

No. 713,037.

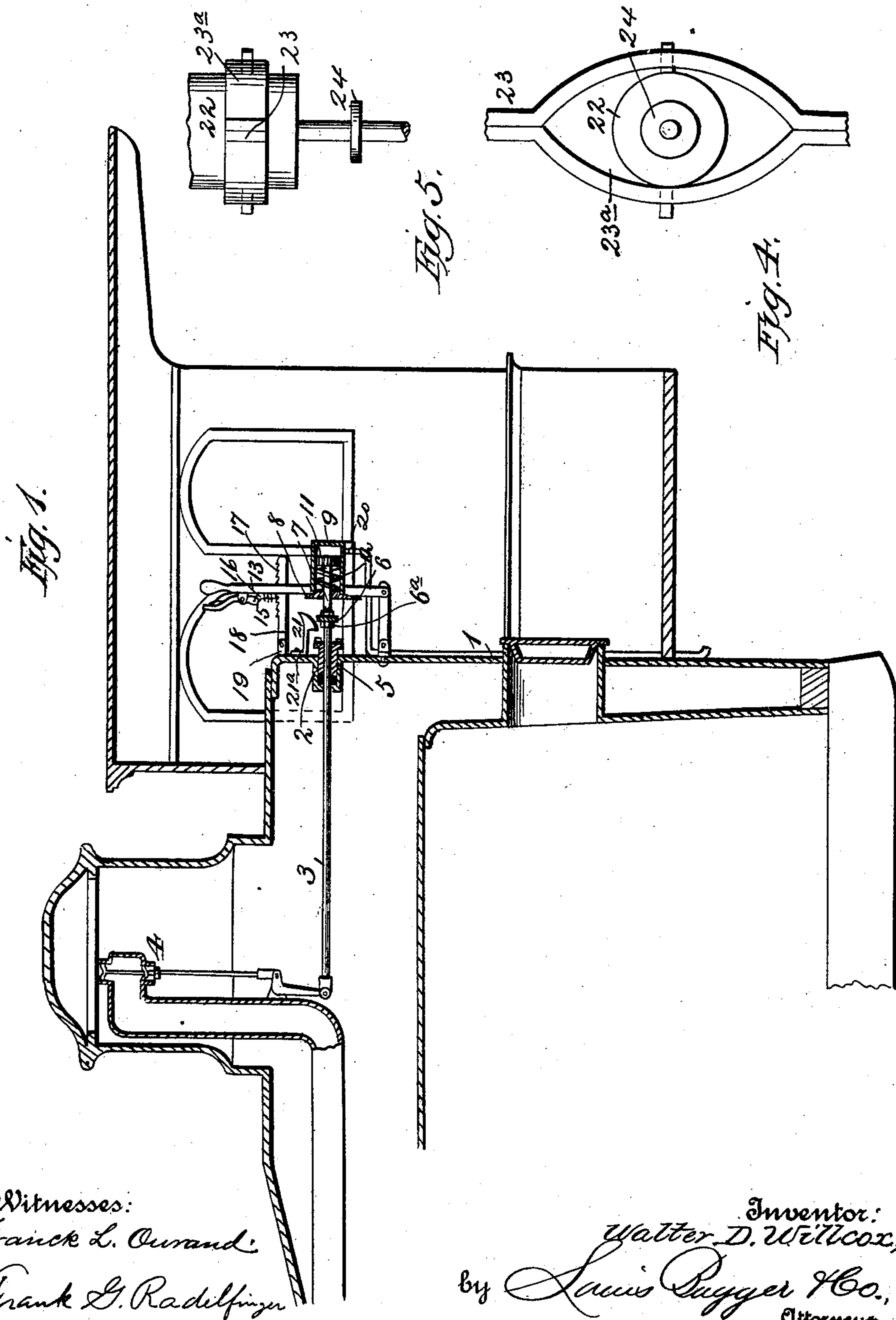
Patented Nov. 4, 1902.

W. D. WILLCOX.  
CONTROLLER FOR THROTTLE VALVES.

(Application filed Jan. 15, 1902.)

(No Model.)

2 Sheets—Sheet 1.



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Fig. 3.

