

(No Model.)

2 Sheets—Sheet 1.

H. F. ASCHECK.
LOCK JOINT.

No. 555,201.

Patented Feb. 25, 1896.

Fig. 1.

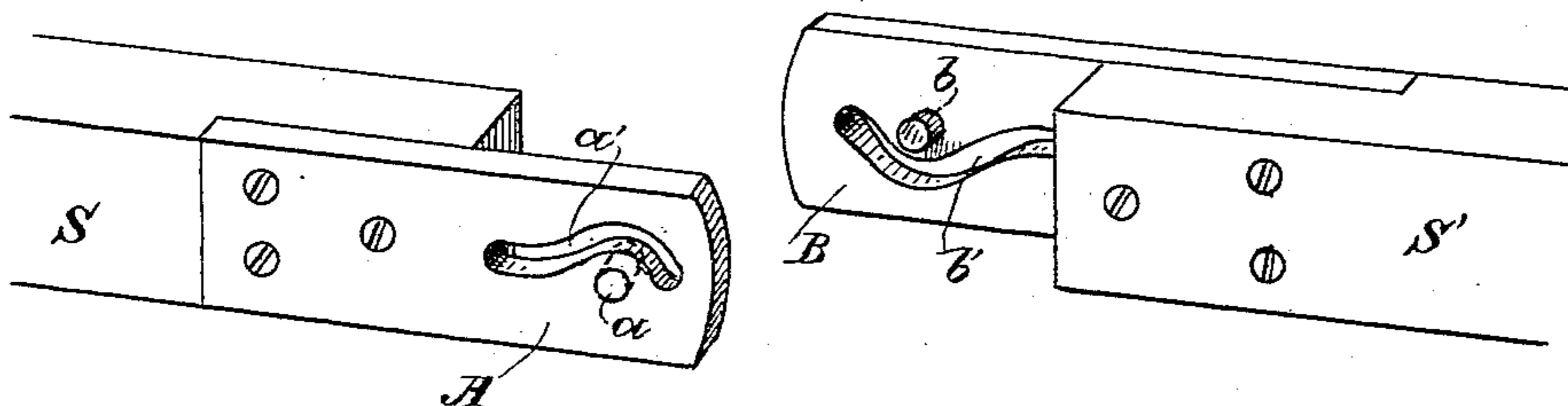


Fig. 2.

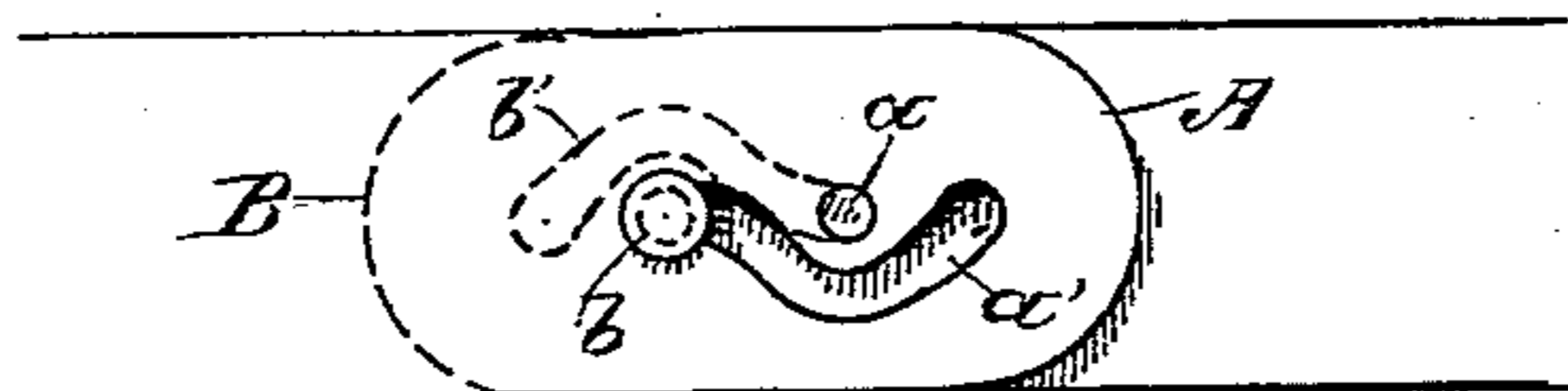


Fig. 3.

