

No. 790,199.

PATENTED MAY 16, 1905.

C. K. FOREMAN.
LOCK FOR SLIDING DOORS.

APPLICATION FILED JAN. 23, 1904.

6 SHEETS—SHEET 1.

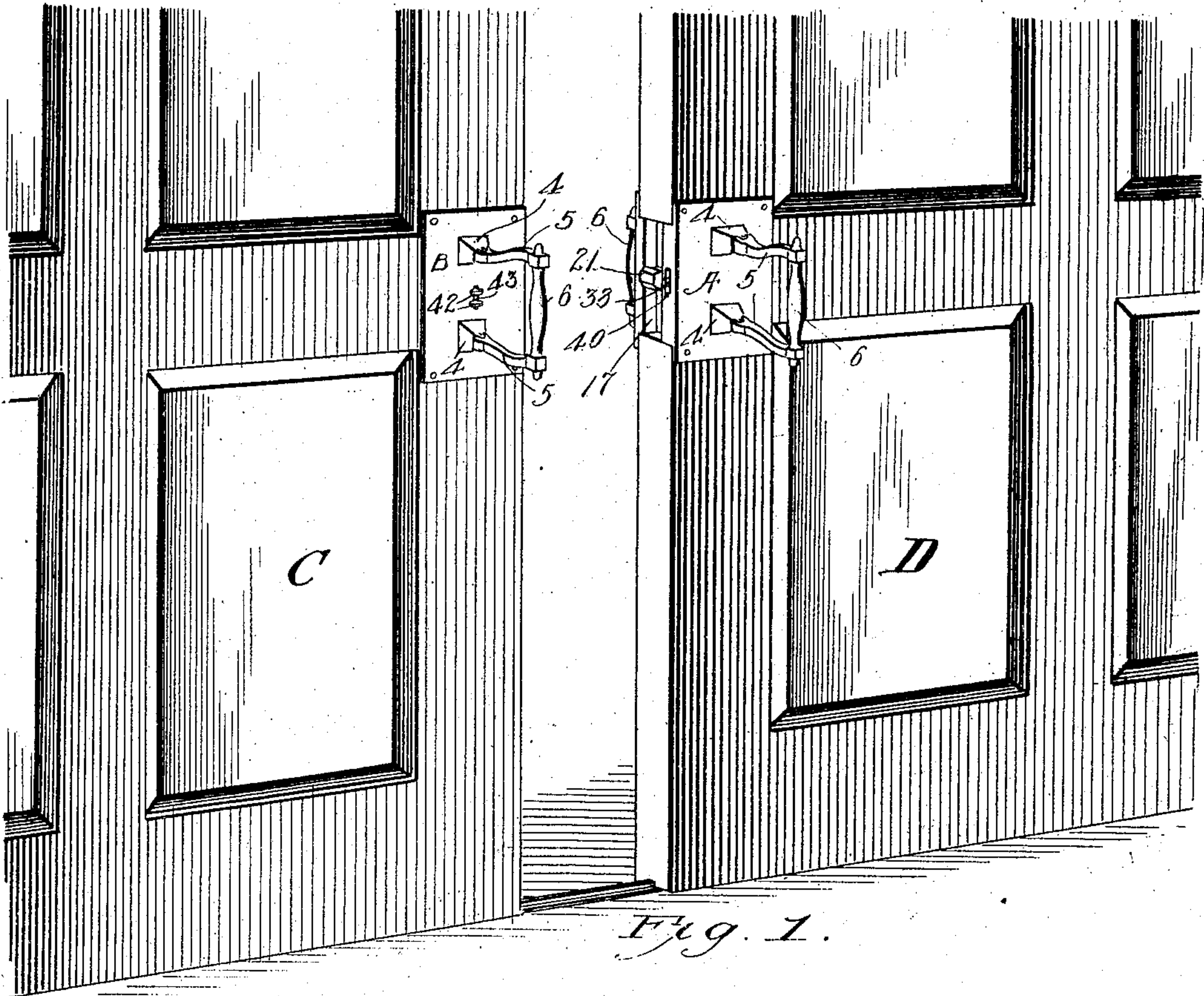


Fig. 1.

