(No Model.)

J. J. LOWDEN

SEPARATOR.

No. 381,150. Patented Apr. 17, 1888.

Fig. 1.

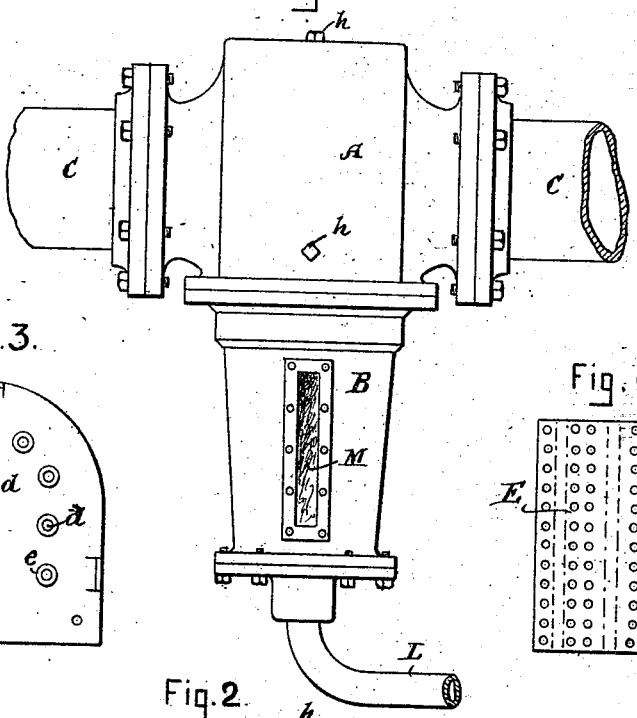


Fig. 3.

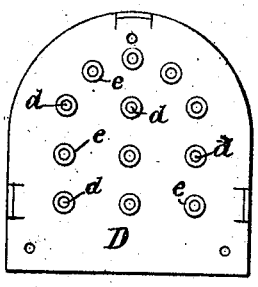
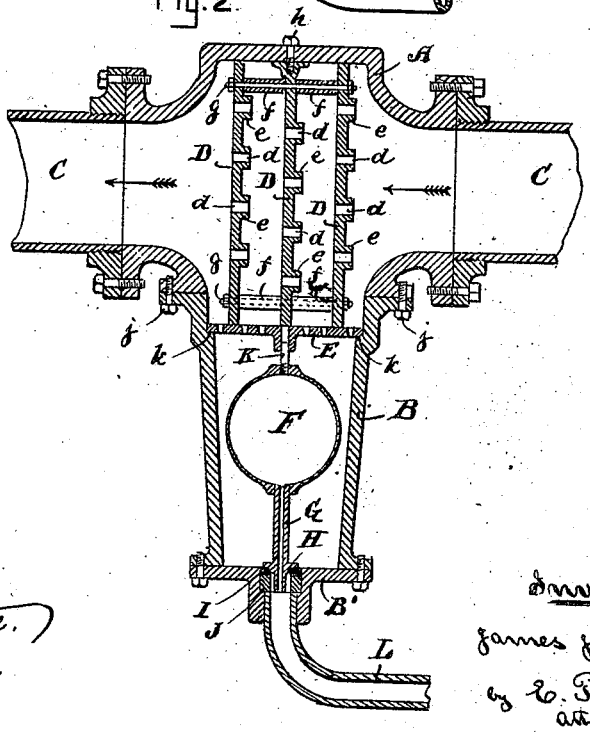


Fig. 4.

Fig. 2.



Witnesses.
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UNITED STATES PATENT OFFICE.

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SPECIFICATION forming part of Letters Patent No. 381,150, dated April 17, 1888.

Application filed December 19, 1887. Serial No. 258,302. (No model.)

To all whom it may concern:

Be it known that I, JAMES J. LOWDEN, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Separators, of which the following is a specification.

