

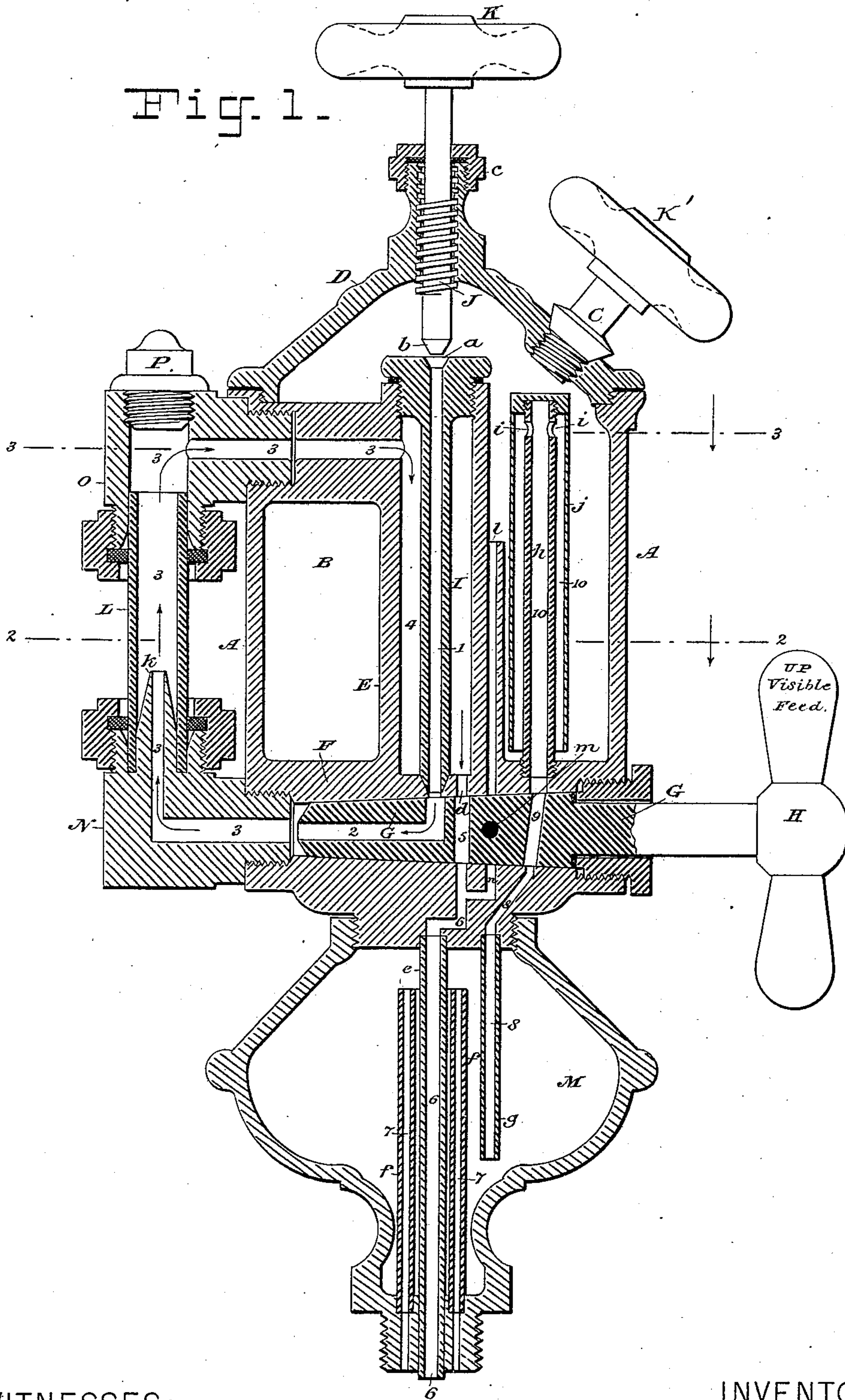
(No Model.)

2 Sheets—Sheet 1.

T. BRABSON.  
VISIBLE FEED LUBRICATOR.

No. 308,403.

Patented Nov. 25, 1884.



WITNESSES:

*E. B. Bolton*

*Geo. Danton*

INVENTOR:

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By his Attorneys,

*Burke, Fraser & Hornum*

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Fig. 2.