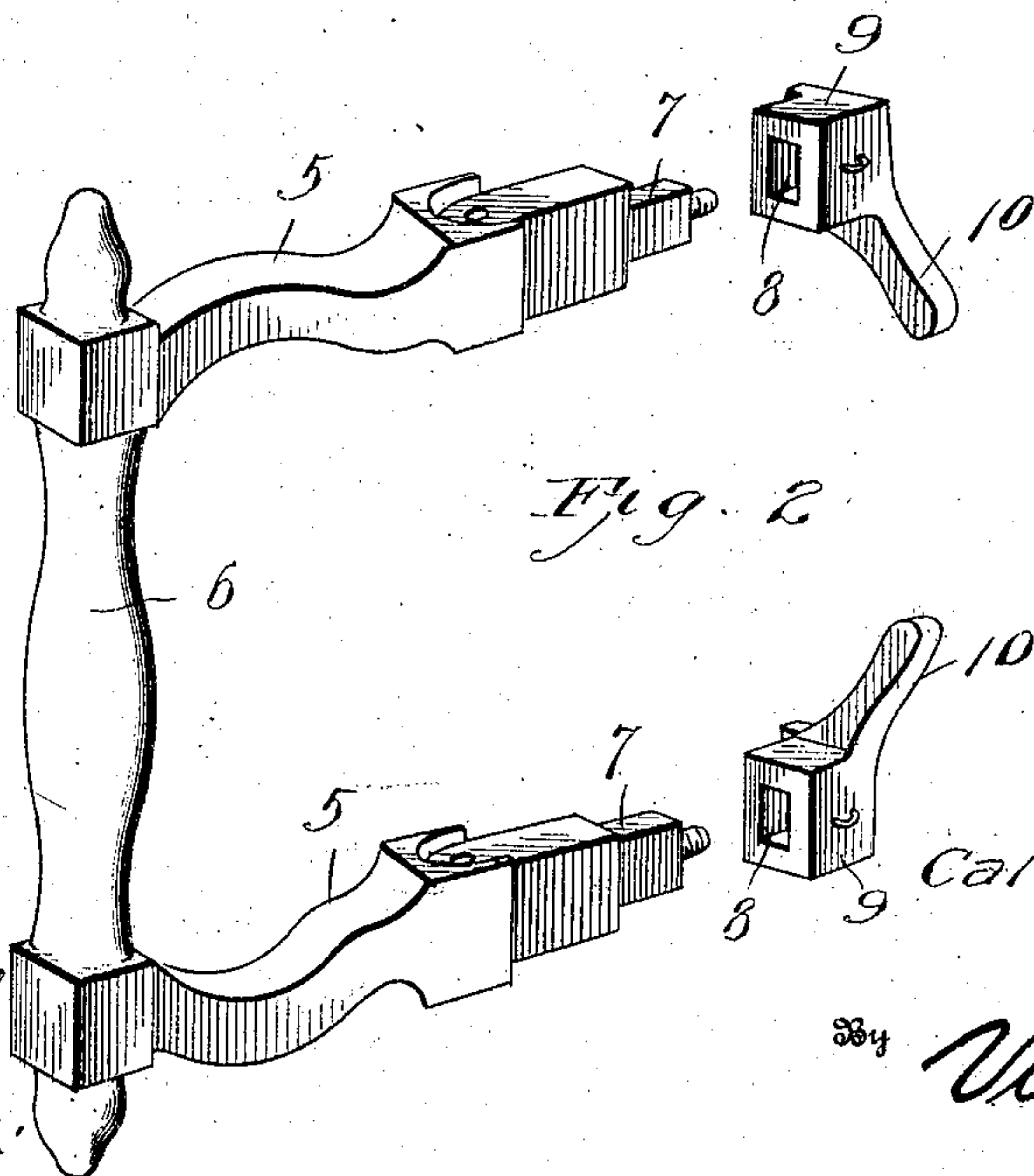


Fig. 2.

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6 SHEETS—SHEET 2.

