

H. G. VOIGHT.
DOOR CONTROLLING APPARATUS.
APPLICATION FILED NOV. 15, 1909.

951,295.

Patented Mar. 8, 1910.

2 SHEETS—SHEET 1.

Fig. 1.

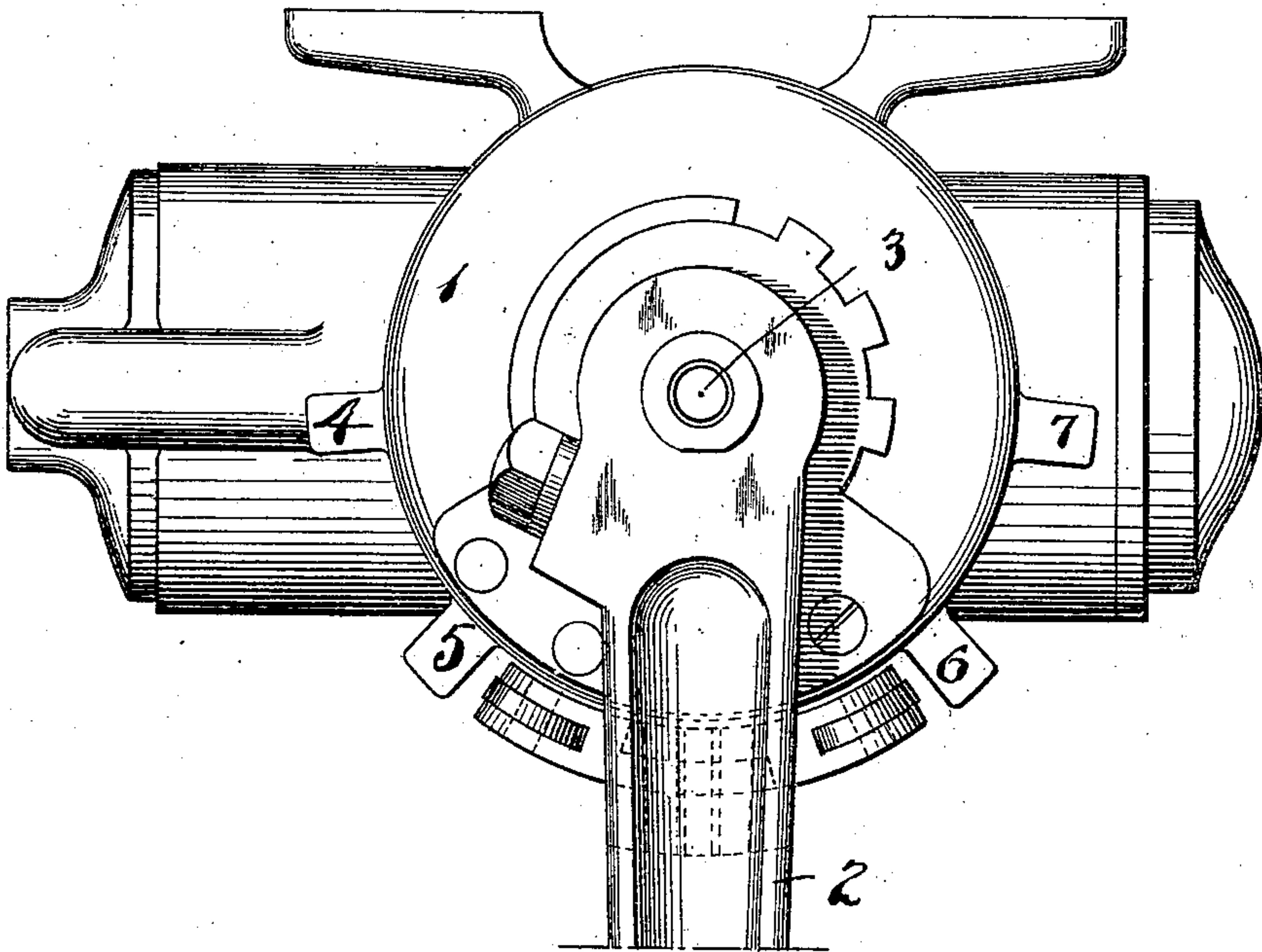
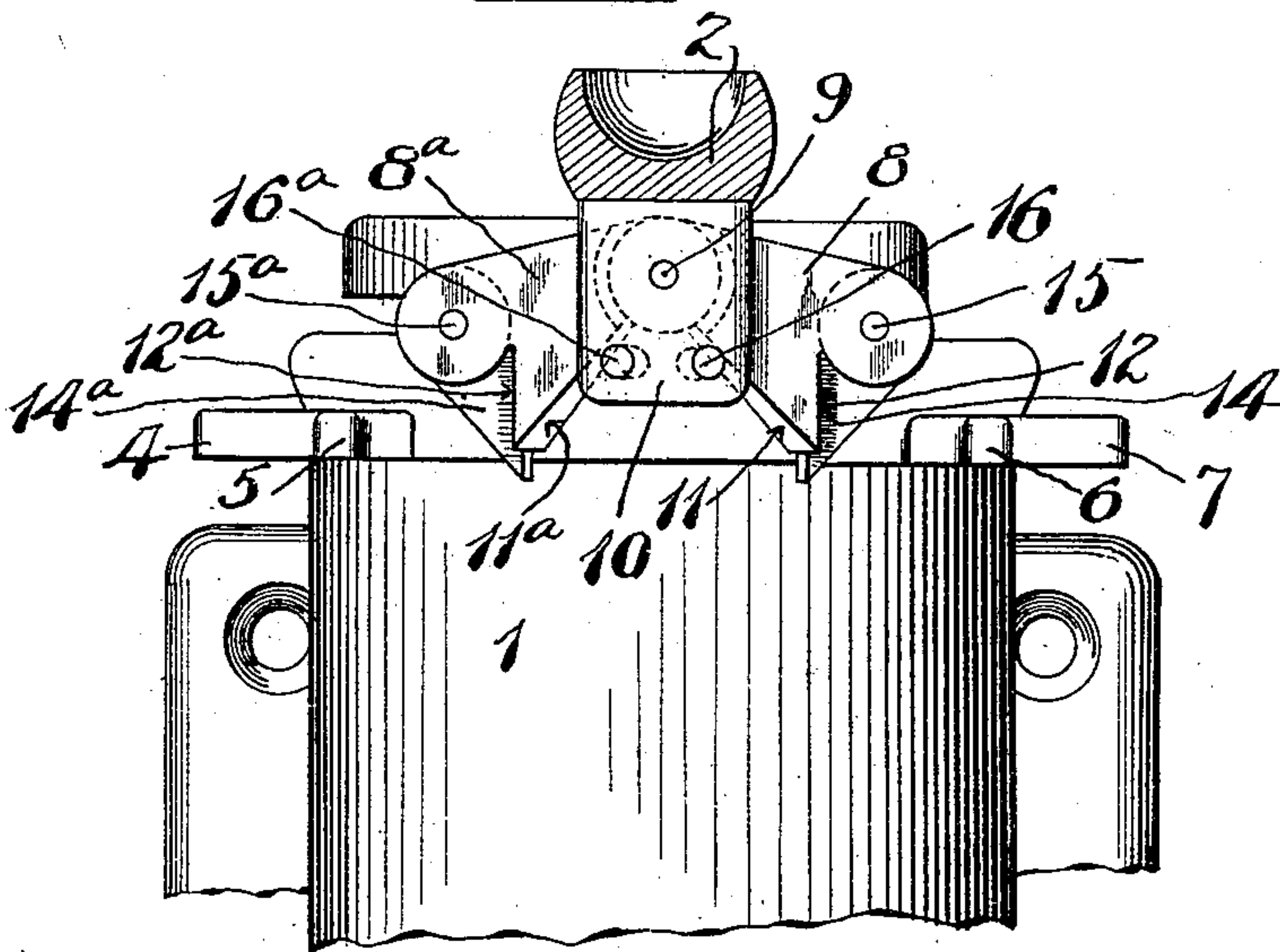


