

No. 677,657.

Patented July 2, 1901.

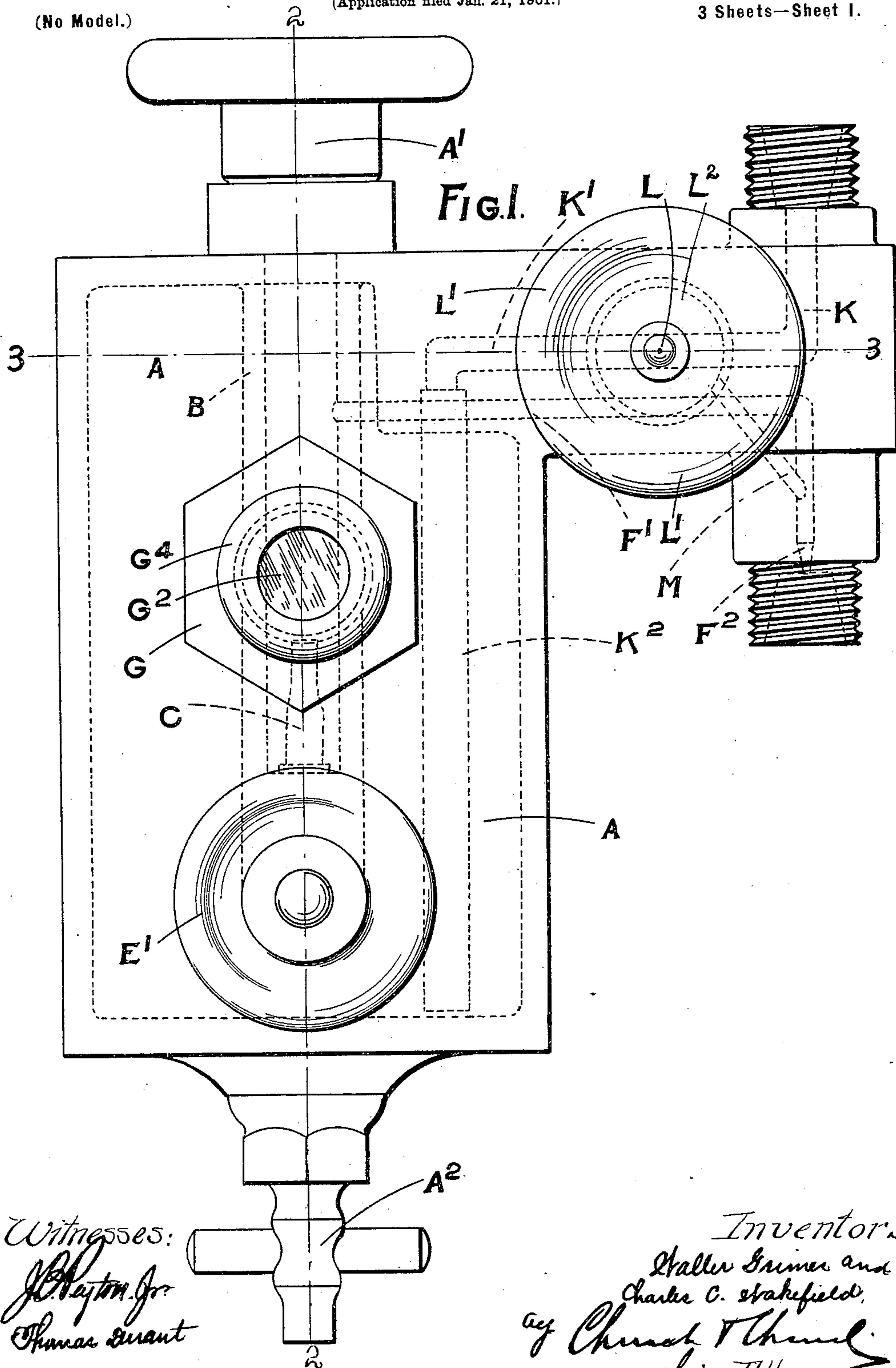
W. GRIMES & C. C. WAKEFIELD.

SIGHT FEED LUBRICATOR.

(Application filed Jan. 21, 1901.)

(No Model.)