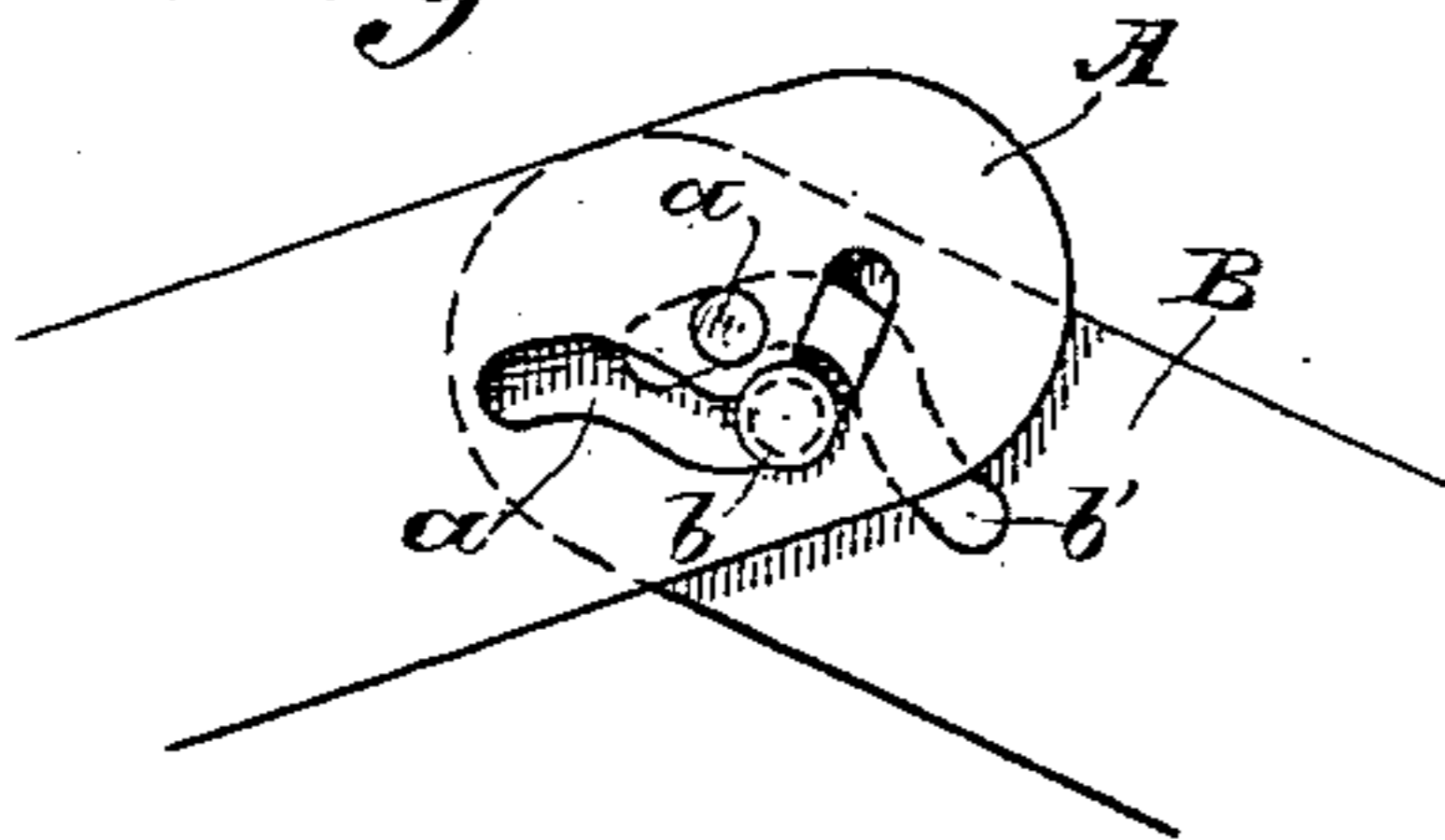


Fig. 4.

