Jan. 2, 1923. 1,440,427

S. G. WIGELIUS ET AL.

DEVICE FOR REGULATING THE LIFT OF VALVES.

FILED JUNE 12, 1919.

Fig. 2.

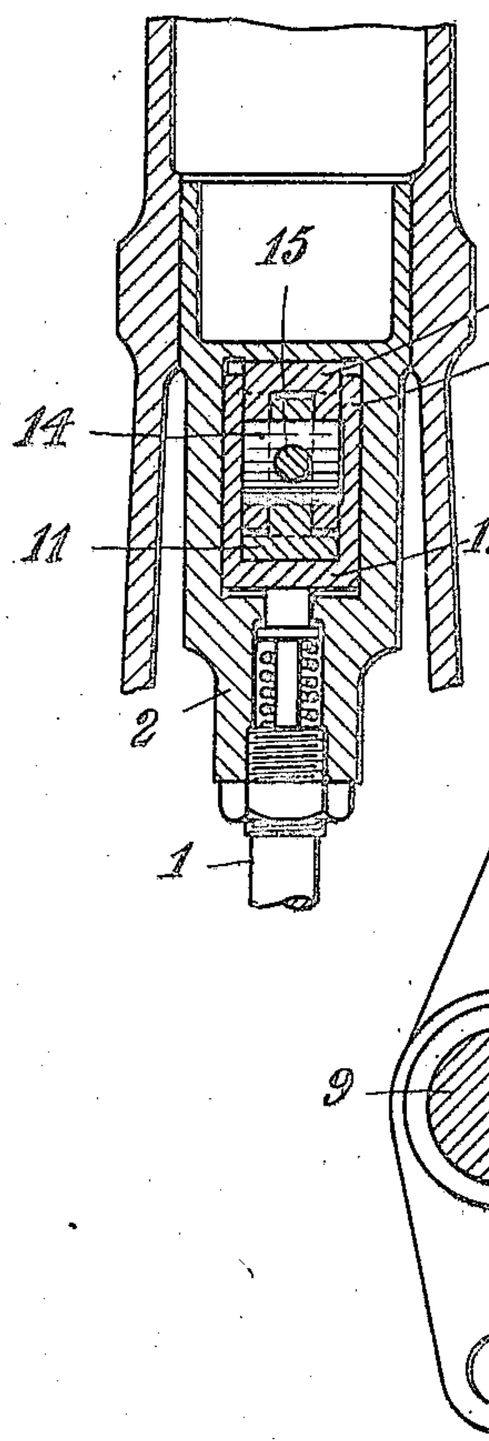
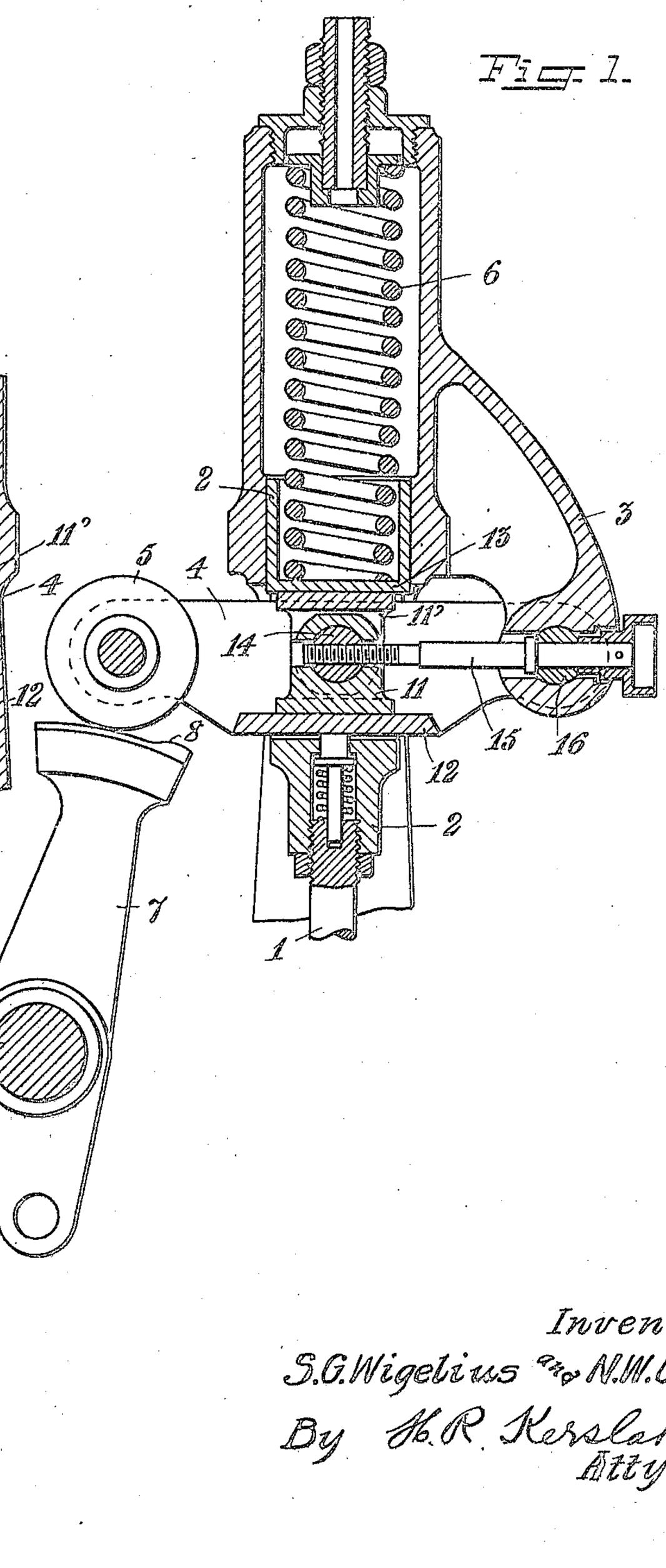


