C. SENN.

SELF LUBRICATING AIR VALVE.

APPLICATION FILED NOV. 2, 1908.

1,006,691. Patented Oct. 24, 1911.

Fig. 1

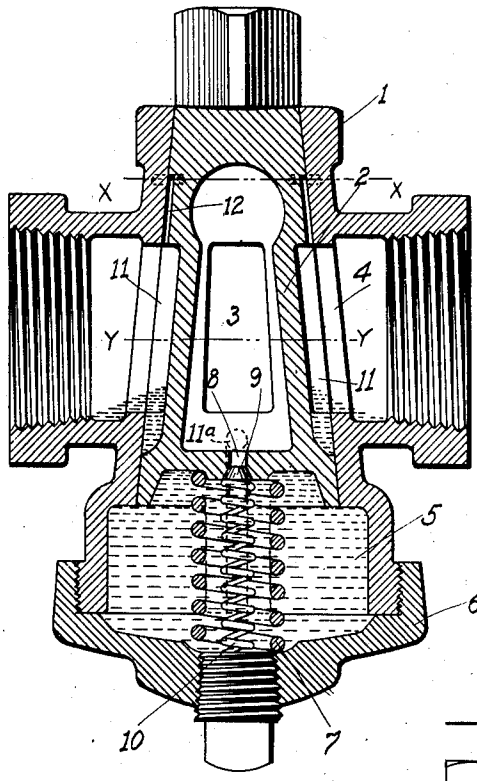


Fig. 2

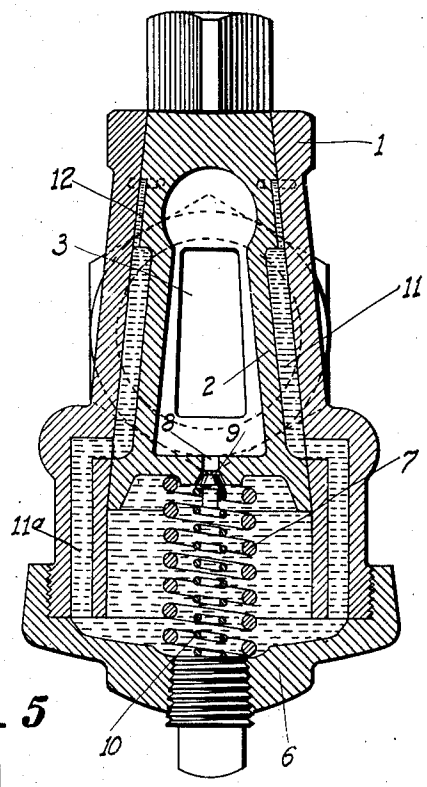


Fig. 5

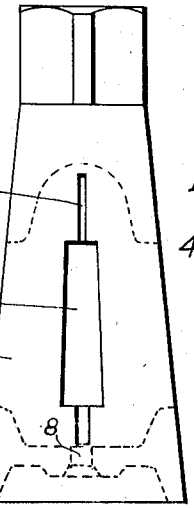


Fig. 3

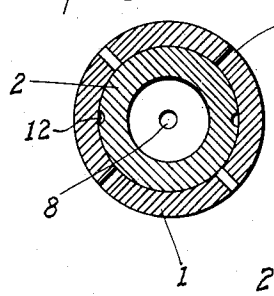
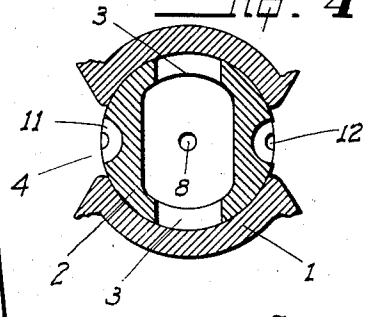


Fig. 4



Witnesses

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UNITED STATES PATENT OFFICE.

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SELF-LUBRICATING AIR-VALVE.

1,006,691. Specification of Letters Patent. Patented Oct. 24, 1911.