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

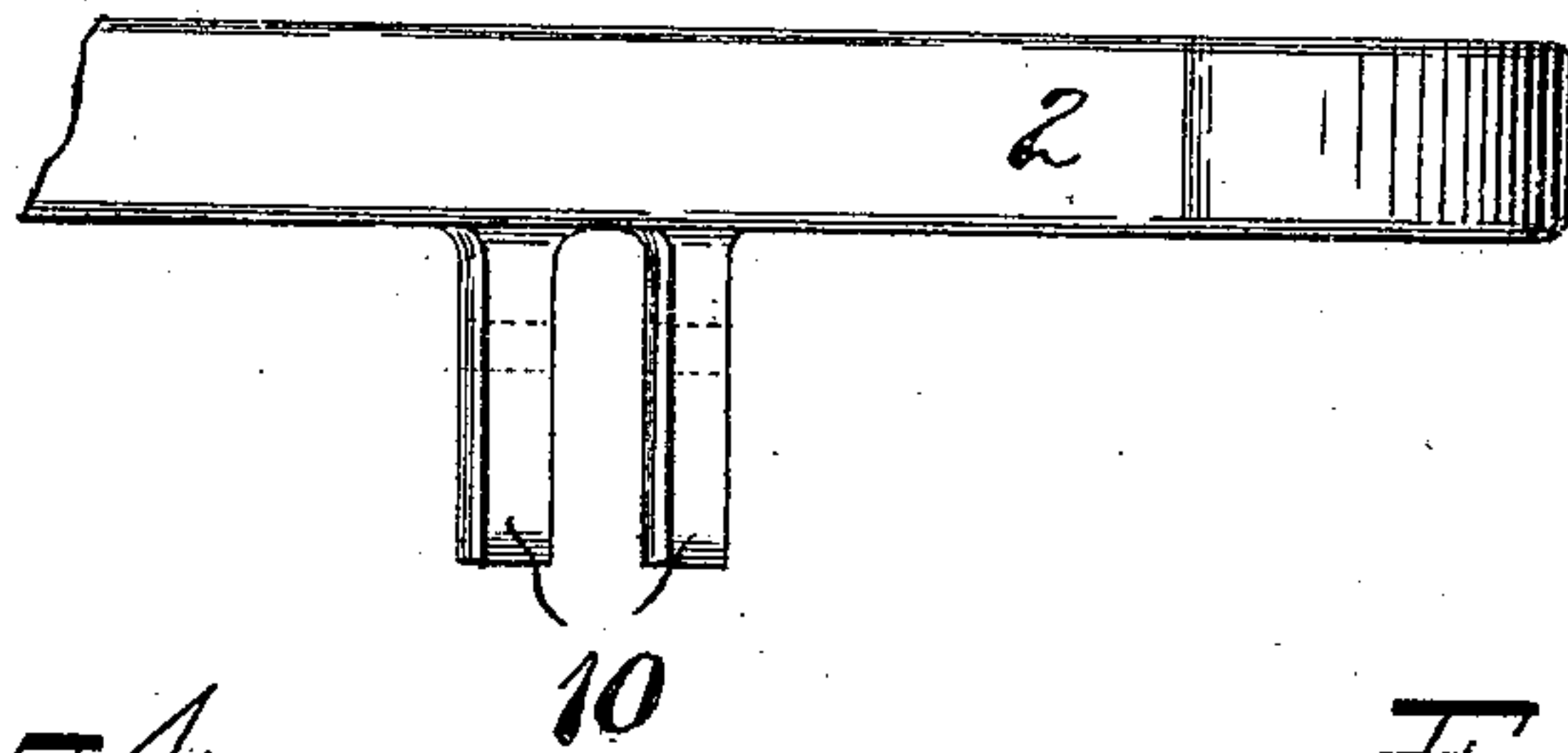


Fig. 4.

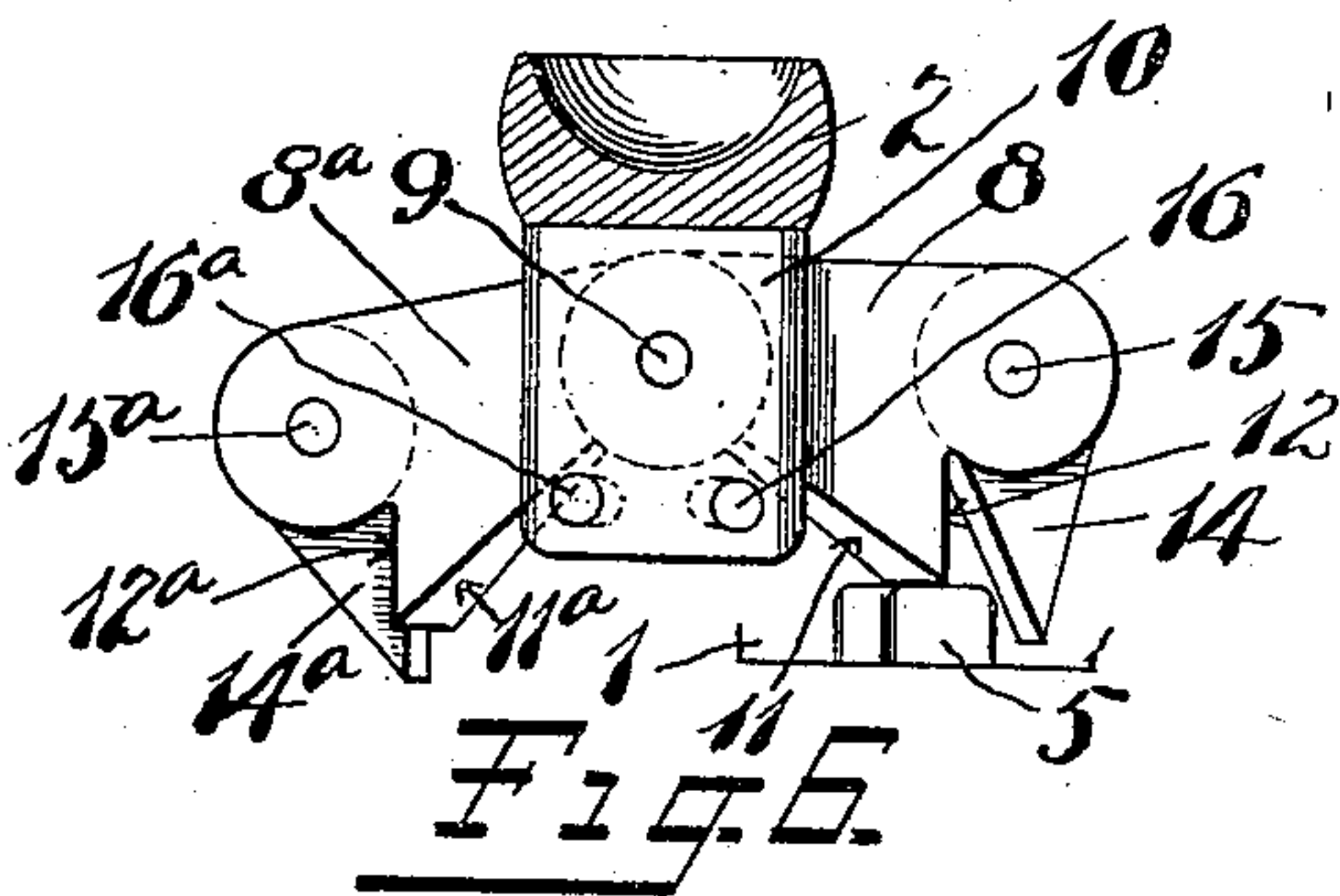


Fig. 5.

