June 2, 1942. W. PREUSSLER 2,284,683

REMOTE CONTROL SYSTEM

Filed April 5, 1939

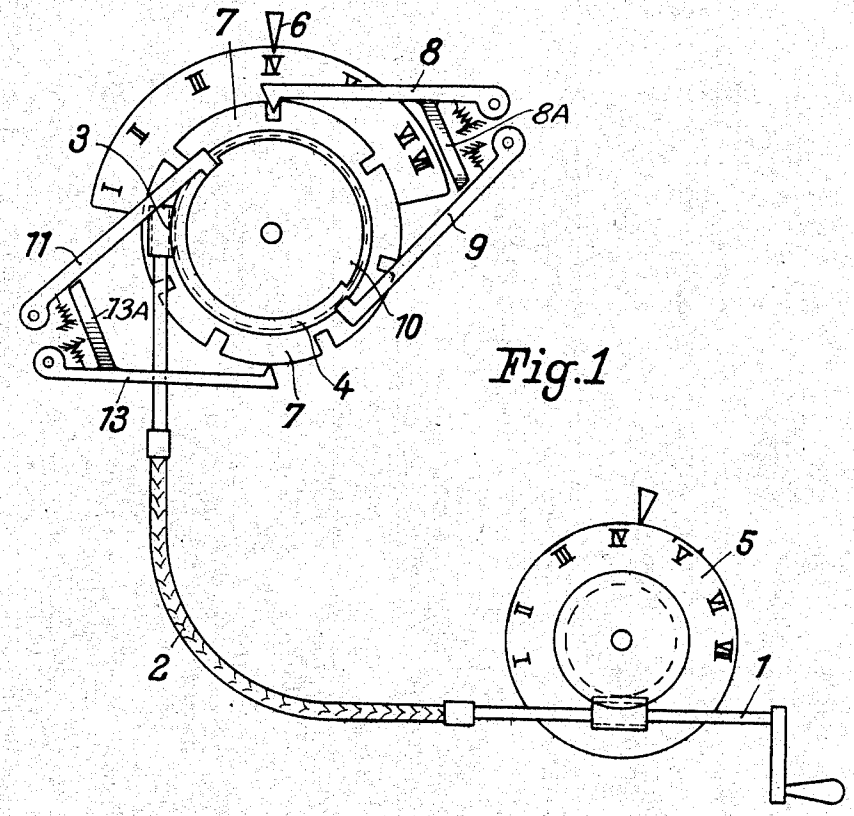


Fig.1

Fig.2

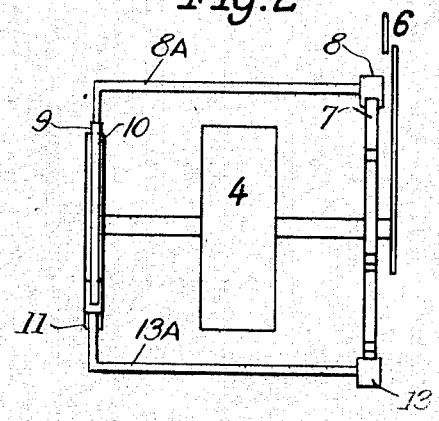
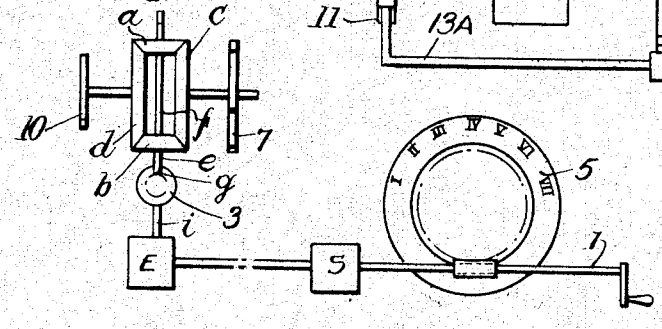


Fig.3.



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Patented June 2, 1942 2,284,683

UNITED STATES PATENT OFFICE

2,284,683

REMOTE CONTROL SYSTEM

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Application April 5, 1939, Serial No. 266,145
In Germany February 9, 1938

4 Claims. (Cl. 74—10)

In radio arrangements it is in certain cases not possible to locate the oscillatory circuits of the receivers and transmitters in the vicinity of the operating station. In such cases, in order to provide for a remote control of the oscillatory circuits, arrangements are employed which act mechanically or electrically to transmit a rotary movement from the operating station to the apparatus to be controlled.

