

No. 610,000.

Patented Aug. 30, 1898.

J. P. SERVE.

LUBRICATING DEVICE FOR SLIDE VALVES.

(Application filed Dec. 11, 1897.)

(No Model.)

FIG. 3.

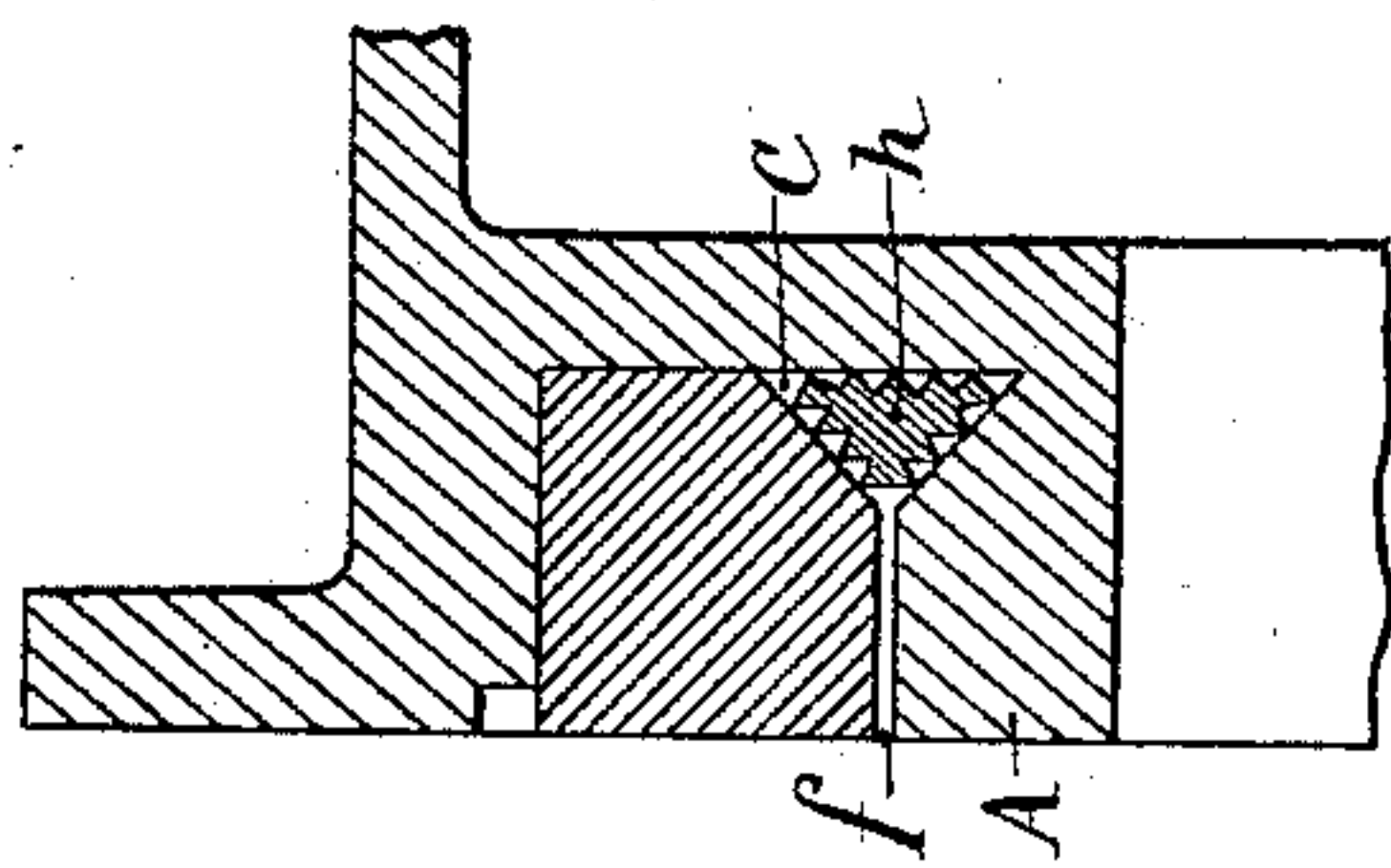


Fig. 1 bis.