Fig. 9

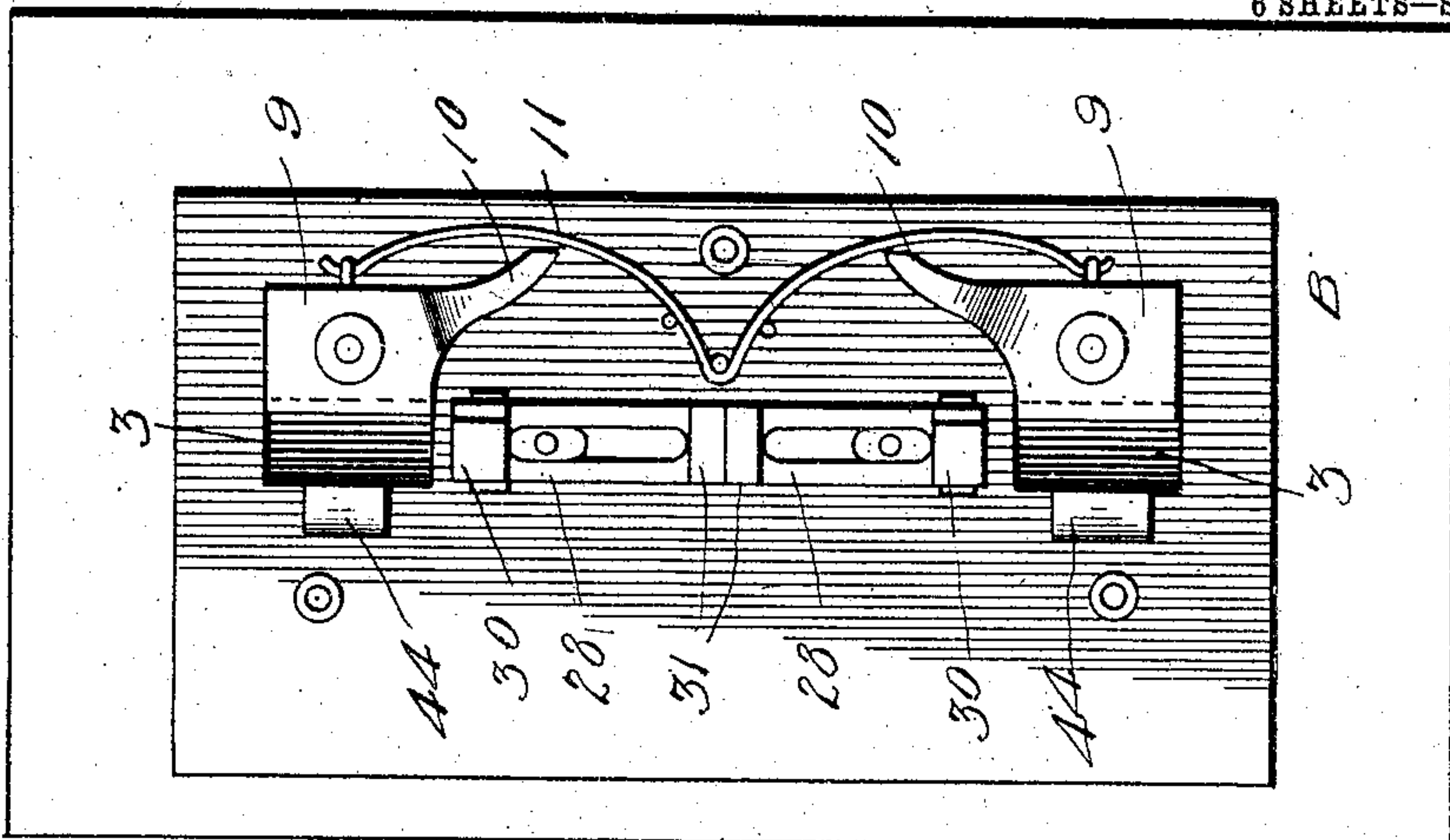
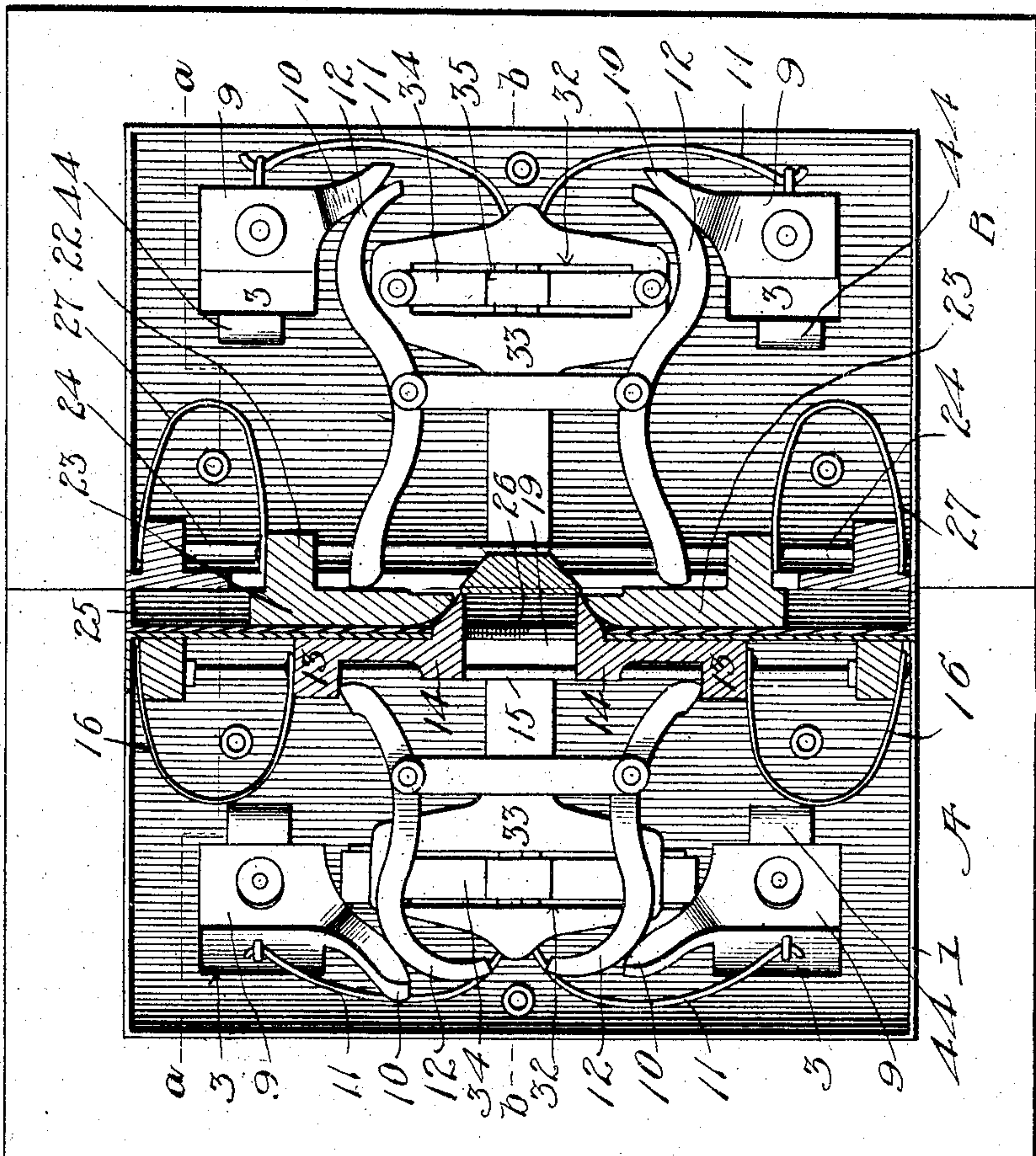


Fig. 3



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6 SHEETS—SHEET 3.

