

Sept. 3, 1963

F. M. FREIMANN ET AL
WHISTLE REMOTE TRANSMITTER

3,102,509

Filed May 9, 1960

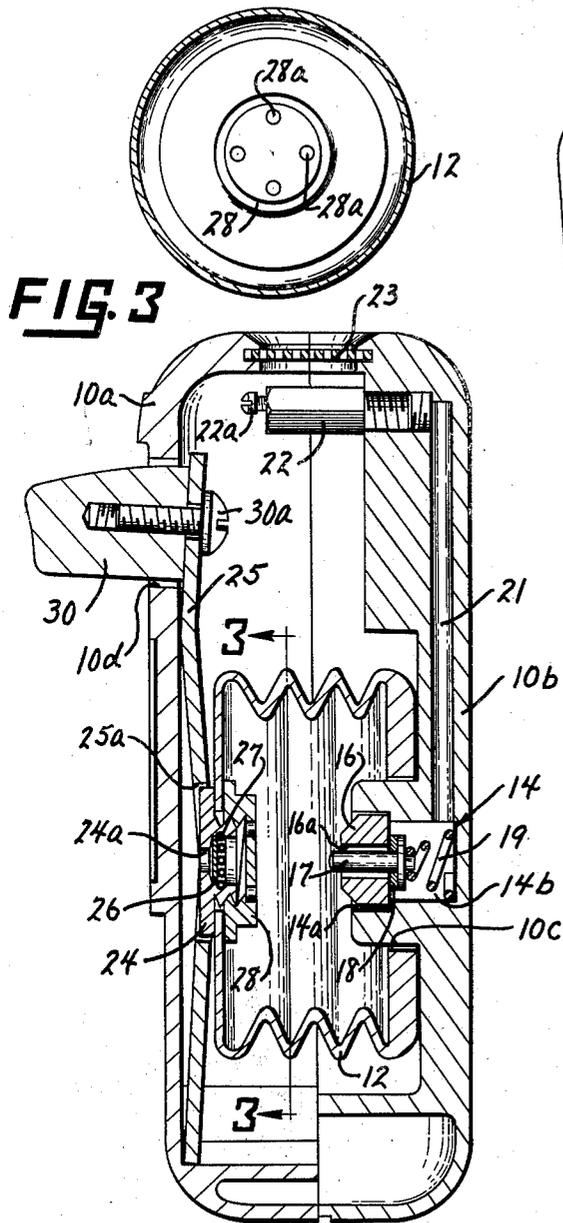


FIG. 3

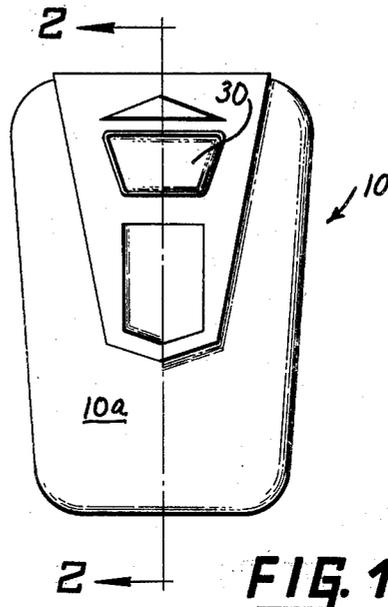


FIG. 1

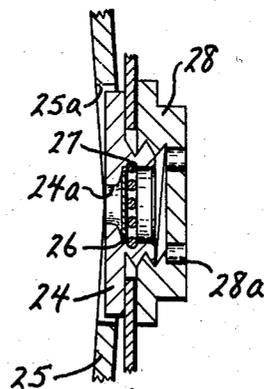


FIG. 4

FIG. 2

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WHISTLE REMOTE TRANSMITTER

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Filed May 9, 1960, Ser. No. 27,614
7 Claims. (Cl. 116-137)

The present invention relates generally to a transmitter for a remote control system for communication apparatus, and more particularly to a new and novel transmitter which emits a control signal in the form of a supersonic whistle.

As is known, remote control systems for communication apparatus conventionally comprise a transmitting device adapted to transmit a control signal, and a receiving device operatively associated with the controlled communication apparatus for converting signals received from the remote transmitter to effect the desired control function. In a television receiver, for example, the conventional remote control system may typically include an electromotive device for rotating a tuner forming a part of the receiver.

By virtue of the instant invention, the applicants have devised a new and novel bellows-operated transmitter for a remote control system for communication apparatus which effectively provides a supersonic signal to effect the control function. Typically, the applicants' novel invention comprises a housing, preferably of a size convenient for use in the hand, in which a bellows is disposed. The bellows is compressed by means of a hand-operated lever, and when in a compressed position, effects the flow of air to a tuned whistle disposed in the housing. The aforesaid air flow is accomplished by the selective engagement of a portion of the air inlet structure on the bellows with an air outlet structure disposed at one end of a passageway leading to the whistle.