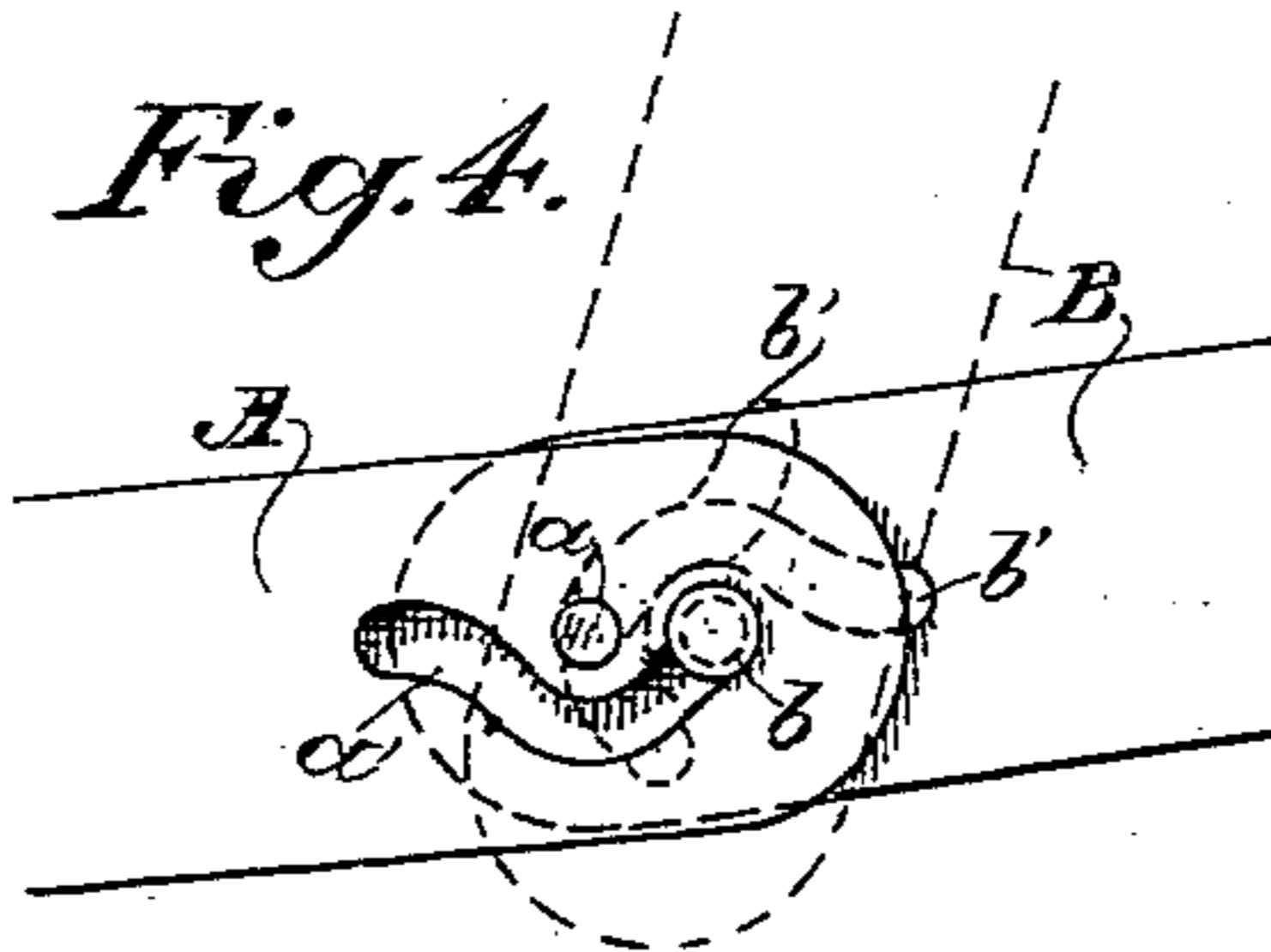