Fig. 6

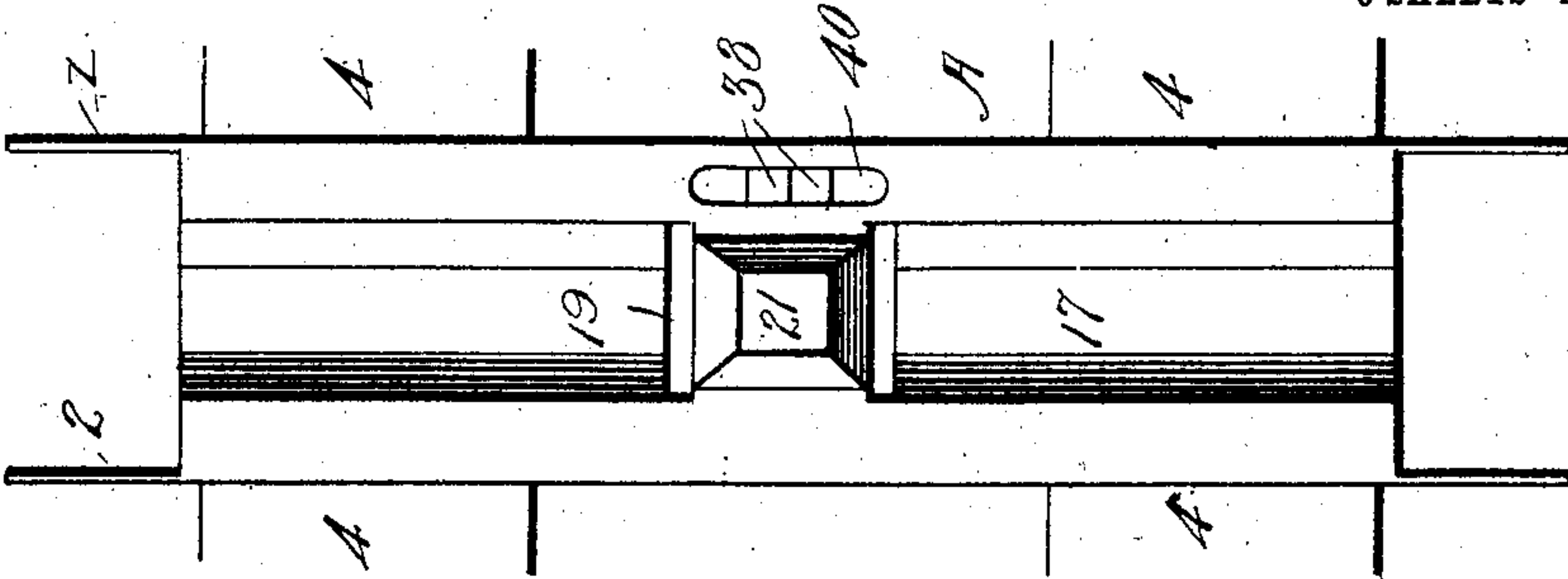


Fig. 5