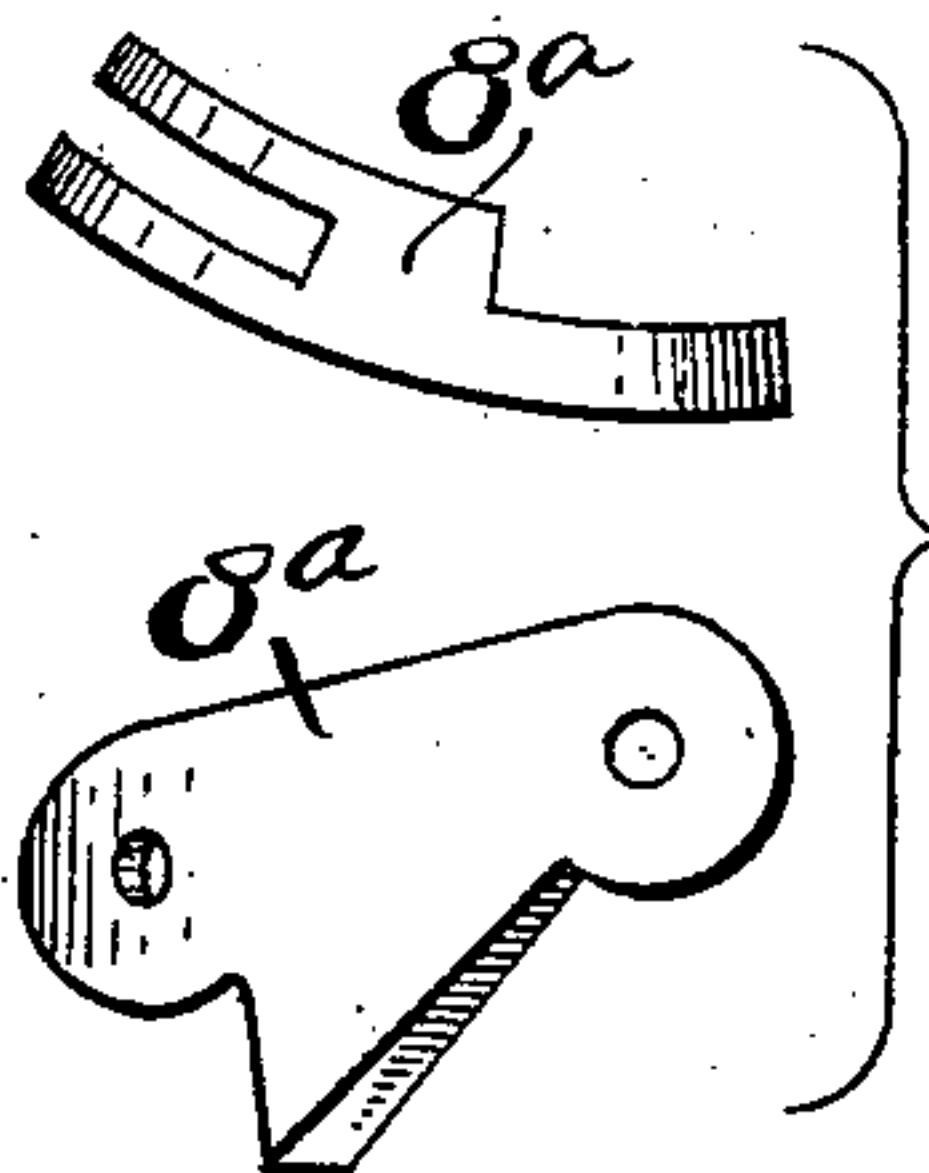
