

U. H. RAAB.
DUST COLLECTOR AND WATER TRAP.
APPLICATION FILED OCT. 2, 1913.

1,085,159.

Patented Jan. 27, 1914.

2 SHEETS-SHEET 1.

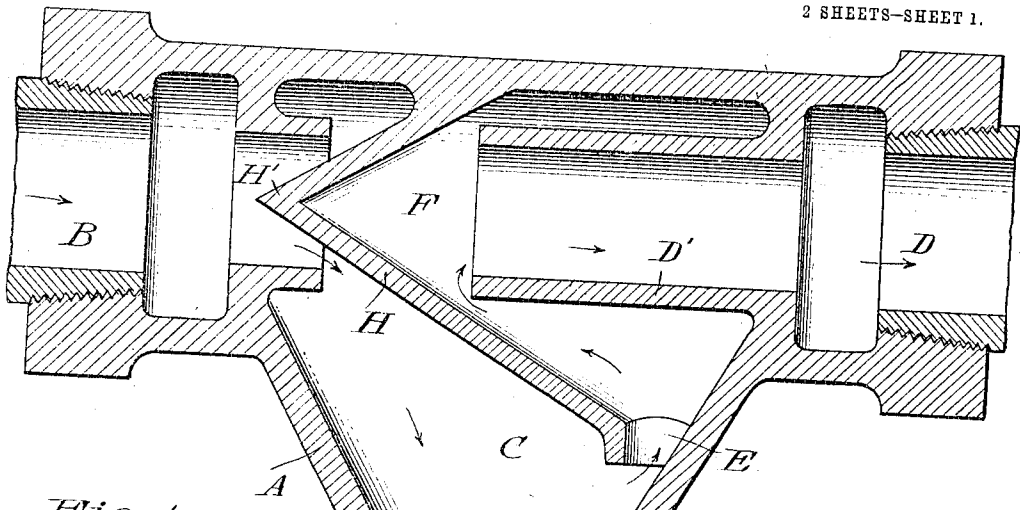


Fig. 1.

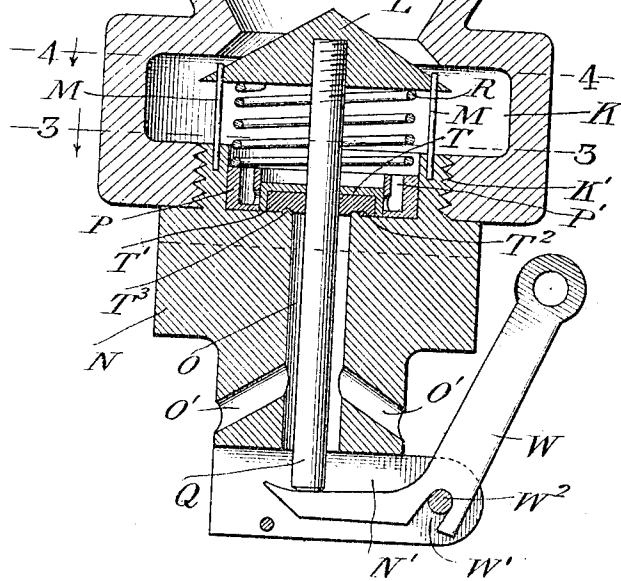
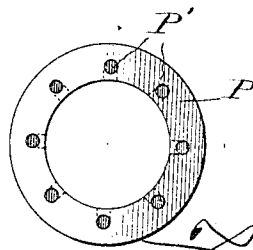


Fig. 5.