3 Sheets—Sheet 1.



Witnesses:

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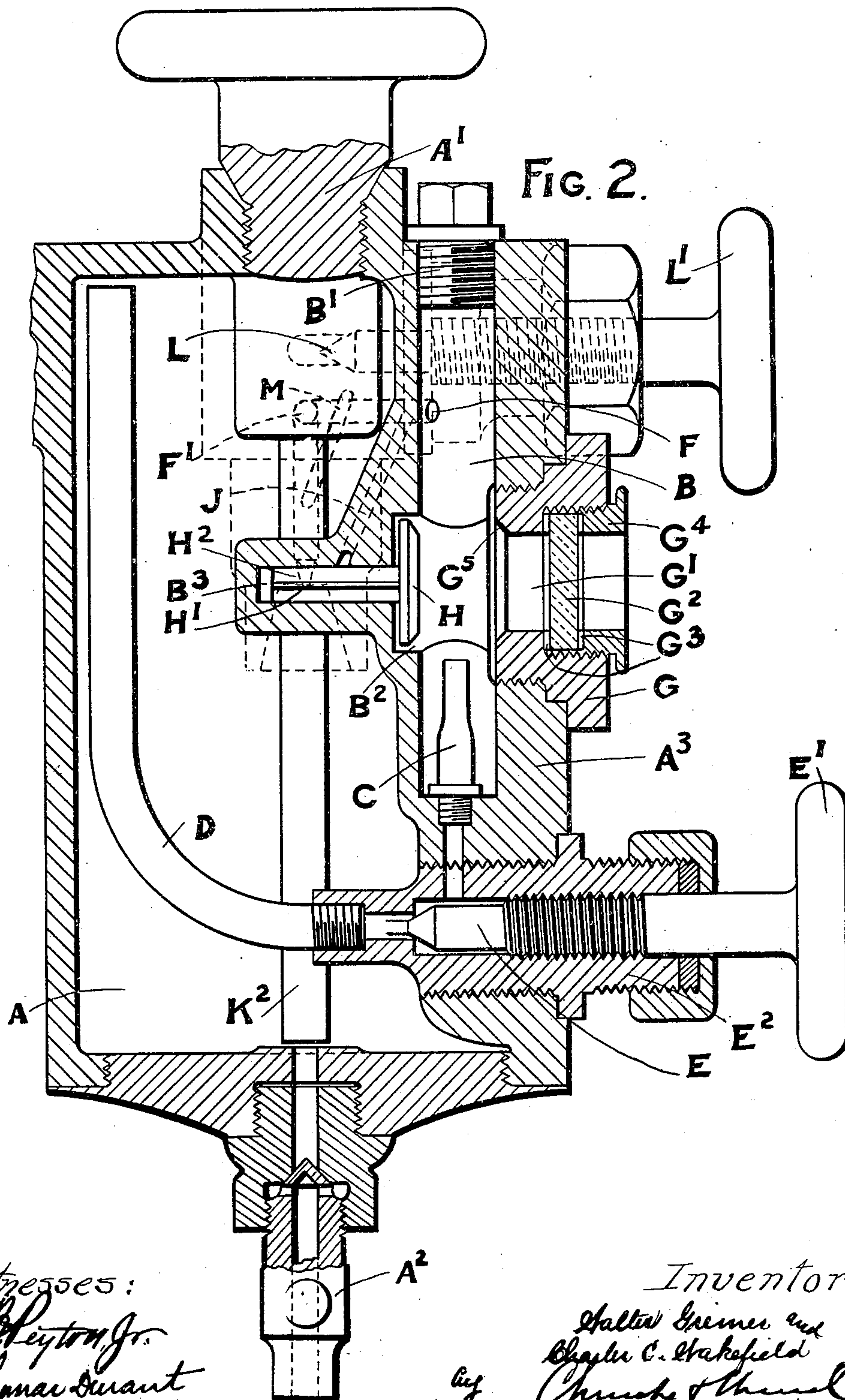
W. GRIMES & C. C. WAKEFIELD.

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(No Model.)

