

No. 694,811.

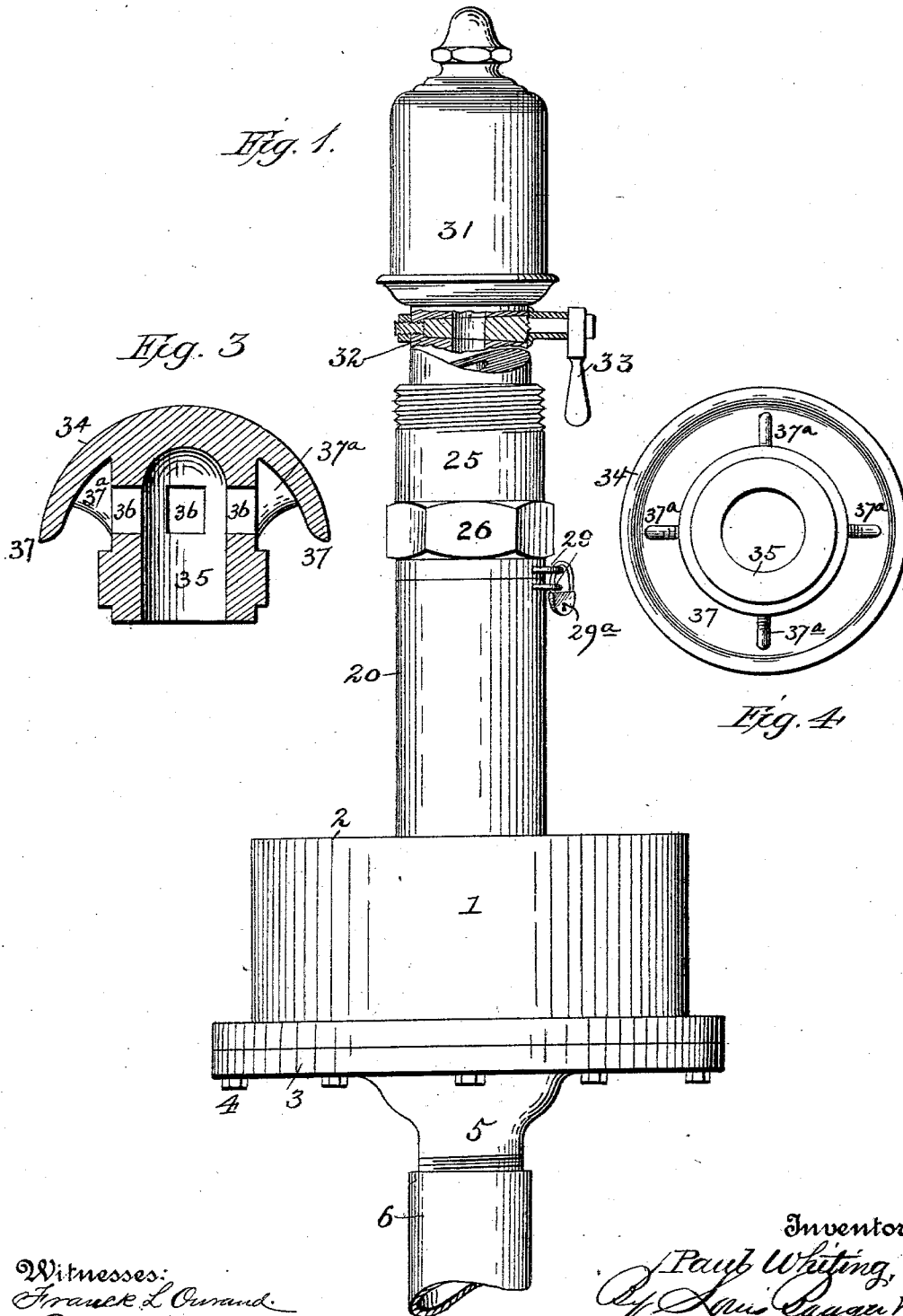
Patented Mar. 4, 1902.

P. WHITING.
SAFETY VALVE.

(Application filed Apr. 10, 1901.)

(No Model.)

2 Sheets—Sheet 1.



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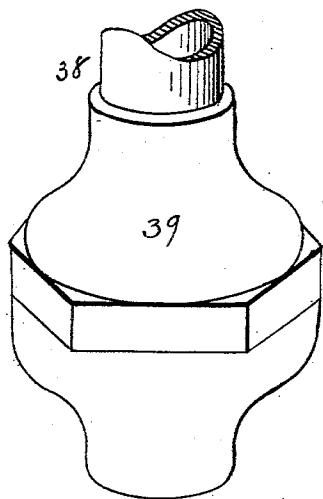


Fig. 5.

