

No. 663,705.

J. W. STEPHENSON.
AXLE BOX LID.

Patented Dec. 11, 1900.

(Model.)

(Application filed Feb. 19, 1900.)

2 Sheets—Sheet 1.

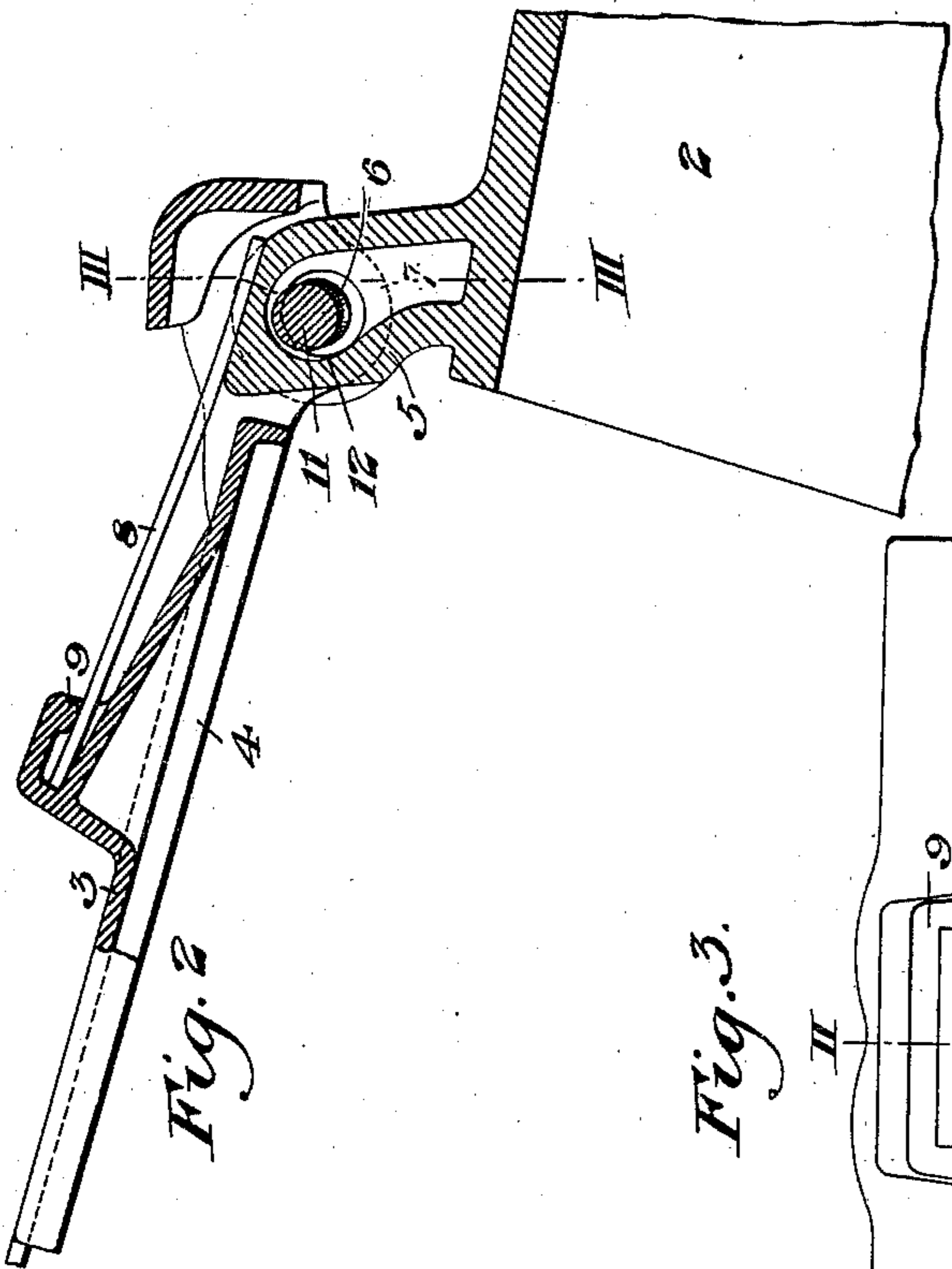


Fig. 1.

Fig. 4.