Fig. 1.



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UNITED STATES PATENT OFFICE.

SVEN GUSTAF WIGELIUS AND NILS WILHELM UHR, OF GOTTENBORG, SWEDEN, ASSIGNOR TO AKTIEBOLAGET WIGELIUS MOTORER, OF GOTTENBORG, SWEDEN, A CORPORATION.

DEVICE FOR REGULATING THE LIFT OF VALVES.

Application filed June 12, 1919. Serial No. 303,798.

To all whom it may concern:

Be it known that we, SVEN GUSTAF WIGELIUS and NILS WILHELM UHR, subjects of the King of Sweden, and residing at Gottenborg, Sweden, have invented certain new and useful Improvements in Devices for Regulating the Lift of Valves, of which the following is a specification.

The present invention relates to such arrangements for the regulation of the lift of valves, particularly in internal combustion engines, in which the valve spindle is actuated through the medium of a lever, disposed between the spindle and the driving means for the valve, and by a member, slidably arranged on the said lever, through the displacement of which the leverage whereby the valve is actuated, may be varied. The invention has for its purpose to provide for a suitable construction of said slidable member so that the latter may be provided with plane sliding surfaces. To this end the slidable member according to the invention is composed of two parts pivotally connected with each other, one of which is bearing against the lever, while the other one bears against the valve spindle or against a member connected therewith.

The accompanying drawing illustrates an embodiment of an apparatus according to the invention. Figs. 1 and 2 show two sections of the regulating device taken perpendicularly to each other.

The valve spindle 1, which is movable in the longitudinal direction, is rigidly connected with the member 2 at the end thereof, the member 2 being provided with a transverse recess extending therethrough. The upper end of the member 2 is actuated by a helical spring 6, which presses the valve spindle downwards through the medium of the member 2 so as to cause the valve to bear against the seat thereof. Extending through the said recess is a lever 4 pivoted to a fixed part 3 of the frame. The lever 4 is provided on its outer end with a roller 5 actuated by the cam 8 and an oscillating or rotating cam disk, eccentric, swing-lever, reciprocating rod or the like receiving its movement from the motor.

