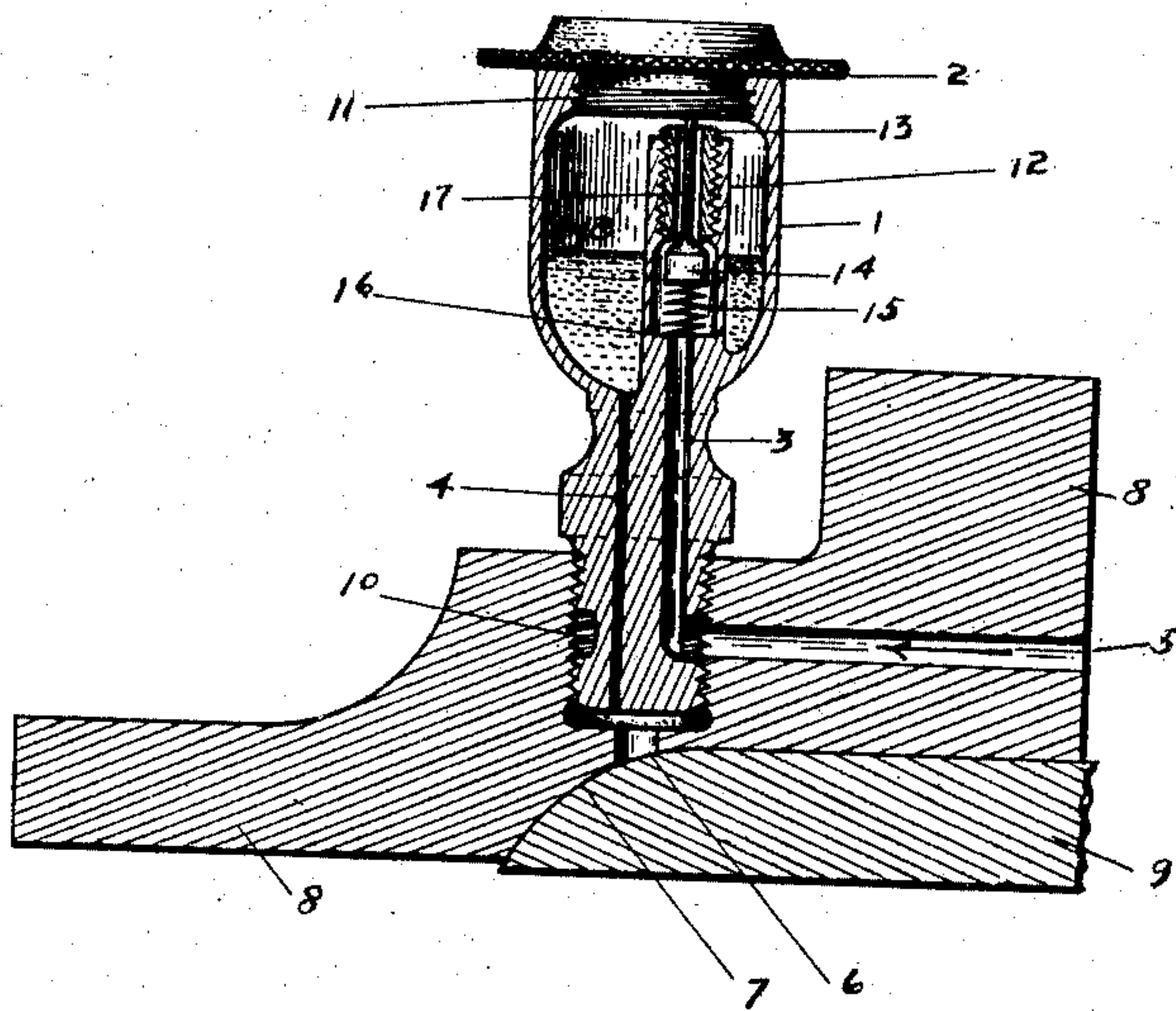


928,417.

F. L. ALLEN.
AUTOMATIC LUBRICATOR.
APPLICATION FILED SEPT. 2, 1908.

Patented July 20, 1909.



Witnesses:

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UNITED STATES PATENT OFFICE.

FRANK L. ALLEN, OF ST. JOSEPH, MICHIGAN.

AUTOMATIC LUBRICATOR.

No. 928,417.

Specification of Letters Patent.

Patented July 20, 1909.

Application filed September 2, 1908. Serial No. 451,350.

To all whom it may concern:

Be it known that I, FRANK L. ALLEN, a citizen of the United States, residing at St. Joseph, county of Berrien, and State of Michigan, have invented certain new and useful Improvements in Automatic Lubricators, of which the following is a specification.