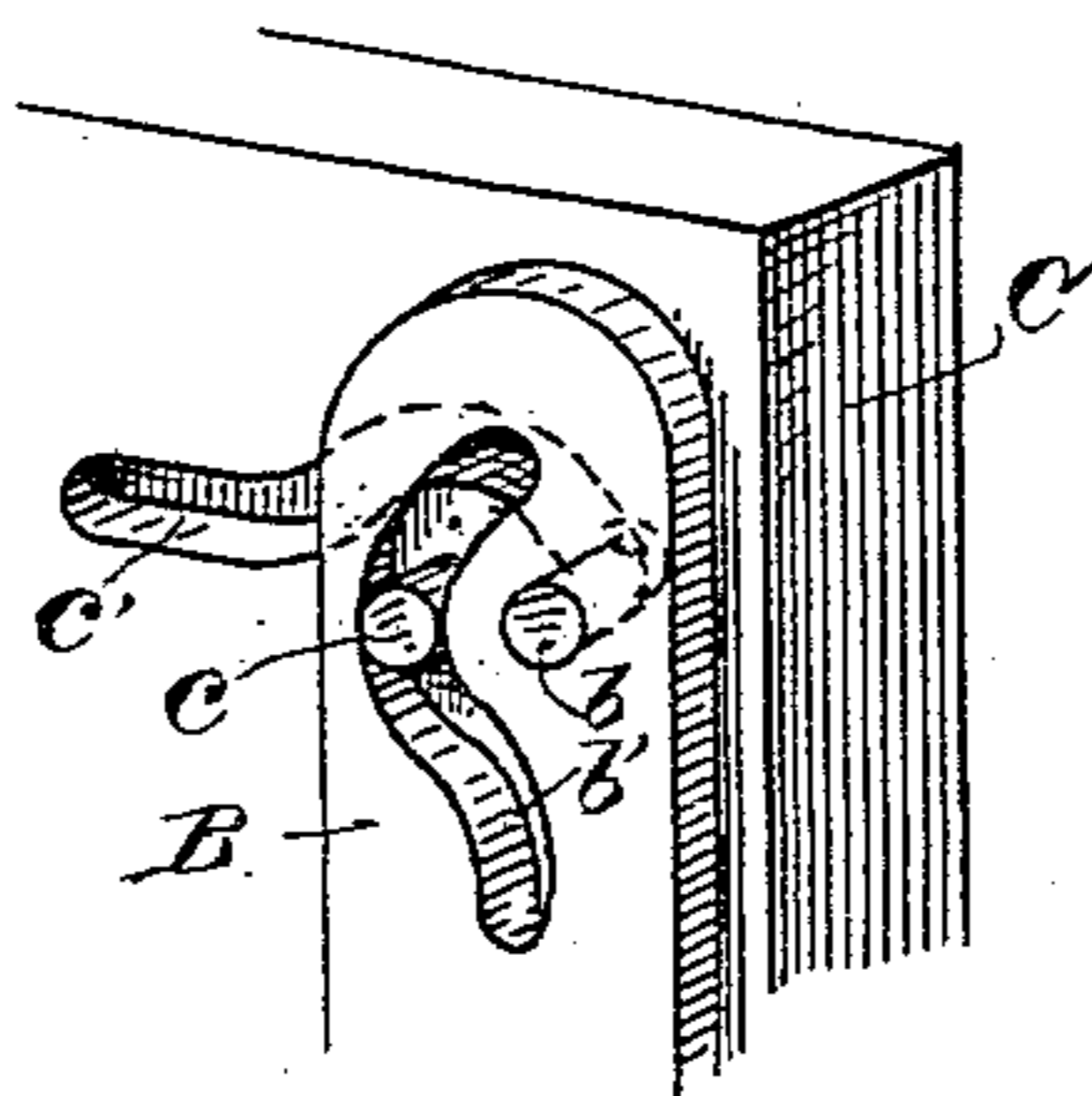


