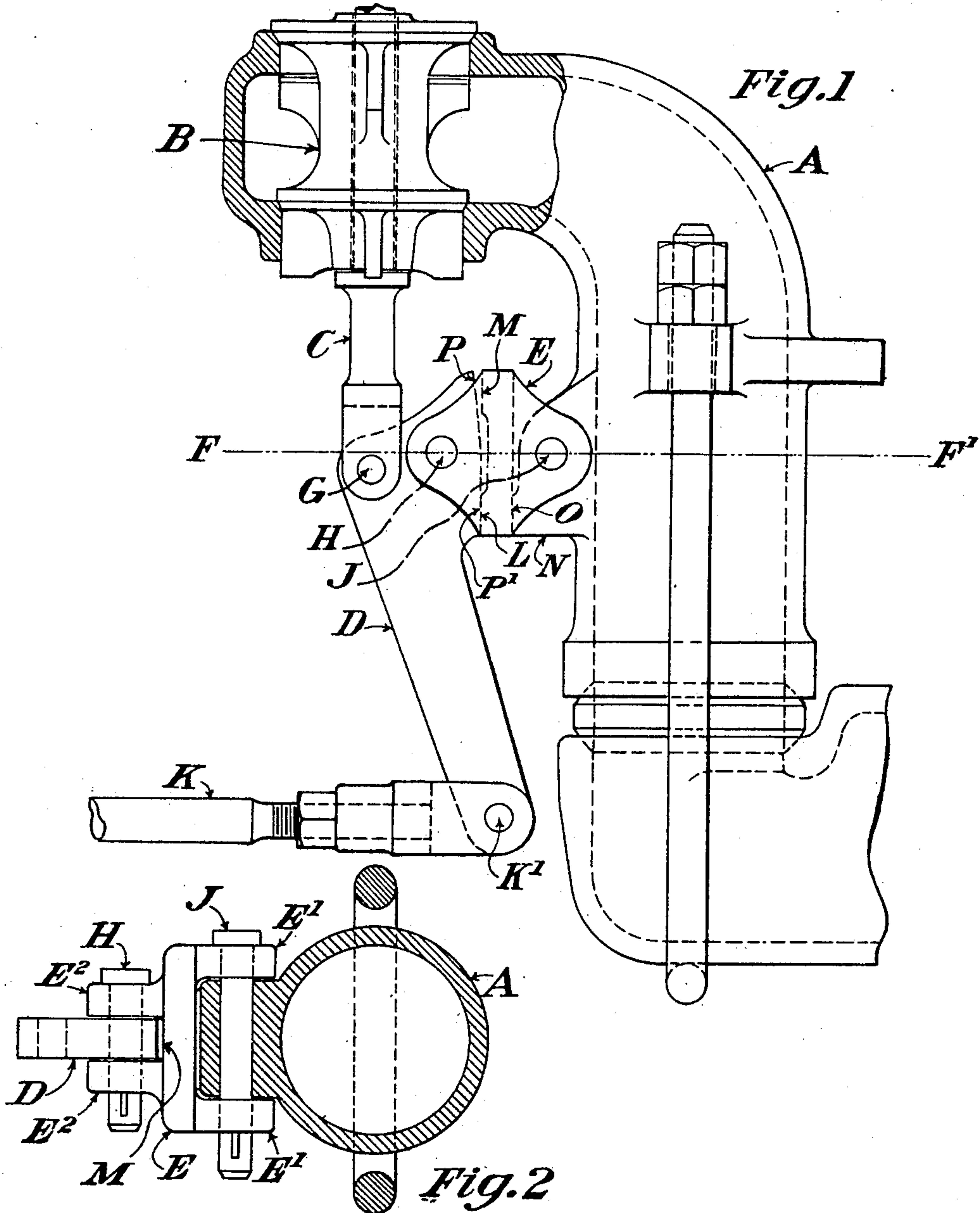


J. F. MURPHY.
LEVER MECHANISM FOR THROTTLE VALVES.
APPLICATION FILED JUNE 30, 1908.

906,647.

Patented Dec. 15, 1908.



WITNESSES:
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JOHN FREMONT MURPHY, OF PATERSON, NEW JERSEY.

LEVER MECHANISM FOR THROTTLE-VALVES.

No. 906,647.

Specification of Letters Patent.

Patented Dec. 15, 1908.

Application filed June 30, 1908. Serial No. 441,093.

To all whom it may concern:

Be it known that I, JOHN FREMONT MURPHY, a citizen of the United States, and a resident of Paterson, in the county of Passaic and State of New Jersey, have made and invented certain new and useful Improvements in Lever Mechanism for Throttle-Valves, of which the following is a specification.

10 My invention relates to an improvement in valves, and more particularly to lifting devices for throttle valves employed on locomotives carrying a high pressure of steam in the boiler thereof, the object being to provide simple and comparatively inexpensive means, whereby to easily and readily operate the same, and which means shall be so constructed and arranged that a slight initial lifting of the valve will be first effected by a comparatively long and powerful lever, in order to relieve the high pressure of steam on the valve, followed by the rapid and complete lifting thereof by a supplemental lever.