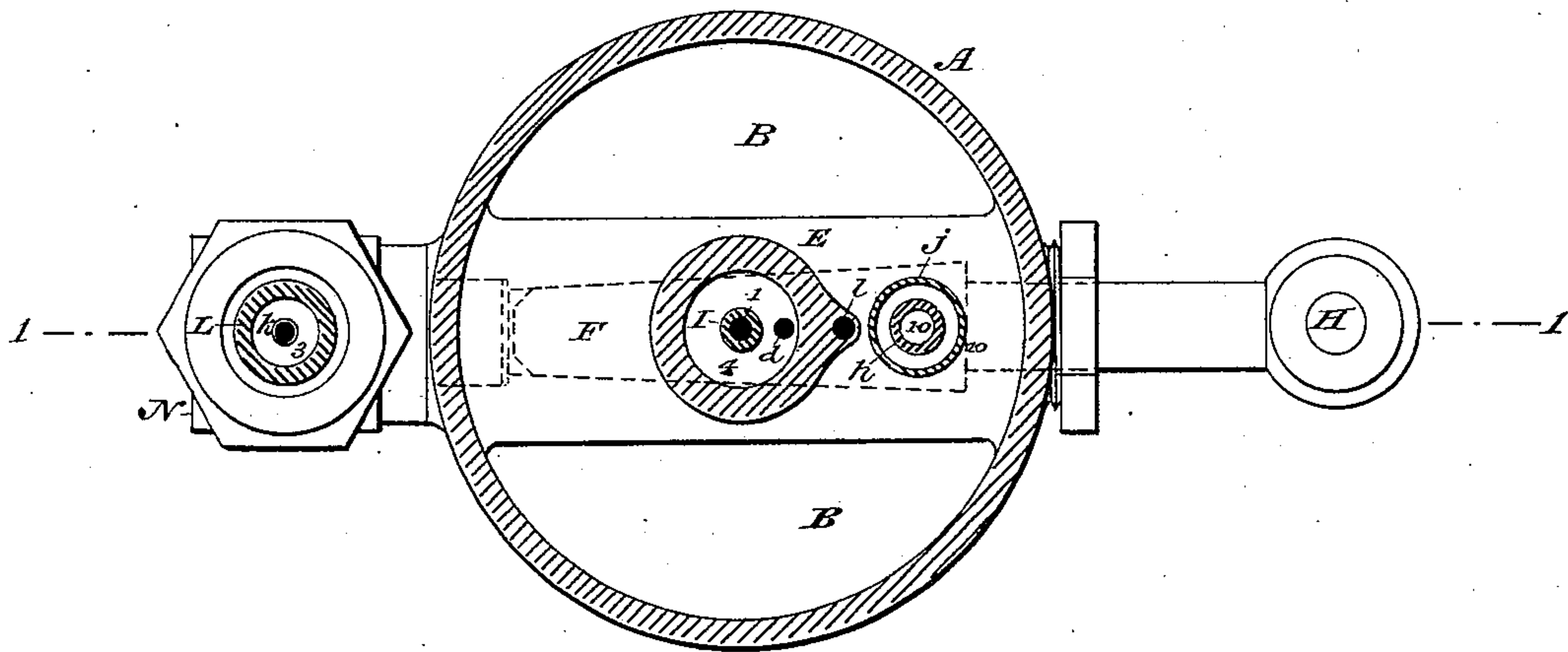
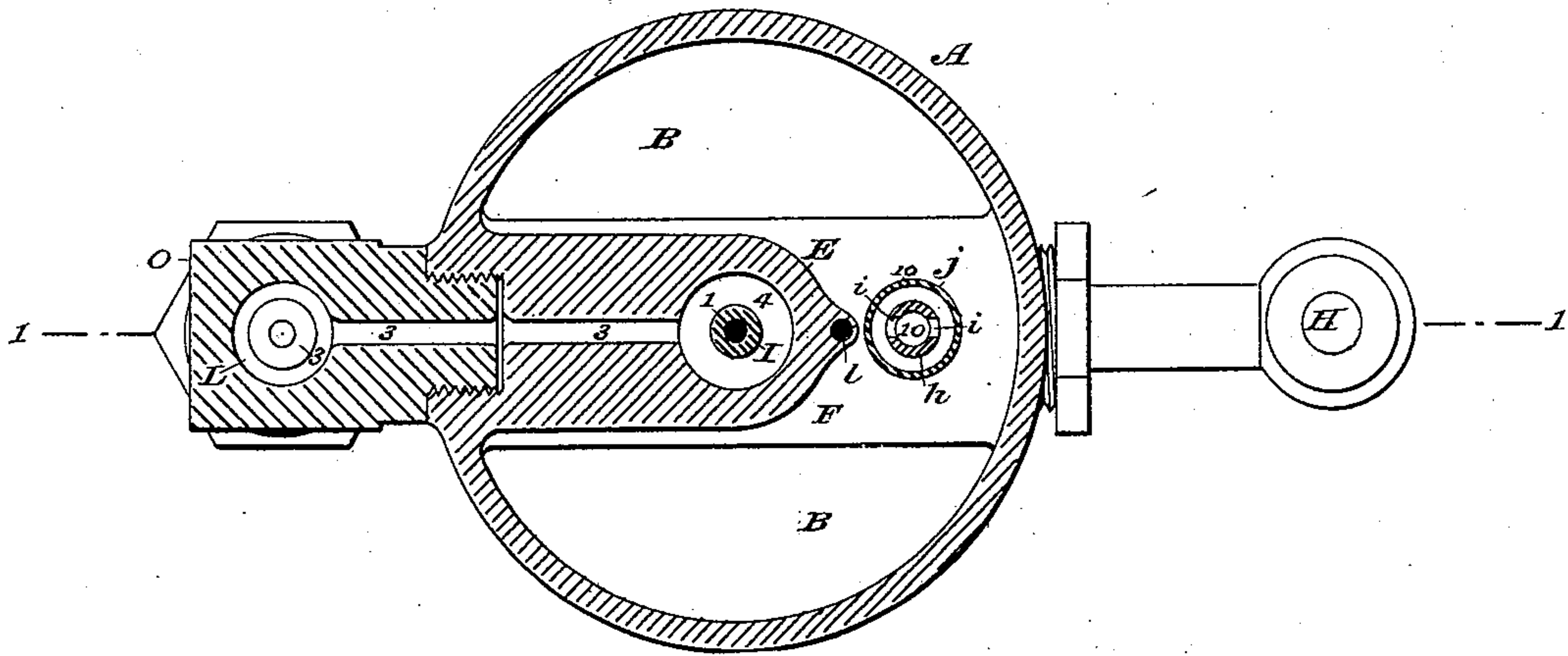