Fig. 5.



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Fig. 6.

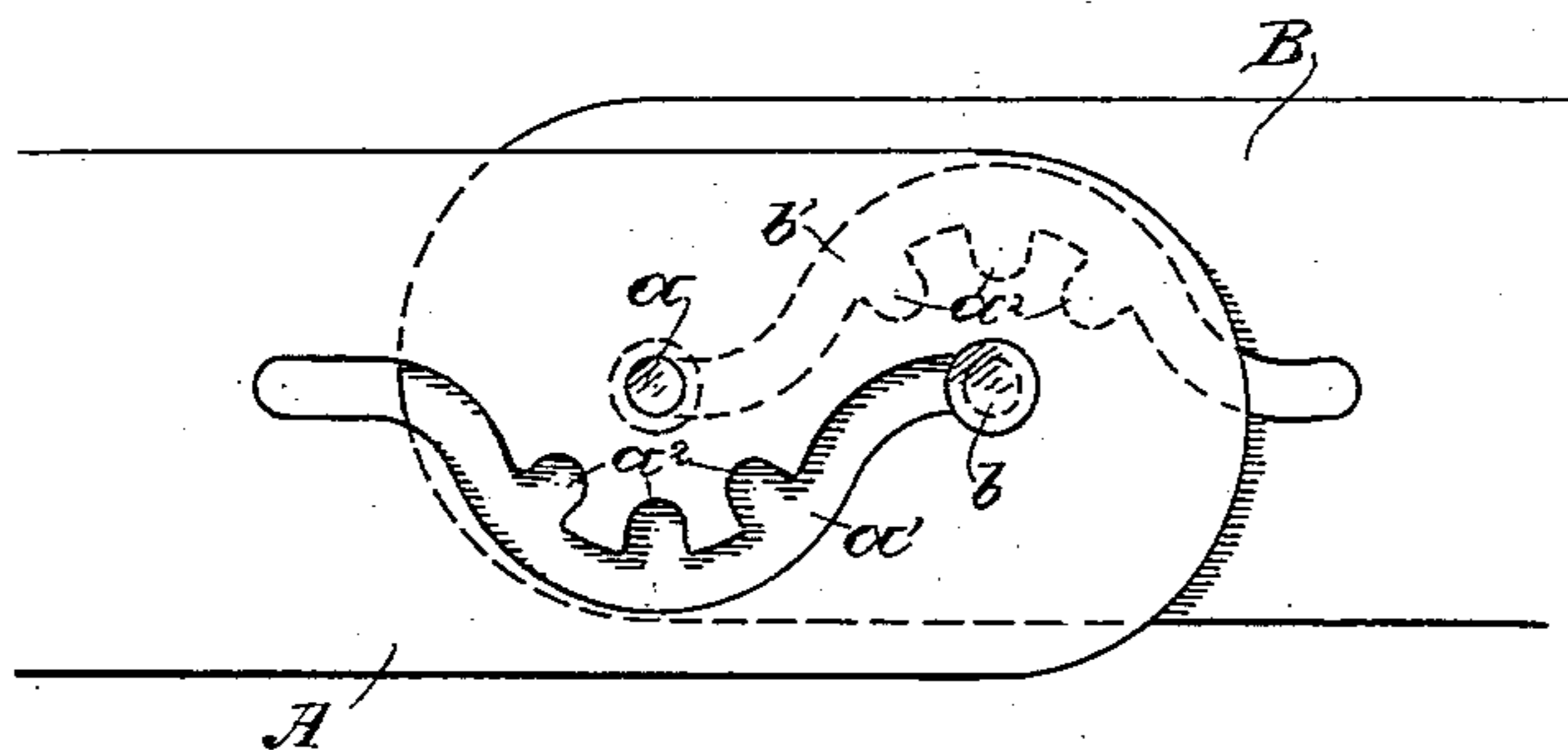


Fig. 8.

