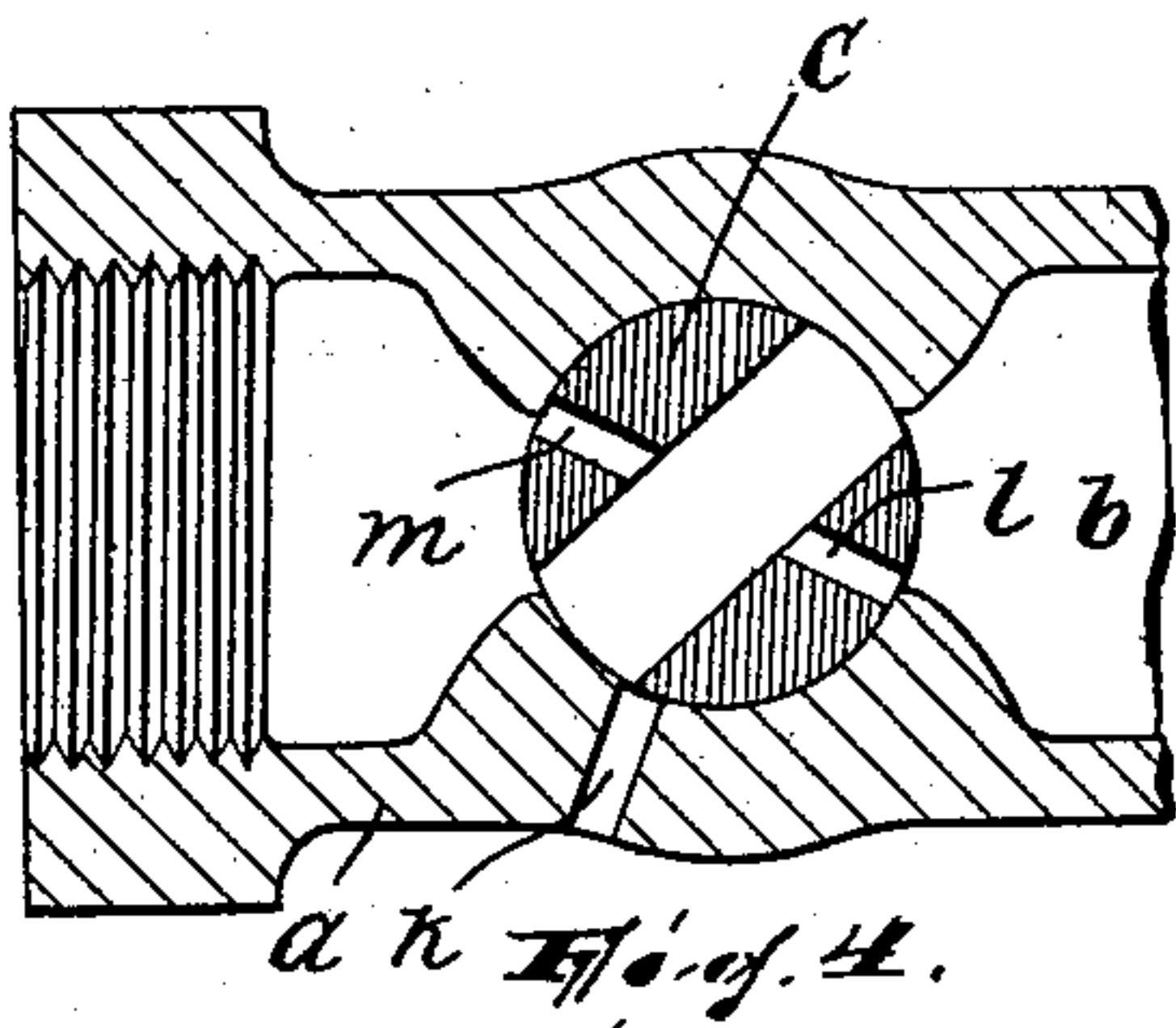
