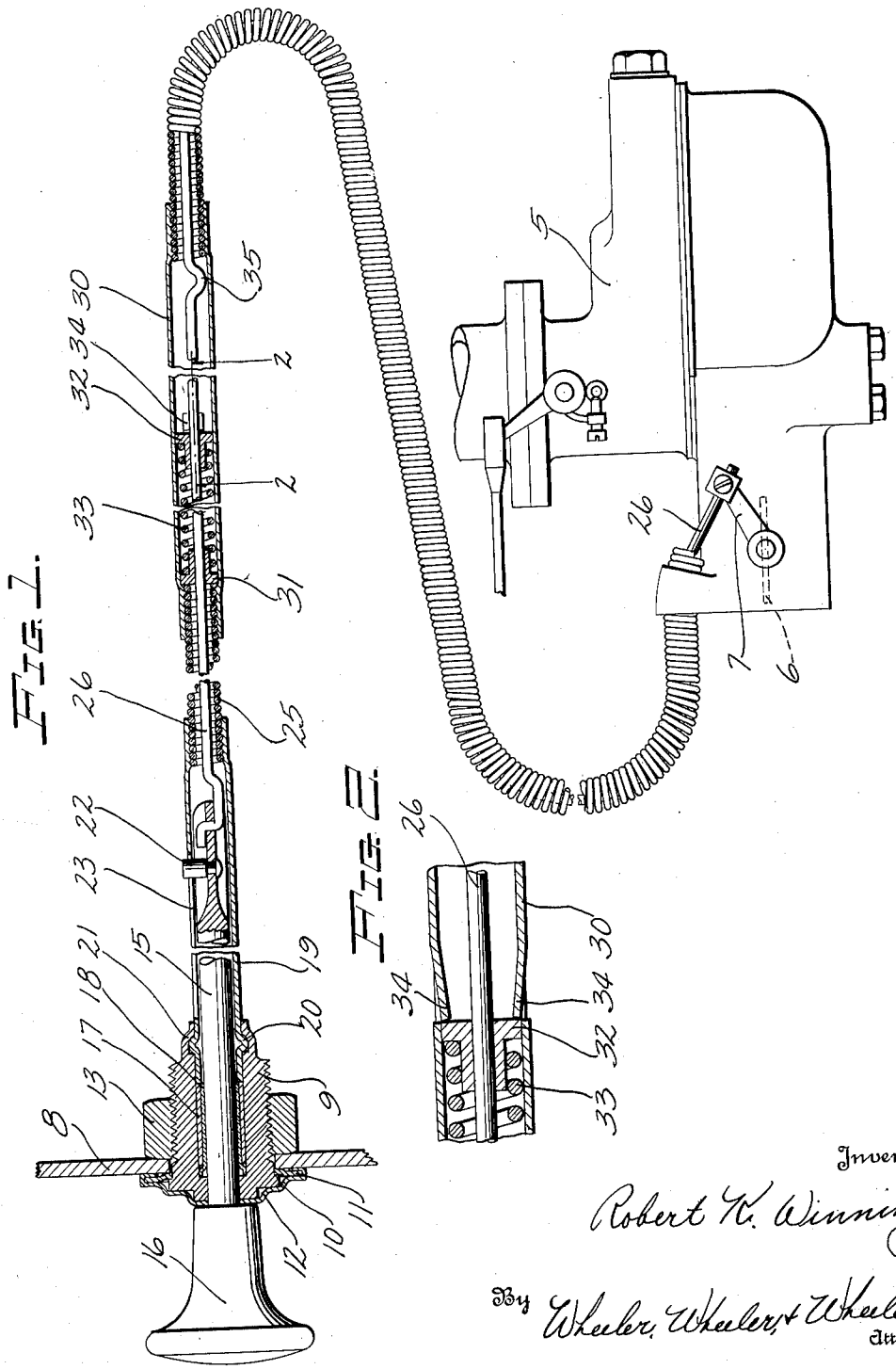
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CARBURETOR CHOKE CONTROL

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CARBURETOR CHOKE CONTROL

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This invention relates to improvements in carburetor choke controls and has for its primary object the provision of spring means organized to prevent the choke from remaining in a position such as to damage the internal combustion engine to which the choke is applied.