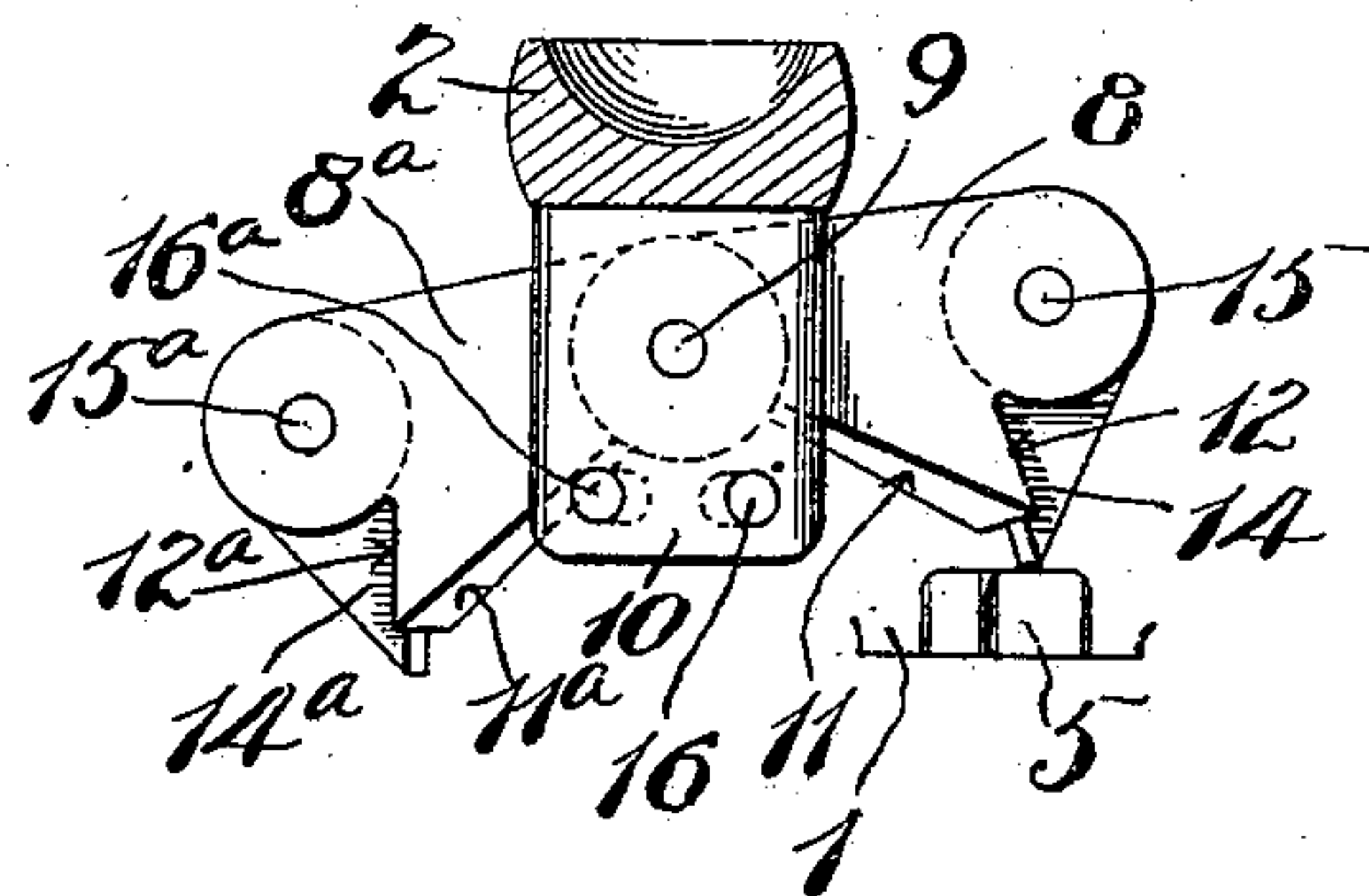
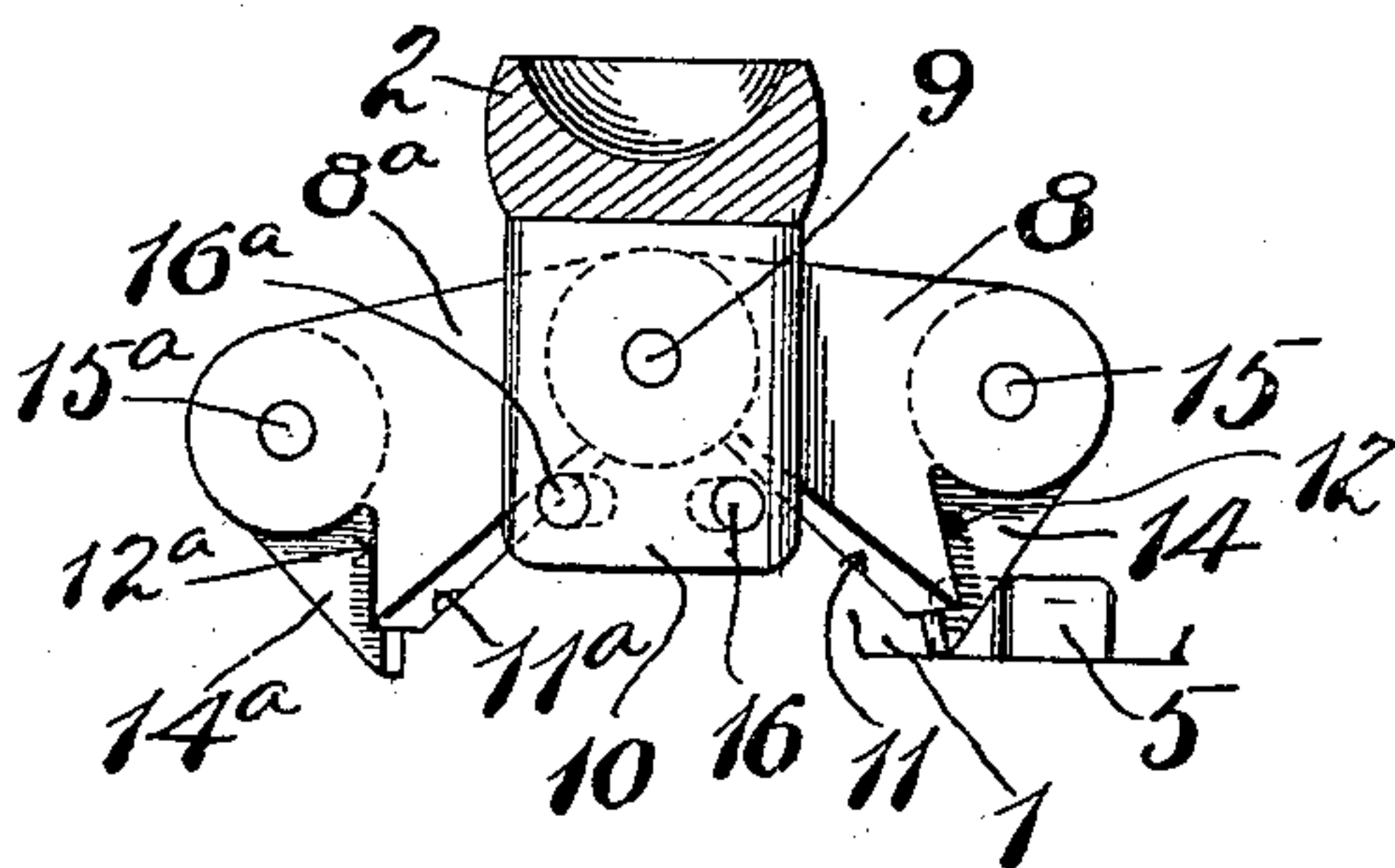