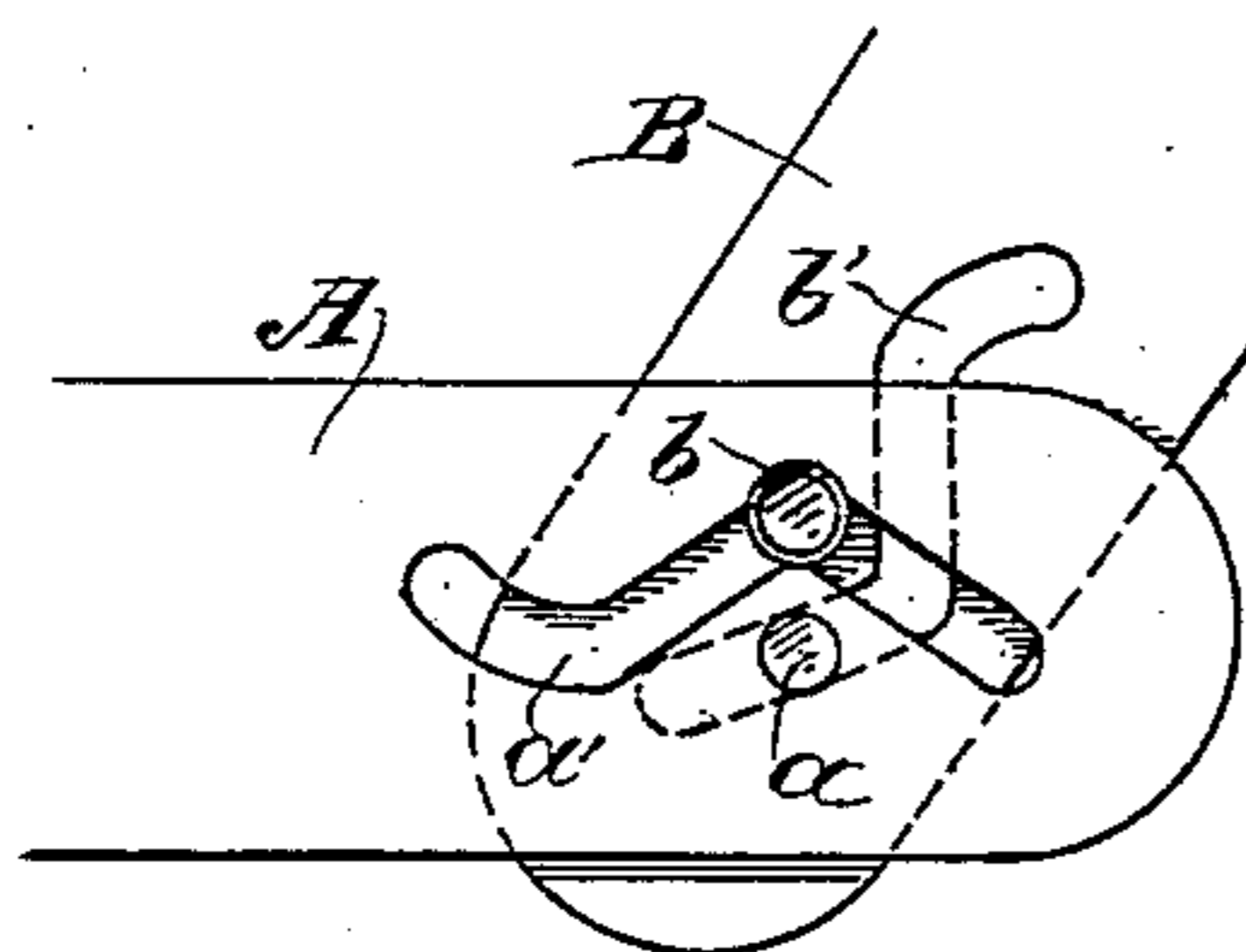
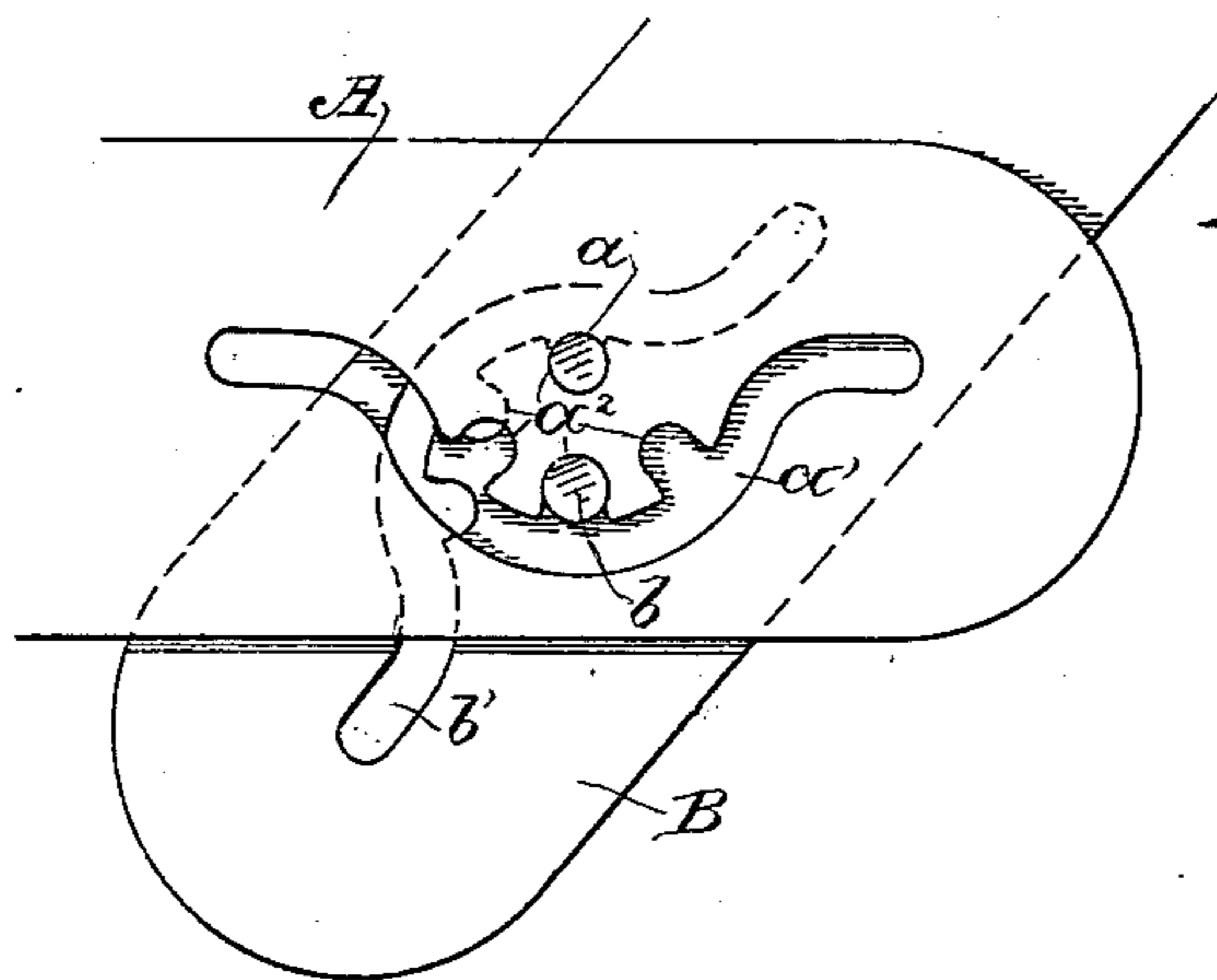