Witnesses
Fenton M. Belt
J. W. Sherwood

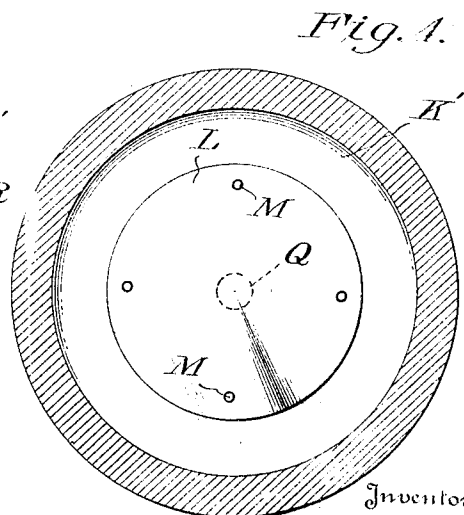
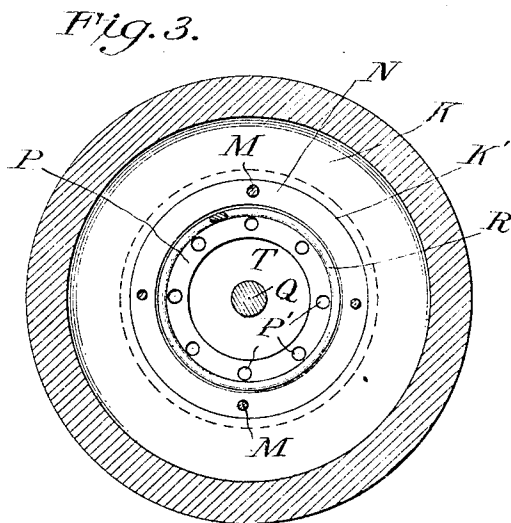
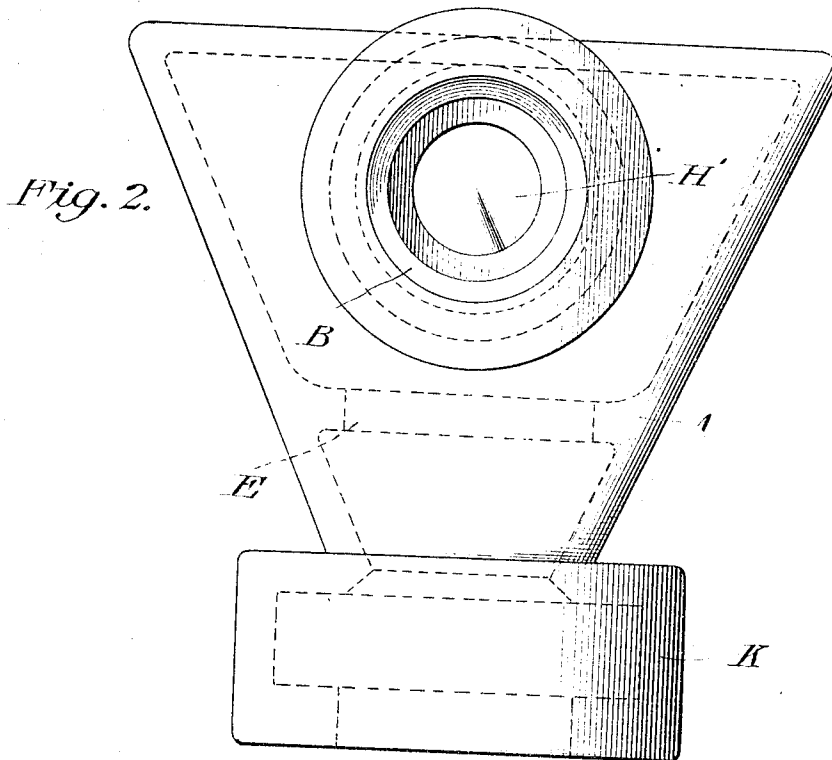
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UNITED STATES PATENT OFFICE.

CARL HARRISON RAAB, OF FOND DU LAC, WISCONSIN.

DUST-COLLECTOR AND WATER-TRAP.

1,085,159.

Specification of Letters Patent.

Patented Jan. 27, 1914.

Application filed October 2, 1913. Serial No. 793,046.

To all whom it may concern:

Be it known that I, CARL H. RAAB, a citizen of the United States, residing at Fond du Lac, in the county of Fond du Lac and State of Wisconsin, have invented certain new and useful Improvements in Dust-Collectors and Water-Traps; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to new and useful improvements in dust collectors and water traps, designed for use in connection with pressure pipes upon railway trains, pumps, etc., and the object in view is to produce an automatic mechanism whereby dust and water may be separated from the line pipe or pump.