The middle part of the lever 4 has a U-shaped cross section and is provided with a cross-head slidably arranged within the same, the said cross-head consisting of two parts 11 and 11 pivotally connected with each other by means of a pin 14, which parts 11 and 11 are guided between the bottom 12 of the lever 4 and the upper boundary surface 13 of the recess in the member 2. Owing to the pivotal connection between the parts 11 and 11, the gliding surfaces of the parts 12 and 13 may assume parallel or oblique positions to each other in accordance with the changing position of the lever. Threaded in the pin 14 is a set-screw 15, which is rotatably but not slidably mounted in the pivot 16 of the lever 4.

The reciprocating motion of the cam-disk or the like is transmitted through the curve 8 to the lever 4, which in its turn imparts a reciprocating motion to the valve spindle 1 through the medium of the cross-head 11, 11. The extent of this motion is evidently dependent on the distance of the cross-head from the axis of oscillation of the lever 4, which distance may be varied turning the screw 15.

Obviously the lever 4 may also be carried out in the form of a two-armed lever or a bell crank lever.

What we claim as new and desire to secure by Letters Patent of the United States is:—

1. In a valve gear, in combination, a movable valve stem, a resiliently depressible member carried by the valve stem and adapted to move therewith and provided with a transverse opening therethrough, a pivotally mounted lever having its free portion arranged through the opening in the member, and manually adjustable means mounted on the lever and interposed between the lever and the top wall of the opening in the member on the valve spindle for varying the stroke of the spindle.

2. In a valve gear, in combination, a movable valve stem, a resiliently depressible member carried by the valve stem and adapted to move therewith and provided with a transverse opening therethrough, a pivotally mounted lever having its outer portion arranged through the opening, a sectional member slidably mounted on the lever and positioned between the lever and the upper wall of the opening for controlling the stroke of the valve spindle, and manually adjustable means mounted through the pivot

of the lever and adjustably engaged with the said sectional member for varying the stroke of the spindle.

3. In a valve gear, in combination, a movable valve stem, a member carried by the upper end of the valve stem and provided with a transverse opening therethrough, a stationary guide in which the member is slidable, tensioning means mounted in the guide and acting on the member, an arm depending from the guide, a lever pivoted to the arm and having its main portion extending through the opening in the member on the spindle, a sectional control member mounted on the lever and interposed between the upper wall of the opening and the lever and a manually operable rod operatively mounted through the pivot of the lever and adjustably connected with the sectional member for regulating the position of the said member to consequently vary the stroke of the valve spindle as desired.

4. In a valve gear the combination of a rocking lever, a member pivotally connecting said lever with the valve spindle and adjustable along the lever, so as to allow of a variation of the leverage, said member consisting of two parts pivotally connected with each other and provided with sliding surfaces bearing against sliding surfaces on the lever and the valve spindle, so as to allow of a displacement of said member along the lever, and a set screw rotatably mounted on the rocking lever and extending through the axis of oscillation of the lever, said screw being in operative engagement with said member, so as to cause a displacement of the latter when rotated.

5. In a valve gear the combination of a rocking lever, valve operating means actuating said lever at one end thereof, a member pivotally connecting said lever with the valve spindle at a point between the operated end and the axis of oscillation of the lever and adjustable along the lever, so as to allow of a variation of the leverage and a set screw rotatably mounted on the rocking lever and extending through the axis of oscillation of the lever, said screw being in operative engagement with said member, so as to cause a displacement of the latter when rotated.

In witness whereof we have hereunto set our hands in the presence of two witnesses.

SVEN GUSTAF WIGELIUS.
NILS WILHELM UHR.

Witnesses:
A. HÄKANSSON,
H. ANDERSSON.