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R. GATZSCHE

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REVERSING MECHANISM

Filed April 5, 1929

Fig. 1.

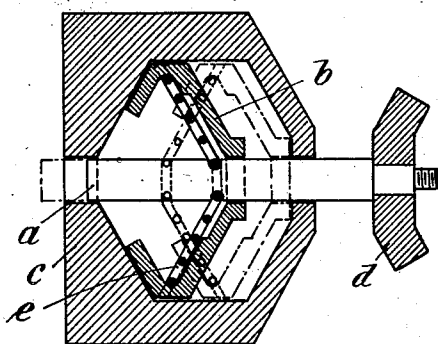


Fig. 4.

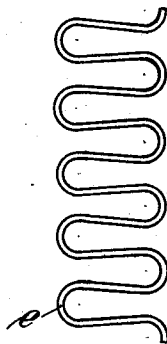


Fig. 2.

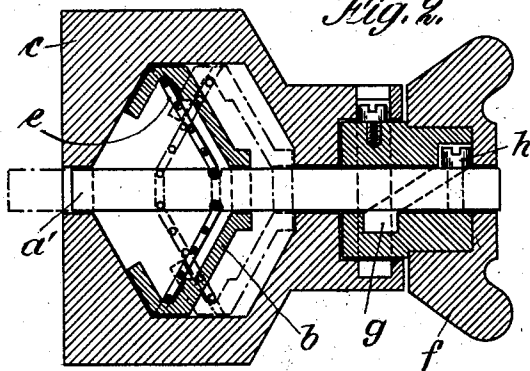
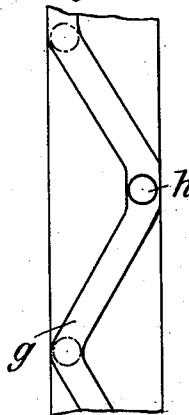


Fig. 3.



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UNITED STATES PATENT OFFICE

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REVERSING MECHANISM

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The invention relates to reversing mechanism comprising two movable control elements between which a resilient member is so arranged that at the movement of one of the control elements the resilient member is carried along and tensioned, passes its dead position and thereby moves the other control element in the opposite direction. The resilient member may be composed of differently shaped springs, and the spring is fitted in a frame which forms one control element, and when the dead position is passed is shifted in the one or other direction by the spring. At the same time the frame can slide on the control element which is moved or actuated. The shifting or actuation of one of the control elements can be effected directly by pressure or pulling, or by known means such as rotary handle, crank or the like.

Two embodiments of the invention are illustrated by way of example in the accompanying drawings in which

Fig. 1 shows a reversing mechanism directly operatable by pull or pressure.

Fig. 2 shows a reversing mechanism operatable by turning.

Fig. 3 is a detail of the mechanism illustrated in Fig. 2.

Fig. 4 represents a form of construction of the resilient member for actuating the reversing.

In Fig. 1 *a* is one of the moving control elements, and *b* the other. The control element *a* is composed of a rod of any desired cross section, and the element consists of a rhomboidal frame. Both elements are arranged in a stationary housing *c* and guided parallel to each other. The rod-shaped element *a* projects from the housing and is provided with a knob *d*. The frame-shaped element *b* sits loosely on the rod-shaped element *a* and is slidable thereon. A serpentine spring *e* (see Fig. 4) is so fitted in the frame *b* that it rests against one of the two opposed hollowed out inner surfaces of the frame. The centre coil of the spring is inserted in grooves in the rod *a* and the inserted shanks of the spring are rotatable in the grooves. The outer coils of the springs are

connected with the two corners of the frame. The rod *a*, on the inward movement, carries along the spring *e* by means of the centre coil. The instant the spring passes its dead centre position, it presses with its outer coils the frame into such a position, that the spring can assume the position symmetrical to its initial position as shown in dot-dash lines in Fig. 1. The greater the bend of the spring in the frame is, the greater will be the stroke of the control element. The two side walls of the frame *b* are symmetrical to the dead position of the spring. The frame can however be partly open as shown in the drawings.

The arrangement shown in Fig. 2 is similar to that shown in Fig. 1 only the shifting of the control rod *a'* is effected by turning. The knob *f* has in its bore a curved groove *g*, which is shown developed in Fig. 3. In this groove *g* the knob *f* engages the head *h* of a screw passing through the control rod *a'*. By turning the knob *f* the screw head *h* will be displaced in the groove *g* and thereby shifts the control rod *a'* carrying the central coil of the spring *e*. When the spring has passed its dead position it throws the frame *b* into the opposite control position, as shown in dot-dash lines in Fig. 2.

The frame, in which the spring member is housed, may be constructed in many various similar manners. The important feature of the invention is, the use of a frame or frame part, in which the spring member is so arranged, that it displaces the whole frame or a part thereof in the opposite direction to the actuated control element. Hereby the actuated control element may be connected with the frame or with the resilient member, or form a part of the frame.

The reversing mechanism described is particularly remarkable for its simplicity and accurate operation and can be used for a great variety of purposes, such as for electric switches, for locks, bolts, closing means, clutches, electro-magnets, fire-arms, taps, valves, control mechanism, brakes and the like. If the mechanism is to be used for example for electric switches, contacts may be fitted to one side of the frame, which contacts

strike against the circuit contacts fitted on the walls of the housing.

I claim:—

1. In a reversing mechanism, the combination of two movable control elements, a spring member arranged between said control elements, said spring member adapted to move beyond its dead position with one of said control elements and to thereby effect the movement of the other control element in the opposite direction, one of said control elements being in the form of a frame in which said spring member is housed and means for moving the one of said control elements with said spring member.

2. In a reversing mechanism, the combination of two movable control elements, a spring member arranged between said control elements adapted to be moved beyond its dead position with one of said control elements effecting the movement of the other control element in the opposite direction, one of said control elements being in the form of a frame in which said spring member is housed, a stationary part enclosing said frame-shaped control element and means for moving said frame-shaped control element with said spring member in relation to said enclosing stationary element.

3. In a reversing mechanism, the combination of two movable control elements, a spring member adapted to be moved beyond its dead position with one of said control elements effecting the movement of the other control element in the opposite direction, said spring member being formed by a serpentine-shaped spring the centre coil of said spring rotatably connected with one of said movable control elements the outer coils of said spring rotatably connected with the other of said movable control elements means for moving the one of said control elements with said spring member.

4. In a reversing mechanism, the combination of two movable control elements, a spring member adapted to be moved beyond its dead position with one of said control elements effecting the movement of the other control element in the opposite direction, one of said control elements being in the form of a frame in which said spring member is housed, a screw head projecting from said frame-shaped element, and a knob loosely mounted on said frame shaped element having an internal spiral groove engaging with said screw head adapted to move said control element by turning.

In testimony whereof I affix my signature.

RICHARD GATZSCHE.