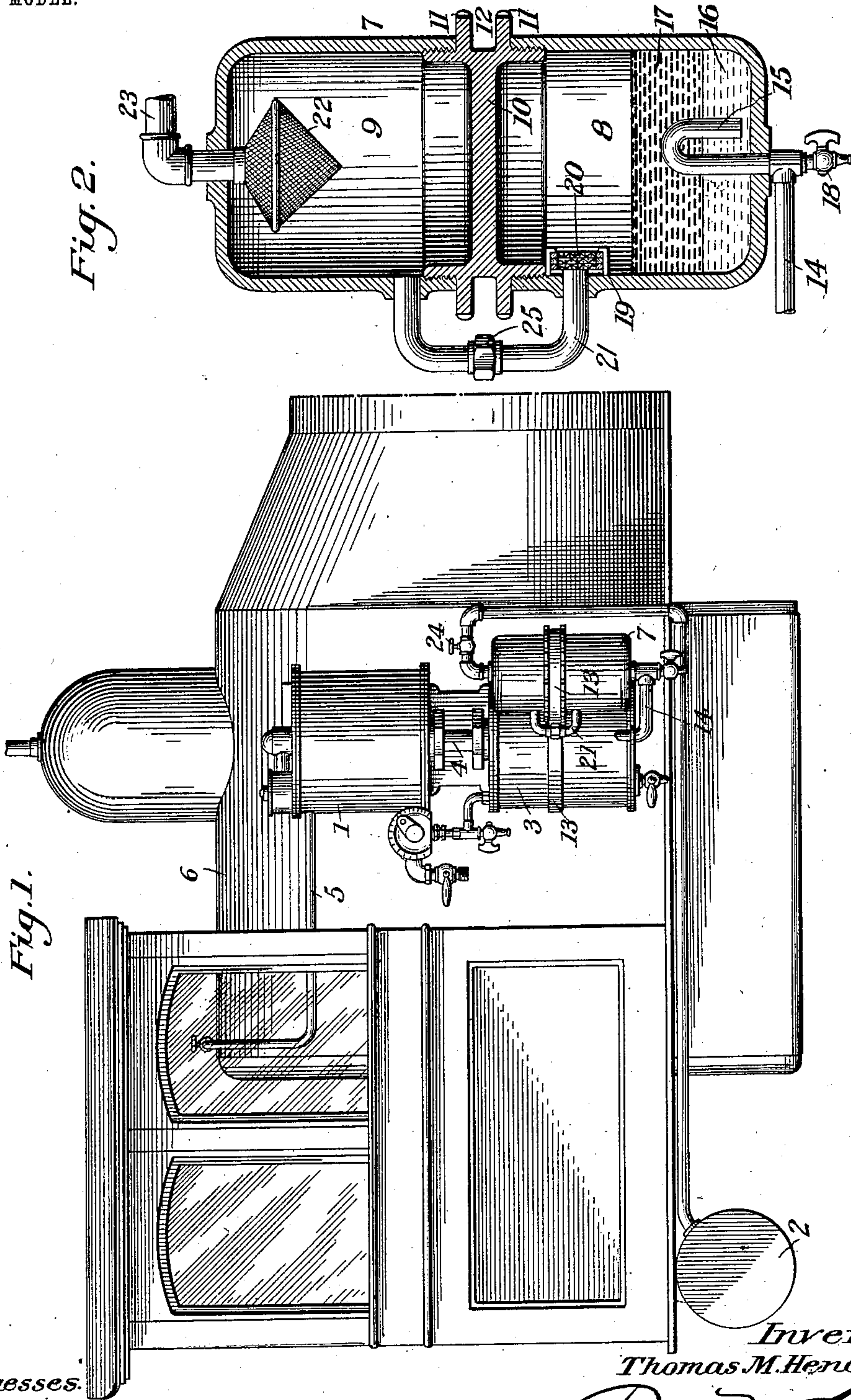


No. 730,824.

PATENTED JUNE 9, 1903.

T. M. HENDERSON.  
DUST ARRESTER FOR AIR BRAKES.  
APPLICATION FILED OCT. 24, 1902.

NO MODEL.



Witnesses:  
R. A. Balderson.  
N. Reynolds

Inventor:  
Thomas M. Henderson.  
By *Perkins M. Smith*,  
Att'y.



# UNITED STATES PATENT OFFICE.

THOMAS MARSH HENDERSON, OF PORTSMOUTH, VIRGINIA, ASSIGNOR OF TWO-THIRDS TO CHARLES PADDOCK STORRS, OF WILMINGTON, DELAWARE, AND ROBERT RANDOLPH HICKS, OF NORFOLK, VIRGINIA.

## DUST-ARRESTER FOR AIR-BRAKES.

SPECIFICATION forming part of Letters Patent No. 730,824, dated June 9, 1903.

Original application filed June 27, 1902, Serial No. 113,524. Divided and this application filed October 24, 1902. Serial No. 128,651. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS MARSH HENDERSON, a citizen of the United States, residing at Portsmouth, in the county of Norfolk and State of Virginia, have invented a certain new and useful Dust-Arrester for Air-Brakes, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to dust-arresters for air-brakes and the like, the object in view being to provide simple, effective, and reliable means for filtering air during its passage from the pump to the storage-tank or main reservoir, removing moisture and impurities, such as dust and other foreign matter, and delivering the air to the brake devices in a dry and perfect condition.

The subject-matter of this invention is taken from my prior application, Serial No. 113,524, filed June 27, 1902, for air-pump lubricator and dust-arrester for air-brakes, and forms a division of said application.