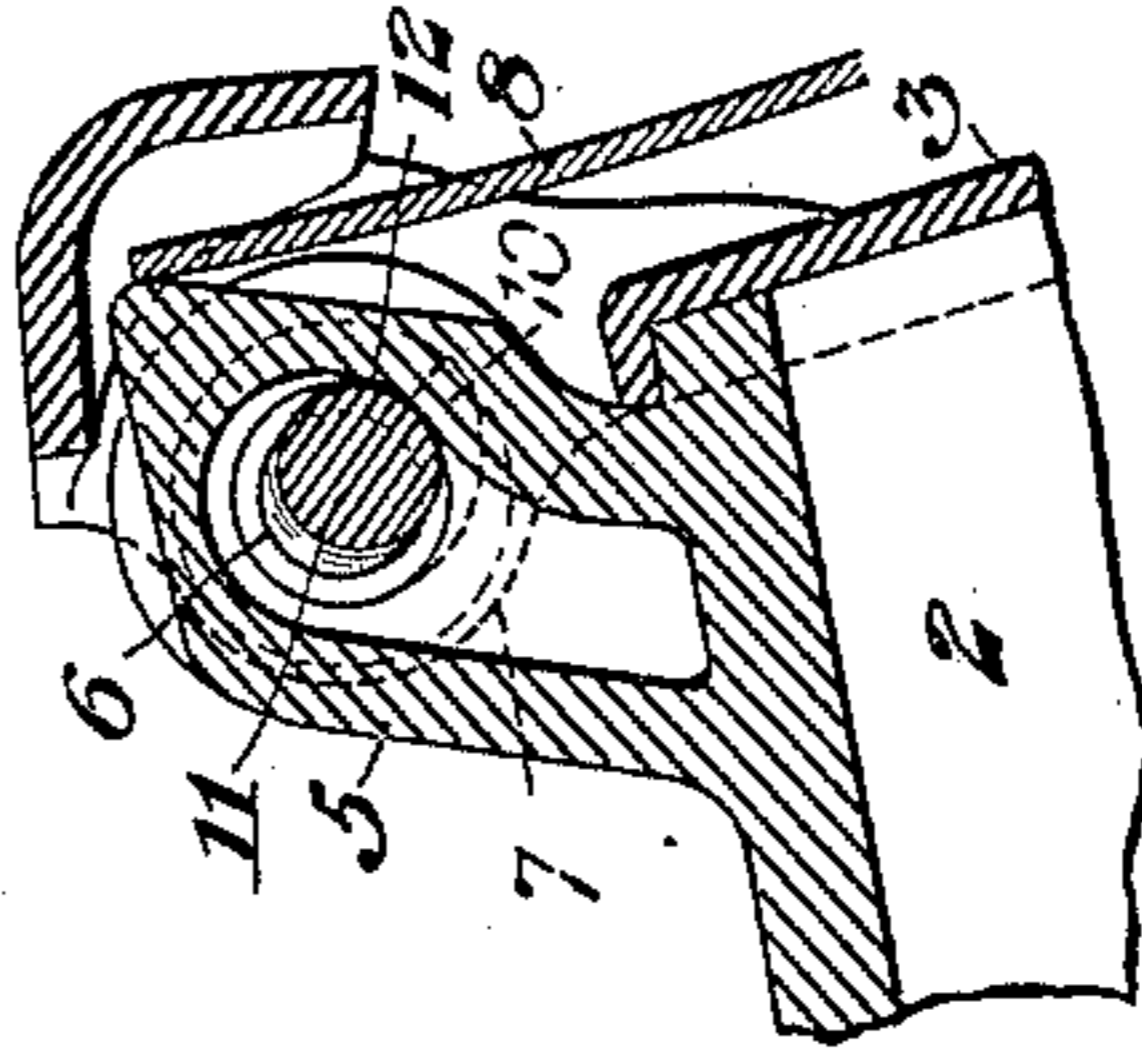