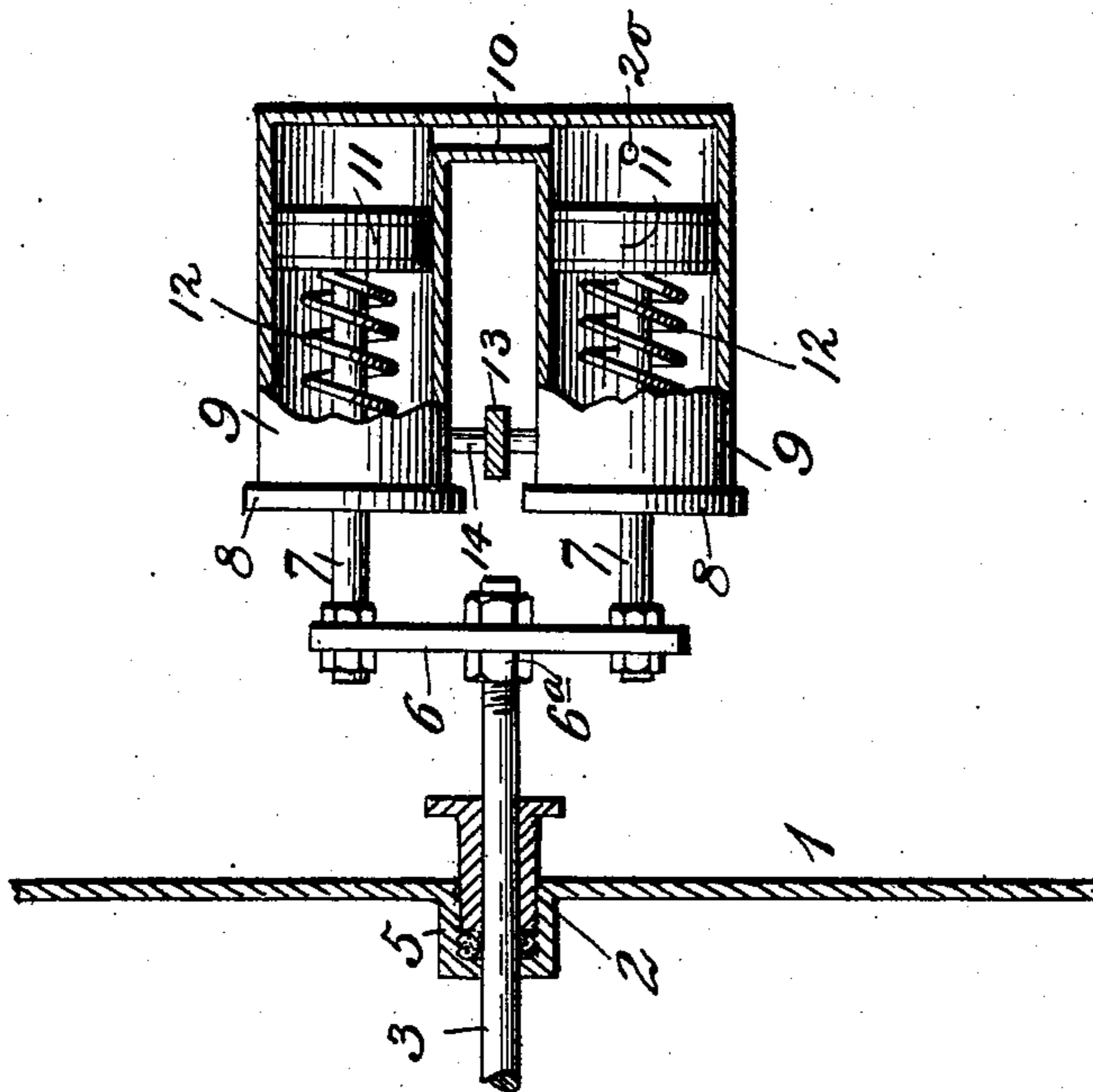
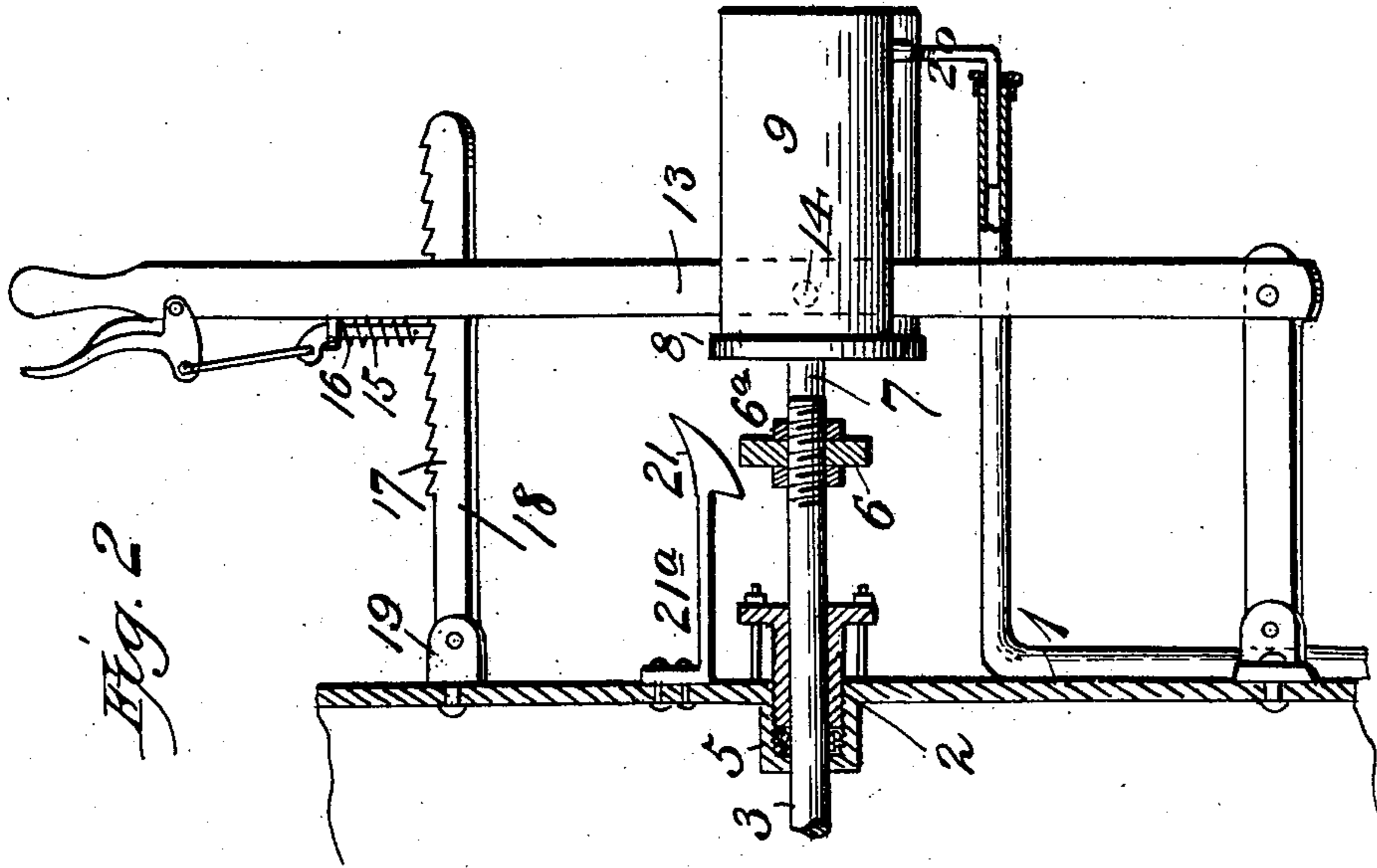