Fig. 3.



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# UNITED STATES PATENT OFFICE.

TOM. BRABSON, OF BROOKLYN, NEW YORK.

## VISIBLE-FEED LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 308,403, dated November 25, 1884.

Application filed May 8, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, TOM. BRABSON, a citizen of the United States, residing in Brooklyn, Kings county, New York, have invented certain Improvements in Visible-Feed Lubricators, of which the following is a specification.

My invention relates to that class of lubricators in which steam is admitted to the oil-chamber through a suitable passage to expel the oil from said chamber by the same or another passage, and the primary object of my invention is to furnish a means whereby the amount of oil fed may be regulated and the flow of oil may be observed and ascertained.

My invention is fully illustrated in the accompanying drawings, wherein Figure 1 is a vertical mid-section in the plane of line 1 1 in Figs. 2 and 3. Fig. 2 is a horizontal section in the plane of the line 2 2 in Fig. 1. Fig. 3 is a horizontal section in the plane of line 3 3 in Fig. 1.

Before proceeding to describe my invention in detail I will say that it comprises means whereby the feed may be entirely cut off, means whereby the feed may be regulated as to quantity, means whereby the flow of oil from the oil-chamber is rendered visible, so that the user may be assured that the apparatus is feeding, and means whereby, if the glass tube forming part of the oil-passage be broken, the said passage may be cut off and the apparatus transformed into a "blind-feed" lubricator.

A represents the shell or casing of the lubricator; B, the oil space or chamber within the same; C, a valve-like screw-stopper in the cover, which serves to close the filling-aperture, and D a screw cover or cap which closes the top of the casing A. This casing I usually cast from brass or other metal, and form in one with it, by preference, a vertical chamber, E, and the shell or box F of a cock arranged transversely in A and across the bottom of same.

G is the tapered plug or key of this cock, which is provided with a suitable cross-handle, H.

I is a tube which screws down into the chamber E, its lower end fitting into and coinciding with an aperture in the bottom of said chamber. At the upper end of the passage through this tube is formed a valve-seat, *a*, and directly over and coinciding with said valve-seat is

a valve, *b*, on the lower end of a screw-stem, J, which screws down through the cover D. The stem J is provided with a suitable operating-handle, K, and passes through a stuffing-box, *c*.

Before proceeding to describe the details of construction further I will now describe the arrangement of the passages for the steam and oil. These passages, for convenience, I will refer to by numbers. 1 is the passage through tube I. This passage is open at its upper end to the oil in the casing A, but may be closed by valve *b*.