With the above and other objects in view, the nature of which will more fully appear as the description proceeds, the invention consists in the novel construction, combination, and arrangement of parts, as hereinafter fully described, illustrated, and claimed.

In the accompanying drawings, Figure 1 is a side elevation of a portion of a locomotive, showing the air-filtering device associated therewith, together with the connections between the filtering device and the pump. Fig. 2 is an enlarged vertical diametrical section through the body of the dust-arrester or filter.

Like reference-numerals designate corresponding parts in both figures of the drawings.

Referring to the drawings, 1 designates the steam-cylinder of an ordinary air-brake pump, such as is used on locomotives for compression of air in a storage-tank (indicated at 2) preparatory to using the same in applying the brakes.

3 represents the air-cylinder, in which operates the usual air-compressing piston, the rod of which is shown at 4, steam being admitted

to the steam-cylinder 1 through a supply-pipe 5 from the boiler 6 in the usual manner.

The air-filter 7 comprises a liquid-chamber 8 and a superimposed drying-chamber 9 the said chambers being connected, preferably by screw-threads, with a coupling-head 10, forming an imperforate division or partition between the two chambers 8 and 9. The coupling-head 10 is provided with circumferential flanges 11, spaced apart to form an intervening annular recess or groove 12, in which is received a clamping-band 13, which passes around the air-cylinder 10, as shown in Fig. 1, and supports the air-filter at one side thereof. The air from the air-cylinder passes through the pipe 14 and enters the lower portion of the liquid-chamber 8 through a gooseneck 15, which discharges the air into the extreme lower portion of the liquid-chamber and beneath the surface of a body of water, (indicated at 16.) The air percolates through the water 16 and upward through a superimposed body or layer of oil 17, the effect of which is to catch and remove from the air any impurities, such as dust. At or near the junction of the air-pipe 14 and gooseneck 15 there is arranged a drain-cock 18, by means of which the water 16 containing the impurities may be drawn off at intervals.

Arranged in the upper portion of the liquid-chamber 8 is a screen-box 19. At one side is a suitable flange to receive and hold a laminated screen 20, composed of a plurality of sheets or sections of meshed-wire fabric, preferably of copper or brass and arranged flatwise against each other, as shown in Fig. 2. The screens 20 prevent the air from moving too rapidly, and thereby obviate the agitation of the oil and water in the liquid-chamber. After passing the laminated screen the air passes through a connecting-pipe 21, leading into the lower portion of the drying-chamber 9, in the upper portion of which is arranged a drying-cage 22, preferably in the form of a double cone and composed of meshed wire fabric, the cage being filled with absorbent material, such as wool and hair, through which the air must necessarily pass before



entering the air-pipe 23, which leads from the filter back to the main reservoir or storage-tank 2, above referred to. The pipe 23 is provided at a suitable point with a regulating-valve 24. The connecting-pipe 21 is provided at a suitable point with a coupling-nut 25 to enable the parts of the filter to be disconnected and removed for cleaning.

The air-filter removes all moisture and dust and other impurities from the air before it reaches the storage-tank, and the screen steadies the movement of the air passing through the filter, so as not to disturb or agitate the filtering liquid in the bottom of the liquid-chamber. Any suitable material may be placed in the drying-cage to remove any slight moisture which may still remain in the air after it passes into the drying-chamber.

It will of course be understood that the device hereinabove described is susceptible of changes in the form, proportion, and minor details of construction, which may accordingly be resorted to without departing from the principle or sacrificing any of the advantages of this invention and also that the principles of the invention may be applied to other devices besides air-brakes.

Having thus described the invention, what is claimed as new is—

1. The combination with an air-brake pump, of an air-filter comprising a liquid-chamber, a superimposed drying-chamber, an interposed imperforate coupling-head, a connecting-pipe between the liquid-chamber and drying-chamber, and means for admitting air to the liquid-chamber and conducting the same from the drying-chamber, substantially as described.

2. The combination with an air-brake pump, of a filter comprising a liquid-chamber, a drying-chamber, an intervening imperforate wall, a connecting-pipe between the liquid-chamber and drying-chamber, a gooseneck for admitting air to the lower portion of

the liquid-chamber, and a drying-cage arranged in the drying-chamber, substantially as described.

3. The combination with an air-brake pump, of an air-filter comprising a liquid-chamber, a drying-chamber, an intervening imperforate wall, a connecting-pipe leading from one chamber to the other, means for admitting air to the liquid-chamber, a screen covering the exit from the liquid-chamber, and a cage communicating with the outlet-pipe in the drying-chamber said cage being filled with absorbent material, substantially as described.

4. The combination with an air-brake pump, of an air-filter comprising a liquid-chamber, a drying-chamber, an interposed coupling-head having circumferential flanges to form a clamping-band-receiving groove, a connecting-pipe between the liquid and drying chambers, and means for admitting air below the surface of the liquid in the liquid-chamber, an outlet-pipe from the drying-chamber, and a cage filled with absorbent material covering the entrance to the outlet-pipe, substantially as described.

5. The combination with an air-brake pump, of an air-filter arranged at one side thereof, and comprising a liquid-chamber, a drying-chamber, a connecting-pipe between the liquid and drying chambers, a gooseneck for admitting air below the surface of the liquid in the liquid-chamber, an absorbent cage covering the outlet from the drying-chamber, and a laminated screen controlling the connecting-pipe between the liquid and drying chambers, substantially as described.

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

THOMAS MARSH HENDERSON.

Witnesses:

J. J. MOORE,

R. C. ROBINSON.