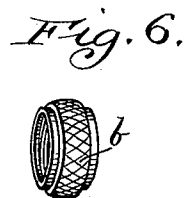
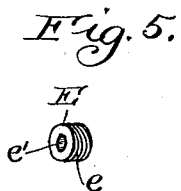
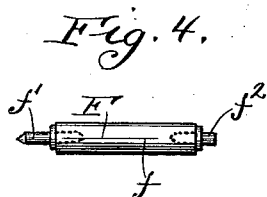
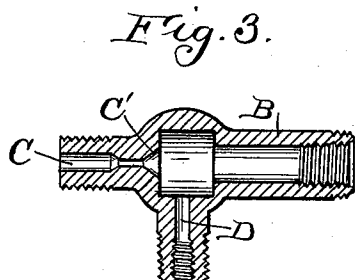
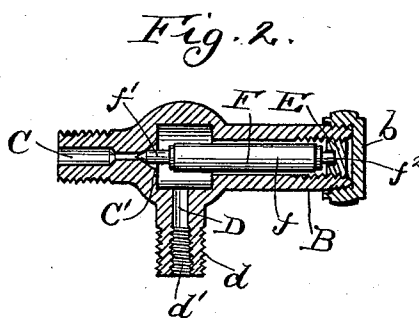
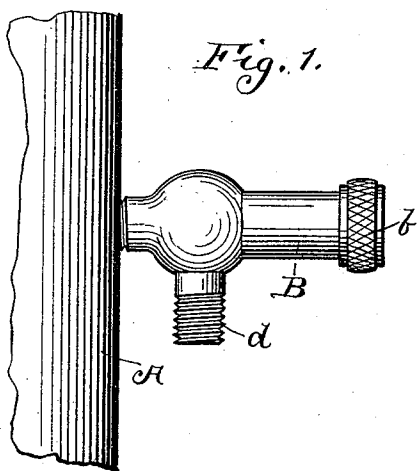


(No Model.)

F. H. SEARLES.  
AUTOMATIC AIR VALVE.

No. 538,705.

Patented May 7, 1895.



Witnesses:

W. J. Jaeger,  
Flora L. Brown.

Inventor:

Fred. H. Searles,  
By Charles Turner Brown, Atty.

# UNITED STATES PATENT OFFICE.

FREDERICK H. SEARLES, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE VAN  
AUKEN STEAM SPECIALTY COMPANY, OF SAME PLACE.

## AUTOMATIC AIR-VALVE.

SPECIFICATION forming part of Letters Patent No. 538,705, dated May 7, 1895.

Application filed May 22, 1894. Serial No. 512,036. (No model.)

*To all whom it may concern:*

Be it known that I, FREDERICK H. SEARLES, a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Automatic Air-Valves, of which the following is a full, clear, and exact description, reference being at all times had to the drawings accompanying and forming a part hereof, sufficient to enable those skilled in the art to which it pertains to understand, make, and use the same.

The invention relates to that class of air valves used on steam radiators to permit the discharge of air therefrom and to automatically close and prevent the discharge of steam therefrom and wherein means for adjustment of the expansible member forming an element in the valve are provided; and the object of this invention is to obtain an automatic air valve of the character named, having an adjustable expansible member, wherein such adjustable expansible member will not be injured, by twisting, straining, or otherwise, while the valve is being adjusted.

In the drawings referred to, Figure 1 is an elevation of an automatic air-valve embodying my invention and of a small section of a steam-radiator to which such automatic air-valve is attached; Fig. 2, a longitudinal sectional view of the automatic air-valve; Fig. 3, a longitudinal sectional view of the casing of such air-valve; Fig. 4, an elevation of the expansible member of the air-valve; Fig. 5, a perspective view of the movable abutment thereof, and Fig. 6 a perspective view of a cap used to cover the end of the movable abutment and protect it from accidental movement.

The same letter of reference indicates a given part throughout the several figures of the drawings where more than one view thereof is illustrated.

A is a portion of a riser on a steam radiator.

B is the shell or casing of an automatic air valve embodying my invention. *b* is the cap thereof.

C is the inlet of casing C and C' a valve seat at the inner end thereof. D is the outlet of such casing B.

*d d'* are respectively screw threads by which

a pipe may be attached to the casing to convey to any desired place, water escaping through outlet D.

E is a movable abutment rendered adjustable by screw threads *e* thereon engaging with corresponding screw threads in casing B.

F is the expansible member of the valve.

*f* is the body part of expansible member F, and is composed of crude, burned refractory vulcanized rubber compound.

*f'* is a metal end, forming a metal abutment, secured on body part *f* of expansible member F at one end thereof and constituting a valve fitting on valve seat C' of inlet C.

*f*<sup>2</sup> is a metal end, secured to the other end of body part *f* of expansible member F and constituting an abutment extending into recess *e'* of movable abutment E and rotatable therein.

The manner of assembling the several parts of the automatic air valve embodying my invention is well illustrated in Fig. 2 of the drawings, and consists simply in placing valve stem *f'* on valve seat C', abutment *f*<sup>2</sup> in recess *e'*, and adjusting the movable abutment E so that when expansible member F is not heated (and so expanded) air can escape from the radiator A through inlet C into the casing B, and when such expansible member is heated and expanded steam cannot pass through such inlet (by reason of valve stem *f'* being seated on valve seat C'), into such casing.

It will be observed that abutment *f*<sup>2</sup> being rotatable in recess *e'*, or in other words movable abutment E being rotatable around abutment *f*<sup>2</sup> no twisting or other strain having a tendency to injure the body part *f* of expansible member F will be produced in adjusting the valve; and further, in case of injury to the expansible member, as by overheating, such injured expansible member can be removed readily and replaced by an expansible member in good condition.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

In an automatic air-valve, the combination of a casing adapted to be secured to a steam radiator, such casing having an inlet and an outlet, a valve seat at the inner end of such

inlet, an adjustable abutment extending through and into the casing, a recess in such abutment, an expansible member provided with a metal abutment at each end, one of  
5 such abutments adapted to fit on the valve seat and the other adapted to fit into the recess in the adjustable abutment, whereby the expansible member is suspended in the cham-

ber and is not turned by the turning of the adjustable abutment in adjusting the valve; 10 substantially as described.

FRED. H. SEARLES.

In presence of—

CHARLES TURNER BROWN,  
FLORA L. BROWN.