3 Sheets—Sheet 2.



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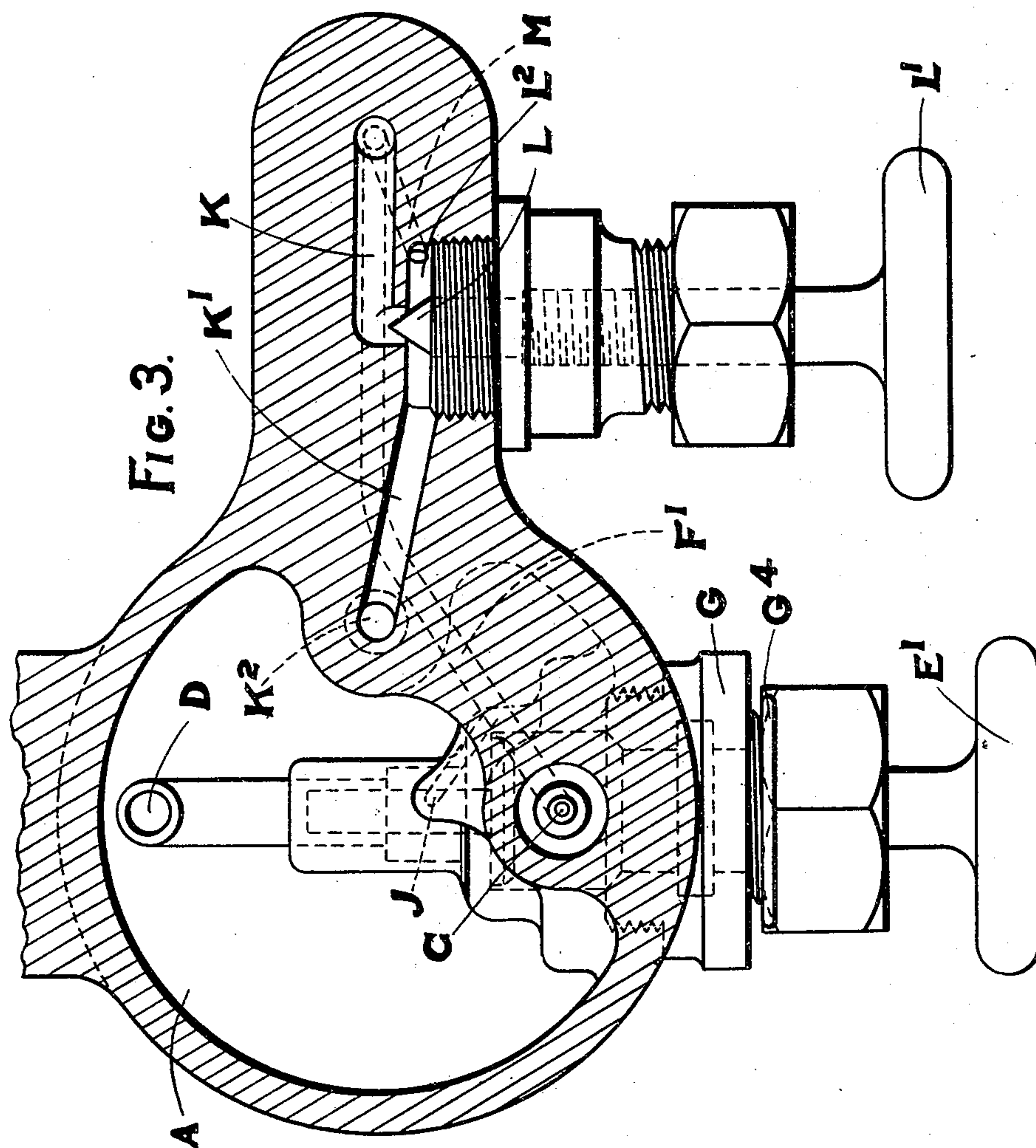
W. GRIMES & C. C. WAKEFIELD.

SIGHT FEED LUBRICATOR.

(Application filed Jan. 21, 1901.)

(No Model.)

3 Sheets—Sheet 3.



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# UNITED STATES PATENT OFFICE.

WALTER GRIMES AND CHARLES CHEERS WAKEFIELD, OF LONDON,  
ENGLAND.

## SIGHT-FEED LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 677,657, dated July 2, 1901.

Application filed January 21, 1901. Serial No. 44,139. (No model.)

*To all whom it may concern:*

Be it known that we, WALTER GRIMES and CHARLES CHEERS WAKEFIELD, subjects of the Queen of England, and residents of London, England, have invented certain new and useful Improvements in or Relating to Sight-Feed Lubricators, (for which application has been made in Great Britain under No. 19,611, dated November 1, 1900,) of which the following is a specification.

This invention relates to improvements in sight-feed lubricators, and has for its object the construction of a lubricator in which should the glass break the escape of steam and oil is automatically stopped, but the normal flow of the oil is uninterrupted and unaltered.