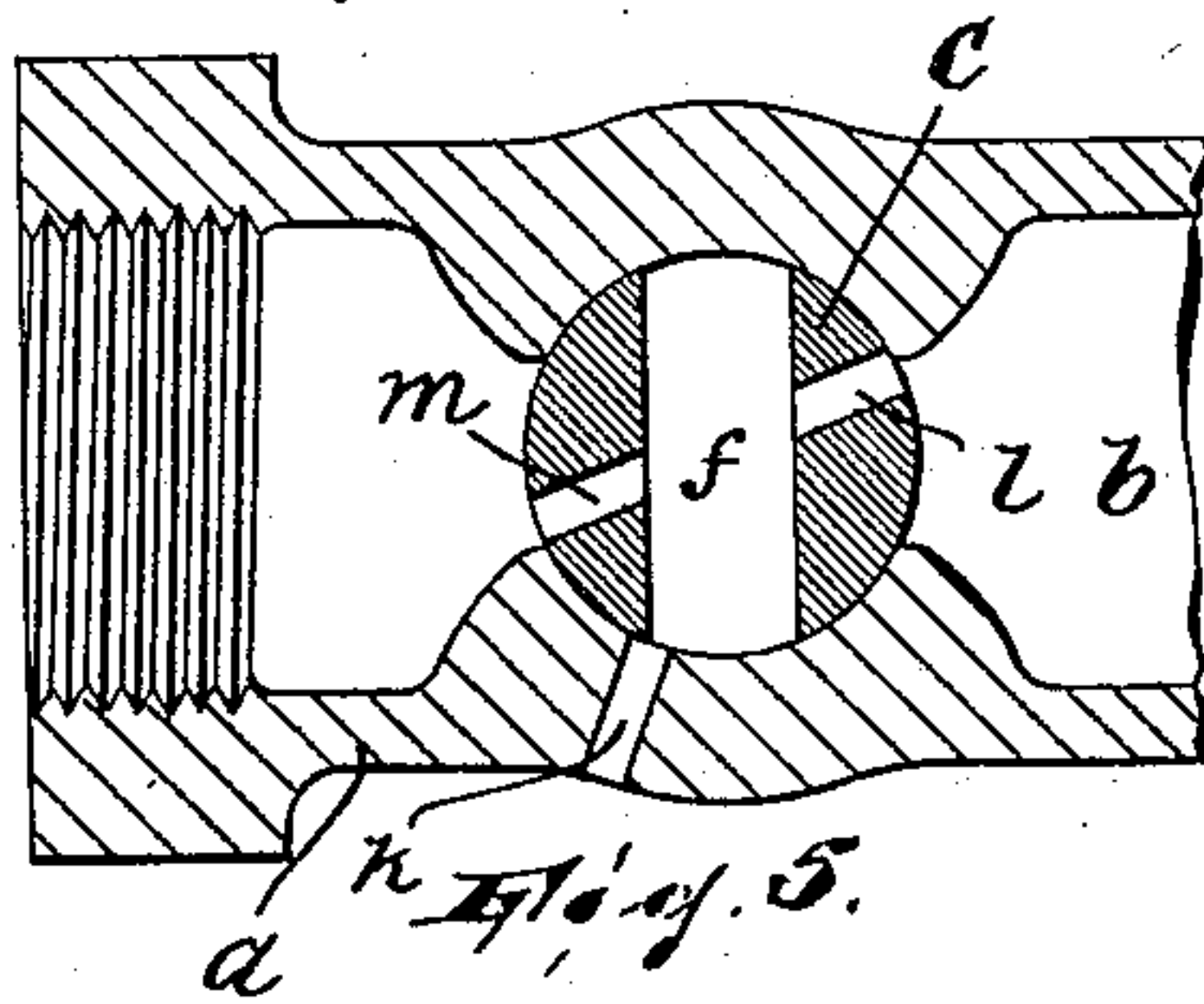
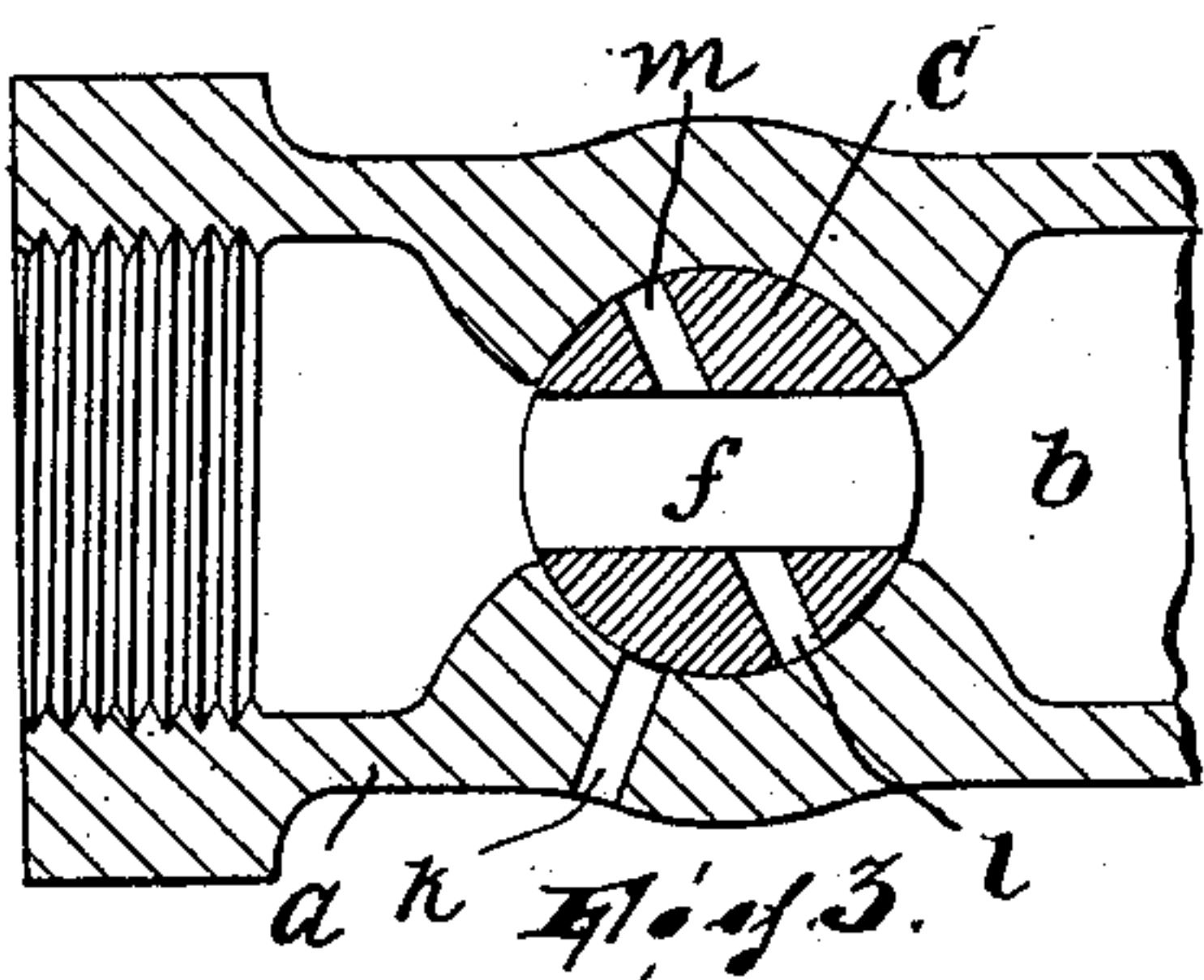