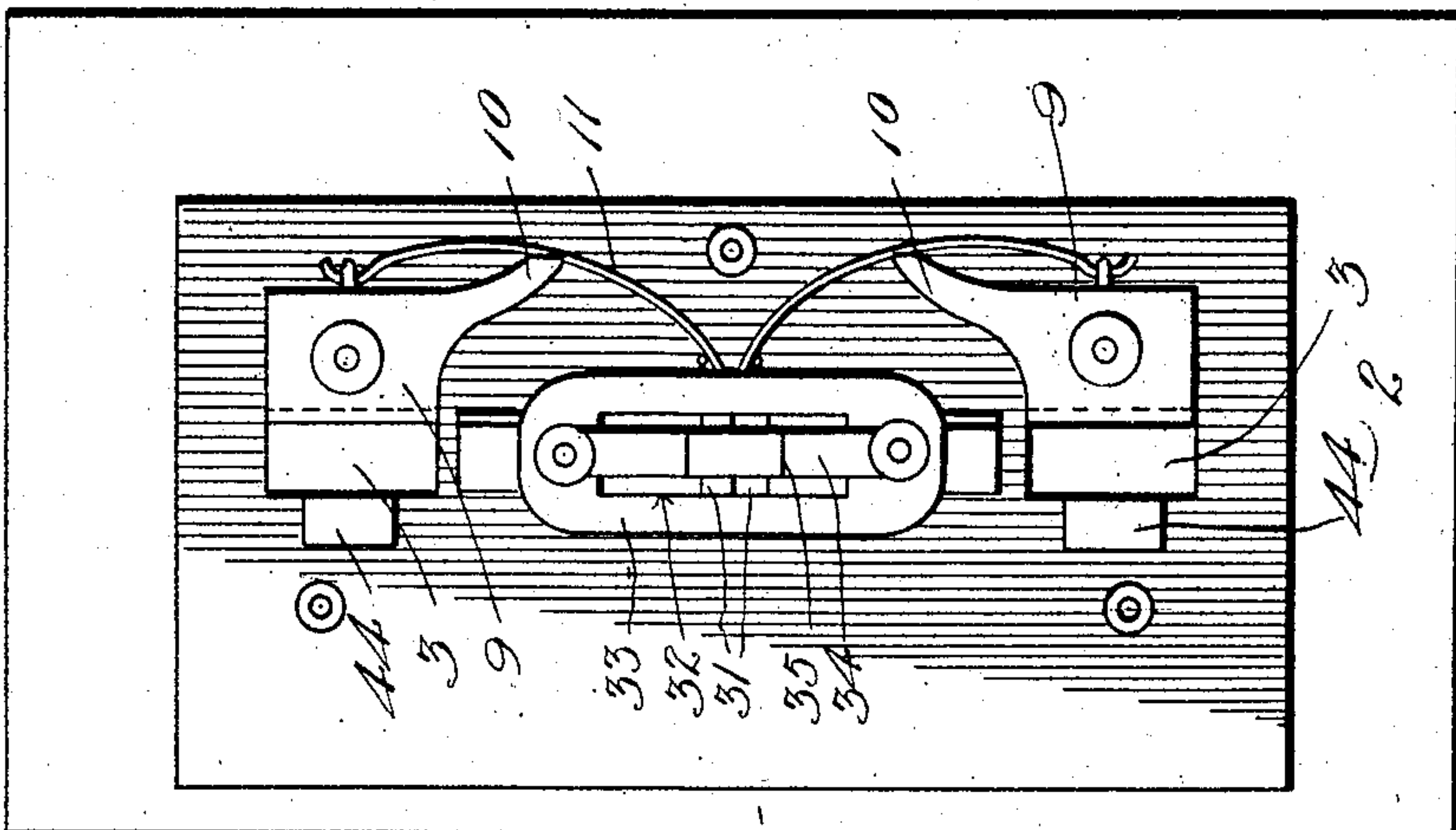
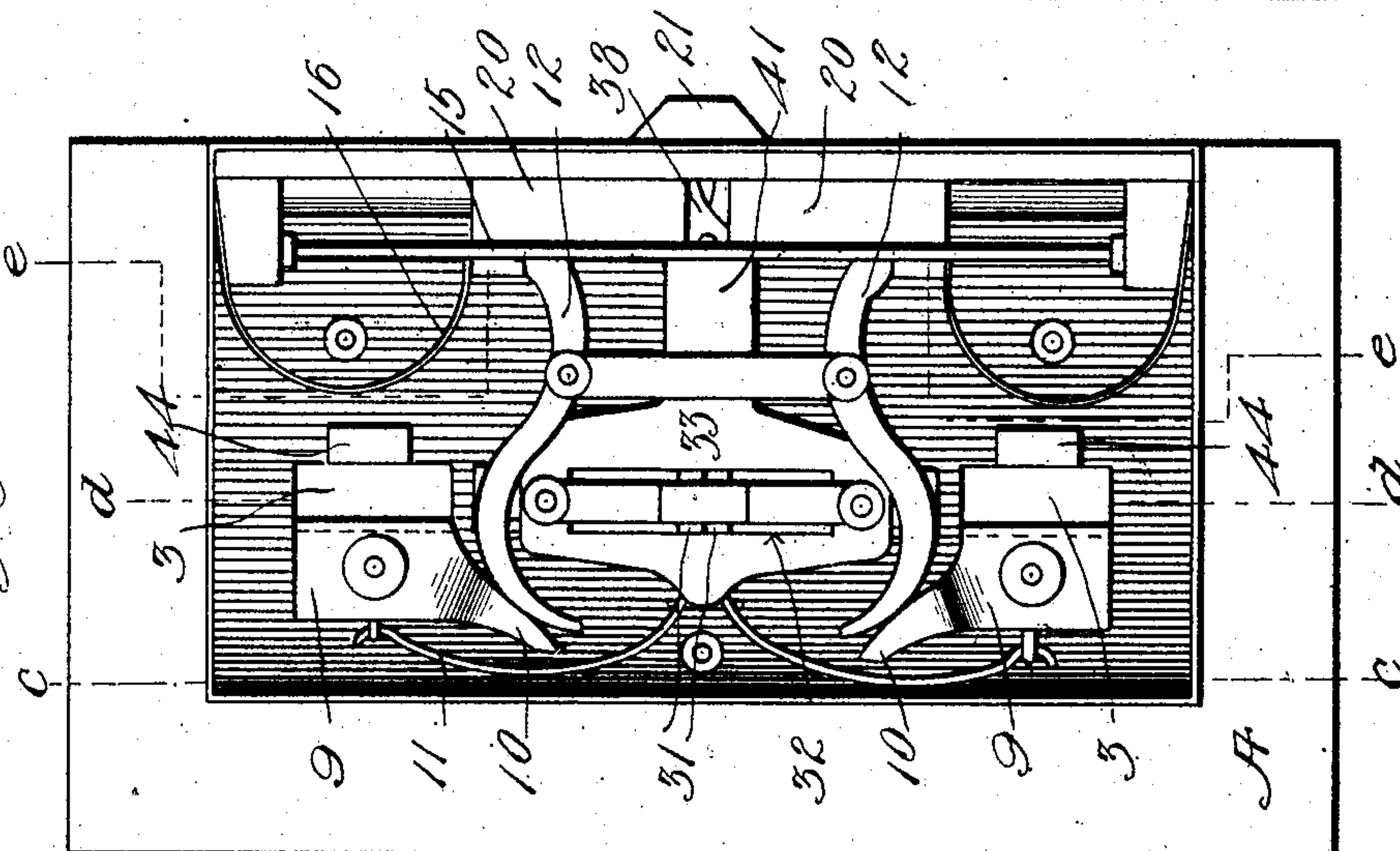


