F. S. McINTYRE.

SAFETY VALVE.

APPLICATION FILED MAR. 23, 1909.

934,563.

Patented Sept. 21, 1909.

2 SHEETS—SHEET 1.

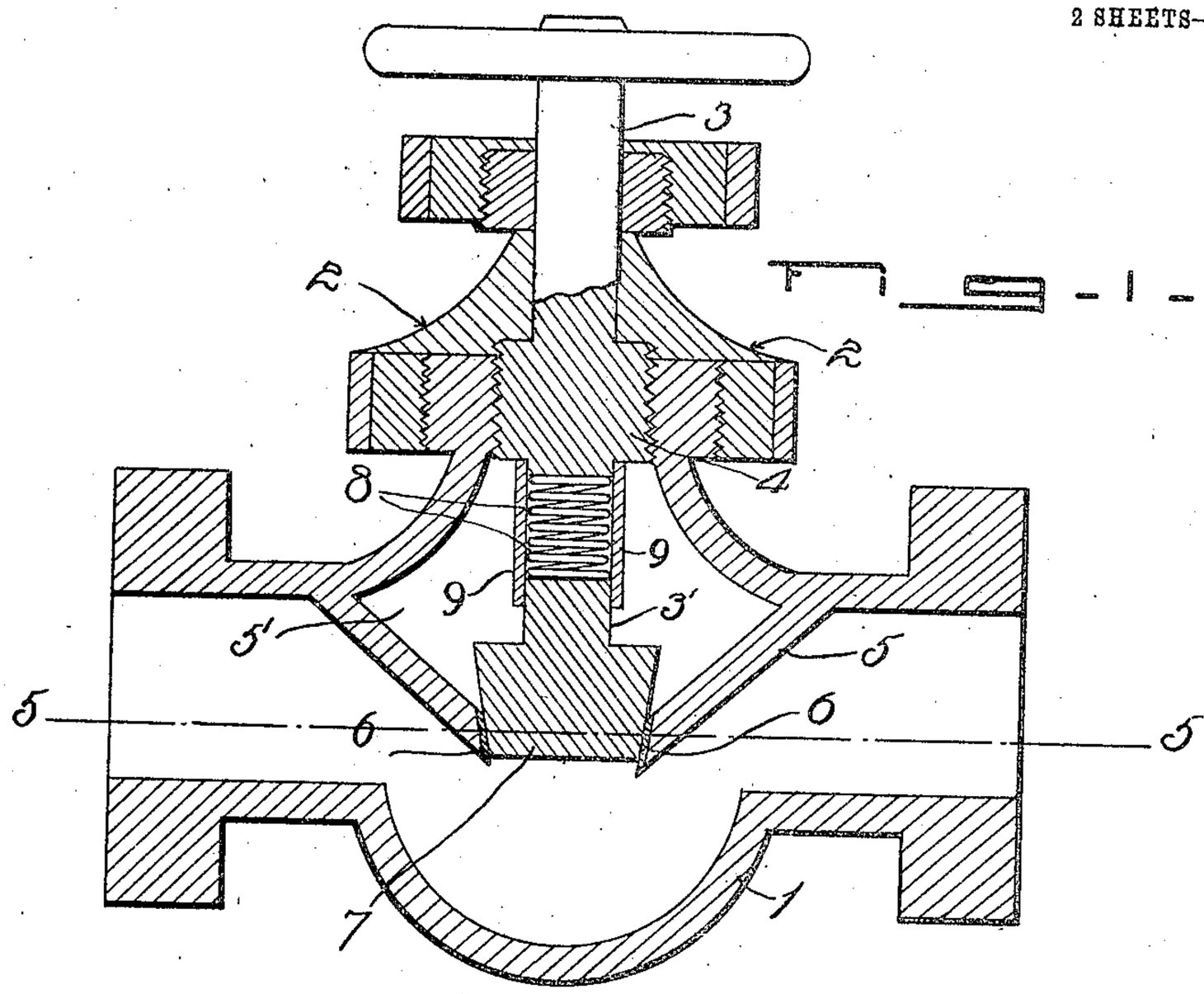

Fig. 1.