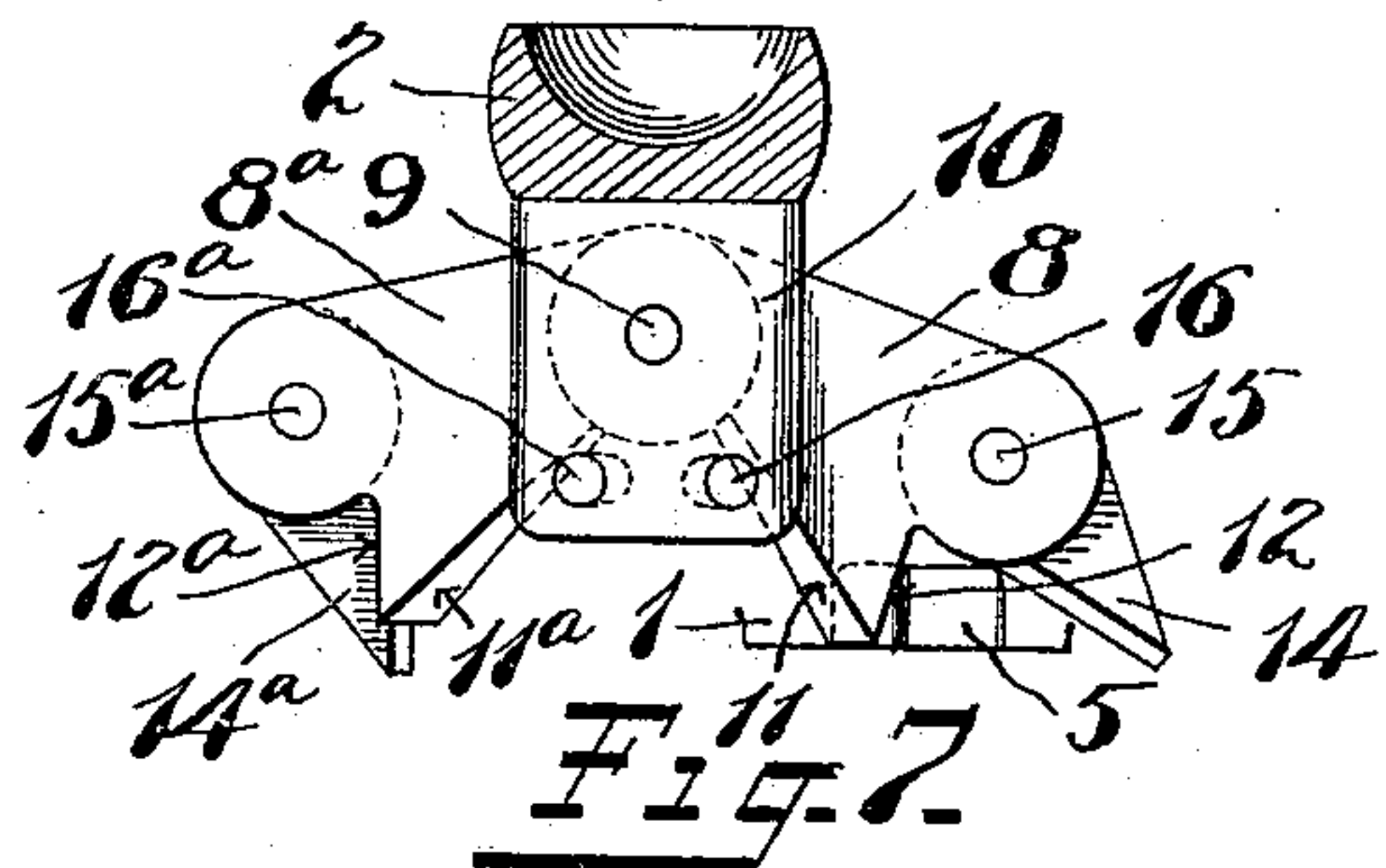