Fig. 2.



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# UNITED STATES PATENT OFFICE.

WALTER D. WILLCOX, OF WAYLAND, NEW YORK.

## CONTROLLER FOR THROTTLE-VALVES.

SPECIFICATION forming part of Letters Patent No. 713,037, dated November 4, 1902.

Application filed January 15, 1902. Serial No. 89,895. (No model.)

*To all whom it may concern:*

Be it known that I, WALTER D. WILLCOX, a citizen of the United States, residing at Wayland, in the county of Steuben and State of New York, have invented new and useful Improvements in Controllers for Throttle-Valves, of which the following is a specification.

My invention relates to an automatic throttle-control mechanism; and the object of the same is to construct a device which will automatically close the throttle of a locomotive simultaneously with the setting of the air-brakes, thereby providing the conductor with a means for controlling the steam-supply to the engine as well as the air-brakes, as is usual.

The novel construction used in accomplishing this object is fully described in this specification and claimed, and illustrated in the accompanying drawings, forming a part thereof, in which—

Figure 1 shows a fragment of the boiler-head with my device attached thereto and shown partially in section. Fig. 2 is a side elevation of the cylinders and lever. Fig. 2 is a plan view partially in section. Fig. 4 is a modified form of my device shown in end elevation. Fig. 5 is a detail side elevation.

