

Objects relating to details and economies of the invention will appear from the description to follow. The invention is defined and pointed out in the claims.

Preferred embodiments of the invention are illustrated in the accompanying drawing, in which:

Fig. 1 is a fragmentary view inside elevation of a control device embodying the features of my invention, portions of the support member being shown in longitudinal section.

Fig. 2 is a fragmentary detail view in section on line 2—2 of Fig. 1.

Fig. 3 is a fragmentary view partially in longitudinal section on line 3—3 of Fig. 4 of a modified form or embodiment of my invention.

Fig. 4 is a transverse section on line 4—4 of Fig. 3.

Fig. 5 is a transverse section on line 5—5 of Fig. 3.

Fig. 6 is a fragmentary view in side elevation of another form or embodiment of my invention in which the control rod may be locked against movement in either direction.

Fig. 7 is an enlarged fragmentary view illustrating structural features of the control rod.

Fig. 8 is a transverse section on line 8—8 of Fig. 6.

My present invention relates to a remote control device of the general type illustrated in my Patent No. 2,101,160 issued December 7, 1937, the present device being particularly devised for heavy duty such as the manual control of parking or emergency brakes of automobiles, airplanes, and the like. In the preferred embodiments it includes means for enabling the brake to be readily and quickly operated to apply the same and easily released even when the operating connections are under considerable strain or tension. It should be borne in mind, however, that my improvements are adapted for remote

controls generally and have many applications such for example as throttle controls, controls of moving parts in airplanes, and various other adaptations.

The embodiment of my invention illustrated in Figs. 1 and 2 comprises a tubular support member 1 having a threaded portion 2 receiving the coacting clamping nuts 3 and 4 by means of which the support is mounted upon an instrument board or panel 5 or other fixed support. A spring lock washer 8 is preferably provided.

The control rod or plunger 9 is reciprocally and rotatably mounted in the support and is provided with a handpiece or grip 10. This control rod is secured to the transmission rod or wire 11 which in an ordinary embodiment is provided with a sheath 12, the sheath being secured to the end of the support by the coupling means 13, the connecting or transmission rod 11 which is connected to the object to be controlled directly or through suitable instrumentalities being slidable in the sheath.

The control rod 9 is provided with a plurality of ratchet teeth 14 facing inwardly or rearwardly so that an outward pull on the control member permits the pawl detent 15 to ratchet over the teeth as shown in Fig. 2. The ratchet teeth are formed within the circumference of the control rod so that a rotative movement of the control rod will swing the ratchet teeth out of detent engaging position and permit free return movement of the control rod.

The detent is carried by the spring pawl arm 16 extending from one end of the coil 17 which embraces the support, the diameter of the coil being such that it is in clutching engagement with the support. This provides an effective anchoring means without resorting to screws or the like.

The support has a transverse slot 18 therein in which the detent lies, the detent engaging this slot at all times so that it also serves in anchoring the ratchet pawl. This provides a very simple and economical assembly and at the same time one which is highly effective.

The embodiment of my invention shown in Figs. 1 and 2 is a desirable one on account of its simplicity.

In the embodiment of my invention shown in Figs. 3, 4 and 5, the control rod 9 is provided with a longitudinal slot 19 receiving the key 20 of a stop disk 21 which is held between the nuts 22 and 23, the nut 22 being recessed to receive this stop disk. A stop pin 24 connected by the nut 22 coacts with spaced stops 25 formed

on the stop disk. This limits the rotative movement of the control rod while permitting its axial movement or adjustment. In this embodiment, the ratchet detent 25 has two arms 27—that is, an arm at each end, each arm terminating in a coil 28 embracing the control rod coils and the engagement of the detent with the transverse slot 18. The support effectively anchors the ratchet pawl or detent.

In the embodiment shown in Figs. 6, 7 and 8, the ratchet pawl is the same as that described for Fig. 1. The control rod 29 is provided with a series of non-ratcheting teeth 30 properly spaced to receive the detent 15. These are formed by forming transverse slots 31 in the control rod, these slots opening into shallower arcuate rounded slots 32 terminating in the flattened surfaces 33 so that while the recesses or slots 32 serve to hold the control rod in its adjusted position the detent may be readily released therefrom—that is, the control rod may be freely moved longitudinally when the rod is rotatively adjusted to bring the slots 32 into coacting relation with the detent. A main advantage, however, of these shallower recesses 32 is that they facilitate the positioning of the rod so that it may be readily rotated to bring the detent into locking position with the holding teeth 30. This provides means for positively locking the rod against movement in either direction but it is easily freed from the locking means for adjustment.