Fig. 8.

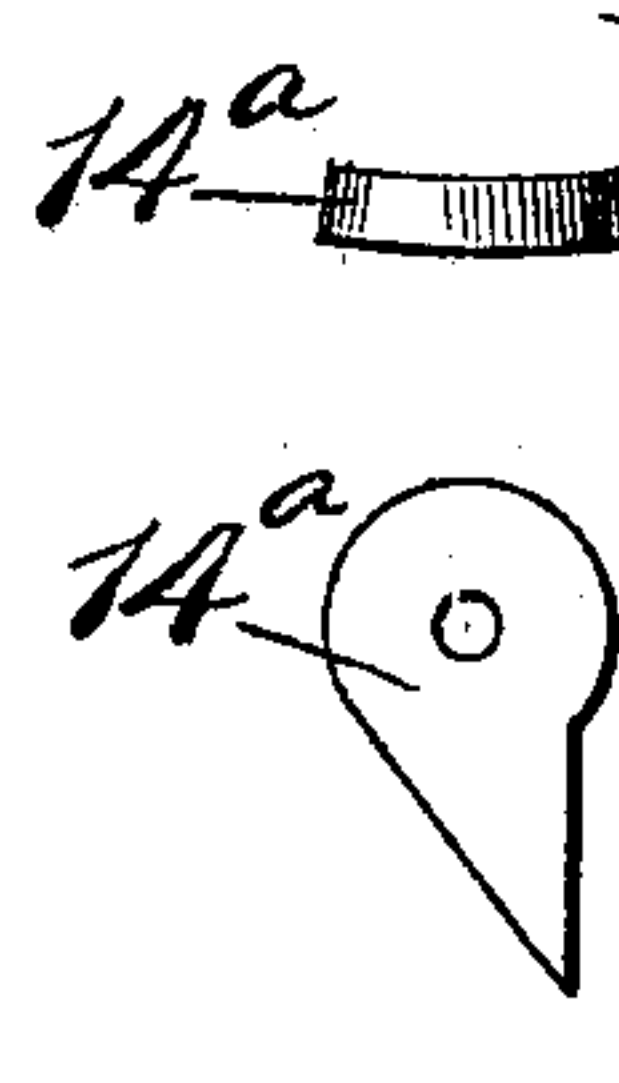


Fig. 9.

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UNITED STATES PATENT OFFICE.

HENRY G. VOIGHT, OF NEW BRITAIN, CONNECTICUT, ASSIGNOR TO RUSSELL & ERWIN MANUFACTURING COMPANY, OF NEW BRITAIN, CONNECTICUT, A CORPORATION OF CONNECTICUT.

DOOR-CONTROLLING APPARATUS.

951,295.

Specification of Letters Patent.

Patented Mar. 8, 1910.

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To all whom it may concern:

Be it known that I, HENRY G. VOIGHT, a citizen of the United States, residing at New Britain, county of Hartford, State of Connecticut, have invented certain new and useful Improvements in Door-Controlling Apparatus, of which the following is a full, clear, and exact description.

My invention relates to door controlling mechanism and particularly to an improved combined closer and stop.

In the accompanying drawings—Figure 1 is a plan view; Fig. 2 is a front elevation of the upper part of the apparatus shown in Fig. 1; Fig. 3 is a detail view of one of the parts; Figs. 4, 5, 6 and 7 are similar views of similar parts, each view illustrating certain of said parts in different positions; Fig. 8 is a plan and perspective view of another detail; Fig. 9 is a plan and side elevation of another detail.

1 represents the frame or case of a door closer which closer may be of any suitable construction.

2 is the door closer lever arm, which is operated by the closing mechanism (not shown) within the case 1. The arm 2 is connected with a door or door casing in the usual manner so as to impart its power in a direction to close said door. This arm 2 is pivotally mounted at 3 and swings about the axis of said mounting.

4—5—6—7 are stop abutments upon the case 1, said stop abutments being radially disposed and being provided in any desired number, four being shown.

8 is a stop arm pivoted at 9 to a bearing 10 upon the under side of the arm 2. This arm 8 has a front cam surface or incline 11, leading downwardly and away from the bearing 10. This arm also has an abrupt rear stop-shoulder 12 arranged at an acute angle relatively to the cam surface 11. 14 is a stop releasing cam which tapers downwardly, the extreme lower end projecting preferably slightly below the extreme lower edge of the stop arm 8. This stop releasing cam 14 is pivoted at 15 to an extension from the arm 8. 16 is a pin carried by the bearing 10, the function of which is to limit the downward swinging movement of the stop arm 8. The parts 8^a, 11^a, 12^a, 14^a, 15^a and 16^a correspond to the parts 8, 11, 12, 14, 15 and 16 but are oppositely arranged.