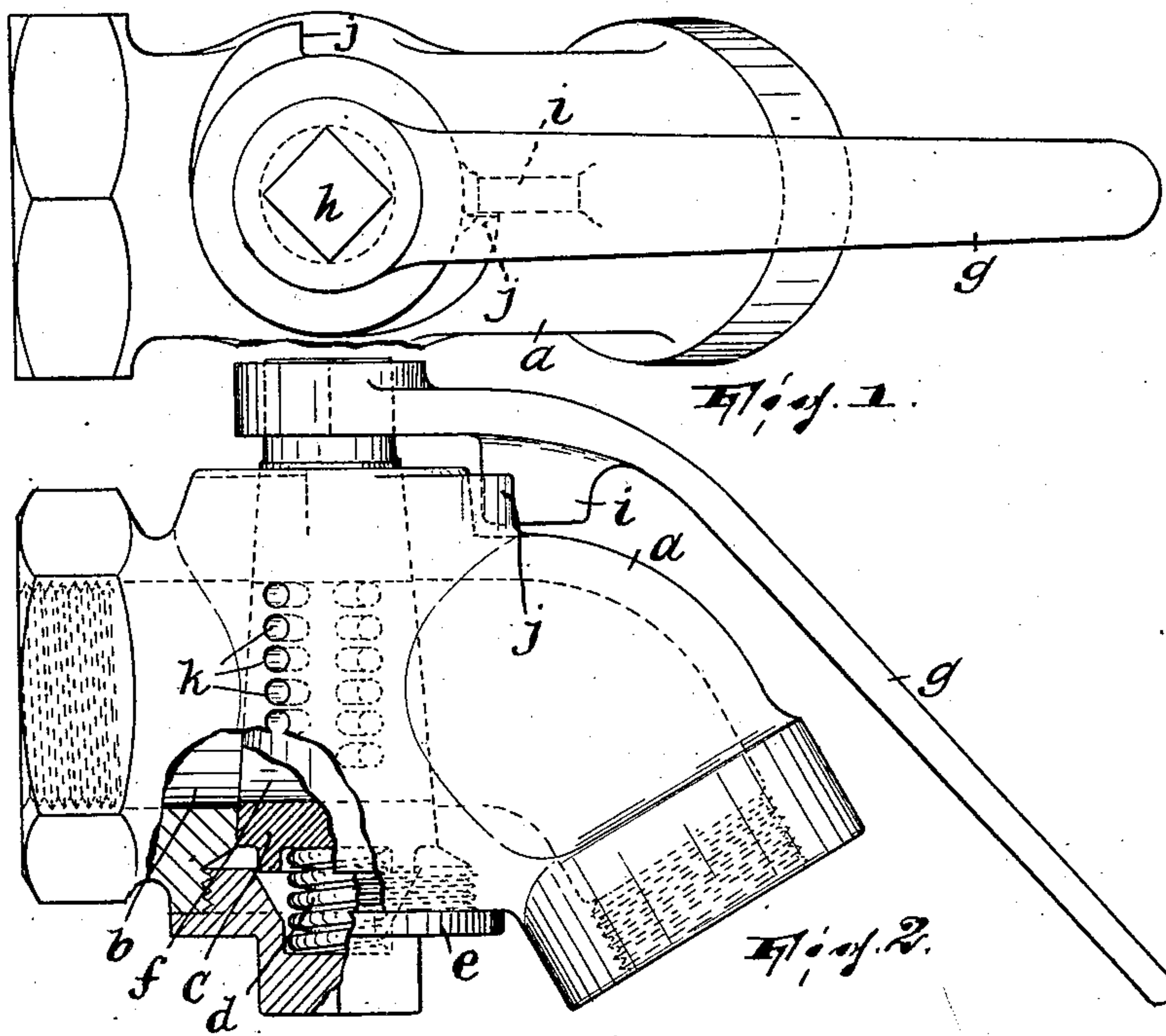