My invention comprises various details of construction and combinations and arrangements of parts which will be hereinafter fully described, shown in the accompanying drawings and then specifically defined in the appended claims.

I illustrate my invention in the accompanying drawings, in which:—

Figure 1 is a central vertical sectional view through a trap made in accordance with my invention. Fig. 2 is an end elevation of the shell of the casing, the parts being indicated in dotted lines. Fig. 3 is a sectional view on line 3—3 of Fig. 1. Fig. 4 is a sectional view on line 4—4 of Fig. 1, and Fig. 5 is a detail view of the valve ring.

Reference now being had to the details of the drawings by letter, A designates the valve casing which, as shown in the views, is tapered, flaring upward, and is provided with an intake port B opening into the chamber C and an exhaust port D with an integral shell portion D' communicating between the same and the interior of the chambered part F which has a passageway E leading therefrom into the chamber C, the course of the air passing through the casing being designated by arrows. Said casing has a spreading partition, designated by letter H, which is tapered to a point at H', which latter extends into the opening through which the air enters, leaving a space upon either side, the tapering surface of said par-

tion serving as a deflecting means for the air which enters the casing. Said partition or spreading web is made preferably integral with the wall of the casing and tapers at substantially an angle of 60 degrees to the point which extends any suitable distance within the inlet opening.

The lower portion of the casing has a chamber K and an opening K', the wall of which is threaded and adapted to receive the valve box N which has threaded connection therewith. Said valve box has a central longitudinal passageway O leading its entire length and is provided with inclined branching passageways O' leading through the circumference of the box and a valve stem Q is mounted to have a longitudinal movement within said passageway O, a sufficient space intervening between its circumference and the wall of said passageway whereby the dust, water and other foreign matter may readily escape therethrough. A head, designated by letter L, has a threaded hole for the reception of the upper threaded end of the stem Q, said head being conical shape and extending into the lower part of the chamber C and designed to be acted upon by the pressure of the air passing through the casing. To guide said head in its vertical movements, pins M project from the valve box and are guided through apertures in said head.

The top of the valve box is counterbored to receive a valve ring P. Said valve ring, which fits snugly within the counterbored recess in the top of the box, is provided with holes P' (eight being shown in the drawings) of suitable dimensions and which extend partially through the ring and open through the inner marginal circumference of the latter, as shown in the drawings, and through which the air, water and foreign matter are adapted to pass. A coiled spring R, treated to resist a certain pressure, say ten pounds, to the square inch, rests upon said packing ring outside of the holes P' and also bears against the under surface of the head L.

A valve T is fitted to said stem and is counterbored to receive a suitable packing T' fastened to the bottom of the valve and which packing is provided with an annular groove T² upon its under surface which is adapted to fit over a beading T³ about the upper marginal edge of the passageway O when the valve is seated and the circumfer-

ence of said valve is ground to make a perfect working fit in the valve ring. A lever W is provided which is recessed at W' and is pivotally mounted upon a pin W² carried by the recessed walls N' of the valve box and is adapted to pass underneath the lower end of the stem and serves as a means whereby the valve may be operated by the tilting of the lever should it be desired to allow the foreign matter to escape to the atmosphere.

In operation, when the device is used in connection with fluid under pressure, the pressure of the air within the chambered portion of the casing will be sufficient to overcome the tension of the spring R and hold the valve seated and any water, dust or other foreign matter which may enter the casing may settle into the chamber K in readiness to be discharged when the valve is open. In the event of the pressure upon the air in the casing being relieved in any way by its being cut off by the engineer of the locomotive connected to a train equipped with the apparatus, the tension of the spring would cause the valve to unseat and allow the water and foreign matter to escape through the passageways O and O'. The air from which the water, dust or foreign matter has been separated will take the course designated by the arrows to the casing.