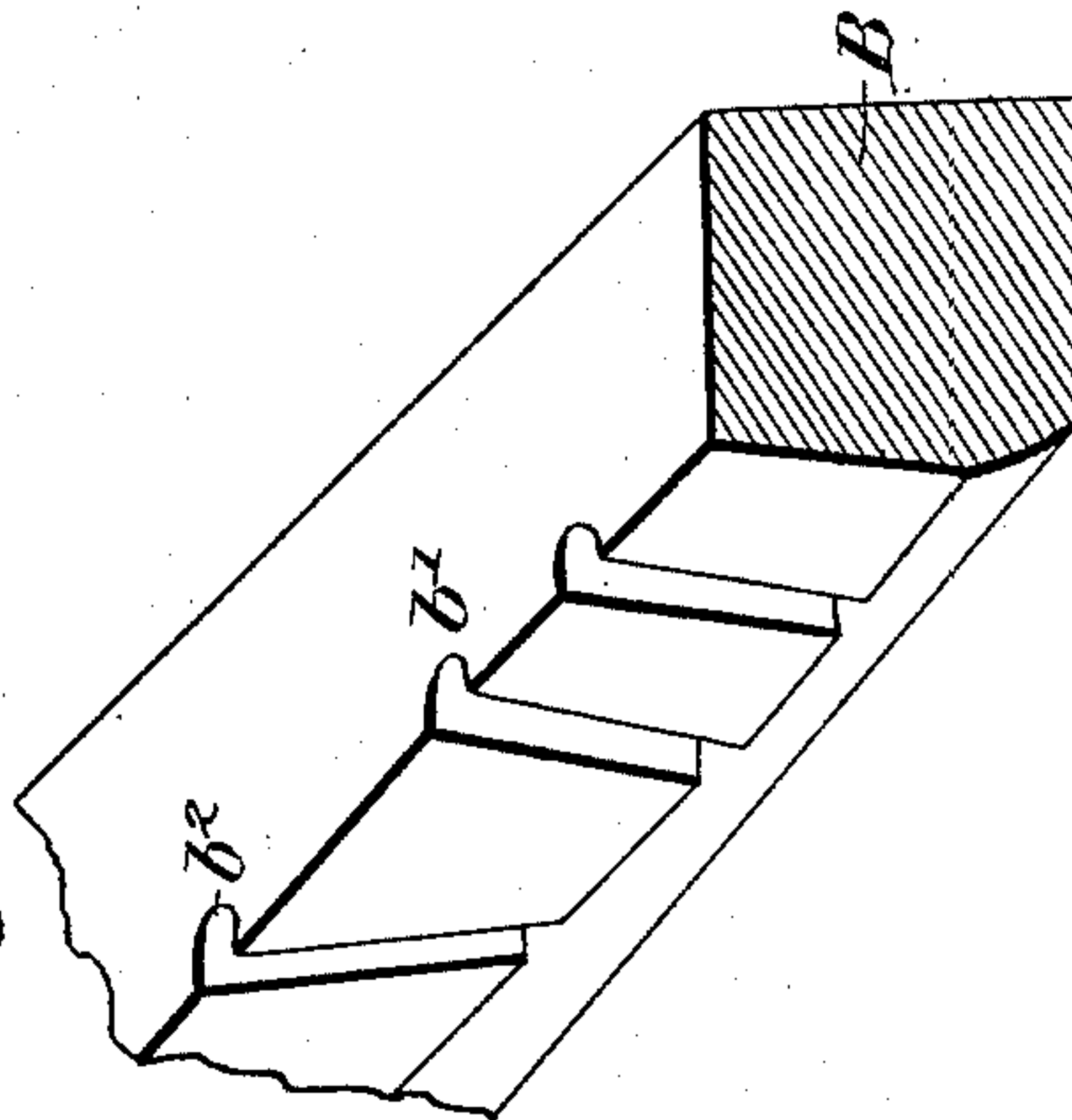


FIG. 1.

