

(No Model.)

H. F. HODGES.

OIL CUP.

No. 286,438.

Patented Oct. 9, 1883.

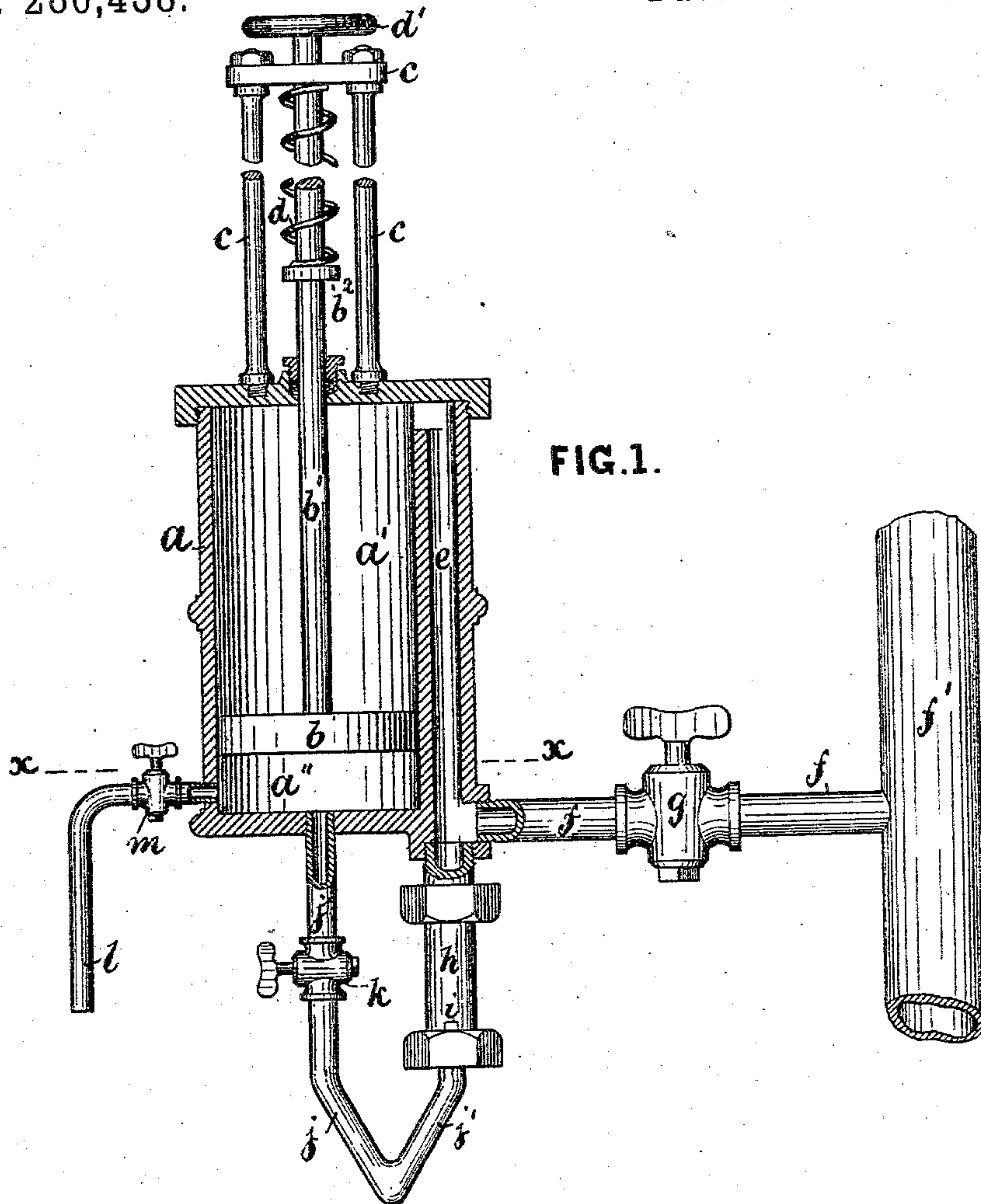
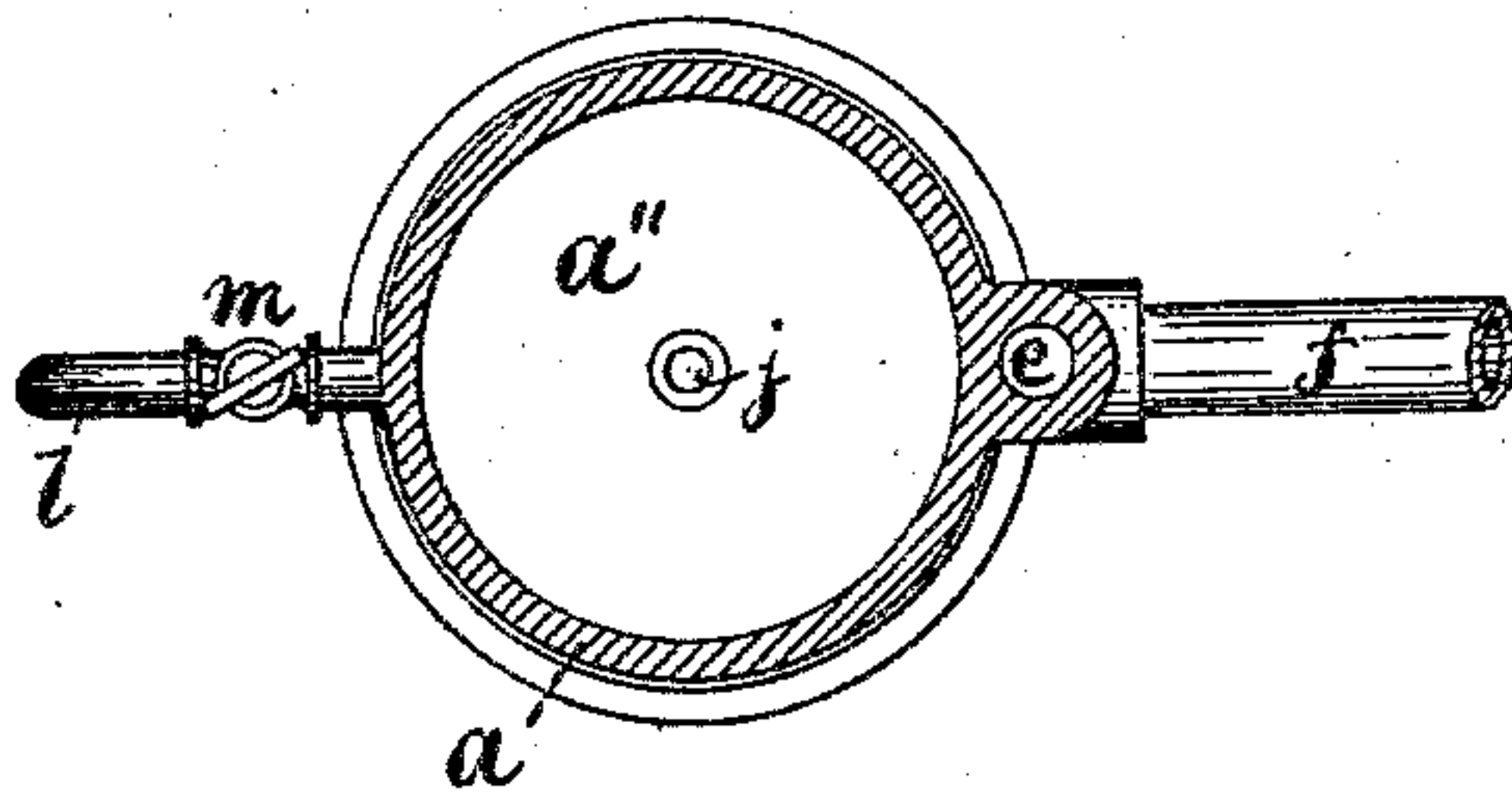


