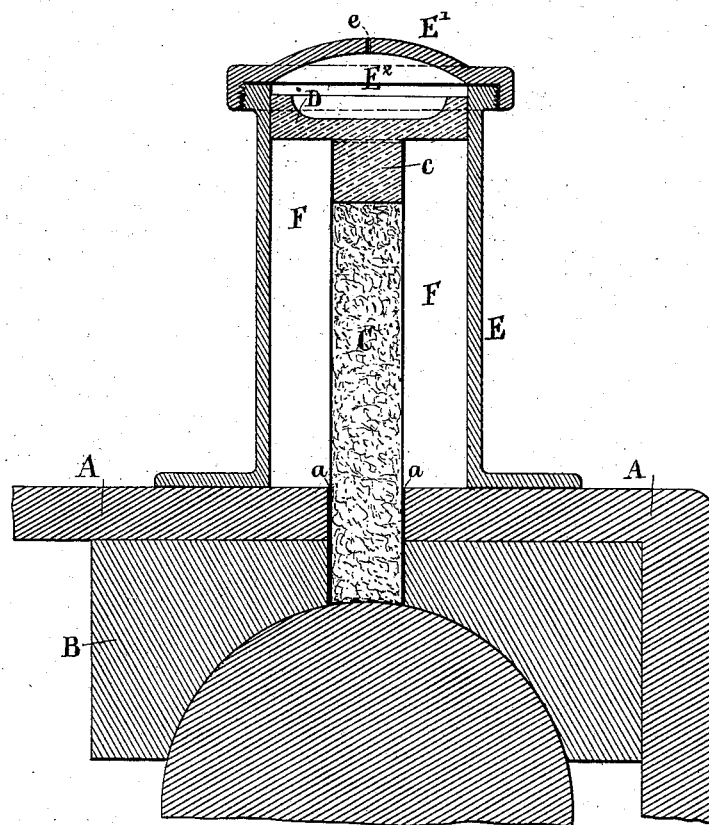


(No Model.)

F. F. SWAIN.  
LUBRICATING DEVICE.

No. 302,052.

Patented July 15, 1884.



Witnesses:-

Matthew Pollock  
Louis M. F. Whitehead.

Inventor:-

Fred F. Swain  
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# UNITED STATES PATENT OFFICE.

FRED F. SWAIN, OF CHICAGO, ILLINOIS.

## LUBRICATING DEVICE.

SPECIFICATION forming part of Letters Patent No. 302,052, dated July 15, 1884.

Application filed March 28, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, FRED F. SWAIN, of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Lubricating Devices, of which the following is a specification, reference being had to the accompanying drawing.

This invention relates to lubricators for bearings and engine-connections in which solid lubricating material is used in the form of a cartridge, according to the patent of W. J. Faul, No. 214,640, dated April 22, 1879.

The object of my invention is more especially to adapt such lubricators for use in the crank-wrist connections of locomotives and other engines where it is desirable to prevent the cartridge from being thrown back from the crank-pin by the movement of the crank and connecting-rod.

The invention consists in the combination, with the grease-cartridge, of a piston attached to said cartridge, and a cylinder which receives the said piston and the cartridge, and which is to be attached to the rod-connection or other bearing, and in which there is formed behind the said piston an air-cushion which resists the tendency to the backward movement of the said piston and the cartridge.

The invention further consists in the combination of the said cylinder and piston and adaptation of the same to the cartridge, as hereinafter described, whereby an air-jacket is formed between the shell of the cartridge and the sides of the cylinder, for containing air to serve as a non-conductor to prevent the grease from being softened by the heat of the engine and by the heat of the sun in hot weather.

The accompanying drawing is a vertical section of a lubricator constructed according to my invention, and part of a crank-connection to which it is applied.

A designates the strap of the connection, and B one of the crank-pin brasses, having an opening through them at *a a*, which is just large enough for the free passage of the grease-cartridge C, which consists of a shell of paper or other containing material, and a filling of lubricating material that will remain solid at ordinary atmospheric temperature, and which is the subject of Patent No. 214,640, hereinbefore referred to.

D designates the piston, of wood or other suitable inexpensive material, of larger diameter than the cartridge C, connected with the upper end of the cartridge concentric therewith in any suitable manner—as, for instance, by being provided with a concentric neck, *c*, which is fitted tightly into the upper end of the shell of the cartridge.

E is the cylinder to which the piston C is fitted to work with sufficient freedom to allow the cartridge to keep in contact with the crank-pin or journal. This cylinder is firmly secured to the strap A, or to the bearing concentric with the opening *a a*, and it is furnished with a cover or head, E', which should be air-tight, or so nearly so that air may be confined between it and the piston to form an air-cushion, E<sup>2</sup>. The said cover may have such a vent provided in it—as by a very minute hole, *c*—as to prevent the formation of a vacuum between it and the piston, yet to prevent air from being forced out quickly, though this special vent may be unnecessary, as the almost unavoidable leakage of joints and fitting might give vent enough.

When the lubricator is in use on a crank-connection or other swinging or vibrating portion of an engine, the jar of the engine will insure the descent of the grease-cartridge and its piston, and keep the grease in contact with the crank-pin or journal, and the withdrawal of the grease from contact with the crank-pin or journal with the oscillation or vibration of the moving parts will be prevented by the resistance of the air in the air-cushion E<sup>2</sup>, which prevention will be to some extent aided by the friction of the piston in the cylinder.

It is obvious that, so far as the effect obtained by the air-cushion is considered, the cylinder E need not be any larger than the cartridge is necessary for the free descent or passage of the latter; but when the cylinder is made considerably larger, as shown in the drawing, an air-jacket, F, is produced containing a body of air, which serves as a non-conducting protection to the grease against outside heat.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, with the grease-cartridge and a surrounding covered cylinder having a vent in its cover, of the piston at-

tached to the cartridge and fitted to the said cylinder, and between which and the head or cover of the said cylinder there is formed an air-cushion, substantially as and for the purpose herein described.

5 2. The combination, with the grease-cartridge, of a piston of larger diameter than the said cartridge, and a cylinder to which the said

piston is fitted, and between which and the said cartridge a non-conducting air-jacket is formed, substantially as and for the purpose herein described.

FRED F. SWAIN.

Witnesses:

FREDK. HAYNES,  
MATTHEW POLLOCK.