Fig. 4



Witnesses

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6 SHEETS—SHEET 4.

Fig. 8.

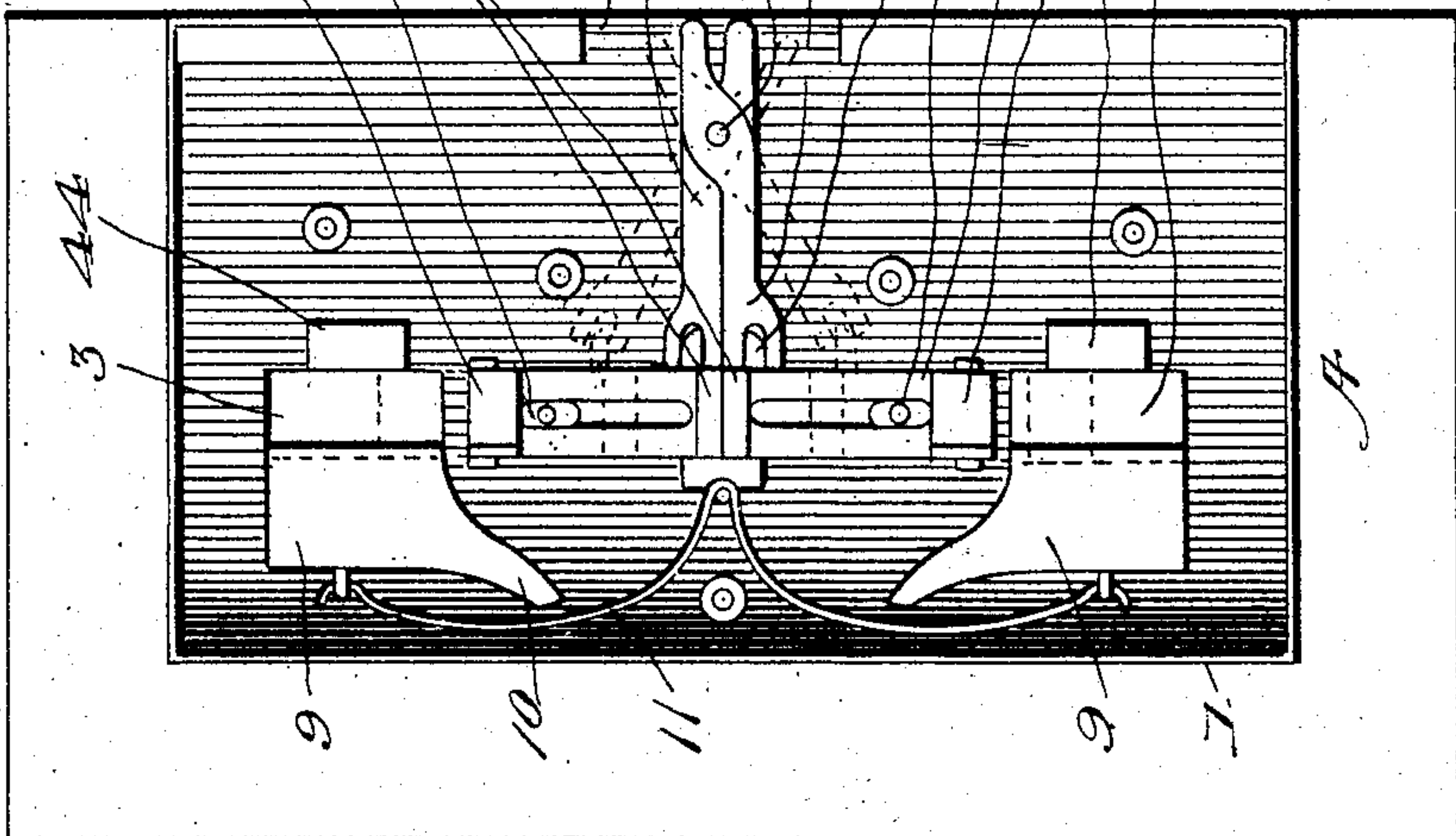
