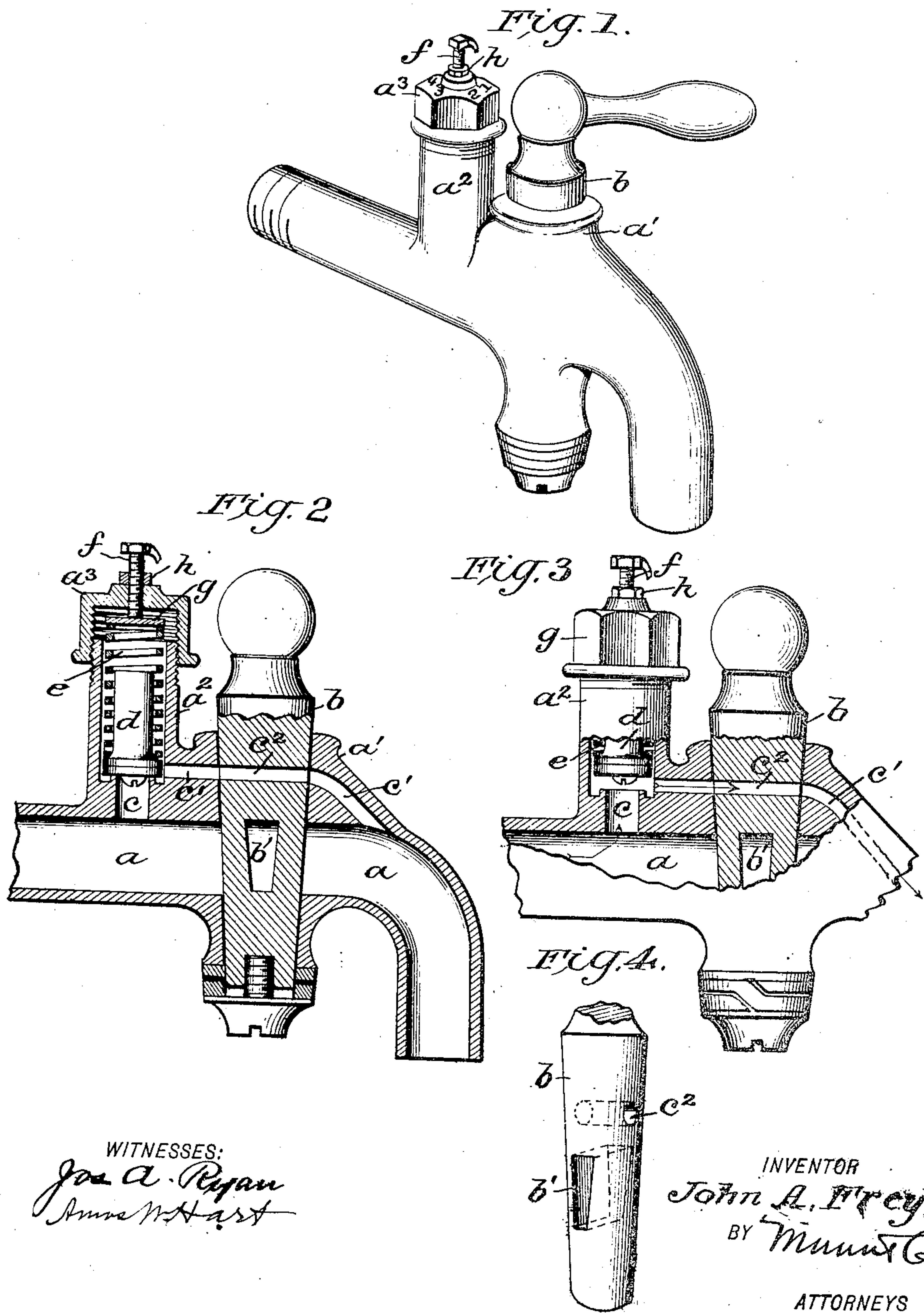


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PATENTED FEB. 5, 1907.

J. A. FREY.  
AUTOMATIC STEAM AND HOT WATER SAFETY COCK.  
APPLICATION FILED FEB. 13, 1906.





# UNITED STATES PATENT OFFICE.

JOHN A. FREY, OF WASHINGTON, DISTRICT OF COLUMBIA.

## AUTOMATIC STEAM AND HOT-WATER SAFETY-COCK.

No. 843,525.

Specification of Letters Patent.

Patented Feb. 5, 1907.

Application filed February 13, 1906. Serial No. 300,893.

To all whom it may concern:

Be it known that I, JOHN A. FREY, a citizen of the United States, and a resident of Washington, in the District of Columbia, have invented certain new and useful Improvements in Automatic Steam and Hot-Water Safety-Cocks, of which the following is a specification.