Operation: Assuming we start with the

parts shown in the position indicated in Figs. 1 and 2, if the lever arm 2 is swung to the right, the incline of the stop lifting cam 14 will ride freely over the stop abutments 6 and 7 simultaneously lifting the stop lever 8 over said abutments. When the closer restores the arm 2 to the position shown in Figs. 1 and 2, it drags the stop lever 8 freely over said abutments by reason of the incline 11, the cam 14 trailing in the rear of said lever 8. Starting from the position shown in Figs. 1 and 2, if the lever is swung to the left, the parts 8^a and 14^a operate in a similar manner with the stop abutments 4—5.

From the foregoing it will be seen that for all ordinary opening and closing movements of the door the stop mechanism will operate negatively. If, however, it is desired to have the door held open, the stop apparatus may be caused to operate by swinging the door to a certain position and then allowing it to return. This operation is as follows, and in this connection, I will first refer to the operation of the parts 8—14. These parts, when they are to operate to perform the stopping function, are arranged to co-act with the abutments 4—5. Starting with the parts in the position shown in Figs. 1 and 2, if the arm 2 is moved sufficiently far to the left, the stop arm 8 is dragged over the abutment 5. As soon as the shoulder 12 has cleared said abutment (or before the part 14 has been dragged over said abutment) if the door is released the closer mechanism will tend to return the arm 2 to its normal position. This will be prevented by the engagement of the abrupt stop surface 12 with the rear edge of the abutment 5, thereby blocking the arm 2 in such a position as to hold the door open or ajar. To release the stop, the user has but to open the door still farther, causing the arm 2 to swing to the left sufficiently far to drag the stop lifting cam 14 over the abutment 5, whereupon upon releasing the door the arm 2 will be restored to its normal position, the incline side of the cam 14 lifting the stop arm 8 over said abutment. This arm operates similarly with stop 4, the parts 8^a and 14^a operate similarly with the abutments 6 and 7 when the door is swung in an opposite direction. Figs. 4 to 7 illustrate the successive stages. Fig. 4 illustrates the arm 2 being swung to the left

with the stop arm 8 drawn partially over abutment 5. Fig. 5 illustrates the stop arm 8 engaging the abutment 5 and in a position to hold the door ajar. Fig. 6 illustrates the position of the parts after the arm 2 has been moved to the left far enough to drag the cam 14 to the rear of the stop abutment 5, said figure illustrating the arm moving back or being restored to its original position, the cam 14 being about to lift the stop arm 8. Fig. 7 illustrates the cam 14 lifting the stop arm 8 over abutment 5.

From the foregoing it will be apparent that my mechanism is adapted to either a left or right hand door or a double swinging door and may be said therefore to be universal.

In the drawings I have shown only four stop abutments but obviously a greater or lesser number may be provided as exigencies require.

What I claim is:

1. In a door controlling mechanism, door closing mechanism including a frame, a swinging arm mounted thereon, a stop abutment carried by said frame, stop mechanism carried by said arm and arranged to co-act with said abutment, said stop mechanism including a hinged stop arm having a front cam face and a rear stop shoulder, a stop releasing cam hinged to the stop lever adjacent to the rear stop shoulder, a portion of said stop releasing cam projecting into the path of the abutment to engage the same as the lever is moved over said abutment.

2. In a door controlling mechanism, door closing mechanism including a frame, a swinging arm mounted thereon, a plurality of radially arranged stop abutments carried by said frame, stop mechanism carried by

said arm and arranged to co-act with said abutments, said stop mechanism, including a hinged stop arm having a front cam face and a rear stop shoulder, a stop releasing cam hinged to the stop lever, adjacent to the rear stop shoulder, a portion of said stop releasing cam projecting into the path of said abutments, to engage the same individually and successively as the lever is moved over said abutments.

3. In a door controlling mechanism, door closing mechanism including a frame, a swinging arm mounted thereon, a stop abutment carried by said frame, stop mechanism carried by said arm and arranged to co-act with said abutment, said stop mechanism including a hinged stop arm having a front cam face and a rear stop shoulder, a stop releasing cam hinged to the stop lever adjacent to the rear stop shoulder, a portion of said stop releasing cam projecting into the path of the abutment to engage the same as the lever is moved over said abutment, and a second hinged stop arm and stop releasing cam carried by said swinging arm and facing oppositely to the first mentioned hinged stop arm and stop releasing cam.

4. In a door stop mechanism, a stationary part, a movable part, a stop abutment carried by one of said parts, and a stop engager pivotally connected to the other part.

5. In a door stop mechanism, a stationary part, a movable lever arm, a stop abutment carried by the stationary part, and a stop engager pivotally connected to the lever arm.

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Witnesses:

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