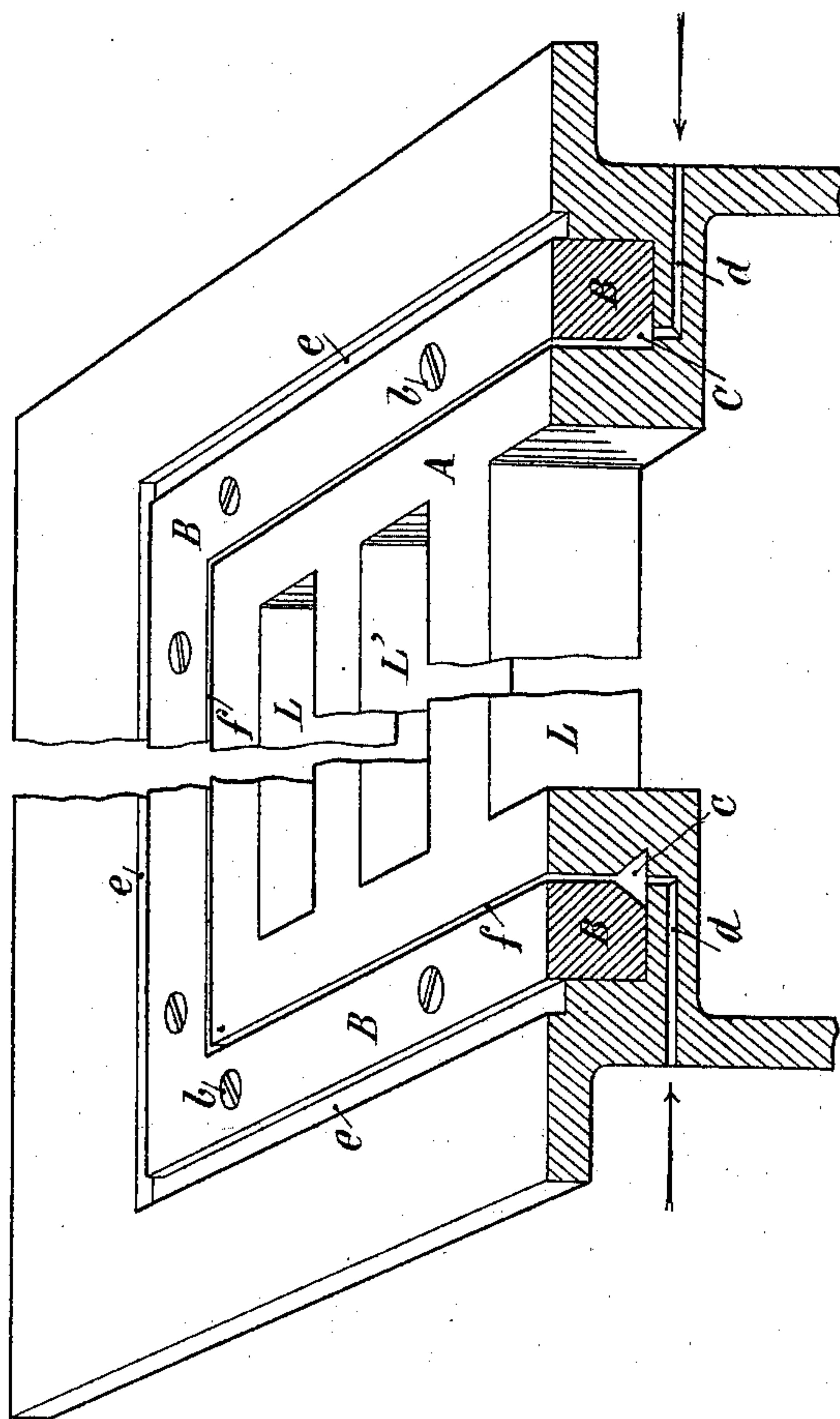
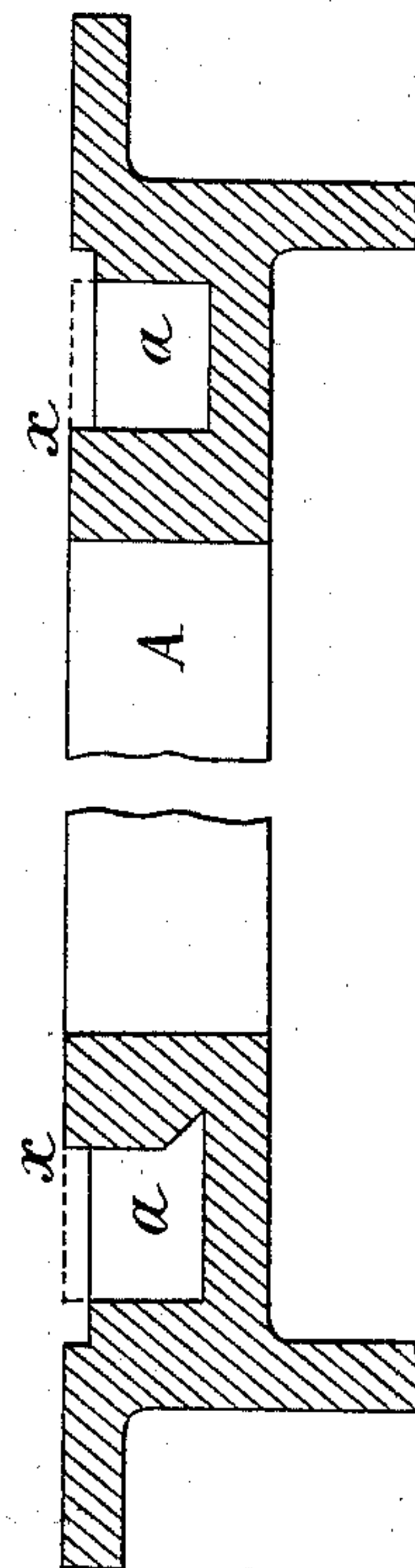