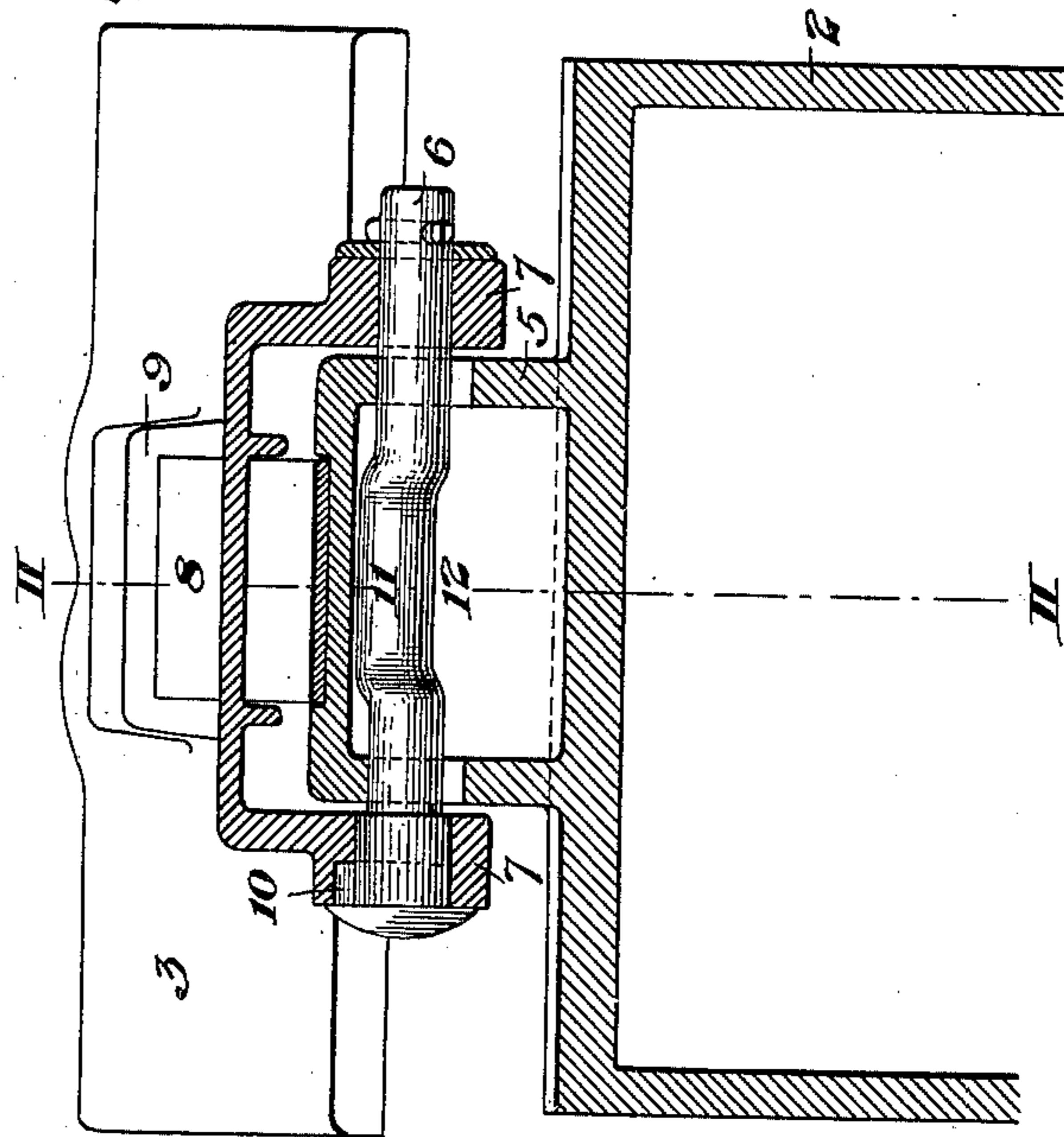


