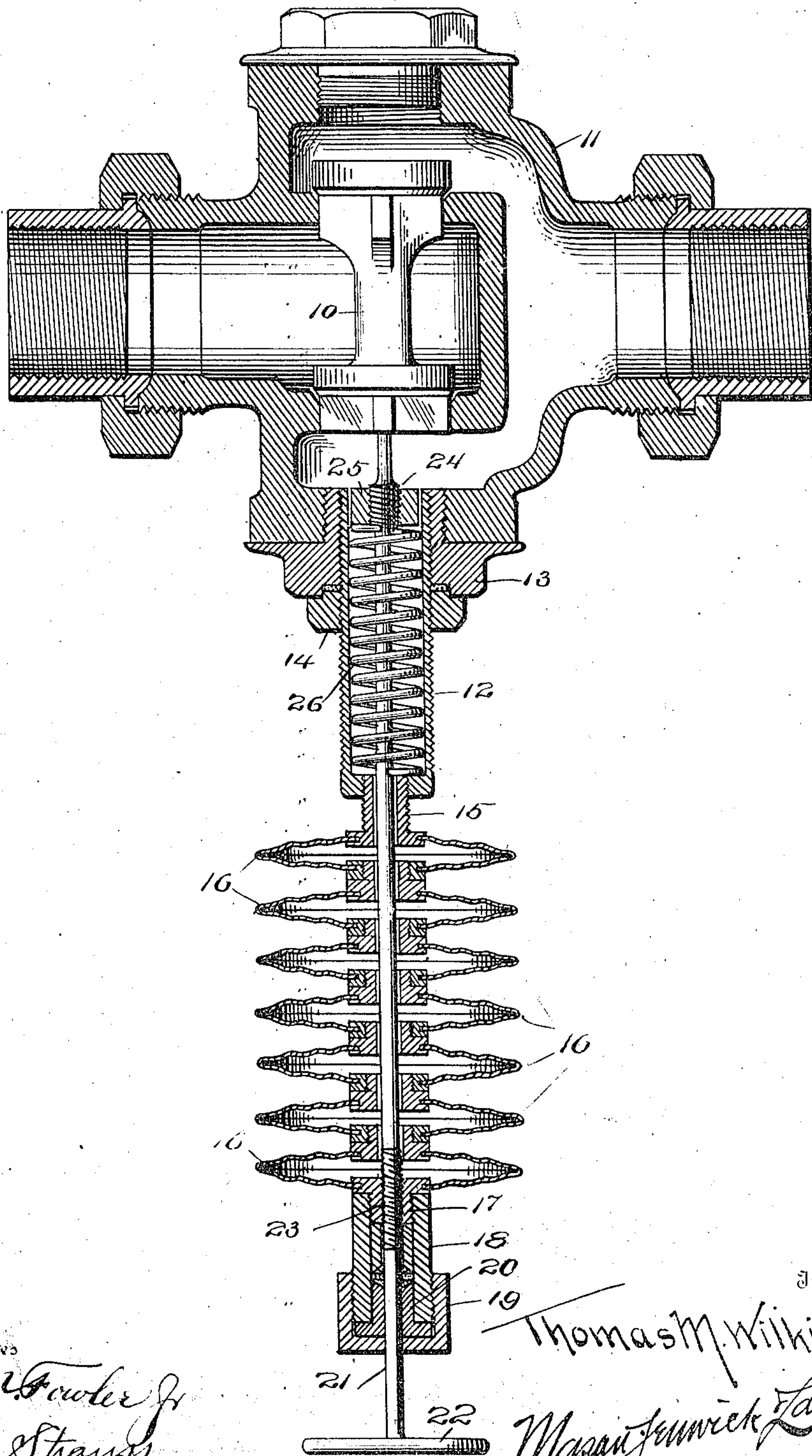


T. M. WILKINS.  
VALVE REGULATOR.  
APPLICATION FILED MAY 6, 1910.

975,915.

Patented Nov. 15, 1910.



Witnesses

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# UNITED STATES PATENT OFFICE.

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## VALVE-REGULATOR.

975,915.

Specification of Letters Patent.