In some instances it is desirable that the choke mechanism be restored fully to its initial position after it has been utilized by the operator. In other instances it is preferable to provide a choke control mechanism whereby the choke will be partially restored to its normal position when released by the operator but beyond such pressure restoration will await further manual manipulation. A device suitable for the first mentioned requirement is shown in my companion application executed of even date herewith. It is the particular purpose of the present invention to provide a choke which, within one range where no harm to the engine can be done, will be entirely subject to manual manipulation, but which, within another range of movement, will be automatically adjusted toward the first mentioned range upon release by the operator.

In the drawing:

Figure 1 shows diagrammatically a form of choke control mechanism embodying this invention and applied to the control of a carburetor choke, the control mechanism being illustrated in section and the remaining mechanism in elevation.

Figure 2 is an enlarged detail section taken in the plane indicated at 2—2 in Figure 1.

Like parts are identified by the same reference characters throughout both views.

A carburetor 5 having a butterfly choke valve at 6 operated by a rocker arm 7 is arranged to be controlled through the mechanism herein described from the dash 8.

Separating the control mechanism from the dash is a bushing 9 shouldered at 10 to receive a washer 11 from which the finishing plate 12 is spun to hold the washer and bushing assembled. The washer and finishing plate form a head for the bushing which abuts the face of the dash, being held thereagainst by a retaining nut 13.

Operable through the bushing is a control rod 15 having a knob 16 for manual manipulation. A contractile spring 17 is housed within the bushing and presses a split sleeve 18 of fiber or the like against the rod. The spring and fiber are held in place by the end of the anchorage tube 19, which is provided at 20 with a rib from which the end 21 of the bushing is formed. A pin 22 riveted to rod 15 operates in a slot 23 in the anchorage tube 19 to keep the rod from turning.

Anchored in the end of tube 19 is a Bowden wire sheath 25 for the control wire 26 which leads to the choke valve arm 7.

It is broadly immaterial whether the parts now to be disclosed are incorporated within the tube 19 or not. In some installations, however, it is advantageous to locate these parts somewhere other than upon the dash and accordingly they are illustrated as being interposed at some desired point in the sheath 25.

As illustrated the sheath 25 is divided into two component parts joined by the tubular housing 30 in one end of which is a spring seat 31 through which the wire 26 is guided. A similar part 32 functions as a flange within housing 30 and is also traversed by the wire 26. Between the spring seat 31 and flange 32 is a reasonably strong compression spring 33 adequate to return the choke from its extreme position to a predetermined intermediate position at which the action of spring 33 is interrupted.

This intermediate position of the parts is provided for by forming inwardly in the wall of casing 30 the lugs or stops 34 against which the plunger 32 seats under the pressure of spring 33. The length and characteristics of the spring and the location of the stops 34 will determine the initial pressure to which the spring will be subject.

The Bowden wire 26 is provided at 35 with an off-set or pick-up part movable through casing 30 between the stops 34. It will be obvious that from the position at which such off-set is illustrated in Fig. 1, the Bowden wire may be moved freely by means of knob 16 until the off-set 35 picks up the plunger 32. During this range of movement

the adjustment of the knob 16 will be opposed only by frictional pressure of spring 17 and the fiber insert 18.

As soon as the off-set picks up the plunger 32, however, the further outward movement of the knob will immediately be resisted by the pressure spring 33 and if the knob be released the spring 33 will return the parts to the right (as viewed in Fig. 1) until the plunger 32 encounters stops 34. This movement will partially open the choke valve 6, and the range of spring pressed movement is so determined as to make it impossible for the choke to remain in an injurious position after the rod is released.

It is particularly to be noted, however, that, due to the stops 34, the choke may remain sufficiently closed to enable the engine to function properly while it is warming up after which the operator must manually adjust the choke through its remaining range of movement to a wide open position as illustrated. This final range of movement is so determined that if the operator forgets to manipulate the choke manually no serious harm will be done, and the engine will function, even though it may not function efficiently.