Fig. 3.



WITNESSES

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2 Sheets—Sheet 2.

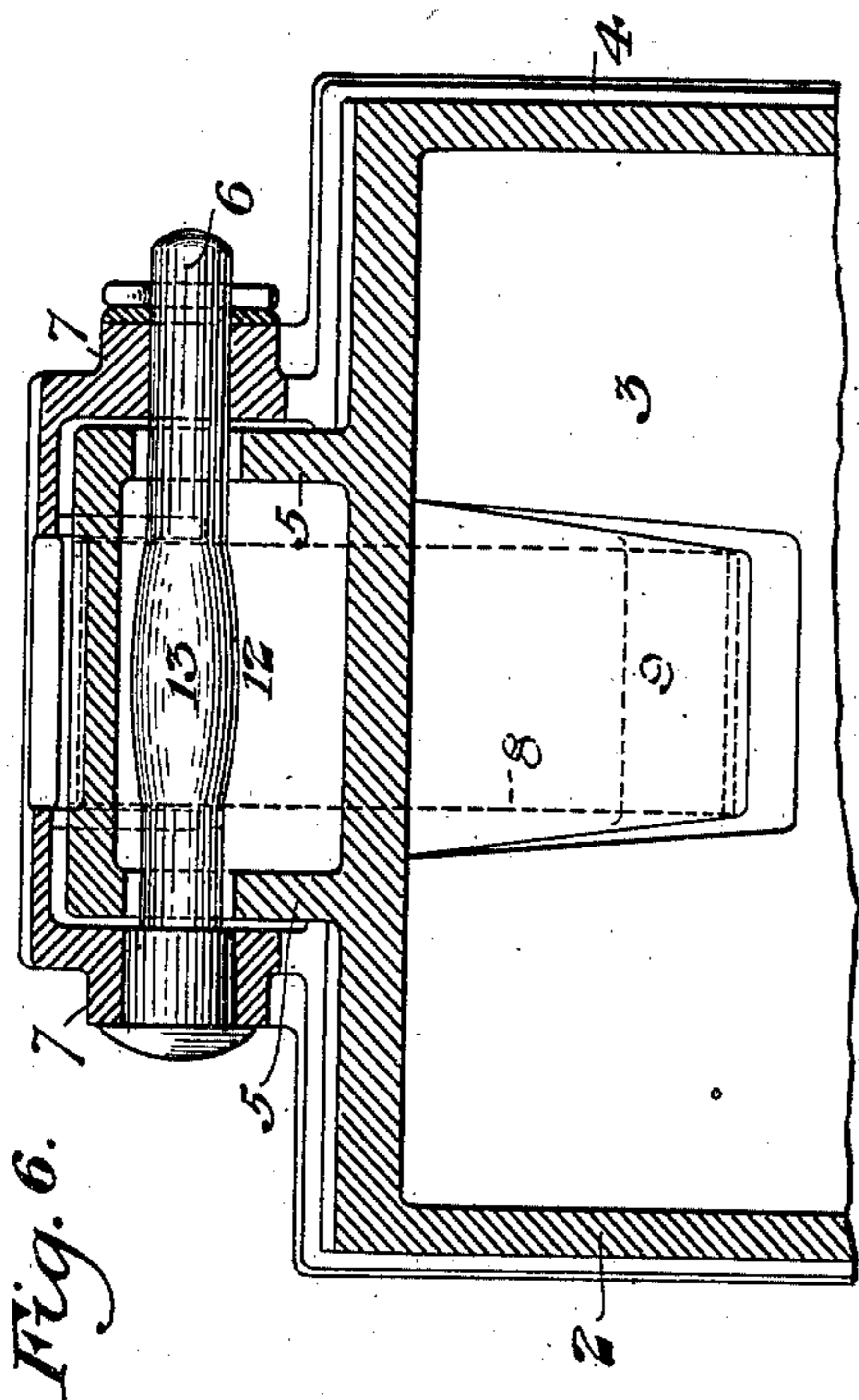


Fig. 6.