I have illustrated and described embodiments of my invention which I consider very desirable and practical. I have not attempted to illustrate or describe certain other embodiments or adaptations as it is believed that these disclosures will enable those skilled in the art to embody or adapt my improvements as may be desired.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. In a control device, the combination of a tubular support provided with means for mounting on an instrument panel or the like and having a transverse slot through the wall thereof at the rear of said mounting means, a control rod provided with a handpiece and mounted in said support for longitudinal and rotatable adjustment therein and having a plurality of ratchet teeth lying within its circumference, and a spring ratchet pawl formed of a single piece of wire stock and having a coil portion surrounding and in supporting engagement with said support, one end of the coil terminating in an arm having a laterally turned detent disposed in said slot in said support for coacting engagement with said ratchet teeth of said control rod, the detent being disengaged from said teeth by rotative movement of said control rod.

2. In a control device, the combination of a tubular support having a transverse slot through the wall thereof, a control rod provided with a handpiece and mounted in said support for longitudinal and rotatable adjustment therein and having a series of ratchet teeth, and a spring ratchet pawl of wire stock comprising a coiled member of spring material surrounding and in supporting relation to said support and terminating in a laterally turned detent disposed in said slot in said support for coacting engagement with said ratchet teeth of said control rod, the detent being disengageable from said teeth by rotative movement of said control rod.

3. In a control mechanism, the combination of a tubular support having a transverse slot

through the wall thereof, a manually actuable control rod reciprocable and rotatable in said support and provided with a series of holding teeth lying within its circumference, and a spring ratchet pawl formed of a single piece of wire stock and having a coil portion surrounding and in supporting engagement with said support, one end of the coil terminating in an arm having a laterally turned detent disposed in said slot in said support for coacting engagement with said ratchet teeth of said control rod, the pawl being disengaged from said teeth by rotative movement of said control rod, said support and control rod being provided with coacting stops limiting the rotating movement of said control rod.

4. In a control mechanism, the combination of a tubular support having a transverse slot through the wall thereof, a manually actuable control rod reciprocable and rotatable in said support and provided with a series of holding teeth, and a spring ratchet pawl formed of a single piece of wire stock and having a coil portion surrounding and in supporting engagement with said support, one end of the coil terminating in an arm having a laterally turned detent disposed in said slot in said support for coacting engagement with said ratchet teeth of said control rod.

5. In a control mechanism, the combination of a tubular support having a transverse slot through the wall thereof, a control rod provided with a handpiece and reciprocable and rotatable in said support and provided with a series of axially spaced holding teeth lying within its circumference and a series of detent recesses laterally aligned with but in angularly spaced relation to the spaces between said holding teeth, and a spring ratchet pawl member of wire stock including a coil body portion encircling and supported by said support and having a laterally turned detent disposed in said slot in said support for coacting engagement with said teeth of said control rod, the detent being disengaged from said teeth by rotative movement of said control rod to bring said detent recesses into operative relation to the detent.

6. In a control mechanism, the combination of a tubular support having a transverse slot through the wall thereof, a control rod provided with a handpiece and reciprocable and rotatable in said support and provided with a holding recess lying within its circumference, and a spring ratchet pawl member of wire stock including a coil portion surrounding and in supporting relation to said support and having a laterally turned detent disposed in said slot in said support for coacting engagement with said holding recess on said control rod.

7. In a control of the type described for actuating an instrumentality, a control rod operatively connected at one end to said instrumentality and adapted to be rotatably and axially actuated from the other end, a hollow tubular member telescopingly and rotatably receiving said rod and adapted to be secured to a control panel, said rod having a plurality of keeper elements spaced axially thereof, and a one piece flexible coiled detent member of wire stock surrounding and secured externally to said tubular member and having a portion resiliently engageable with said rod to abut the elements thereon and positively lock the rod in an axial direction, said tubular member having an opening therein admitting said portion to the interior thereof for engagement with said keeper elements, and said rod being rotatable to angularly free said elements

from engagement by said portion for axial shifting of the rod.

8. In a control of the type described for actuating an instrumentality, a control rod operatively connected at one end to said instrumentality and adapted to be rotatably and axially actuated from the other end, a hollow tubular member telescopingly and rotatably receiving said plunger and adapted to be secured to a control panel, said rod having a plurality of keeper elements spaced axially thereof, and a one piece flexible detent member of wire stock having a coiled annular portion concentric with and secured to said tubular member and having a portion resiliently engageable with said rod to abut the elements thereon and positively lock the rod in an axial direction, said rod being rotatable to angularly free said elements from engagement by said last named portion for axial shifting of the rod.

9. In a control of the type described for actuating an instrumentality, a control rod operatively connected at one end to said instrumental-

ity and adapted to be rotatably and axially actuated from the other end, a tubular support telescopingly and rotatably receiving said rod and adapted to be secured to a control panel, said rod having a plurality of angularly aligned keeper elements spaced axially thereof, a spring detent secured externally to said support having an integral portion resiliently engageable with said rod to abut said elements and positively lock the rod in an axial direction, said support having an opening therein receiving said portion for engagement with said rod and said rod being rotatable to angularly free said elements from engagement by said portion, a radially extending pin in fixed relation to said support, and an annular element secured to said rod for rotation therewith, said element having an abutment engageable with said pin upon rotation of the element to determine the angular position of the rod.

HERMAN WEBER.