Fig. 3.

Fig. 2.

Witnesses

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2 SHEETS—SHEET 2.

FIG. 3.

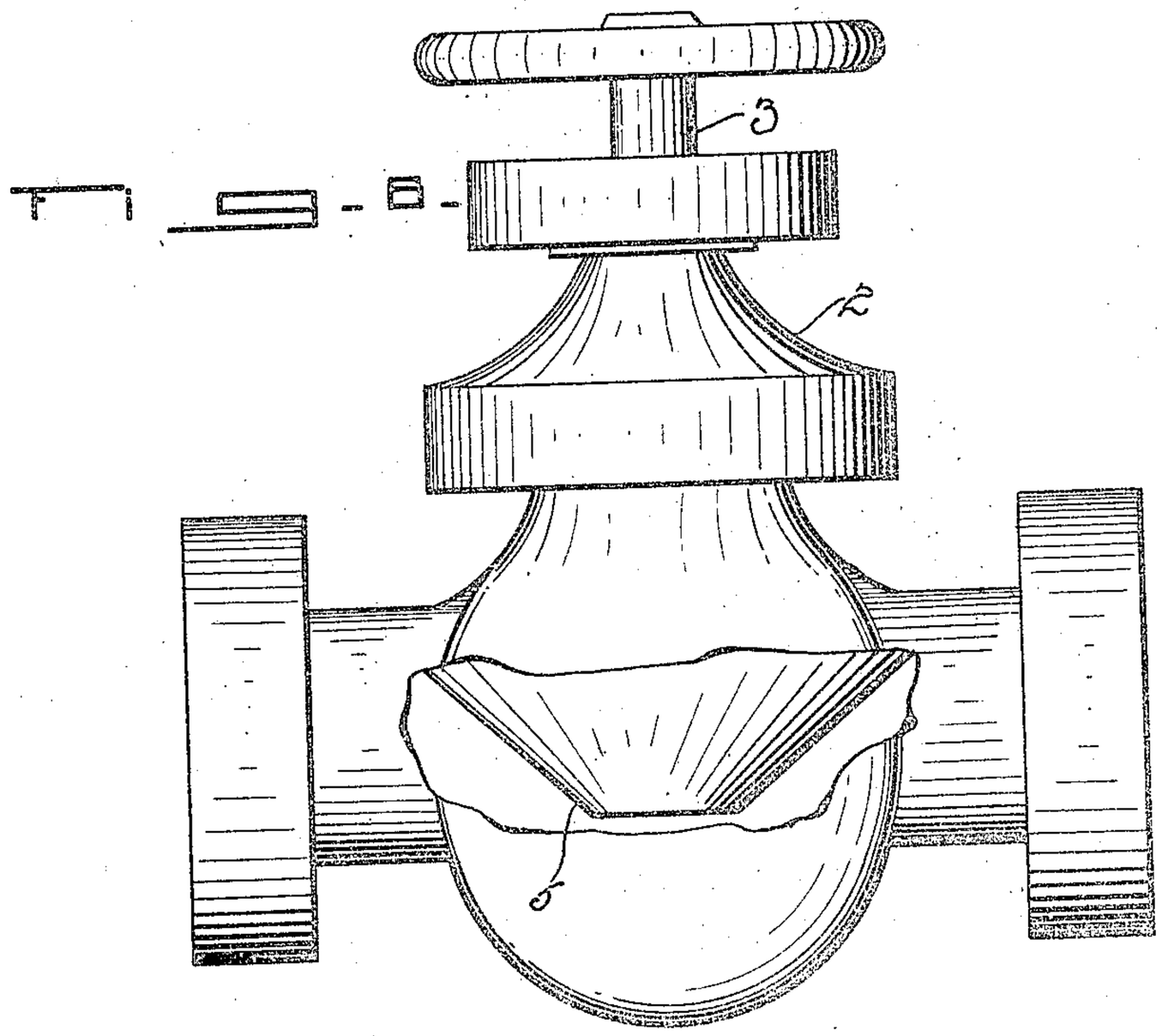


FIG. 4.