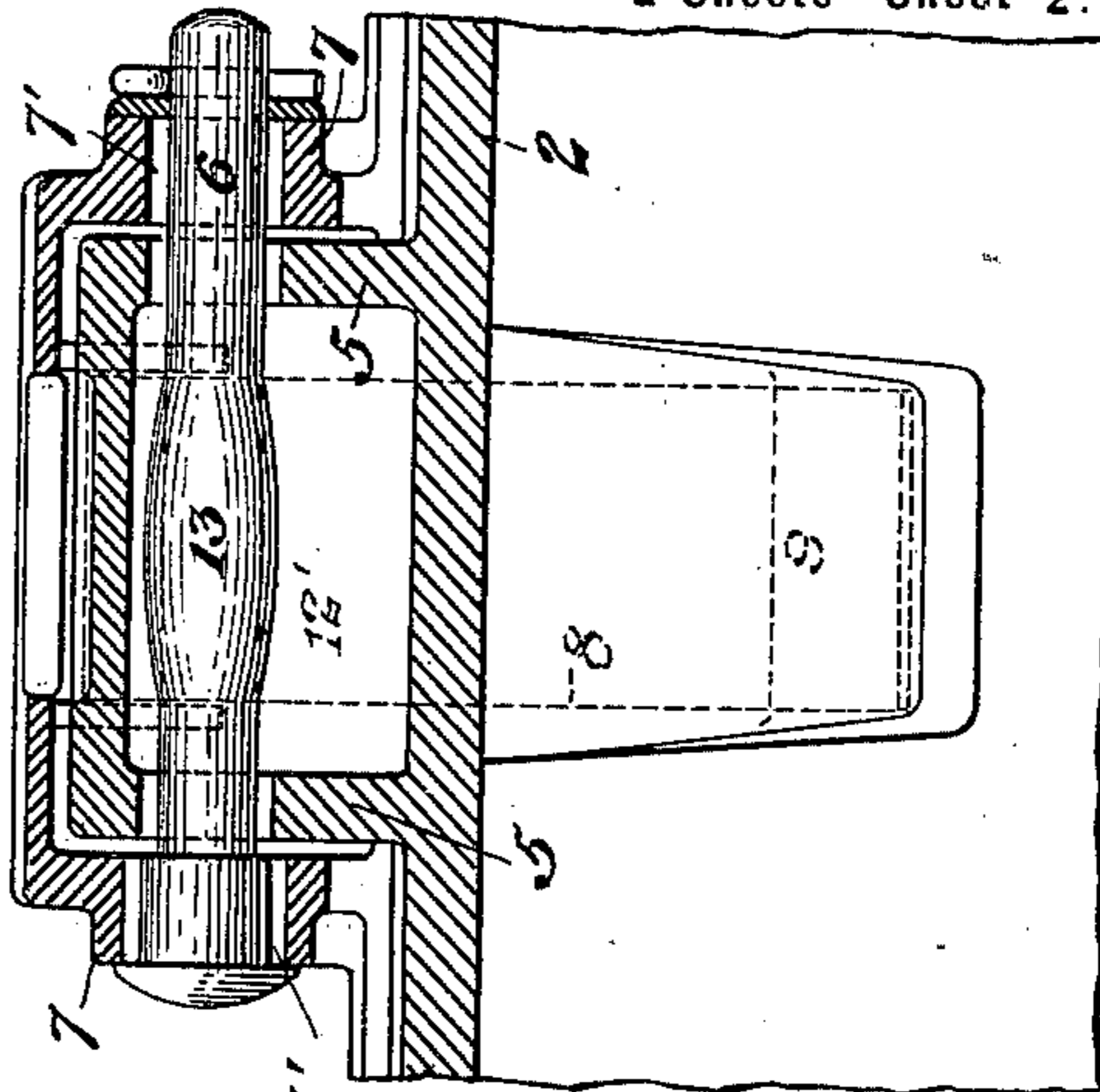


Fig. 8.