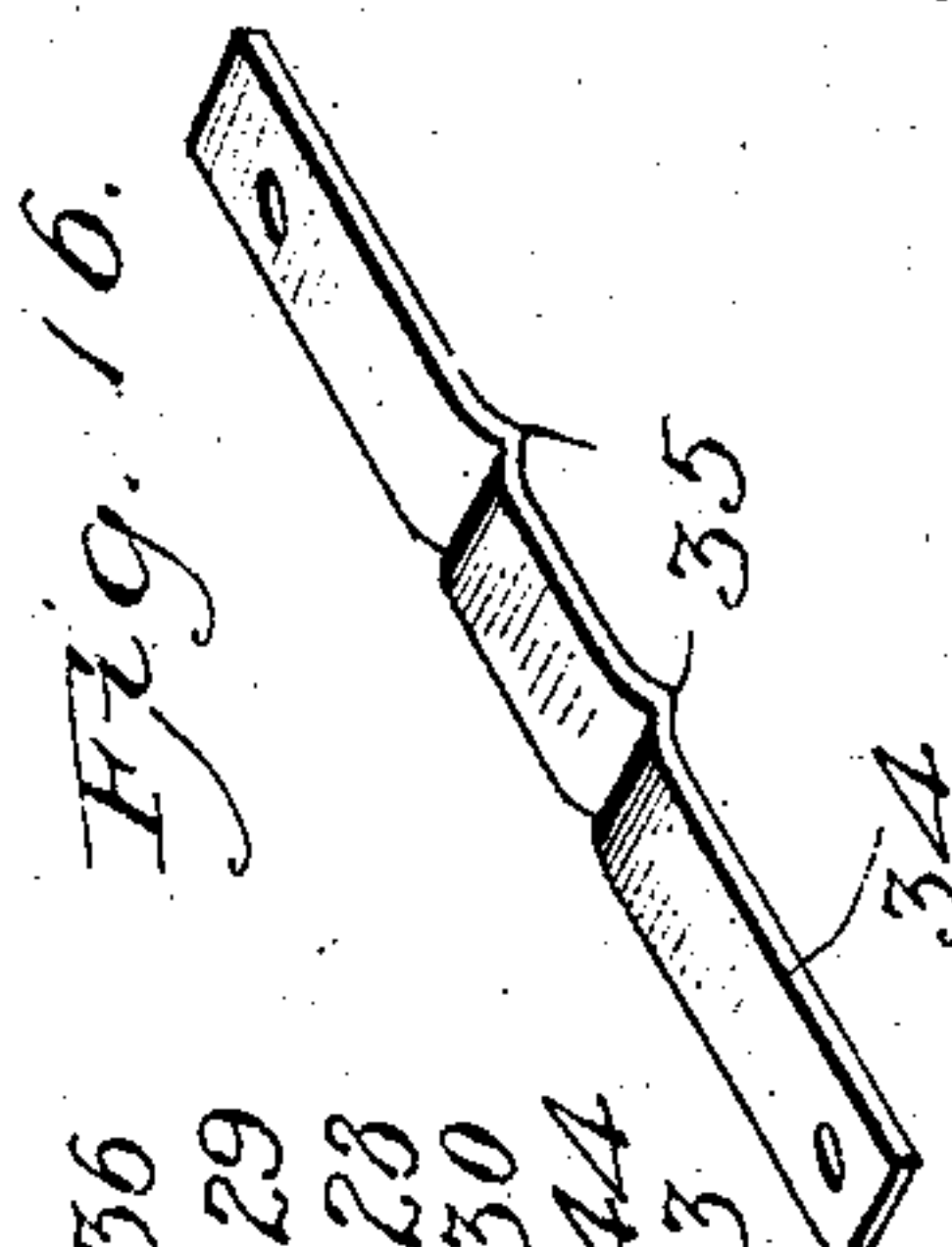
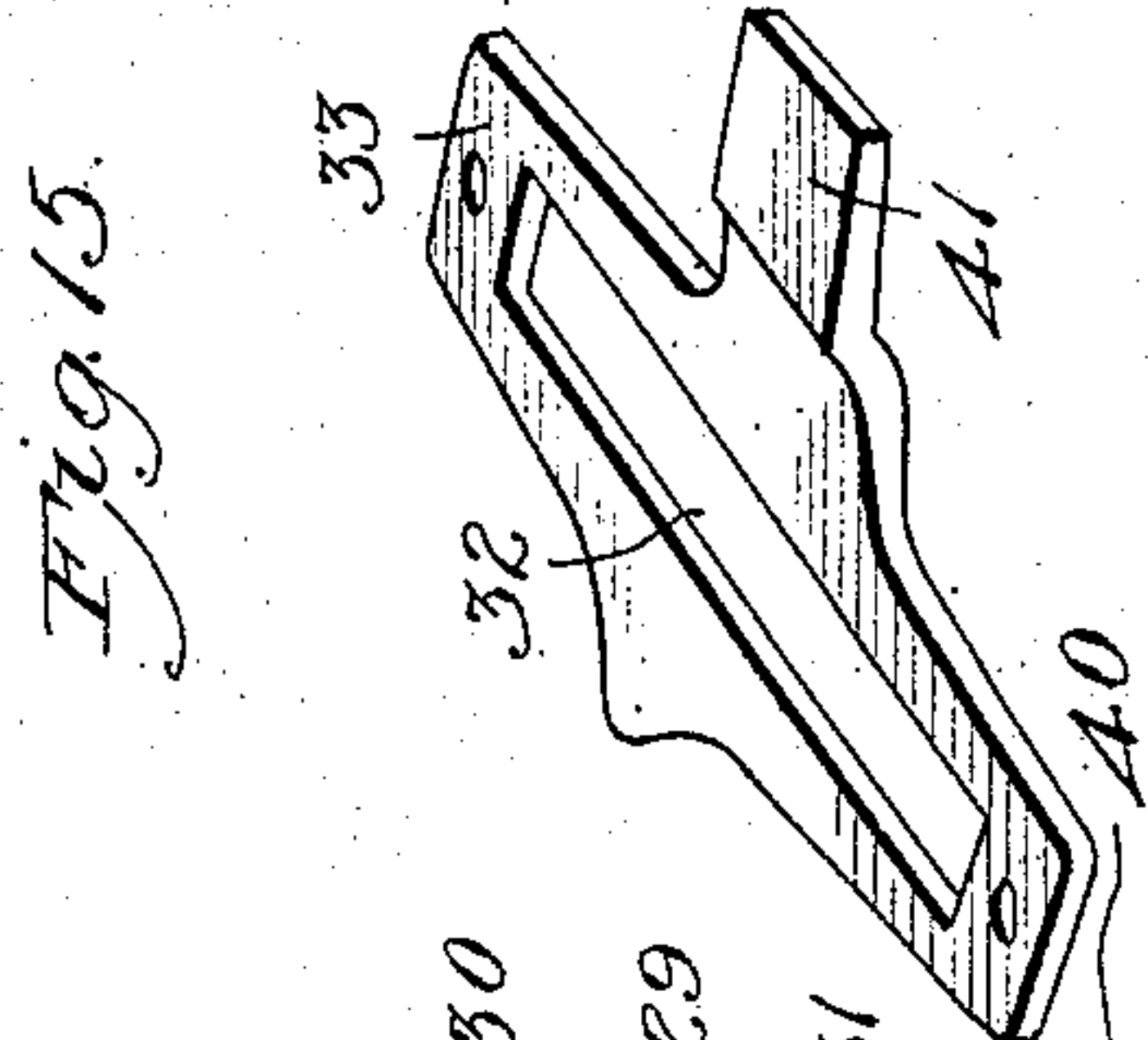
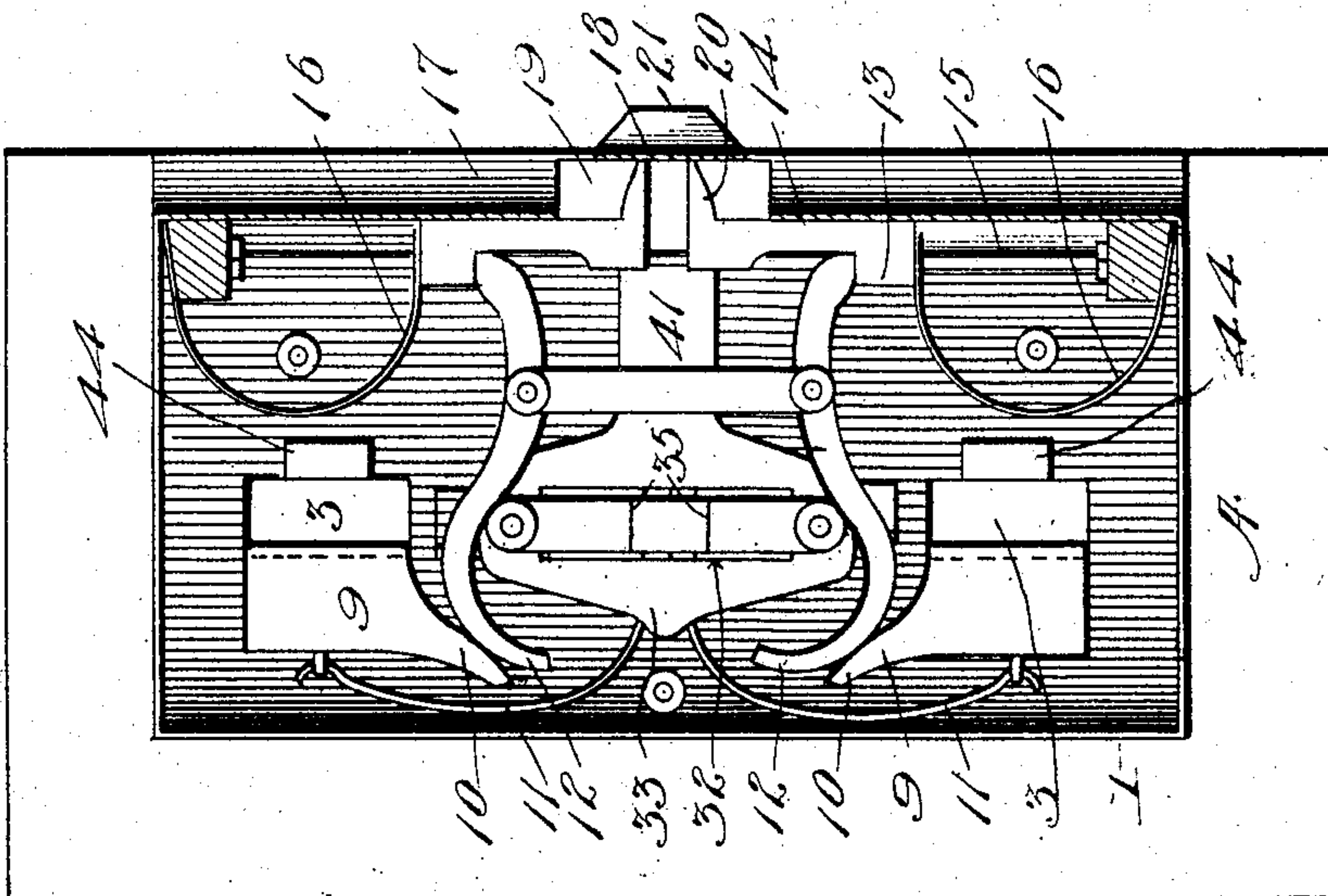