S. H. DUNNING.
 ANGLE COCK FOR AIR BRAKE SYSTEMS.
 APPLICATION FILED MAR. 7, 1908.

911,811.

Patented Feb. 9, 1909.



WITNESSES

Wm. Drell.
 Chas. Kaufmann.

INVENTOR,

Samuel H. Dunning
 BY
 John H. Dunning
 ATTORNEY.

UNITED STATES PATENT OFFICE.

SAMUEL H. DUNNING, OF PATERSON, NEW JERSEY.

ANGLE-COCK FOR AIR-BRAKE SYSTEMS.

No. 911,811.

Specification of Letters Patent.

Patented Feb. 9, 1909.

Application filed March 7, 1908. Serial No. 419,818.

To all whom it may concern:

Be it known that I, SAMUEL H. DUNNING, a citizen of the United States, residing at Paterson, Passaic county, New Jersey, have
5 invented a certain new and useful Improvement in Angle-Cocks for Air-Brake Systems; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled
10 in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

15 My present invention relates to air brake systems and it consists in certain improvements, affecting particularly what is known as the "angle-cock" of such systems, whereby unauthorized persons are prevented
20 from tampering with the angle-cocks and so shutting off any part of the train from the engineer's brake control.

In carrying out my invention I provide the angle-cock with a certain arrangement
25 of ports whereby, should the valve or plug be turned to shut off the rear part of a train brake system from the fore part, the two parts will be at once put in communication with each other and be caused to "bleed"
30 or exhaust to the atmosphere as one, so that the ensuing application of the brakes follows under uniform conditions throughout the entire system; thus the entire system is either directly subject to the engineer's
35 valve or the entire system is "bleeding" or exhausting to the atmosphere uniformly (which involves the application of the brakes to the train as a whole), and it is impossible for the engineer to break the
40 train in two or strain the couplings between cars upon starting forward because one or more of the rear cars are braked while the forward cars are free, as, for instance, where the angle-cock merely makes provision for
45 exhausting the entire system but does not allow the parts of the train forward thereof to communicate with the rear part; that is to say, in an arrangement which has been heretofore proposed and which permits the
50 bleeding of the system both forward and back of the angle-cock when the latter is turned toward the closing position, since the angle-cock did not allow the parts to communicate with each other, the rear part would
55 bleed and the brakes would be set on the rear part of the train, but the forward

brakes would not necessarily be set, although the forward part of the system might also be bleeding, because the pump would keep up the pressure.