Like numerals of reference designate like parts in the different views of the drawings.

The numeral 1 designates the rear head of a locomotive-boiler. The head 1 is apertured at 2 to accommodate a throttle-valve rod 3, which extends into the boiler and connects with a valve 4 at its inner end. A stuffing-box 5 surrounds the rod 3 and prevents leakage of steam. The outer end of the valve-rod 3 is adjustably connected to a cross-head 6 by means of nuts 6<sup>a</sup>. The cross-head 6 connects two piston-rods 7, which pass through heads 8 of cylinders 9. The cylinders 9 are mounted parallel, are connected by a passage 10, and are provided with tightly-fitting pistons 11, carried by the piston-rods 7. A spring 12 is mounted in the forward end of each cylinder 9 and bears on the piston therein. There is an interval between the cylinders 9, through which the engineer's throttle-lever 13 passes, and is pivotally connected by a cross-pin 14 to the cylinders 9. The le-

ver 13 bears a release-dog 15, actuated by a spring 16, which dog is located to engage the beveled teeth 17 formed on a rack-bar 18, pivoted to a standard 19, seated in the boiler-head 1. A small pipe 20 is connected at one end to the rear end of one of the cylinders 9 and at the other end to a pipe in the cab which connects with the brake-cylinder on the locomotive. A catch 21, having a spring-shank 21<sup>a</sup>, is mounted on the boiler in position to engage the cross-head 6 when the valve 4 is closed, and thereby prevent its being reopened.

The operation of my device can now be sketched. Suppose the parts are in the position shown in Fig. 1. The valve 4 is then open and the engine is running. Now if the conductor wishes for some urgent reason to stop the train he will operate the valve for this purpose on one of the coaches of the train and set the brakes by admitting air into all of the brake-cylinders on the train. A part of the air flowing into the brake-cylinder on the locomotive will find its way, via pipe 20 into one of the cylinders 9, from whence it will quickly pass to the other by means of passage 10. The pistons 11 will be driven forward, which action will actuate the rod 3 and seat the valve 4, shutting off steam. When the valve 4 is seated, the catch 21 will engage the cross-head 6 and prevent the reopening of the valve 4.

Instead of two cylinders I may use but one cylinder 22, as illustrated in Fig. 4. For this purpose it is convenient to make the throttle-lever 23 with an eye 23<sup>a</sup>, which embraces the cylinder 22 and is attached thereto by lugs. The cross-head is replaced in this form by a collar 24, which is engaged by the catch 21.

I do not wish to be limited as to details of construction, as these may be modified in many particulars without departing from the spirit of my invention.

Having thus fully described my invention, what I claim as new, and wish to secure by Letters Patent, is—

1. In a device of the class described, the combination with a throttle-lever, of a cylinder carried by said lever and provided with air connections, a piston fitting said cylin-

der, a throttle-valve, said valve being connected to said piston, substantially as described.

2. In a device of the class described, the  
5 combination with a throttle-valve and the engineer's throttle-lever, of a cylinder carried by said lever and supplied with air connections, a piston fitting said cylinder and connected to said valve, and a coiled spring  
10 mounted in said cylinder and bearing on said piston, substantially as described.

3. In a device of the class described, the combination with a throttle-valve, of an engineer's throttle-lever, a cylinder mounted on  
15 said lever, a piston fitting said cylinder, and connected to said valve, and a spring mounted to hold said valve normally open, substantially as described.

4. In a device of the class described, the  
20 combination with a throttle-valve and an engineer's throttle-lever, of a cylinder mount-

ed on said lever, a piston mounted in said cylinder and connected to said valve, a spring mounted to hold said valve normally open, and a catch located to oppose the opening of  
25 said valve when closed, substantially as described.

5. In a device of the class described, the combination with an engineer's throttle-lever, of a pair of cylinders located side by side  
30 and carried by said lever, pistons mounted in said cylinders and connected to operate in unison, and a throttle-valve connected to said pistons, substantially as described.

In testimony whereof I have hereunto set  
35 my hand in presence of two subscribing witnesses.

WALTER D. WILLCOX.

Witnesses:

JOHN KIMMELL,

F. ALLEN DE GRAW.