The object of my invention is to produce a separator for extracting grease, grit, and water from exhaust-steam as it passes from the engine through the exhaust-pipe, and in which the products of condensation—grease and grit—are automatically carried off by a drip-pipe; and the invention consists in certain details of construction, as hereinafter fully described, and set forth in the claims.

Referring to the accompanying drawings, Figure 1 represents a side view of an automatic grease, grit, and water separator embodying my invention. Fig. 2 is a vertical longitudinal section of the same. Fig. 3 is a view of one of the upright perforated plates detached. Fig. 4 is a view of the bottom perforated plate detached.

A represents the body of the separator, and B a receiver for the grease, grit, and water that are separated from the exhaust-steam. The body A is provided with suitable flanges to connect it to the exhaust-pipe C, as shown.

In the body A are secured a series of plates, D D. These plates are provided with a number of small holes, *d d*, around each of which, on the side nearest the engine, is a small lip or flange, *e*. The holes in one plate are so arranged as not to come opposite the holes in the next plate, thereby preventing any steam from passing through without first coming into contact with one or more of the plates. The combined area of the small holes in each plate must not be less than the area of the exhaust-pipe, and I prefer to make it somewhat greater, so as not to impede the passage of the steam. The plates are capable of being adjusted nearer to or farther from each other, so as to regulate the expansion of the exhaust-steam passing through and between them, the space between the plates being regulated by short pieces of pipe *f f*, placed upon the bolts *g*, that secure the plates together. The central plate is provided at the top and on each side with a boss or enlargement, which is screw-threaded to receive screws *h h*, that secure the plates in the body A.

The receiver B is secured to the body A by bolts *j j*, and is provided with a cap or cover, B′, at its lower end. Near the upper end of the receiver is provided a perforated plate, E, which rests upon a small ledge, *k*, formed in the receiver. The object of this plate is to prevent the steam passing into the receiver in a volume.

F is a hollow float or ball connected by a hollow stem, G, to a puppet-valve, H, provided with a hole through its center, so that the products of condensation in the float will be carried off, thereby preventing the float from bursting. The seat I of the valve is formed of leather or other suitable material, which rests upon a bushing, J, in which the lower part of the valve works. To the upper part of the float F is secured a short rod, K, that has a bearing in a boss formed on the perforated plate E, so as to guide the valve when the float rises or falls.

By having the seat I of the valve H of leather the valve will not be injured nor prevented from closing should any grit lodge upon the seat.

To the cap or cover B′ is secured a drip-pipe, L. On one or both sides of the receiver B is secured a sight-glass, M, so that the float and the contents of the receiver can be seen when desired.

The exhaust-steam, passing in the direction of the arrows, comes into contact with the first series of plates D, except such portions as may pass directly through the holes *d* in the said plate, which steam will impinge against the second plate of the series. The steam coming into contact with the plates causes any grease, grit, or water that may be in the steam to become deposited upon the face of the plates, which deposits then run down the plates and through the perforated plate E into the receiver B, the said deposits being prevented from running through the holes *d* by reason of the flanges *e*. When the receiver becomes sufficiently full, the float F rises, opening the valve H, thus allowing the contents of the receiver B to escape into the drip-pipe L until

sufficient of the fluid has escaped, when the valve again closes, thereby preventing all escape of steam.

Should the plates D become damaged or worn out, they can be readily removed, so that a new one or set can be inserted by simply removing the receiver B and taking out the screw *h*.

What I claim as my invention is—

1. A grease, grit, and water separator, consisting of a body provided with removable perforated plates, and a receiver provided with an automatic discharge-valve, substantially as set forth.

2. The body A, provided with perforated plates D, in combination with the receiver B, provided with a valve, H, operated by a float, substantially as set forth.

3. The body A, perforated plates D, pipes *f*, bolts *g*, and screws *h*, in combination with the receiver B and cover B′, the perforated plate E, valve H, rod G, and float F, substantially as and for the purposes set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES J. LOWDEN.

Witnesses:

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