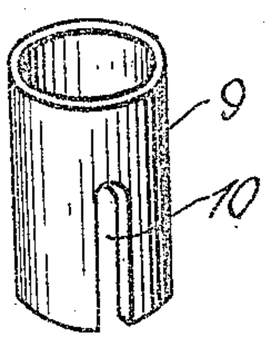
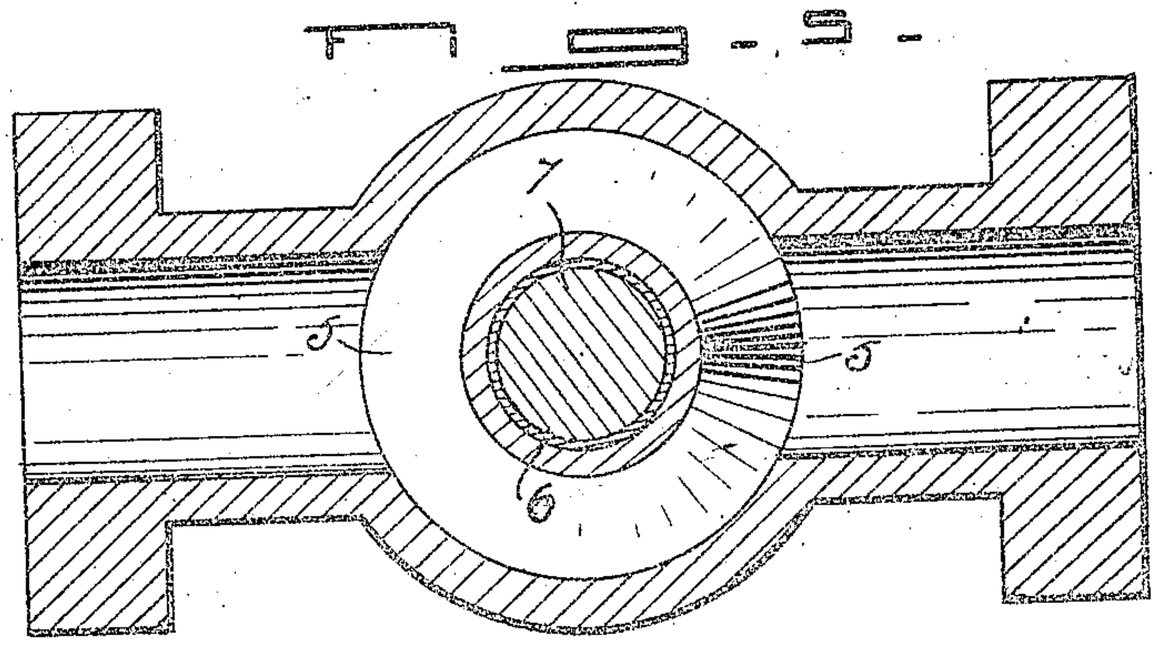


FIG. 5.



Witnesses
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UNITED STATES PATENT OFFICE.

FRANK S. McINTYRE, OF PITTSBURG, PENNSYLVANIA.

SAFETY-VALVE.

934,553. Specification of Letters Patent. Patented Sept. 21, 1909.

Application filed March 23, 1908. Serial No. 422,313.

To all whom it may concern:

Be it known that I, FRANK S. McINTYRE, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Safety-Valves, of which the following is a specification.

This invention relates to safety valves and is particularly designed for use in connection with that class of valves known as globe valves, though not necessarily limited to such use.

The object of my invention is to provide such a valve for use in connection with water, steam or gas pipes to prevent the bursting of the pipes due to excessively high pressure.