While the parts herein described may be utilized for many other purposes involving a dual range of movement, one range to be controlled automatically and the other manually, it will be obvious that the device has a particular application to the field specifically described herein.

I claim:

1. The combination with a carburetor choke valve, of a control means having a dual range of movement, said means being subject to manual control in both directions of movement between substantially spaced points in one such range and actuated by spring control means in one direction of movement and manual control in the other direction in the other such range, and friction means resisting movement in both such ranges.

2. In a device of the character described, the combination with a manually reciprocable control member movable through a predetermined range, and means resiliently opposing movement of said member through only a portion of said range whereby said member is subject to being positioned manually at any one of a number of points throughout the remainder of said range and means frictionally opposing movement of said member throughout said range.

3. The combination with a reciprocable control member having a pick up portion, of a spring pressed part positioned in the path of movement of said pick up portion and adapted when picked up thereby to exert spring pressure on said member, and means limiting the spring actuated return of said part to a portion only of the range of movement of said member, whereby said member is subject to manual determination of its position in the other portion of its range of movement.

4. The combination with a housing and a control member manually reciprocable therethrough, of a spring pressed member normally abutting a stop provided by said housing, and a pick up part carried by said control member and movable to and from said spring pressed part in one range of control member movement, said pick up part being engageable with said spring pressed member and subject to the resilient pressure thereof in another range of movement of said control member.

5. The combination with a control member having a pick up portion, and means for frictionally opposing movement thereof, of spring means sufficiently strong to overcome said frictional opposition and provided with a part beyond which said portion is movable in one direction and which is positioned in the path of movement of said portion in an opposite direction whereby to oppose movement of said control member in said opposite direction beyond a predetermined point in its range of movement.

6. The combination with a manually operable control member and means for frictionally opposing movement thereof, of a pick up part with which such member is connected, and means providing a stop, a spring seat normally abutting said stop and a compression spring acting on said seat, said seat being disposed, when abutting said stop, at an intermediate point in the path of movement of said pick up part, said spring being sufficiently strong when compressed by the movement of said seat from said stop in engagement with said part to actuate said part and member against the resistance of said friction means.

7. The combination with a manually operable control member, of a mounting therefor, a flexible sheath connected with said mounting, a control wire extending through said sheath and connected with said member, and a casing at an intermediate part of said sheath provided with means resiliently adapted to move said wire in one direction over a portion of its total range of movement, and means whereby said wire is manually movable in said direction beyond the extreme position to which it is movable by said first mentioned means.

8. The combination with a manually operable control member, and a mounting therefor, of a flexible sheath connected with said mounting and comprising a plurality of component parts with the tubular housing connected to such parts, a wire secured to said control member for manipulation through said sheath and said housing and having a

pick up part within said housing, means at said housing providing a stop, a spring seat adjustable within said housing to and from said stop and disposed in the path of movement of said part, a spring opposing movement of said seat from said stop, and adapted when picked up by said part to act therethrough upon said wire member.

9. The combination with a manually operable control member, and a mounting therefor, of a flexible sheath connected with said mounting and comprising a plurality of component parts with the tubular housing connected to such parts, a wire secured to said control member for manipulation through said sheath and said housing and having a pick up part within said housing, means at said housing providing a stop, a spring seat adjustable within said housing to and from said stop and disposed in the path of movement of said part, a spring opposing movement of said seat from said stop, and adapted when picked up by said part to act therethrough upon said wire member, and means in the mounting of said member for frictionally opposing movement thereof with a resistance which can be overcome by said spring.

10. In a device of the character described, the combination with a control member including a pick up part, of a tubular casing having its walls inwardly formed to provide stops, a guide for said member at one end of said casing constituting a first spring seat and a movable guide for said member forming a second spring seat, and positioned to abut said stops in the path of said part, together with a spring confined between said first and second spring seats and opposing such movement of said second spring seat from said stops as may be induced by contact of said part therewith.

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