15 The invention further consists in certain novel features of construction and combinations of parts, as will be hereinafter fully described and pointed out in the claims.

20 In the accompanying drawings, Figure 1 shows a throttle pipe and valve partly in section and partly in elevation, having my improved lifting means applied thereto. Fig. 2 is a sectional view through the throttle pipe taken on the line F—F¹ of Fig. 1, showing the lifting devices in plan.

25 Referring to the drawings, A represents a throttle pipe having seated therein a common type of throttle valve B, the latter being provided with the stem C. To the lower end of the stem is secured the lifting bell crank lever D, by means of the pin G, the shorter arm of the lever being secured to the supplemental lever E by the pin H. This supplemental lever E is preferably constructed with the two arms or plates E¹—E¹ to embrace the lug or bracket N formed on or secured to the pipe A, through which plates and lug passes the pin J to secure the parts together, and act as a fulcrum for said lever E during the rapid and final lifting of the valve. It is also provided with the arms E² between which fits the shorter arm of the bell crank lever D, the pin H passing through said arms or plates E²—E² and bell crank lever D, acting as a fulcrum for the latter during the slight initial lifting of the valve. On the supplemental

lever E are also formed the projections L—M, acting as stops to limit the movement or travel of the shorter arm of the bell crank lever D, and against which stops said lever will strike or impinge at the points P—P¹, as hereinafter described.

30 From the foregoing it will be understood that a pull on the connecting rod K secured to the lower end of the bell crank lever D by the pin K¹, will cause said lever D fulcrumed on the pin H, to slightly raise the stem C and the valve B from its seat, the shorter arm of the lever impinging at the point P against the stop M on the supplemental lever E. This slight initial lifting of the throttle valve B from its seat will relieve it of the high pressure of steam thereon, this movement of the valve being effected by the leverage value of K¹—H to H—G. A continued pull on the connecting rod K will then cause the levers D and E to swing on the fulcrum J, effecting a rapid and complete lifting of the valve, the effect being to give a leverage value of K¹—J to J—G; in other words, the continued pull on the connecting rod K will increase the length of the shorter arm of the lifting bell crank lever D, from G—H to G—J, the effect of which, of course, is to decrease the power of the lever, and to increase the speed or lifting movement of the throttle valve.

35 The reverse movement of the connecting rod K will return the parts to their normal positions, as illustrated in Fig. 1, the downward movement of the supplemental lever E being limited by the stops O formed on the fulcrum lug or bracket N, the downward movement of the shorter arm of the lifting bell crank lever D, being limited by the same impinging at the point P¹ against the stop L formed on the supplemental lever.

40 It will be seen that my invention is exceedingly simple, the lifting devices for the valve consisting of but few parts, cheap to manufacture, and easily and readily assembled. Furthermore, they are capable of use with the common style or type of throttle pipe and valve, and without any change or alteration therein, and may be easily and readily substituted for the lifting devices now in daily use.

45 Having fully described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In a lifting device for throttle valves, the combination with a throttle pipe, of a

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throttle valve provided with a stem and seated in said pipe, a lifting bell crank lever secured to said valve stem, and a supplemental lever to which said lifting lever is fulcrumed and which in turn is fulcrumed to said pipe, substantially as described.

2. In a lifting device for throttle valves, the combination with a throttle pipe, of a throttle valve provided with a stem and seated in said pipe, a lifting bell crank lever secured at its angle to said valve and stem, and a supplemental lever fulcrumed to said pipe, the shorter arm of said lifting lever being fulcrumed to said supplemental lever and a longer arm attached to a connecting rod, substantially as described.

3. In a lifting device for throttle valves, the combination with a throttle pipe, of a throttle valve provided with a stem and seated in said pipe, a lifting bell crank lever connected at its angle with said valve stem, a supplemental lever fulcrumed to said pipe and operating as a fulcrum for said lifting lever during the initial lifting of said valve, and provided with stops against which said

bell crank lever impinges during the final lifting of said valve, substantially as described.

4. In a lifting device for throttle valves, the combination with a throttle pipe provided with a lug, of a throttle valve provided with a stem and seated in said pipe, a lifting bell crank lever secured at its angle to said valve stem, a supplemental lever fulcrumed at one end to said lug and to the opposite end of which is fulcrumed the shorter arm of said bell crank lever, stops formed on said supplemental lever for limiting the movement of said lifting lever, and stops formed on said lug for limiting the downward movement of said supplemental lever, substantially as described.

Signed at New York, borough of Manhattan, in the county of New York, and State of New York, this 27th day of June, A. D. 1908.

JOHN FREMONT MURPHY.

Witnesses:

PARKER COOK,
JOHN B. WHITE.