FIG. 1.

FIG. 2.



Witnesses.

E. Blanta.

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Inventor.

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by J. H. Adams

Att'y.



# UNITED STATES PATENT OFFICE.

HORACE F. HODGES, OF CHELSEA, ASSIGNOR TO CHARLES F. PAYNE, OF GROVELAND, AND GEORGE H. SPENCER, OF FITCHBURG, MASS.

## OIL-CUP.

SPECIFICATION forming part of Letters Patent No. 236,458, dated October 9, 1883.

Application filed March 26, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, HORACE F. HODGES, a citizen of the United States, residing at Chelsea, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Oil-Cups, of which the following is a specification.

My invention relates to that class of oil-cups in which the oil is caused to enter a steam-pipe or other steam-space containing steam under pressure.

The invention consists of an apparatus in which the gravity of the oil constitutes the force by which it is made to enter the steam-space, and also in a means of filling the oil-cup, which is effected by suction.

Referring to the accompanying drawings, Figure 1 is an elevation of an apparatus embodying my invention, shown partly in section. Fig. 2 is a section of the same on line *x x*.

*a* represents an oil-cup of any suitable dimensions. *b* is a piston attached to the piston-rod *b'*. *a'* *a''* represent the spaces above and below the piston, respectively. The piston-rod *b'* passes up through a stuffing-box in the top of the oil-cup, and is held and guided by a frame, *c*. On the piston *b'*, above the top of the oil-cup, is a collar, *b<sup>2</sup>*, forming a shoulder supporting a coiled spring, *d*, surrounding the piston-rod and bearing against the under side of the top of the frame *c*, as shown. *d'* is a handle by which the piston-rod is raised.

At one side of the oil-cup is a passage, *e*, extending from the upper end of the oil-cup *a* to a pipe, *f*, communicating with the main steam-pipe *f'*, and provided with a valve, *g*. The pipe *f*, it will be seen, is below the level of the interior lower end of the oil-cup *a*. The passage *e* extends below the pipe *f* and connects with a glass-sight feed-tube, *h*. At the lower end of the feed-tube *h* is a hollow nipple, *i*, to allow the oil to pass in drops or small quantities into a pipe or passage, *j'*, below, which forms a part or a continuation of the upward passage *j*, the latter being connected with the lower end of the oil-cup *a*, and provided with a valve, *k*. At one side of the lower end of the oil-cup *a* is connected a pipe, *l*, provided with a valve, *m*, and through which the oil-cup is filled from any convenient recepta-

cle—such as a basin—held to the lower end of pipe *l*.

The operation is as follows: The piston being at the bottom of the oil-cup and the valve *m* being open, a basin containing oil is applied or held to the lower end of pipe, which is immersed in the oil. The piston is then drawn up by means of the handle *d'*, causing the oil to pass up through pipe *l* and filling the oil-cup. The valve *m* is then closed. The valve *g* in pipe *f* is then opened, thus admitting steam from the main steam-pipe to the passage *e*, and thence into the upper part, *a'*, of the oil-cup, above piston *b*. At the same time steam passes downward from pipe *f* into the sight feed-tube *h*, and thence through nipple *i* to the passages *j j'*, and up to valve *k*, which is closed. The feed-tube *h* and passages *j j'* soon become filled with water of condensation. Valve *k* is now opened, when the pressure of steam is equalized above and below the oil in oil-cup *a*, leaving the oil free to act, as if without pressure. The pipe *f*, being on a lower level than the oil in the cup *a*, and the water of condensation in passages *j j'* being heavier than the oil above it, the oil forces downward the water in passage *j*, and passes up through the water in passage *j'*, the nipple *i*, and the sight feed-glass *h* into pipe *f*, and thence into pipe *f'*. The amount of opening of valve *k* determines the quantity of oil which will flow and regulates the same. As the oil leaves the oil-cup the piston *b*, on its surface, also descends, any friction of the piston being overcome by the pressure of the spring *d*. The latter, however, is not absolutely necessary for carrying out the operation.

The piston-rod *b'* may be detachably connected to the piston *b*, and removed from the same, when the latter will be left free to descend by its own gravity. The piston-rod may also be made hollow and connect with an opening in the piston, so as to admit of oil being fed to the cup through the piston-rod.

What I claim as my invention is—

1. In an oil-cup, an oil-receptacle placed above the point of delivery of the said oil, the pressure of steam on which is equalized above and below the same, whereby the oil is left free to flow by reason of its own gravity, substantially as set forth.



2. In an oil-cup, the combination of the pipe *l*, piston and piston-rod *b b'*, and cup *a*, substantially as and for the purpose set forth.

3. In combination, the oil-cup *a*, piston *b*,  
5 with or without the piston-rod *b'*, the passages *e j j'*, valve *k*, and pipe *f*, as and for the purpose specified.

4. In combination, the oil-cup *a*, piston *b*,  
piston-rod *b'*, collar *b<sup>2</sup>*, spring *d*, and frame *c*,  
10 as and for the purpose specified.

5. In combination, the oil-cup *a*, piston *b*,

passages *j j'*, valve *k*, nipple *i*, sight feed-glass *h*, passage *e*, and pipe *f*, substantially as and for the purpose set forth.

In testimony whereof I have signed my name 15  
to this specification in the presence of two subscribing witnesses.

HORACE F. HODGES.

Witnesses:

JOS. H. ADAMS,

E. PLANTA.