In lubricators according to this invention the oil passes through a conduit provided with a transparent wall or window, which preferably consists of a disk of glass held in position by a screwed plug or equivalent and provided with packing-rings. Within the conduit is a valve, between which and the window the oil normally passes. This valve is adapted in the event of the glass breaking to seat itself automatically upon a seat provided for it between the window and the conduit, thus effectually preventing the escape of steam and oil through the broken glass, but allowing the normal flow of oil through the conduit to continue. Conveniently the valve may be in the form of a piston, the stem or rod of which fits loosely in a recess provided in the wall of the conduit, and it is preferred to allow free access of steam to the back of the valve, so that when the glass breaks the valve is forced forward by the steam as well as drawn forward by the escaping water, &c.

In the accompanying drawings, Figure 1 is a side elevation of one construction of sight-feed lubricator according to this invention. Fig. 2 is a vertical section on the line 2 2 of Fig. 1, and Fig. 3 is a transverse section on the line 3 3 of Fig. 1.

Like letters indicate like parts throughout the drawings.

The body A of the lubricator is provided with a screwed plug A', which is removed when it is desired to introduce a fresh supply

of oil into the lubricator, and a valve or plug A<sup>2</sup> at the bottom, by means of which the condensed water may be drained off.

In a thickened wall A<sup>3</sup> of the body A is a conduit B, furnished with a nozzle C and closed at the top by a screwed plug B'. The nozzle C serves as an inlet for oil, which passes into it from the body A of the lubricator through a pipe D, the amount of oil being regulated by means of a valve E, operated by a hand-wheel E' and working in a screwed fitting E<sup>2</sup>. Near the top of the conduit B is an outlet F, communicating through a passage F' with an exit F<sup>2</sup>, which is placed in communication with the parts to be lubricated.

In the wall A<sup>3</sup> is a tapped opening which breaks into the side of the conduit B. Into this opening is screwed a plug G, having a bore G', which forms an aperture in the side of the conduit. The outer portion of this bore is enlarged and receives a disk G<sup>2</sup>, of glass or other fairly-transparent material, which is held between packing-rings G<sup>3</sup> and kept securely in place by a screwed plug G<sup>4</sup>. This disk G<sup>2</sup> forms a window, through which the passage of oil from the inlet C to the outlet F is visible. In the other wall of the conduit opposite to the bore G' is a recess B<sup>2</sup>, which accommodates a valve H, the stem H' of which is free to slide in a recess B<sup>3</sup>, leading from the back of the recess B<sup>2</sup>. The stem H' is preferably not circular in cross-section, but is provided with longitudinal grooves or passages H<sup>2</sup> in order that steam may be admitted to the back of the valve through a passage J, which communicates with the passage F'.

Upon the inner side of the plug G—that is, between the window G<sup>2</sup> and the conduit B—is a seat G<sup>5</sup> for the valve H, and should the window G<sup>2</sup> break the valve H is forced by the pressure behind it and drawn by the escaping steam and water into the seat G<sup>5</sup>, thus closing the bore G' and preventing the escape of oil and water, &c., through the broken window. Steam is admitted to the lubricator through a passage K, controlled by a valve L, operated by a hand-wheel L'. After passing the valve L the steam flows through a passage K' into a pipe K<sup>2</sup>, which leads it to the bottom of the body A of the lubricator.



From a space  $L^2$ , in which the valve L operates and with which the passage  $K'$  communicates, another passage M extends and leads into the oil-exit  $F^2$  in such a way that when  
 5 the valve L is opened the oil in the passage  $F'$  is forced out at the exit  $F^2$  by the injector-like action of steam passing through the passage M.

The oil in the body A of the lubricator is  
 10 forced by the steam passing in through the pipe  $K^2$  to the top of the lubricator and thence passes down the pipe D to the nozzle C, its flow being controlled by the valve E. This regulated flow is uninterrupted and unaltered  
 15 if owing to the window  $G^2$  breaking the valve H is forced into its seat  $G^5$ . It will be noticed that the top of the nozzle C is slightly below the path of the valve H, so that the latter is unimpeded when crossing the conduit B.

20 If a breakage occurs, the valve H may be replaced after shutting off steam by unscrewing the plug  $G^4$ , withdrawing the broken disk  $G^2$ , with its packing-rings  $G^3$ , and pushing the valve back by inserting any suitable instrument through the bore  $G'$ . A new window may then be inserted and the plug  $G^4$   
 25 and packing-rings  $G^3$  replaced and the lubricator started into action again.