Fig. 7.



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UNITED STATES PATENT OFFICE.

HENRY F. ASCHECK, OF ALAMEDA, CALIFORNIA.

LOCK-JOINT.

SPECIFICATION forming part of Letters Patent No. 555,201, dated February 25, 1896.

Application filed June 10, 1895. Serial No. 552,325. (No model.)

To all whom it may concern:

Be it known that I, HENRY F. ASCHECK, a citizen of the United States, residing in Alameda, county of Alameda, State of California, have invented an Improvement in Lock-Joints; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to that class of joints, rigid or bendable, as required, and which may be properly termed "lock-joints."

My invention consists in a joint composed of a pin or stud in each of the parts to be joined, and a guide in each of said parts to receive and permit the travel of the pin or stud of the other part, said guides being corresponding but reversed and each having a portion in which the other's pin or stud may play about and move past its own pin or stud, whereby the joint is bendable, and a portion in which each pin or stud is locked and locks the other against a movement about each other, whereby the joint is rendered rigid.

The object of my invention is to provide a simple and effective joint or hinge, applicable in all cases and to all structures in which a part or member has at one time to be turned or moved with relation to another, and at another time to be held rigid or locked with respect to that other. For the sake of example merely and to suggest its utility in practical structures, I may mention in this connection ladders consisting of a plurality of sections connected by my joint, so that the sections when extended in line to lengthen the ladder for use will be held rigid, and when the joint is relieved said sections may be bent or folded into small compass, table-leaves requiring to be straightened out and held rigidly in a horizontal plane and again to be dropped to a vertical position, and the folding handles of parasols and umbrellas. These, as I have said, are but suggestions, and I do not wish to be understood as confining my invention to these devices, as it is intended for use in connection with any and all devices, mechanisms, and structures, in which, as heretofore stated, one part has to be moved with relation to another and also held rigid with respect thereto.