What I claim to be new is:—

1. A dust and water trap for fluid pressure lines, pumps, etc., comprising a casing provided with a deflecting partition dividing the casing into two compartments with a communicating opening between the same, an inlet opening communicating with one compartment and an exit opening with the other, a valve box fitted within an opening in said casing and provided with an exit passageway, an apertured valve ring seated in said box, a valve mounted within said ring, a stem fixed to the valve, a head upon said stem, and a spring interposed between the ring and head, as set forth.

2. A dust and water trap for fluid pressure lines, pumps, etc., comprising a casing provided with a deflecting partition dividing the casing into two compartments with a communicating opening between the same, an inlet opening communicating with one compartment and an exit opening with the other, a valve box fitted within an opening in said casing and provided with an exit passageway, a ring seated in the upper and a counterbored recess in the top of said box and having passageways leading through the upper face thereof and the inner marginal edge of the ring, a valve mounted within said ring and adapted to regulate said passageways thereof, a stem passing through said exit passageway of the valve box and to which the valve is fastened, a

head fixed to the stem, and a spring interposed between the ring and head, as set forth.

3. A dust and water trap for fluid pressure lines, pumps, etc., comprising a casing provided with a deflecting partition dividing the casing into two compartments with a communicating opening between the same, an inlet opening communicating with one compartment and an exit opening with the other, a valve box fitted within an opening in said casing and provided with an exit passageway, a ring seated in the upper and a counterbored recess in the top of said box and having passageways leading through the upper face thereof and the inner marginal edge of the ring, a valve mounted within said ring and adapted to regulate said passageways thereof, a stem passing through said exit passageway of the valve box and to which the valve is fastened, a conical-shaped head fastened to the upper end of said stem, and a spring interposed between the ring and head, as set forth.

4. A dust and water trap for fluid pressure lines, pumps, etc., comprising a casing provided with a deflecting partition dividing the casing into two compartments with a communicating opening between the same, an inlet opening communicating with one compartment and an exit opening with the other, a valve box fitted within an opening in said casing and provided with an exit passageway, a ring seated in the upper and a counterbored recess in the top of said box and having passageways leading through the upper face thereof and the inner marginal edge of the ring, a valve mounted within said ring and adapted to regulate said passageways thereof, a stem passing through said exit passageway of the valve box and to which the valve is fastened, an apertured conical-shaped head fastened to the upper end of said stem, a spring interposed between the ring and head, pins projecting from the inner end of said valve box and adapted to pass through apertures formed in said conical-shaped head and serving as guides for the latter, as set forth.

5. A dust and water trap for fluid pressure lines, pumps, etc., comprising a casing provided with inlet and exhaust openings and having an angled deflecting partition which extends a slight distance into the inlet opening, said partition dividing the casing into two compartments with a communicating opening between the same, a valve box fitted in an opening in the bottom of the casing and provided with an exit passageway leading therethrough, a valve ring fitted within a counterbored recess in the top of the box and provided with passageways leading through the ring, a valve movable within said exit passageway of the valve box, a valve fixed to said stem and movable

within said ring, a head fixed to the stem, a spring interposed between the latter and said ring, and a pivotally mounted lever engaging the lower end of said stem, as set forth.

10 6. A dust and water trap for fluid pressure lines, pumps, etc., comprising a casing provided with inlet and exhaust openings and having an angled deflecting partition
15 which extends a slight distance into the inlet opening, said partition dividing the casing into two compartments with a communicating opening between the same, the lower portion of the casing being flared and serving as a receptacle for the reception of water
20 and foreign matter and having an opening at the bottom, a valve box having a central exit passageway with a beading about the

upper marginal edge thereof, the top of the box having a countersunken recess, a valve
20 ring seated in said recess provided with passageways therethrough, a valve fastened to said stem and movable within the ring, a packing in the recess in the bottom of the valve, said packing having an annular
25 groove adapted to fit over said beading, a head fitted to said stem, and a spring interposed between the ring and head, as set forth.

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

CARL HARRISON RAAB.

Witnesses:

LOUIS HUHNS,
FRED POILMAN.