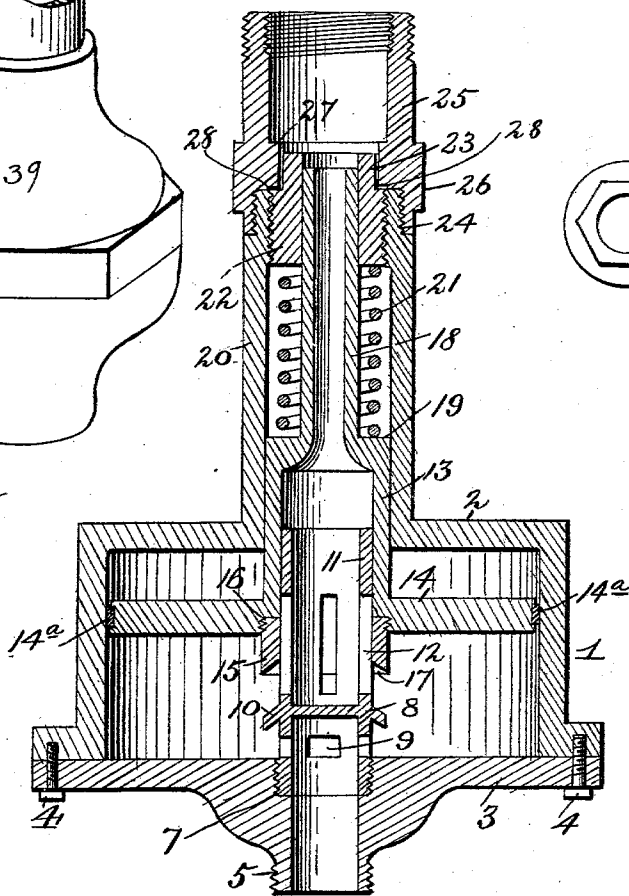


Fig. 2.

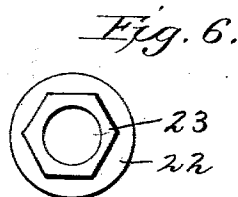


Fig. 6.

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UNITED STATES PATENT OFFICE.

PAUL WHITING, OF EAST LAS VEGAS, TERRITORY OF NEW MEXICO.

SAFETY-VALVE.

SPECIFICATION forming part of Letters Patent No. 694,811, dated March 4, 1902.

Application filed April 10, 1901. Serial No. 55,139. (No model.)

To all whom it may concern:

Be it known that I, PAUL WHITING, a citizen of the United States, residing at East Las Vegas, in the county of San Miguel and Territory of New Mexico, have invented new and useful Improvements in Safety-Valves, of which the following is a specification.

My invention relates to safety-valves; and the objects of the same are to construct a valve to be used as an adjunct to a steam or air alarm whistle or alone as a pressure-valve and be efficient in operation and admit of a large range of adjustment. My valve may also be applied generally as a safety-valve on tanks containing air, water, gas, or steam under high pressure.

With these objects in view I have designed the simple and novel construction described in this specification and claimed and illustrated in the accompanying drawings, forming a part thereof, in which—

Figure 1 is a side elevation of my valve with whistle attached. Fig. 2 is a longitudinal vertical section of the same with whistle removed. Fig. 3 is a detail section of a cap. Fig. 4 is a bottom plan of the same. Fig. 5 is a detail of a union for coupling a pipe to the valve-casing. Fig. 6 is a detail top view of the adjusting-nut.

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

The numeral 1 designates a cylinder, which is closed at the top by an integral head 2 and at the bottom by a head 3, which is secured by bolts 4. This head 3 has a threaded coupling 5, formed integral therewith, which is connected to a pipe 6, leading to some reservoir of gas or fluid under pressure. (Not shown.) The inner end of the aperture in the coupling is reamed out at 7 and threaded to accommodate a hollow head 8, perforated at 9 and having a sloping rim or flange 10. The head and rim 10 to form a valve-seat, as will appear, and the apertures 9 permit the entrance of steam into the cylinder at all times. Formed integral with the head 8 is an upwardly-extending hollow tubular portion 11, slotted at 12. Fitting over this portion 11, which forms a guide therefor, is a hollow stem 13, which is integral with a piston 14, which snugly fits the cylinder 1 and has a packing-ring 14^a. To enable the access of steam to

the interior of the stem 13 to be cut off, by operating the piston an annular valve 15 is placed in alinement with the bore of the stem 13 and screwed into a recess 16 in the cylinder 14. The lower end of the valve 15 is coned out at 17 and ground to fit the rim 10. This combination of sloping rim 10 and annular coned valve 15 makes a steam-tight fit and prevents all passage of steam, air, or gas.