My invention relates to improvements in lubricators, and more particularly to that class in which automatic means are provided to regulate the flow of oil as required in the bearings of the machine.

The object of my invention is to provide a suitable automatic lubricator for the rotary joints which prevent the escape of steam from the cylindrical drums in a paper-drying machine. It is obvious at high steam pressures that more oil would be blown through the joints than at low pressures; consequently the flow of oil to the joints should increase directly as the steam pressure.

A further object of my invention is to provide automatic means for shutting off the steam when the lubricator cap is removed for refilling the oil cup of said lubricator.

Other objects will appear hereinafter.

With these objects in view, my invention consists in a lubricator provided with a steam passage and an oil delivery passage and constructed in such a manner that the flow of oil through the delivery passage will vary directly as the fluctuations in steam pressures in said steam passage.

My invention further consists in an adjustable valve-seat whereby the steam in passing through the steam passage may be throttled.

My invention further consists in certain details of construction and arrangements of parts all as will be hereinafter fully described, and particularly pointed out in the claims.

My invention will be more readily understood by reference to the accompanying drawings forming a part of this specification, and in which the figure is a central, vertical section of the preferred form of my invention.

Referring now to the drawing, 1 indicates the oil receptacle or cup of the lubricator and 2 the cap therefor. A steam passage 3 and an oil delivery passage 4 is provided, the former being in connection with an inlet

steam passage 5 and the latter with a passage 6 leading to the bearing 7. The bearing 7, as shown in the drawing, is between the stationary member 8 and the rotatable member 9, the latter being a portion of a cylindrical steam drum in a paper-drying machine. The steam passage 5 is also supposed to be in connection with the steam drum, but my invention has reference to the lubricator only, since it is obvious that the same may be applied to any machine provided with a steam supply for the passage 3. In the lubricator a circular groove 10 is provided to connect passages 3 and 5, and a threaded connection 11 is provided between the cap 2 and the cup 1. A stem 12 integral with the cup 1 is provided with a tubular member 13 screwed into the stem or nozzle 12 as shown. The lower extremity of the tubular member 13 acts as a valve-seat for the valve 14 which is normally pressed upwardly by the helical spring 15, the latter having a seat at 16 in the stem 12. The stem 17 of the valve 14 is also pressed upwardly against the cap 2 by means of the spring 15.

The operation is as follows: Steam entering through the passages 5 and 3 passes by the valve 14 into the cup 1. The lubricant in the cup 1 is forced by the steam pressure in the cup 1 through the delivery passage 4 to the bearing 7. And the quantity of lubricant fed to the bearing 7 obviously varies as the steam pressure in the cup 1. The member 13 is vertically adjustable in order that the passage by the valve 14 may be restricted, thus throttling the steam and reducing the pressure in the cup 1. When the cap 2 is removed for filling the cup 1 with lubricant, the valve 14 closes automatically by the action of the spring 15. And when the cap 2 is again screwed into position the valve 14 opens and permits the steam to again act on the surface of the lubricant in the cup 1.

While I have shown what I deem to be the preferable form of my invention, I do not wish to be limited thereto, as there might be many changes made in the details of construction and arrangement of parts without departing from the spirit of my invention.

Having described my invention what I claim as new and desire to secure by Letters Patent, is:

1. In a lubricator, an oil cup and a cap detachably secured thereto and closing the

same, said cup having a steam inlet and an oil delivery passage, in combination with a tubular member extending upwardly in said cup and forming a continuation of said steam inlet, a tubular member threaded into the upper end of the first said tubular member and adjustable therein, a valve arranged in the first said tubular member and adapted to seat against the lower end of the second tubular member, a spring arranged below said valve and a valve stem extending upwardly through said second tubular member and adapted to be engaged by said cap to hold the valve in open position, substantially as described.

2. In a lubricator, an oil cup having a steam inlet and an oil delivery passage at the lower end thereof, and a vertically disposed tubular member extending upwardly therein and forming a continuation of said steam inlet, the bore of said tubular member being

greater in diameter than that of the steam inlet, forming a shoulder at the base of said member, a second tubular member threaded into the upper end of said vertical tubular member, a valve arranged in the first said tubular member and adapted to seat against the lower end of said second member, a spring interposed between said valve and said shoulder, a valve stem on said valve extending through said second member and a cap for closing the upper end of said cup and adapted when in closed position to engage said valve stem to hold said valve in open position, substantially as described.

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

FRANK L. ALLEN.

Witnesses:

MARTIN A. CODER,
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