Patented Nov. 15, 1910.

Application filed May 6, 1910. Serial No. 559,847.

*To all whom it may concern:*

Be it known that I, THOMAS M. WILKINS, a citizen of the United States, residing at East Randolph, in the county of Cattaraugus and State of New York, have invented certain new and useful Improvements in Valve-Regulators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to fluid pressure valve regulators, and has for an object to provide a valve with regulator controlled by the fluid pressure of the medium passing through the valve with improved means for nicety in adjusting such regulating device.

With this and other objects in view, the invention comprises certain novel constructions, combinations and arrangements of parts, as will be hereinafter fully described and claimed.

The drawing represents a vertical, sectional view through a valve and through the regulating device.

A balanced valve 10 is mounted in the valve casing 11 both of substantially the usual and ordinary construction with an externally screw-threaded tube 12 inserted in the bottom of such valve casing and communicating therewith. The tube 12 screws into a bushing 13 and is retained in position by a lock nut 14. At its lower end the tube 12 is continued by a nipple 15 which forms one of the extremities of the battery of diaphragms 16 all communicating and also communicating through the nipple 15 with the tube 12. At the lower end the diaphragms connect with a similar nipple 17 which is engaged externally by a tubular casing 18 which with the cap 19 and follower 20 forms a stuffing gland for the rod 21. The rod 21 is controlled by a hand wheel or other means 22 and is provided with a screw-threaded portion 23 inserted within the nipple 17. The rod 20 is also provided with another screw-threaded portion 24 engaged by a nut 25 disposed within the tube 12 and between such nut 25 and the end of the tube 12 a spring 26 is located which tends to force the nut away from the end of the tube 12 and by reason of the connection of the rod 21 with the valve 10 to force the valve from seat. The diaphragms 16 are adjusted to resist the tension of the

spring 26 and to tend to close the valve 10. In the initial adjustment of the device the tube 12 is screwed into the bushing 13 until the approximate adjustment under ordinary conditions of the device is secured, it being apparent that as the tube 12 is screwed farther into the bushing 13 the spring 26 is placed under greater tension. Such adjustment being secured a nicety of adjustment under varying conditions is secured by the rotation of the rod 21 which simultaneously increases the tension of the spring 26 and decreases the tension of the diaphragms 16 or the reverse, decreasing the tension of the spring 26 and increasing the tension of the diaphragms 16.

It will be apparent that the fluid medium passing through the valve casing 11 will pass downwardly through the tube 12 to the inner bore of the nipple 15 and the connections between the diaphragms 16 so that such diaphragms and the tube 12 are all filled with the medium. If now the tension on the medium filling such diaphragms increases the diaphragms are expanded thereby acting to throw the stuffing gland and its associate parts farther from the valve casing and carry therewith the rod 21 to seat the valve against the tension of the spring 26. When the tension upon the medium in the diaphragms decreases the tension of the spring 26 acts against such decreased tension and opens the valve 10.

It will be apparent that by reason of the simultaneous and opposite adjustment of the tension of the spring 26 and the diaphragm 16 by the single operation of rotating the rod 21 an extreme nicety of adjustment may be readily and conveniently accomplished.

What I claim is:—

1. The combination with a valve casing and balanced valve mounted within the casing, of a valve stem passing through the casing, oppositely-acting resilient means normally equal in tension tending to move the valve stem in opposite directions, manually operable means for varying the tension of the resilient members simultaneously to opposite effect, and means to employ the tension of the medium passing through the valve to increase the tension of one of the resilient means.

2. The combination with a valve casing and balanced valve mounted therein, of a



tube communicating with the valve casing,  
a diaphragm in communication with the  
tube, a valve stem extending through the  
diaphragm and through the tube and con-  
necting with the valve, a spring disposed  
within the tube and acting upon the valve  
stem and tending to hold the valve open  
against the resiliency of the diaphragm,  
and means to simultaneously increase the

tension of the spring and decrease the ten- 10  
sion of the diaphragm.

In testimony whereof I affix my signa-  
ture in presence of two witnesses.

THOMAS M. WILKINS.

Witnesses:

E. P. CRUMP,  
N. MEEM.