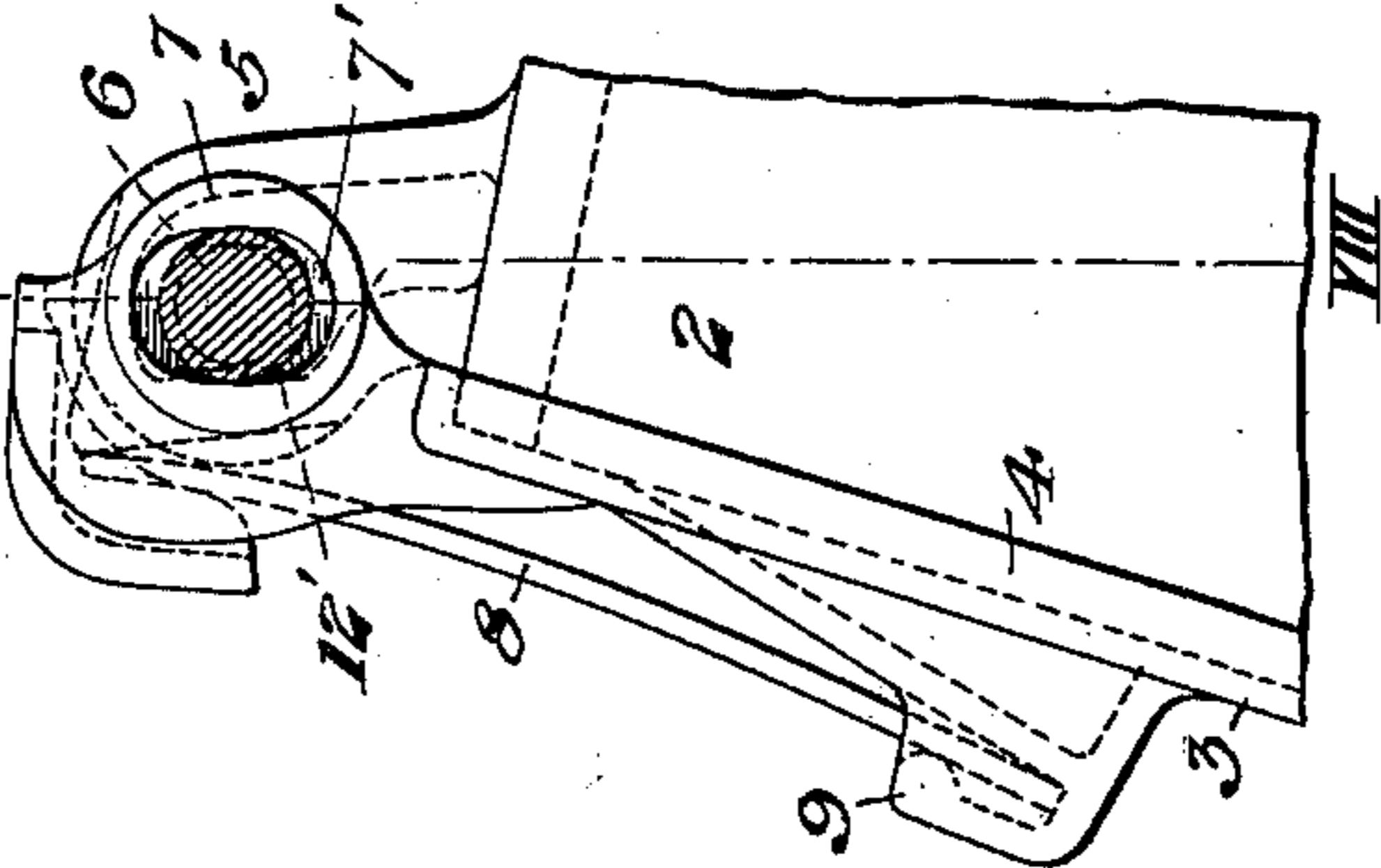


Fig. 7.