In apparatus of this kind it is often necessary to have adjustments effected in accordance with certain angle values, that is to say, to lock rotatable means in certain desired positions. This may be done by an arrangement of ratchet disc and pawl. If such an arrangement is under the control of a remote drive, the operator at the control station finds himself unable to ascertain whether or not at the controlled station the desired locking action has become effective. A locking device of this kind used at the control station would only allow of an inaccurate adjustment since in any case the control members are possessed of a certain slip effect.

The invention aims to effect an accurate adjustment on the controlled side even if the adjustment on the control side happens to be inaccurate.

In the accompanying drawing Fig. 1 is a partially diagrammatic view of one embodiment of the invention, while Fig. 2 is a side view of part of the arrangement shown in Fig. 1, and Fig. 3 is an arrangement showing the differential gear box at right angles to the view shown in Fig. 1, together with a repeater drive means. Only the adjusting means is represented here, the means to be controlled, such as condensers and variometers, not being shown.

At the control station a driving means 1 is arranged to drive a drum 4 by the intermediary of a flexible shaft 2 of suitable length and by a worm gear 3. This drum contains a differential gearing as shown in Fig. 3 and is connected with the means to be controlled. The differential gearing comprising four beveled gears *a*, *b*, *c*, *d*, and ring gear *e* serves to drive the disc 7 and a disc 10. At the control side a scale 5 is arranged to indicate the angle value 6 also indicated on the controlled side.

Disc 7 has radial slots in its circumference and is thereby adapted for cooperation with a stop lever 8 provided with an offset arm 8A and a detent arranged to enter these slots. If on the control side a device similar to the stopping means 7, 8 were employed then the operator would never be sure whether or not lever 8 has engaged the disc 7 by entering the respective slot thereof.

In accordance with the invention the arrangement is as follows.

The offset arm 8A of lever 8 when the dent of the lever enters a slot of the rotating disc 7 comes against a lever 9 which is thereby separated from disc 10 releasing this disc for rotation with beveled gear *d*. Lever 8 may to such end be spring-actuated. As long as disc 10 is held from rotation, only disc 7 is driven by gear *c*, since the faces of levers 8 and 13 are shaped so as not to absolutely block movement of disc 7. On the release of disc 10 the disc 7 is stopped by lever 8 when the detent enters the slot whilst disc 10 is set rotating. Therefore, on the continued operation from the control side the disc 7, connected with a tuning means of the transmitter or receiver, as the case may be, ceases to rotate, only disc 10 rotating now. This disc is rotated until it strikes against a lever 11. At this moment lever 8 is brought out of engagement with disc 7 because of the cam-shaped surface on lever 8 by the continually acting driving force so that further adjustment of the tuning means or the like will take place.

If on the transmitting side the adjustable angle value is made approximately to correspond with the middle of the range of movement of the disc 10, lever 8 will have engaged the disc 7 irrespective of whether or not on the transmitting or control side the stoppage or indication, as the case may be, is effected in accordance with the same angle value as on the controlled side.

Instead of a transmission obtained by means of the flexible shaft 2, shown in Fig. 1, a rotating field system may be employed as shown in Fig. 3. In this arrangement the generator S is driven by rotation of control shaft 1, and the follow-up motor E is consequently rotated to drive worm gear 3 over the shaft *i*.

What is claimed is:

1. A remote control system which comprises a control station and a controlled station, driving means at said control station, a ratchet disc, gearing means at said controlled station operated in response to operation of said driving means for driving said ratchet disc, indicating means operatively associated with said driving means for indicating the rotational position of said disc, and a pawl cooperating with said ratchet disc to hold said disc in a predetermined position before said indicating means indicates said position and means to move said pawl to release said disc

after said indicating means indicates said position.

2. A remote control system according to claim 1 which further comprises high frequency tuning means driven by said ratchet disc.

3. A remote control system according to claim 1 wherein said pawl holds said disc in a predetermined position before said indicating means indicates said position for a period equal to the period between the indication of said position and the release of said disc.

4. A remote control system which comprises a control station and a controlled station, driving means interconnecting said stations, differential gearing means at said controlled station operated by said driving means, two disc members alternately driven by said gearing means, one of said members having slots thereon and the other of said members having a projection thereon, a first pair of pawls, the first of said pawls being arranged to cooperate with said slotted member and having means to render the second of said pawls inoperative upon engagement with one of said slots and the second of said pawls being arranged to cooperate with said other member for engagement with said projection, and a second pair of pawls, the first of said second pair of pawls being arranged to cooperate with said slotted member and having means to render the second pawl of said second pair inoperative upon engagement with one of said slots and the second pawl of said second pair being arranged to cooperate with said other member for engagement with said projection, the first and second pawls of each pair of pawls being simultaneously operative.

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