FIG. 2.



Witnesses
G. A. Clemons
W. R. Hemmell

Inventor
J. P. Serve
By his atty.
P. J. Nodde

UNITED STATES PATENT OFFICE.

JEAN PIERRE SERVE, OF LYONS, FRANCE.

LUBRICATING DEVICE FOR SLIDE-VALVES.

SPECIFICATION forming part of Letters Patent No. 610,000, dated August 30, 1898.

Application filed December 11, 1897. Serial No. 661,500. (No model.) Patented in France July 9, 1897, No. 268,573; in England July 14, 1897, No. 16,732; in Belgium December 9, 1897, No. 132,438; in Spain December 16, 1897, No. 21,915; in Russia December 18, 1897, No. 3,512; in Austria December 27, 1897, No. 48,627; in Hungary December 30, 1897, No. 11,436, and in Italy January 3, 1898, XXXIV, 46/814, and XCII, 152.

To all whom it may concern:

Be it known that I, JEAN PIERRE SERVE, engineer, a citizen of the Republic of France, residing at Lyons, in the Republic of France, have invented certain new and useful Improvements in Lubricating Devices for Slide-Valves of Steam-Engines, (patented in France July 9, 1897, No. 268,573; in Belgium December 9, 1897, No. 132,438; in England July 14, 1897, No. 16,732; in Austria December 27, 1897, No. 48,627; in Italy January 3, 1898, XXXIV, 46/814, XCII, 152; in Spain December 16, 1897, No. 21,915; in Russia December 18, 1897, No. 3,512, and in Hungary December 30, 1897, No. 11,436,) of which the following is a specification.

This invention relates to the lubrication of slide-valves for distributing the motive fluid in steam-engines and the like.

It has for its object to furnish a means of preventing the inserted oil from being rapidly carried away by the current of steam and for forcing it to penetrate between the friction-surfaces of the slide-valve with a view to insuring an effective lubrication of the said surfaces, and consequently reducing the motive power required for actuating the slide-valve and diminishing the wear of the parts in contact.

The invention consists, essentially, in causing the lubricating-oil to arrive continually in passages or channels suitably arranged in the periphery of the valve or seat and communicating between the friction-surfaces by means of holes or narrow slots and also in the means employed for practically arranging these passages or channels, which will be hereinafter described in detail with reference to the accompanying drawings, in which—

Figure 1 is a view in perspective with parts in section of the slide-valve seat improved with a view to the lubrication. Fig. 1^{bis} is a modified form of frame provided with inclined notches. Fig. 2 is a vertical section of the said valve-seat; Fig. 3, a section of a portion of the seat of a vertical slide-valve, showing a special arrangement for insuring the distribution of the oil on the various sides of the slide-valve.