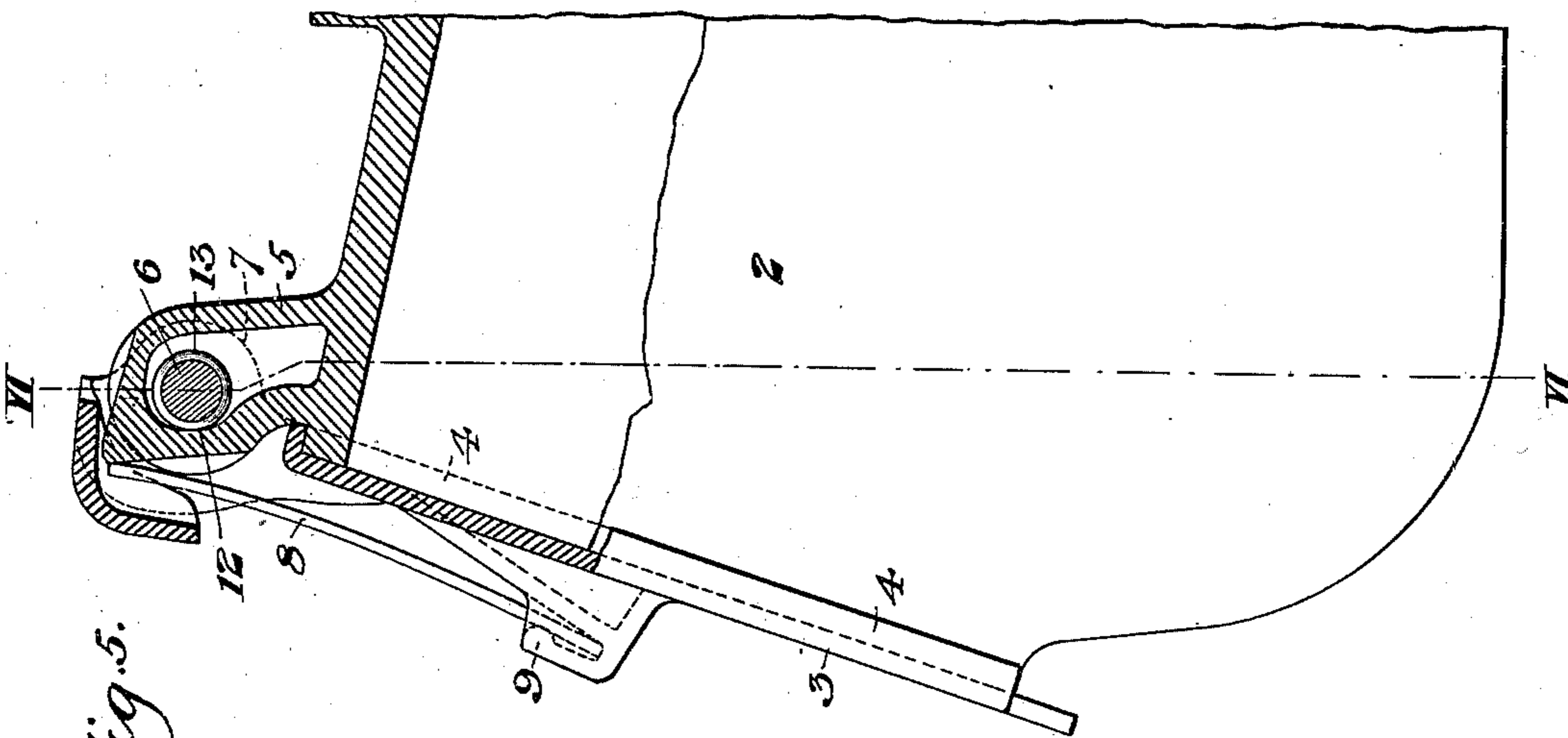


Fig. 5.

WITNESSES

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UNITED STATES PATENT OFFICE.

JOHN W. STEPHENSON, OF TOLEDO, OHIO, ASSIGNOR TO THE NATIONAL MALLEABLE CASTINGS COMPANY, OF CLEVELAND, OHIO.

AXLE-BOX LID.

SPECIFICATION forming part of Letters Patent No. 663,705, dated December 11, 1900.

Application filed February 19, 1900. Serial No. 5,696. (Model.)

To all whom it may concern:

Be it known that I, JOHN W. STEPHENSON, residing at 520 Euclid avenue, Toledo, in the county of Lucas and State of Ohio, have invented a new and useful Improvement in Axle-Box Lids, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 shows in side elevation a car-axle box having a lid constructed in accordance with my invention, the pivot-pin being shown in section. Fig. 2 is a sectional view showing the lid open, the section being taken on the line II II of Fig. 3. Fig. 3 is a vertical section on the line III III of Fig. 2. Fig. 4 is a vertical section on the same plane as that of Fig. 2, showing the lid closed. Fig. 5, Sheet 2, is a side elevation, partly in vertical section, of a box having a lid of modified construction. Fig. 6 is a vertical section on the line VI VI of Fig. 5. Fig. 7 is a side elevation of a third form of my invention, showing the pivot-pin in section. Fig. 8 is a vertical section on the line VIII VIII of Fig. 7.

In a prior patent, No. 644,035, dated February 20, 1900, I show and describe a car-axle box having a spring-actuated lid adapted to swing to and from the face of the box, the lid being pivoted on an axis which is oscillatory in a direction transverse to the plane of the face of the box, so that it may adjust itself to its seat on the box even if the axis of the lug should be out of parallel with the face of the box. My present invention is an improvement upon that construction and is designed not only to provide for the adjustment above mentioned, but also to make self-adjustment of the lid to its seat possible in cases where the axis of the lug is displaced, so as to lie forward or back of the proper location relatively to the face of the box, for such displacement produces uneven fitting of the lid and has required hitherto bending of the pin, even where the axis of the lug is parallel with the box-face. I provide for these adjustments by pivoting the lid so that the pivot-pin may rock or oscillate in its bearing and also so that the hinge portion of the lid may have a movement toward the face of the box at the time

of closing. This I effect either by forming the pivot-pin with an extended bearing on which it may move transversely or by forming slots in the lid, enabling it to move transversely on the pivot-pin, or by forming the pin in the manner of a crank or cam, which will cause the desired motion. My invention consists in this and also in a construction by which a tighter closing of the lid to its seat on the box than hitherto is secured.