Application filed November 2, 1908. Serial No. 460,610.

To all whom it may concern:

Be it known that I, CARL SENN, a citizen of the United States, residing at Stockton, in the county of San Joaquin and State of California, have invented certain new and useful Improvements in Self-Lubricating Air-Valves; and I do declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this application.

This invention relates to improvements in valves used on machinery operated by steam, air or other elements and particularly on rock drills, the object of the invention being to produce a valve which will have, in addition to its other functions, a means for self lubrication and also a means for automatically lubricating all the parts of the machinery every time the valve is opened, such lubrication being done by the valve itself by means of the air or steam pressure passing therethrough.

The present application is designed and described as an improvement over my former Patent No. 933,675, dated September 7, 1909, the improvement consisting in having a gravity relief for the oil after it is compressed into the valve plug, whereby the amount will always be definite and the construction and operation more simplified than in the above mentioned patent.

These objects I accomplish by means of a lower oil chamber in the valve casing, grooves in the side of the valve plug, means communicating said grooves with the oil chamber when the valve is opened and means also communicating the air pressure with the said oil chamber to force oil into said grooves, means communicating said grooves with the valve ports when the valve is closed to permit the oil to gravitate into said ports, and means for releasing the pressure in said grooves before they communicate with said oil chamber again. Also such other and further construction and relative arrangement of parts are employed as will more fully appear by a perusal of the following specification and claim.

In the drawings similar characters of reference indicate corresponding parts in the several views.

Figure 1 is a cross section of the valve showing the plug closed. Fig. 2 is a vertical section at right angles to the section of the casing in Fig. 1, and showing the valve open. Fig. 3 is a cross section taken relatively on a line x—x of Fig. 1. Fig. 4 is a cross section taken relatively on a line y—y of Fig. 1. Fig. 5 is a side elevation of the valve plug.

Referring now more particularly to the characters of reference on the drawings 1 designates the valve casing in which is a freely turnable hollow plug 2 having ports 3 adapted to communicate with the ports 4 of the casing 1. The casing 1 is provided with an oil chamber 5 having a removable cap 6, there being a coil spring 7 bearing between the cap 6 and plug 2 to maintain the same in proper position. A port 8 communicates from the interior of the plug 2 to the chamber 5 there being a valve 9 seated therein and regulated by a spring 10 bearing between the cap 6 and such valve 9, such port 8 admitting air pressure into the chamber 5 when the valve is open and the valve 9 closing and maintaining such pressure in said chamber when the main valve is closed.

In the sides of the plug 2 are grooves 11 adapted to communicate with the chamber 5 by means of ports 11^a in the casing 1 when the valve is opened and the pressure in said chamber 5 as described above then forces said grooves 11 full of oil and when the valve is closed again the grooves 11 register with the ports 4 and the oil gravitates into said ports 4 and when the valve is again opened the passing air pressure picks such oil up and carries it to the machinery for lubrication. Upward from the grooves 11 are small bleed ports 12 which communicate with atmosphere ports 13 prior to the communication of the grooves 11 with the chamber 5, for the purpose of relieving any air pressure which might be in said grooves 11 and thus leave them free to be entirely filled with oil as described.

From the foregoing description it will be readily seen that I have produced a valve which is a step in advance of the art as de-

fined in the patent referred to above and one which substantially fulfils the objects of the invention as set forth herein.

While this specification defines in detail the present and preferred structure of the valve still in practice, such deviations therefrom may be resorted to as do not form a departure from the spirit of the invention.

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

A valve comprising a casing having ports and an oil chamber, a hollow plug freely turnable within said casing, said plug having a port adapted to communicate with said oil chamber to admit air pressure thereto, said plug also having grooves in its sides adapted to communicate with said oil chamber when the same is under pressure and with the ports of said valve when the valve is closed, as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

CARL SENN.

Witnesses:
PERCY S. WEBSTER,
FRANK H. CARTER.