The stem 13 is contracted at 18, forming shoulders 19, and extends up and into a tubular casing 20, which is integral with the upper head 2 of the cylinder 1. A spiral spring 21 surrounds the contracted portion 18 of the stem 13 and is seated on the shoulders 19. To confine the spring 21 the casing 20 is threaded and an adjusting-nut 22 screwed therein, which nut has a hexagonal portion 23, projecting beyond the casing 20, to which a wrench may be applied to set the spring at any required degree of compression.

The upper end of the casing 20 is turned off and threaded at 24 and an upper tubular casing 25 mounted thereon. To facilitate this the casing 25 is made hexagonal at 26 to accommodate a wrench. An integral rim 27 is formed on the interior of the casing 25, thus making shoulders 28, which abut the end of the threaded portion of the adjusting-nut 22. As means for securing the portion 25 against removal by meddlers staples 29 are seated one in the portion 25, just above the junction with the portion 20, and another, 30, in the casing 20 just below and a padlock 29^a engaged in these staples.

A whistle 31 of ordinary construction and having a pipe connection 32 is screwed into the casing 25, and a simple cock having a handle 33 is placed in the pipe 32, which cock is employed in cutting out the whistle when desired. In case it is desired to do away with the whistle 31 and the valve is used on an air system it is necessary to provide a covering for the mouth of the casing-tube 25. The numeral 34 designates a cap I have devised for this purpose, which comprises a hollow cylindrical portion 35, closed at its upper end, apertured at 36, and having an overhanging roof 37, which has an oval outer contour. Extending from the roof 37 and joined to the cylinder 35 at points intermediate the aperture 36 are ribs 37, which add strength to the

cap. When the valve is attached to a steam system and a whistle is not desired, the mouth of the casing can be left open.

When it is found necessary to conduct the discharge from the valve to a point at some distance, a pipe 38 may be coupled to the casing 25 by a union 39. (Illustrated in the drawings.) As shown, the upper portion is made hexagonal to accommodate a wrench.

In operation the steam, by which I mean air, &c., flows in through the pipe 6 and into the cylinder 1 by way of the perforations 9 in the head 8. Because of the action of the spring 21 the valve 15 will be normally seated. There being no outlet then for the steam, the pressure will rise in the cylinder 1 until it becomes equal to the force of the spring. When this takes place, the piston 14 will be forced up, the valve 15 unseated, and the steam will flow out through the slots 12 and the hollow stem 13 and to the whistle 31. When the pressure has been reduced, the spring 21 will reseal the valve 15, and the steam will be cut off. If it is desired to change the compression of the spring, the casing 25 is removed and a wrench applied to the adjusting-nut.

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 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, of a cylinder, steam connection for said cylinder, a perforated head having a sloping rim and communicating with said steam connection, a piston having a hollow

stem formed integral therewith, an annular conical valve seated in said piston and constructed to be seated on the said rim on said head, a spiral spring surrounding said stem, and means for adjusting the compression of said spring, substantially as described.

2. In a device of the class described, the combination, of a cylinder having a tubular casing formed integral therewith, steam connection for said cylinder, a perforated head detachably mounted in said cylinder, a piston fitting said cylinder and provided with a hollow stem, the upper portion of said stem being contracted and fitting within said casing, a valve seated in said piston and constructed to be seated on said head, a spring surrounding the contracted portion of said stem, and an adjusting-nut bearing on said spring, substantially as described.

3. In a device of the class described, the combination, of a cylinder having a tubular casing formed integral with one head thereof, a piston having a hollow stem fitting snugly said casing at its lower end and having a contracted upper portion, a valve mounted in said cylinder, a seat for said valve, a spring surrounding the contracted portion of said stem, and an adjusting-nut screwed into said casing and bearing on the end of said spring, substantially as described.

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

PAUL WHITING.

Witnesses:

LOUIS P. LYSTER,
W. B. BUNKER.