In Figs. 1 to 4, 2 is the car-axle box. 3 is the lid, which may have a flange 4 at its margin. 5 is the pivot-lug at the top of the box, and 6 is the pivot-pin, which passes through the lug and through ears 7, formed on the lid. 8 is the spring, fitting at one end in a socket 9 on the lid and at the other end bearing on the lug 5. The pivot-pin 6, although fitting neatly in the ears 7 and held from rotation in one of said ears by a key or projection 10, fitting a slot therein, fits loosely in the holes in the lug 5, through which it passes, and has a crank or eccentric shaped bearing portion 11 at its middle, which when the lid approaches its seat bears with a rocking or oscillatory bearing against the front side 12 of the cavity in the lug, so that the pivot may have the rocking motion transversely to the plane of the face of the box which I describe and claim in my said patent; but unlike the construction shown in said patent my present device has also an adjustment such as that above described. For this purpose the pin 6 is not confined in a seat in the lug-cavity, but has an extended bearing against the front side 12 thereof. Said bearing is extended in a direction transverse to the length of the pivot-pin. If the axis of the lug should be forward or back of its proper position, as above stated, the pivot-pin will have an eccentric rolling motion on the bearing-surface 12 and acting with the spring 8 will cause the adjustment of the lid to its seat on the box. When the lid is open, as shown in Figs. 2 and 3, the pin is free at its center or cam surface and bears against the lug only at the outer ends of the latter; but when the lid is closed the pin is rotated with the lid and the eccentric portion 11 comes into contact with the bearing-surface 12 and

acting thereon draws the lid positively to the face of the box, making a very tight and dust-proof joint.

In the construction shown in Figs. 5 and 6 the pivot-pin 6' is not formed with an eccentric portion 11, as in the figures above described, but has an enlarged portion or boss 13 extending around it, so as to give it a rocking bearing on the surface 12. The bearing-surface 12, however, is extended in like manner; as shown in Figs. 2 and 4, so that if the axis of the lug should be forward or back of its proper position, as above explained, the pivot-pin under the tension of the spring may adjust itself laterally on said bearing in an oblique, preferably nearly vertical, plane and will enable the lid to come snugly to its seat on the box.

In Figs. 5 and 6 the pivot-pin fits neatly in the ears of the lid and loosely in the apertures of the lug 5, so that the pivot-pin itself may have a transverse adjustment in an oblique, preferably nearly vertical, plane and may carry the lid with it.

In Figs. 7 and 8 I show a modification of the device in which the pivot-pin bears against a concave seat 12' on the inner face of the lug 5, so that it is not capable of such lateral sliding adjustment, although it can rock transversely, as described in my said patent; but the holes 7' in the ears 7 of the lid are elongated, so as to constitute oblique, preferably nearly vertical, slots. These slots permit the transverse adjustment of the lid above described and afford the same result as is derived from the movable pivot-pin of Figs. 5 and 6.

In all the figures of the drawings it will be noticed that the lid has at its axis the adjustment transverse to the plane of the face of the box; but in Figs. 1 to 6 it moves in such adjustment with the pivot-pin, while in Figs.

7 and 8 the pivot-pin has no such movement, the entire adjustment being afforded by the lid itself.

My device may be applied to lids and boxes of various styles, and in the forms of my invention shown in the drawings my device can be removed from the box to which it has been applied and can be replaced at any time with lids having pivot-pins of ordinary construction.

I claim--

1. The combination with a journal-box lid, of a pivot-pin having an eccentric bearing portion said pivot-pin being connected with the lid and adapted to turn therewith; substantially as described.

2. The combination with a journal-box lid, of a pivot-pin having an eccentric bearing portion said pivot-pin being connected with the lid and adapted to turn therewith, and a box-lug having an extended bearing-surface with which such eccentric bearing portion may engage; substantially as described.

3. A journal-box having a swinging lid, said lid, in addition to its swinging motion, being movable at its axis toward the plane of the face of the box, and means adapted to permit such movement when the lid is being closed; substantially as described.

4. A journal-box having a swinging lid, a spring, and a pivot-pin, said pivot-pin being oscillatory in a direction transverse to the plane of the face of the box, and having a bearing extending laterally in an oblique direction relatively to the plane of the face of the box; substantially as described.

In testimony whereof I have hereunto set my hand.

JOHN W. STEPHENSON.

Witnesses:

J. W. LYONS,

W. J. REINHART.