My invention is a cock or faucet for use as an attachment of domestic water-heaters and steam boilers or generators of various descriptions for relieving pressure of steam when it exceeds a predetermined limit of safety.

The device is adapted for use in the usual way for discharge of water from a heater or boiler, the automatic feature being additional or supplemental and adapted to come into action only when the usual turning plug or spigot is closed or adjusted to cut off discharge.

The details of construction and combination of parts are as hereinafter described and claimed, the same being shown in the accompanying drawings, in which—

Figure 1 is a perspective view of my invention. Fig. 2 is a central longitudinal section of the same, the ordinary rotatable plug or spigot being set in the position to close the usual discharge-passage. Fig. 3 is mainly a similar section, the spring-pressed valve which constitutes the chief feature of the automatic attachment being shown raised to allow escape of steam or water when the pressure exceeds the safety limit. Fig. 4 is a perspective view of the body of the faucet-plug or spigot.

My invention is applied to a cock or faucet having the usual pipe or body with a central discharge-opening  $a$  and a rotatable tapered plug or spigot  $b$ , having a transverse aperture  $b'$ , which when the plug is adjusted with said aperture alined with the passage  $a$  allows discharge of the contents of the heater or boiler to which the cock or faucet may be applied.

The automatic safety attachment is constructed as follows: I provide a supplemental escape or discharge passage comprising the vertical portion  $c$ , the portion  $c'$  formed in the upper portion or swell  $a'$ , and a connecting-passage  $c^2$ , extending transversely through the plug  $b$ . Communication between the passage  $c$  and the portion  $c'$   $c^2$  is normally cut off by a valve  $d$ , which seats downward, as shown in Fig. 2, the same being held elastically on its seat by means of a

spiral spring  $e$ , that encircles the stem or shank of the valve and extends upward in the casing  $a^2$ , forming a vertical integral extension of the body or pipe of the faucet. A screw-cap  $a^3$  is screwed on the extension  $a^2$ , and a set-screw  $f$  passes through the same vertically and bears upon a washer  $g$ , that rests on the top of the spring  $e$ . A jam-nut  $h$  is applied to the screw  $f$  and performs the usual function of locking the latter. It is apparent that by adjustment of the screw  $f$  the compression of the spring may be varied, and thus the pressure upon the valve correspondingly regulated according to the conditions. In other words, the valve  $d$  will be set to open automatically by the pressure of water or steam in the passage  $c$  when such pressure exceeds a predetermined limit of safety. It will be seen that the valve thus governs automatically the discharge of steam or water through the by-pass or supplemental passage  $c$   $c'$   $c^2$ . Fig. 3 illustrates the position of the valve when raised by excessive pressure of steam or water, the latter then discharging through the supplemental passage, as indicated by arrows. It will be observed that in this case the plug or spigot  $b$  occupies the same position as when normally closing the usual or main discharge-passage  $a$ . If the plug or spigot  $b$  be turned a quarter round, it is apparent that the supplemental escape or discharge passage will be cut off and free discharge through the passage  $a$  permitted by reason of the fact that the aperture  $b'$  of the plug or spigot will then be in alinement with such passage  $a$ . I thus provide a common form of cock or faucet with an attachment of simple and inexpensive construction, which is adapted to act as an automatic safety discharge, thus dispensing with the necessity of providing a special safety-valve constituting a usual attachment of water-heaters, steam-boilers, &c.

In order to indicate visually the degree of compression of the spring  $e$  the head of the screw  $f$  may be provided with a laterally-projecting finger or index, and numerals may be inscribed *seriatim* on the top of the screw-cap  $a^3$ , as shown in Fig. 1.

What I claim is—

1. An automatic steam and hot-water safety cock or faucet comprising the usual body or pipe and a rotatable plug having the usual transverse discharge-aperture, and a supplemental escape or discharge passage provided in the upper portion of the pipe and



extending from a point in rear of the plug to a point in front of the same, and a spring-pressed valve seated in such passage and normally closing the same, the plug having a transverse bore arranged at right angles to the usual discharge-aperture therein and adapted when the plug is closed to register with other portions of the supplemental passage, substantially as described.

10 2. The improved cock or faucet for the purpose specified comprising the usual pipe or body and a rotatable apertured plug, said plug having in its upper portion a supple-

mental transverse bore at right angles to the main discharge-aperture, and a supplemental discharge-passage communicating with such bore and with the main passage of the faucet in rear of the plug, and a spring-pressed valve normally seated in the rear portion of the passage, substantially as de- 20 scribed.

JOHN A. FREY.

Witnesses:

SOLON C. KEMON,  
AMOS W. HART.