Accordingly, the principal object of the present invention is to provide a new and novel transmitter for a remote control system for communication apparatus.

Another object of the present invention is to provide a new and novel transmitter for a remote control system for communication apparatus which emits a supersonic control signal.

Still another object of the present invention is to provide a new and novel transmitter for a remote control system for communication apparatus having a bellows which is selectively operable by a hand-operated control lever to emit a supersonic control signal through a whistle forming a part thereof.

A further and more general object of the present invention is to provide a new and novel transmitter for a remote control system for communication apparatus having a structure which is adapted for ready use within the hand of the operator.

Other objects and a better understanding of the invention will become more apparent from the following description, taken in conjunction with the accompanying drawing, wherein

FIG. 1 is a plan view of the new and novel remote transmitter forming the present invention;

FIG. 2 is an enlarged cross-sectional view, generally taken at line 2-2 of FIG. 1 and looking in the direction of the arrows, showing details of the instant remote transmitter;

FIG. 3 is a cross-sectional view, somewhat reduced in size, taken at line 3-3 of FIG. 2 and looking in the direction of the arrows, showing details of the bellows employed as a part of the invention; and,

FIG. 4 is a further enlarged view of the inlet valve structure shown in cross-section in FIG. 2.

For the purposes of promoting an understanding of the

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principles of the invention, reference will now be made to the embodiment illustrated in the drawing and specific language will be used to describe the same. It will nevertheless be understood that no limitation of the scope of the invention is thereby intended, such alterations and further modifications in the illustrated device, and such further applications of the principles of the invention as illustrated therein being contemplated as would normally occur to one skilled in the art to which the invention relates.

Referring now to the figures, the applicants' new and novel remote transmitter comprises a case or housing 10 formed by the assembly of sections 10a and 10b. In a typical embodiment of the invention, the housing 10 is made from a plastic material which is so dimensioned as to readily fit into a hand of the user.

The section 10b of the housing 10 includes a raised annular portion 10c around which a bellows 12 is seated. The raised annular portion 10c has a recess 14 therein formed by portions 14a and 14b which have different diameters. The portion 14a of the recess 14 is adapted to seat a bushing 16, which bushing 16 has a stem valve 17 received through an enlarged axial opening 16a therein. The base of the stem valve 17 is disposed in the portion 14b of the recess 14 and has a valve washer 18 positioned between a surface thereof and a surface of the bushing 16. A conical spring 19 is seated in portion 14b of the recess 14 and bears against the base of the stem valve 17, the latter being retained in effective alignment by virtue of an extension of the valve stem through the base thereof.

The portion 14b of the recess 14 in the raised annular portion 10c forms part of an air passage system from the bellows 12 through the opening 16a in the bushing 16, and further includes an elongated passageway 21 in section 10b of the housing 10 opening into a threaded area which receives a whistle 22. The whistle 22, which is disposed adjacent a lattice type bezel 23 positioned at one end of the case 10, provides the final portion of the air passage system. A rotatable screw 22a is provided in the whistle 22 for the selective tuning of the latter to the desired control frequency.

The bellows 12 forming a novel part of the instant invention includes an air inlet assembly comprising an intake seat 24 which is received within an opening 25a in an operating lever 25. The intake seat 24 extends through an opening in the top of the bellows 12 and is secured thereto by a threaded intake valve cap 28 (see FIG. 4). A valve 26, typically made from neoprene rubber, for example, is loosely disposed within the intake seat 24, a spring type element 27 being provided for retaining the latter therein.

The aforesaid air inlet assembly provides an air passageway to the bellows 12 through an opening 24a in the intake seat 24, around the space in which the valve 26 is disposed, through the openings between the turns in retaining element 27 and through openings 28a disposed in intake valve cap 28 (see FIG. 3). The preceding arrangement is such that when the bellows 12 is compressed, to be discussed herebelow, the air captured therein cannot pass to the inlet assembly in view of the air pressure forcing the valve 26 against the opening 24a in the inlet seat 24.

The remote transmitter assembly is completed by the above-mentioned operating lever 25 which is typically seated in openings (not shown) disposed within the section 10a of the case or housing 10, and where the other end thereof has a hand button 30 secured thereto by means of a screw 30a. As should be apparent from the drawing, the hand button 30 extends from an opening 10d in section 10a of the case 10 so that signal transmission can be effectively achieved by a simple hand operation.

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In use, when it is desired to transmit a control signal, the hand button 30 on the operating lever 25 is pushed inwardly, causing a pivotal movement thereof with good mechanical advantage. The movement of the operating lever 25 exerts an inward force against the top of the bellows 12 and, hence, the compression of the latter. As the bellows 12 is compressed, the valve 26 seats against the opening 24a in intake seat 24, thereby preventing passage of air from the bellows 12.