It will be seen from Figs. 1 and 2 that the seat A of the slide-valve is provided with a groove *a* of rectangular section, in which a metallic frame B fits with precision and the upper face of which exactly reaches the level *x x* of the seat A, smoothed on its upper surface to form the slide-surface for the valve. This frame B is beveled off at its lower part, as shown in Fig. 1, so as to form with the wall of the groove *a* a triangular passage C all around the seat, in which passage the lubricating-oil arrives by a little passage *d*, fed by means of a lubricator suitably arranged for this object. Finally, the frame B is fixed by means of screws *b* in such a way as to form a joint at the bottom of the groove *a*, a slight clearance being allowed between the lateral face and the corresponding side of the said groove in order to enable the oil arriving by the passage C to pass through the narrow slot *f* thus formed and to be spread over the surface of the seat in order to insure perfect lubrication. The oil employed is then drawn by the current of steam into the admission-port L and is thus utilized for lubricating the cylinder before being discharged by the discharge-port L'.

It is evident that the frame B instead of being formed of a single piece may be formed by means of metallic strips adjusted and arranged in the groove *a* and that the slot *f* may be replaced by very narrow holes formed in the frame or in the strips which cover the groove. Similarly also the section of the groove *a* instead of being rectangular may assume different forms. I have indicated on the left-hand part of Figs. 1 and 2 that the internal vertical side of this groove may be beveled off obliquely toward the bottom, which has the effect of increasing the section of the channel C giving passage to the lubricating-oil.

When the valve is placed in an inclined or vertical position, it may be useful to employ certain means intended to insure the equal distribution of the oil which would tend to accumulate in excess at the lowest part of the slide-valve. In this case I arrange in the oil-circulation passages C metallic fillings *h*, Fig.

3, having the same form as these passages, the faces of which fillings are provided with sufficiently deep longitudinal grooves. In this manner these passages are divided into
 5 several separate channels or passages, which may be easily caused to communicate, respectively, with each of the slots f , arranged in the manner hereinbefore described. The same result might also be obtained, though in
 10 a less perfect manner, by inserting in the passages C groups of metallic threads or the like, which divide them equally into several narrow passages capable of retaining the oil and preventing it falling into the lower part of the
 15 passages C; otherwise it is sufficient generally to cause the supply-passage for oil to open into the passage C, situated at the highest edge of the seat A, and to reduce the width of the slots f sufficiently in order that they may
 20 afford a very small passage to the oil, and that consequently the distributing-passages C remain always filled with oil coming from the lubricator. Finally, the distribution of the oil may be further facilitated by forming
 25 on the sides of the frame B more or less deep and inclined notches, such as b' and b^2 , according to the position occupied by the slide-valve, as illustrated in Fig. 1^{bis}.

I declare that what I claim is—

30 1. In combination with the seat or slide-plate of a distributing-valve, an internal lubricating-channel formed by a groove in the

periphery of the seat and partially closed by a frame fitted in the said groove, said frame forming a part of the slide-surface of the lu- 35
 bricating slide-valve, substantially as hereinbefore described.

2. In combination with the seat or slide-plate of a distributing-valve, an internal lubricating channel or passage formed by a 40
 groove made in the periphery of the seat and partially closed by a frame forming a part of the slide-surface of the valve, the said channel communicating with the slide-surface
 45 of the valve by means of a narrow peripheral slot or passage formed between one side of the frame and the corresponding side of the groove, substantially as hereinbefore described.

3. In combination with a distributing slide- 50
 valve having an internal lubricating-passage formed by a peripheral groove partially closed by a frame and communicating with the slide-surface of the valve, of strips provided with
 55 longitudinal grooves arranged in said passage substantially as hereinbefore described.

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

JEAN PIERRE SERVE.

Witnesses:

FELIX ERNEST WAGNER,
 JACQUES CONDOMY.