In carrying out my invention, I provide for the desired exhaust of the system and the simultaneous communication of the fore and rear parts of the system in a manner calculated to make it possible to adapt
65 existing angle-cocks to the new function and thus make reëquipment of angle-cocks unnecessary.

My invention will be found fully illustrated in the accompanying drawing, wherein,
70

Figure 1 is a plan view of the improved angle-cock; Fig. 2 is a side view thereof; and, Figs. 3, 4, and 5 are horizontal sectional
75 views showing the valve or plug turned to different positions.

In said drawing, *a* designates the body of the angle-cock, having the usual bore *b*, and *c* is its conical valve or plug, the same being held in place in the body *a* by the spiral
80 spring *d* which is compressed between the same and the cap *e* screwed into the lower part of the body.

f is the main port of the valve or plug, the horizontal dimension of which, as usual, is about equal to the horizontal dimension
85 of the bore *b* adjacent the plug or valve.

g is the handle of the valve or plug, the same being suitably secured to the squared head *h* thereof and having a downwardly projecting lug *i* which is arranged to play be-
90 tween the stops *j* disposed the one to mark the limit of movement of the handle at the open position of the valve or plug and the other to mark the limit of movement of the handle at the closed position of said valve or
95 plug.

A vertical row of ports *k* is formed in the side of the body *a* to extend to the valve or plug; two corresponding rows of ports *l* and *m* are formed in the valve or plug to extend
100 from substantially opposite points thereof to the main port *f*. The ports *k* are so disposed that before the valve or plug can be turned far enough so as to lap the main port
105 *f*, *i. e.*, cut off communication through said main port as between the fore and rear parts of the system, main port *f* will begin to register with ports-*k* so that the system will be bled. The ports *l* and *m* are, on the other
110 hand, so disposed that as port *f* is about to be lapped in turning the valve to the closing position (Fig. 4) they begin to register with

the bore *b* of the body *a* and thus establish communication between the fore and rear parts of the system, which is also open to the atmosphere by way of the main port *f* and ports *k*; and even in the fully closed position of the valve or plug (Fig. 5), the two parts of the system communicate through ports *l* and *m* and discharge in common into the atmosphere through ports *l*, *m*, main port *f* and port *k*. Thus it is impossible to close off the two parts of the system, *i. e.*, that forward of and back of the angle-cock, from communication with each other in any position of the valve or plug, and any movement toward closing the valve meets at once with a release of the air affecting the whole system.

My invention may be adapted to angle-cocks already in use, as follows: The angle-cock is removed from the train pipe and then its valve or plug turned (after removing the handle temporarily) until the valve is in the proper position for the boring of one of the series of ports *l* and *m* and ports *k*; these ports are then drilled out. The valve is now turned until it stands in the proper position for the boring of the other of the ports *l* and *m*, whereupon the drill is introduced into the ports *k*, already bored. In this way, the angle-cock does not require any further taking apart than is involved in removing the handle.

It will be understood that when the plug or valve is in the closed position, as for the rear end or last car in the train, the hose extending from the angle-cock is placed with its end in the usual clip provided for the purpose and adapted to close the end of such hose and consequently of the train pipe.

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

1. In an air-brake system, the combina-

tion of an angle-cock comprising means for maintaining the parts of the system forward and back of the angle-cock in communication with each other in any position of the valve and for releasing the pressure in the system when the valve of the angle-cock is turned toward the closing position, substantially as described.

2. In an air-brake system, the combination of an angle-cock having a port in its body leading from its plug or valve to the atmosphere, the plug or valve of said angle-cock having means affording communication therethrough between the parts of the bore of said angle-cock separated by the valve or plug in any position of the valve, said means being adapted to register with said port upon turning the valve or plug toward the closing position, substantially as described.

3. In an air-brake system, the combination of an angle-cock having a port in its body leading from its plug or valve to the atmosphere, the plug or valve of said angle-cock having other ports affording a communication through the valve transversely of its main port and adapted to register with the bore of the angle-cock upon the valve being turned to close off communication through the valve by its main bore, the main port of said valve being adapted to register with said first-named port when the valve is moved toward the closing position, substantially as described.

In testimony, that I claim the foregoing, I have hereunto set my hand this 4th day of March, 1908.

SAMUEL H. DUNNING.

Witnesses:

JOHN W. STEWARD,
WM. D. BELL.