2 is a passage in the key G of the cock, which is put in communication with passage 1 when the key is turned, as shown in Fig. 1. The passage 3 is a continuation of passage 2, and leads up through a glass tube, L, exterior to the casing A, and thence laterally into the passage or hollow 4 of chamber E. Passage 4 leads, by means of an aperture, *d*, in its bottom, to a diametrical passage, 5, in key G, and this passage 5 communicates with a passage, 6, to the cylinder or other part to be lubricated through a tube, *e*. The steam enters the oil-chamber through a passage or passages, 7, in tubes *f*, to a condensing-chamber, M, and then passes up through a passage, 8, mainly in tube *g*, to a passage, 9, arranged diametrically in the key G. This passage 9 communicates with a passage, 10, in a trap. This trap may be a bent pipe or tube; but I prefer to employ the construction shown, which comprises an interior tube, *h*, provided with holes *i* near its top, and an exterior tube, *j*, of larger size, closed at the top and depending nearly to the bottom of the oil-chamber. Thus the passage 10 is reflexed or bent back upon itself. The several passages 2, 5, and 9 in the key G of the cock are arranged to be brought into coincidence with their respective passages in the shell simultaneously when the key is turned, as shown in Fig. 1. When the key is turned a quarter way around, or even less, these passages are all cut off. Suppose the key is turned to cut off the steam and the valve *b* is screwed down to its seat *a*, if the key be now turned to the position shown in Fig. 1, the steam is free to enter at passages 7, 8, 9, and 10, and it may enter through passages 6 5 4 3 2 1, but it cannot enter the oil-



chamber by the latter route, as the top of passage 1 is closed by valve *b*. Now, if valve *b* be raised from its seat, more or less oil will be forced over into passage 1 at its top, pass through 2 and 3, and be seen through the glass tube *L* to emerge in drops from the upright tip or nipple *k*, and rise through the water of condensation in the tube *L*. These drops pass on through passage 3 into passage 4, and thence out through aperture *d* and passages 5 and 6 into the cylinder or other steam-chamber to be lubricated. By means of the screw-stem *J* the valve *b* may be delicately adjusted or set with reference to its seat, so that the amount of oil fed can be regulated very accurately. The glass tube *L* sets in a socketed provision, *N*, at its base, and a similar provision, *O*, at its top, and is suitably packed. In the provision *O* is a screw-plug, *P*, which can be removed in order to renew the glass tube in case it is broken. The purpose of the condensing-chamber *M* is to condense the steam as it enters, wholly or in part, and thus prevent the oil in the chamber *B* from being heated too highly. This device serves to keep the oil-receptacle and its parts cooler than they would otherwise be. I might, however, omit this chamber *M* and allow the steam to enter the chamber *B* directly through passage 8, instead of indirectly through passages 7 and 8, as described. The trap formed of the tubes *h* and *j*, or the bent pipe which may be substituted for it, serves to prevent the flow of oil out through the passages 9 and 8, as it would do too readily if said trap were removed. The trap, constructed as shown, is designed to aid in the condensation of steam, if necessary, before it finally emerges from the trap into the bottom of the oil-chamber.

I have spoken of the steam as entering the oil-chamber by way of the steam-passage; but where a condensing-chamber, *M*, is employed the steam will condense in this chamber, and when it rises high enough to seal the pendent end of tube *g* the water of condensation, and not steam, will enter the oil-chamber. Where a condensing-chamber of this character is employed the trap in the chamber *B* is not absolutely necessary, as the oil will not pass out at the same aperture where the water is entering. It may happen that the glass tube *L* will be broken or some other contingency will arise which will render it necessary to cut off the circuitous oil-passage temporarily. In that case my apparatus may be instantly converted into an ordinary blind-feed lubricator by the means I will now describe.

In the shell or box *F* of the cock and the wall of *E* is a vertical passage, *l*, opening directly to the oil-chamber, and in the plug or key *G* is a diametrical passage, *m*, arranged at right angles to the other passages in said key, and adapted, when the cross-handle *H* of the key stands horizontal, to coincide with the aperture *l* and with a passage, *n*, which leads into the passage 6. Thus when the handle *H*

is turned to stand vertical, with the marked branch up, as in Fig. 1, the visible feed will be on, and when it stands horizontal the blind feed will be on. When it stands in any other position—say at an angle of forty-five degrees—all the passages are cut off.

I may say here that the passage 2 is formed in the key *G* only for convenience. It might be formed in the metal of the non-moving parts, as it does not require to be cut off from 1.