Obviously the lubricator may be allowed to  
 30 continue in action as long as desired after the glass has broken and the valve H forced to its seat  $G^5$ . In these circumstances a disk of metal may take the place of the window  $G^2$  in order to prevent the valve H being pushed  
 35 back by accident, and it is convenient to make the recess for the disk  $G^2$  about the same size as some ordinary coin, so that it is easy to temporarily supply the place of a broken glass.

40 Although the lubricator described is of the type in which the steam assists the outward flow of the oil from the exit  $F^2$ , it is to be understood that the invention may be applied to simple displacement or any other form of  
 45 sight-feed lubricators.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. In a lubricator the combination of a conduit, the oil-passage, communicating between  
 50 the steam-pipe and conduit, an inlet and an outlet in the conduit, a window through which the passage of oil from the inlet to the outlet is visible, a valve within the conduit and a passage leading from the oil-passage to the  
 55 rear of the valve, through which steam passes; whereby the valve under the action of the back pressure of steam through the oil-passage communicating with said conduit shuts off communication between the conduit and  
 60 the window if the latter breaks without interrupting or altering the flow of oil.

2. In a lubricator the combination of a conduit, the passage communicating between the steam-pipe and conduit, an inlet for oil near  
 65 the bottom of said conduit, an outlet near the top of the conduit, an aperture in the conduit between the inlet and outlet, a window closing

the aperture, a valve-seat between the window and the conduit, a valve within the conduit and a passage leading from the oil-  
 70 passage to the rear of the valve, through which steam passes, whereby the valve under the action of the back pressure of steam through the oil-passage is forced into the valve-seat and shuts off communication be-  
 75 tween the conduit and the window if the latter breaks without interrupting or altering the flow of oil.

3. In a lubricator the combination of a conduit, the oil-passage communicating between  
 80 the steam-passage and conduit, a valve-controlled inlet for oil near the bottom of said conduit, an outlet near the top of the conduit, an aperture in the conduit between the inlet and the outlet, a transparent disk form-  
 85 ing a removable window closing the aperture, a screwed plug to secure said disk in position, a valve-seat between the window and the conduit, a recess in the wall of the conduit opposite to the valve-seat and a valve  
 90 loosely held in such recess, a passage leading from the oil-passage to said recess, by which steam is admitted to the recess, whereby the valve under the action of the back pressure of steam through the oil-passage is forced  
 95 into the valve-seat and shuts off communication between the conduit and the window if the latter breaks without interrupting or altering the flow of oil.

4. In a lubricator the combination of a con-  
 100 duit, the oil-passage communicating between the steam-pipe and conduit, a valve-controlled inlet for oil near the bottom of said conduit, an outlet near the top of the conduit, an aperture in the conduit between the inlet and the  
 105 outlet, a transparent disk forming a removable window closing the aperture, a screwed plug to secure said disk in position, a valve-seat between the window and the conduit, a recess in the wall of the conduit opposite to  
 110 the valve-seat, a valve loosely held in such recess and having a stem provided with passages to admit steam to the back of the valve, and a passage between the oil-passage and the recess accommodating the stem of the  
 115 valve through which back pressure of steam through the oil-passages is communicated to said recess substantially as and for the purpose set forth.

5. In a lubricator the combination of a con-  
 120 duit, the oil-passage communicating between the steam-passage and conduit, a valve-controlled inlet for oil near the bottom of said conduit, an outlet near the top of the conduit, an inlet for steam to the body of the  
 125 lubricator, a by-pass connecting the steam-inlet with the oil-outlet, an aperture in the conduit between the inlet and the outlet, a transparent disk forming a removable window closing the aperture, a screwed plug to  
 130 secure said disk in position, a valve-seat between the window and the conduit, a recess in the wall of the conduit opposite to the valve-seat and a valve loosely held in such



recess, a passage leading from the oil-passage  
to said recess by which steam is admitted to  
the recess, whereby the valve under the action  
of the back pressure of steam through the oil-  
5 passage is forced into the valve-seat and  
shuts off communication between the con-  
duit and the window if the latter breaks with-  
out interrupting or altering the flow of oil.

In testimony whereof we have signed our  
names to this specification in the presence of 10  
two subscribing witnesses.

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