Another object is to provide an improved construction of valve stem by means of which the pressure resistance of the valve may be regulated. A further object is to provide an improved construction of valve seat, whereby many of the parts of the safety valve as now constructed will be eliminated.

With these and other objects in view, the present invention consists in the combination and arrangement of parts as will be hereinafter more fully described, and particularly pointed out in the appended claims, it being understood that changes in the specific structure shown and described may be made within the scope of the claims without departing from the spirit of the invention.

In the drawings forming a portion of this specification, and in which like numerals of reference indicate similar parts in the several views, Figure 1 is a central vertical section through a valve embodying my improvement, Fig. 2 is a similar view taken at right angles to Fig. 1, Figs. 3 and 4 are detailed perspective views of the valve stem construction. Fig. 5 is a horizontal section on the line 5—5 of Fig. 1. Fig. 6 is a side elevation of the valve.

Referring to the drawings, 1 indicates the casing of a globe valve of any ordinary or approved construction, and 2 the head or bushing thereof threaded upon the upper enlarged end of the casing. The valve stem 3 extends through said bushing and is formed with an enlarged threaded portion 4 which engages with the threads formed upon the interior of the upper end of the valve casing. The valve stem is formed in two parts, the upper section terminating slightly below the threaded portion thereof. Downwardly and inwardly inclined and integrally formed with the valve casing is the wall 5 substantially V-shaped in cross section, in the lower end of which is formed the valve seat 6, for the reception of the valve 7 upon the lower section 3′ of the valve stem 3. A spiral spring 8 has its ends secured to the upper and lower sections of the valve stem. A cylindrical casing 9 depends from the upper section of the valve stem and forms a housing for the spring 8. The lower end of this casing is provided at diametrically opposite points with the vertical slots 10, in which lugs 11 formed upon the lower section 3′ of the valve stem are mounted for vertical movement. The valve and its seat are formed with beveled peripheries to provide a very secure closure under normal conditions. The depending wall 5 forms, in elevation, what is substantially a hollow truncated cone, thus providing a chamber 5′ in which the overflow is collected and carried off by the waste pipe 12. By the construction above described, it will be seen that the tension of the spring 8 may be adjusted at will and the pressure upon the valve regulated in proportion to the pressure in the pipes. By providing the slotted cylindrical casing to form a guide for the valve and a housing for the pressure spring 8, the liability of the valve being forced from its seat and not being properly reseated, is obviated, thus preventing any unnecessary reduction of the pressure.

From the foregoing it will be seen that I have devised an improved safety valve which is extremely simple and inexpensive in construction, is very quick in its action, and in which the friction has been reduced to a minimum, thus overcoming to a large extent the numerous defects which exist in this class of valves.

What is claimed is:

1. A safety valve comprising a casing, a depending wall V-shaped in cross section formed integral with said casing, a valve seat in the lower end of said wall, a valve stem adjustably secured in said casing, a cylindrical housing depending from said valve stem, a valve in said seat and a spring in said housing secured to said valve stem and to the valve.

2. A safety valve comprising a casing, a

depending wall formed integral with said casing, a valve seat in the lower end of said wall, a valve stem formed in two sections, a cylindrical housing depending from the upper section of said valve stem, and a spiral spring in said housing secured to said upper and lower sections of the valve stem.

3. A safety valve comprising a casing, a depending wall formed integral with said casing, a valve seat in the lower end of said wall, a valve stem formed in two sections, a cylindrical housing depending from the upper section of said valve stem, vertical slots formed in the lower end of said housing at diametrically opposite points, a valve formed on the lower section of said stem, lugs upon the lower section of said stem slidably engaging in the slots of said casing, an enlarged threaded section upon the end of the upper section of said stem mounted in said casing, and a spiral spring in said housing secured to said upper and lower sections of the valve stem.

In witness whereof I affix my signature, in presence of two witnesses.

FRANK S. McINTYRE.

Witnesses:
ROBERT F. IRVINE,
HOWARD F. BREHAM.