The aforedescribed compressive movement of the bellows 12 continues until the outer surface of the intake valve cap 28 engages the stem valve 17, whereupon the latter is unseated from its normal position sealing the enlarged axial opening 16a in the bushing 16. As a result, air passes from the bellows 12 into the portion 14b of the recess 14, and along the passageway 21 to the whistle 22, whereupon a supersonic whistle blast is produced. As indicated hereabove, a wide range of control frequencies may be achieved by adjusting the whistle 22 at screw 22a thereof.

Upon releasing the force against the hand button 30 of the operating lever 25, the intake valve cap 28 is disengaged from the stem valve 17 as the bellows 12 resumes its normal physical configuration. When the valve stem 17 is released, the spring 19 forces the closing of the air passageway through the opening 16a in the bushing 16 and, hence, the whistle 22 is inoperative until the above procedure is repeated.

It should be noted that as the bellows 12 returns to its normal condition, the valve 26 is again loosely disposed within its receiving portion in the intake seat 24, thereby permitting the air to flow into the bellows 12 through the passageway defined by the opening 24a in the intake seat 24, around the valve 26, through the retainer element 27 and out the holes or openings 28a in the intake valve cap 28.

From the preceding it should be apparent that the applicants have provided a new and novel transmitter which is particularly adaptable for use in connection with a remote control system for communication apparatus. The transmitter includes a hand-operated bellows mechanism which provides, as desired, a control signal in the form of a supersonic whistle, the latter being, of course, adaptable for many control functions.

It should be understood that the remote transmitter discussed hereabove is susceptible to modifications within the spirit of the invention. For example, the size and shape of the transmitter may be varied, as desired, depending upon the particular application thereof and, additionally, the compression of the bellows may be brought about by alternate structure with an equally effective practice of the invention. Thus, the above description should be considered illustrative, and not as limiting the scope of the following claims.

We claim:

1. A signal transmitting device comprising, in combination, a housing having a bellows disposed therein, said bellows having an air inlet means forming a part thereof, an air outlet means communicating with said bellows, said air inlet means adapted to selectively engage said air outlet means, and a whistle operably responsive to the selective engagement of said air inlet means with said air outlet means.

2. A signal transmitting device comprising, in combination, a housing having a bellows positioned therein, said bellows having an air inlet means disposed thereon, an air outlet means communicating with said bellows, said air inlet means adapted to selectively engage said air outlet

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means upon movement of said bellows, and a whistle operably responsive to the selective engagement of said air inlet means with said air outlet means.

3. A signal transmitting device comprising, in combination, a housing, a bellows positioned within said housing, said bellows having an air inlet means, lever means pivotally disposed in said housing adapted to compress said bellows, an air outlet means communicating with said bellows, said air inlet means adapted to selectively engage said air outlet means upon movement of said lever means, and a whistle communicating with said air outlet means operably responsive to the selective engagement of said air inlet means with said air outlet means.

4. A signal transmitting device comprising, in combination, a housing, a bellows disposed within said housing, said bellows having an air inlet and an air outlet, valve means disposed within said housing normally blocking the flow of air from said air outlet of said bellows, a whistle communicating with said valve means, and means selectively engaging said air inlet and said valve means when said bellows is compressed to a predetermined degree.

5. A signal transmitting device comprising, in combination, a housing, a bellows disposed within said housing, said bellows having an air inlet and an air outlet, a whistle communicating with said air outlet of said bellows through a passageway, valve means disposed within said passageway normally blocking the flow of air from said air outlet of said bellows, and means selectively engaging said air inlet and said valve means upon a predetermined degree of movement of said bellows.

6. A signal-transmitting device comprising a compressible bellows having a fixed end wall and a movable end wall; an air inlet valve mounted in an opening in said movable end wall and being operable in response to expansion of said bellows to admit air to the interior of said bellows and operable to closed position when said bellows is compressed, an air outlet valve mounted in an opening in said fixed wall, said outlet valve being arranged so that the pressure of air within said bellows tends to open the valve, and spring means biasing said outlet valve to closed position and holding said outlet valve in closed position, means carried by said movable end wall for contacting and opening said outlet valve only upon predetermined movement of said movable end wall, and a whistle connected to said outlet valve.

7. A signalling device comprising: a compressible bellows having an inlet valve and an outlet valve, said inlet valve being operable in response to expansion of said bellows to admit air to the interior of said bellows and operable to closed position when said bellows is compressed; spring means biasing said outlet valve to closed position; means carried by said bellows for contacting and opening said air outlet valve only in response to a predetermined compression of said bellows in order to issue a sudden blast of air through said outlet valve; and a whistle connected to said outlet valve.

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