I believe the rationale of the operation to be as follows: Suppose the valve *b* to be closed and the plug of the cock then turned to the position seen in Fig. 1, steam enters at passage 6 and passes up through 5 and 4, and thence through 3 and 2 into 1; but it cannot pass out at the upper end of passage 1 by reason of valve *b*. The steam condenses in the exterior vertical portion of passages 3—namely, in the tube *L*—but the passages 1, 2, and 4, and the horizontal portions of passage 3 are filled with steam. The pressure in the circuitous oil-passage will be equal to that in the cylinder. Water of condensation enters at the steam-passage, and, being heavier than the oil, sinks to the bottom of the oil-chamber, raising the oil until the pressure in the oil-chamber equals that in the cylinder. Now, if the valve *b* be raised, the oil will flow into passage 1 through passage 2 and rise in the nipple *k*, appearing there in drops. These drops, having a less specific gravity than the condensed water in tube *L*, rise to the top of the same and flow over into passage 4 and out through passages 5 and 6 into the cylinder or other part. When the oil is all out of chamber *B* this chamber will be found filled with water of condensation. In order that they may not get too hot for convenience in handling, I prefer to provide the stem *J* and plug *C* with hand-wheels *K* and *K'*, respectively, of wood or other suitable material having a feeble heat-conducting power.

Although for convenience I have given different numbers to the passages 1, 2, 3, 4, 5, and 6, these really form one continuous oil-passage, a portion of which—namely, the tube *L*—is transparent, so that the flow of oil may be visible. I give this passage its peculiar circuitous form in order that the oil may rise through the condensed water in *L*.

The valve *b* serves only to regulate the amount of opening for the egress of oil, and it is obvious that my lubricator would operate without it; therefore I do not limit myself to its employment, although with it I am enabled to vary the feed at will. Without it the feed would be fixed once for all. The lubricator would also operate, but not so well, even if the steam-passage 8, 9, and 10 were omitted, as the steam would then enter at the oil-outlet and pass into the oil-chamber *B* through 1.

I am aware that it is not new to provide lubricators with condensing-chambers and traps, and I do not claim this broadly. My lubricator, however, has its inlet and outlet passages



arranged at its bottom instead of at its side, as in most, if not all, lubricators of this class, and the condenser is between the steam cylinder or chest and the oil-chamber. This serves in some degree to keep oil cool.

Having thus described my invention, I claim—

1. A visible-feed lubricator comprising a shell or casing inclosing the oil-chamber, provided with a circuitous oil-passage, substantially as shown, a portion of which is visible, one end of said passage open to the oil in the chamber and the other open exteriorly to the casing, and the portion 1 of said passage arranged within the portion 4, substantially as and for the purposes set forth.

2. In a lubricator the combination of the shell or casing provided with two passages, one for the entry of steam or water of condensation and one circuitous passage, partly exposed to view, for the flow of oil from the oil-chamber, with a cock common to both passages, all constructed and arranged to operate substantially as set forth.

3. In a lubricator, the combination of the shell or casing provided with two passages, one for the entry of steam or water of condensation and one circuitous passage, partly exposed to view, for the flow of oil from the oil-chamber, with a valve to control the admission of oil from the oil-chamber to the oil-passage, and a cock common to both passages, all constructed and arranged to operate substantially as set forth.

4. In a lubricator, the combination of the shell or casing provided with the oil and steam passages, substantially as shown, the cock for cutting off said passages, and the condensing-chamber M, arranged at the base of and exterior to the oil chamber, and provided with

an inlet tube or tubes, *f*, extending up into same, and the tube *g*, depending into the same to form a water seal or trap, substantially as shown, and for the purposes set forth.

5. In a visible-feed lubricator, the combination of the shell or casing A, provided with a cap, an axial chamber, E, and box F, for the cock, the tube I, provided with a valve-seat at its top, and arranged within the chamber E, the valve *b*, mounted in the cover, as shown, the glass tube L, arranged at the side of the casing, and connected at its top with chamber E and at its bottom with tube I, and the cock for cutting off the steam and oil passages, which are all arranged substantially as shown.

6. A visible-feed lubricator comprising a shell or casing to inclose the oil-chamber, provided with a circuitous oil-passage, substantially as described, part of which is exterior to the casing and visible, a steam-inlet passage, a cock arranged to close and open these passages simultaneously, and a passage, *l m n*, capable of being controlled by the cock for effecting a blind feed, substantially as and for the purposes set forth.

7. In a lubricator, the combination of the shell or casing provided with a circuitous oil-passage a portion of which is exterior to the shell and formed of a glass tube, and with a steam-passage, with a cock arranged to control these passages, all constructed and arranged to operate substantially as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

TOM. BRABSON.

Witnesses:

HENRY CONNETT,  
ARTHUR C. FRASER.