Referring to the accompanying drawings

for a more complete explanation of my invention, Figure 1 is a perspective view showing the two members or sections of my joint separated. Fig. 2 is a side elevation showing the joint complete and in a locked or rigid condition. Fig. 3 is an elevation showing the movement of the joint from a locked to a free or bendable condition. Fig. 4 is an elevation showing the joint in a free or bendable condition. Fig. 5 is a perspective view showing one member or section of the joint as part of the structure to which the joint is applied, and also as having the pin way or guide in the form of a groove instead of a slot. Fig. 6 is a view showing a locking position on both ends of the guides, and also showing stops or seats for the pins or studs at different points of the guides, whereby the joint may be locked at different angles. Fig. 7 is a view showing this locking at an angle. Fig. 8 is a view showing the turning portion of the guides in converging straight lines in distinction to curved lines.

In Fig. 1 A is a plate which may be secured to some part, such as S, of the structure to receive the joint. Projecting from this plate is a pin or stud *a*, and in said plate is formed a slot *a'* having a curved portion and a straight portion, as shown. B is another plate secured to a piece S'. This plate has a stud or pin *b* and a slot *b'* composed of a curved and a straight portion. When the two plates are fitted together the pin or stud *a* enters and travels in the slot *b'*, and the pin or stud *b* enters and travels in the slot *a'*, and said pins or studs may be headed therein or otherwise fitted with enlarged ends to prevent them from coming out. The slots in the two plates correspond in shape, but are reversed end for end and one is inverted with relation to the other. The straight portions of the slots need not be of any given length. They may be as short as the diameter of the pins or studs—that is, just long enough to receive said pins or studs and remove them from the curved passage-way. The slots themselves represent any passage, guide, way or track for the pins or studs. They need not be slots, for, as shown in Fig. 5, a groove may answer the purpose, and it is plain that other forms of guides, or ways, or tracks may

be used, provided they occupy the relative positions shown and are shaped to the same end.

By referring to Fig. 2 it will be seen that by pushing the two plates A and B together, so that their respective pins or studs will travel over into the straight portion of the other's slot or guide the plates will be connected at two separate points—namely, at the two studs—and neither can turn about the other, as neither can act as a pivotal center, for the reason that each is locked and locks the other against any movement in a curved line. The joint, as shown in Fig. 2, is, therefore, rigid.

To render the joint bendable, the two sections must be pulled out again until the pins or studs are removed from the straight portions of the slots, and, thereupon, either section may turn with relation to the other, either one of the studs or pins acting as a pivotal center, while the other stud or pins travels freely about it in the curved portion of the slotway or guide. This movement may take place at the entrance to the curved portions of the slots or guides, but in order to avoid lost motion and undue play, and to insure steadiness and accuracy, it is best to continue the travel of the two pins or studs by one other, as shown in Fig. 3, until they reach the limits of their respective slots, as shown in Fig. 4. In this last position the two sections of the joint may freely turn about each other, or either may turn about the other.

In Fig. 5 I have shown a part marked C, which may represent a portion of any structure, and in this I have shown the guide or way in the form of a groove c' and the stud or pin c projecting directly from said part.

In Fig. 6 I have shown that the locking portion of the guides or slots is not confined to one end, but may be on either or both ends, thus making it possible to lock the joint by pulling the parts apart and to render it bend-

able by pushing them together, or vice versa, as hereinbefore described, according to which end the locking portion may be. I have also shown in this figure and in Fig. 7 a means for rendering the joint rigid at any angle desired. This is effected by means of the corresponding notches a^2 made in each of the turning portions of the guides or slots, which by receiving the pins or studs will lock the parts at different angles.

In Fig. 8 I have shown that the turning portions of the guides or slots need not be described in curved lines, but may be on any lines, such as the converging straight ones here shown, which will enable the pins or studs to play about and to pass each other. I have also shown in this figure that it is not essential that the locking portions be in straight lines, as they may be curved or bent in any direction, so that they they correspond and lock the pins or studs against a turning movement about each other.

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

A lock-joint composed of a pin or stud in each of the parts to be joined, and a guide in each part, to receive and permit the travel of the pin or stud of the other part, said guides being corresponding but reversed, and each having a portion in which the other's pin or stud may play about and move past its own pin or stud, whereby the joint is bendable, and a portion in which each pin or stud is locked and locks the other against a movement about each other, whereby the joint is rendered rigid.

In witness whereof I have hereunto set my hand.

HENRY F. ASCHECK.

Witnesses:

S. H. NOURSE,
JESSIE C. BRODIE.