Fig. 7.



Witnesses

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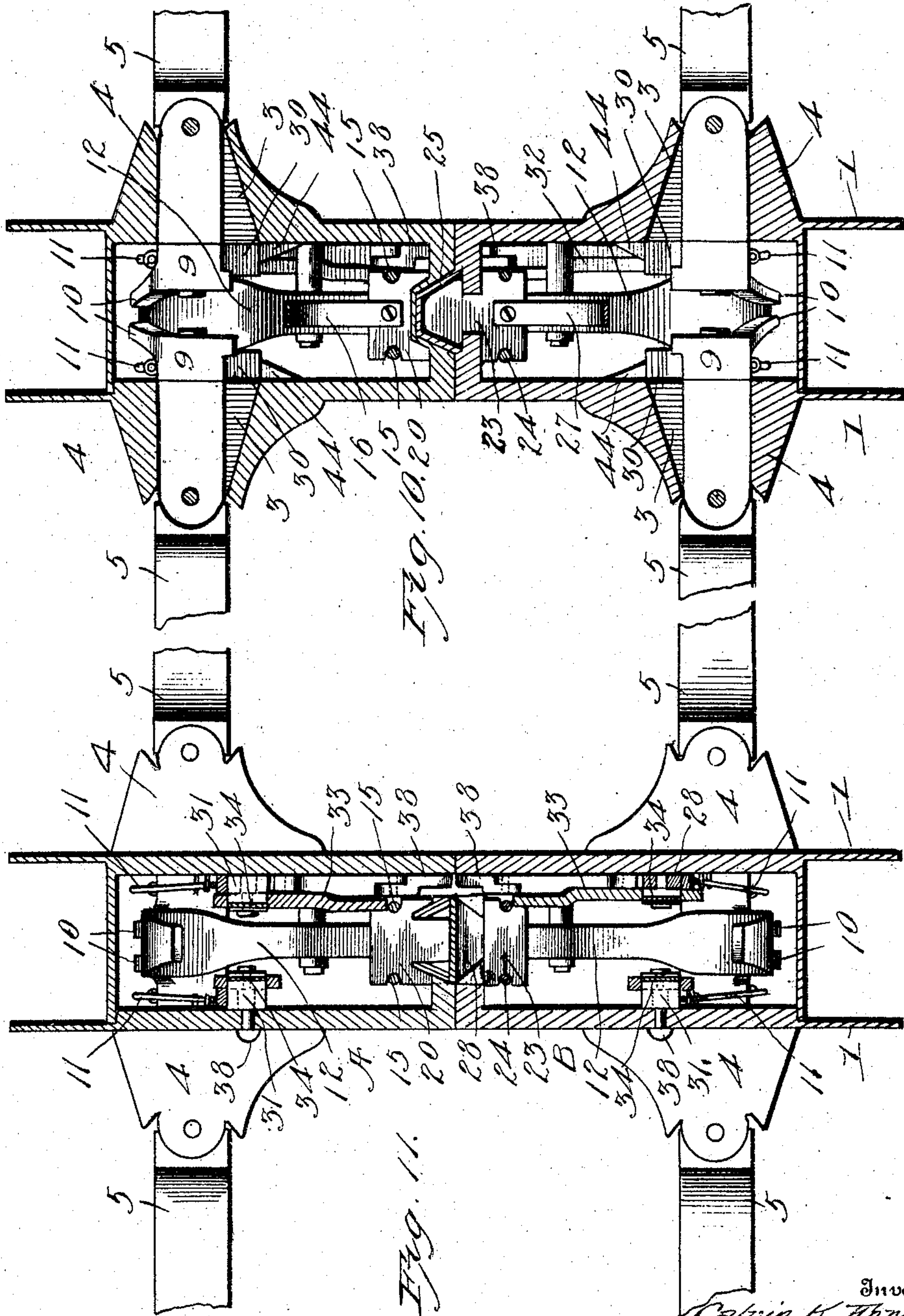
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6 SHEETS—SHEET 5.



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6 SHEETS—SHEET 6.

Fig. 14.

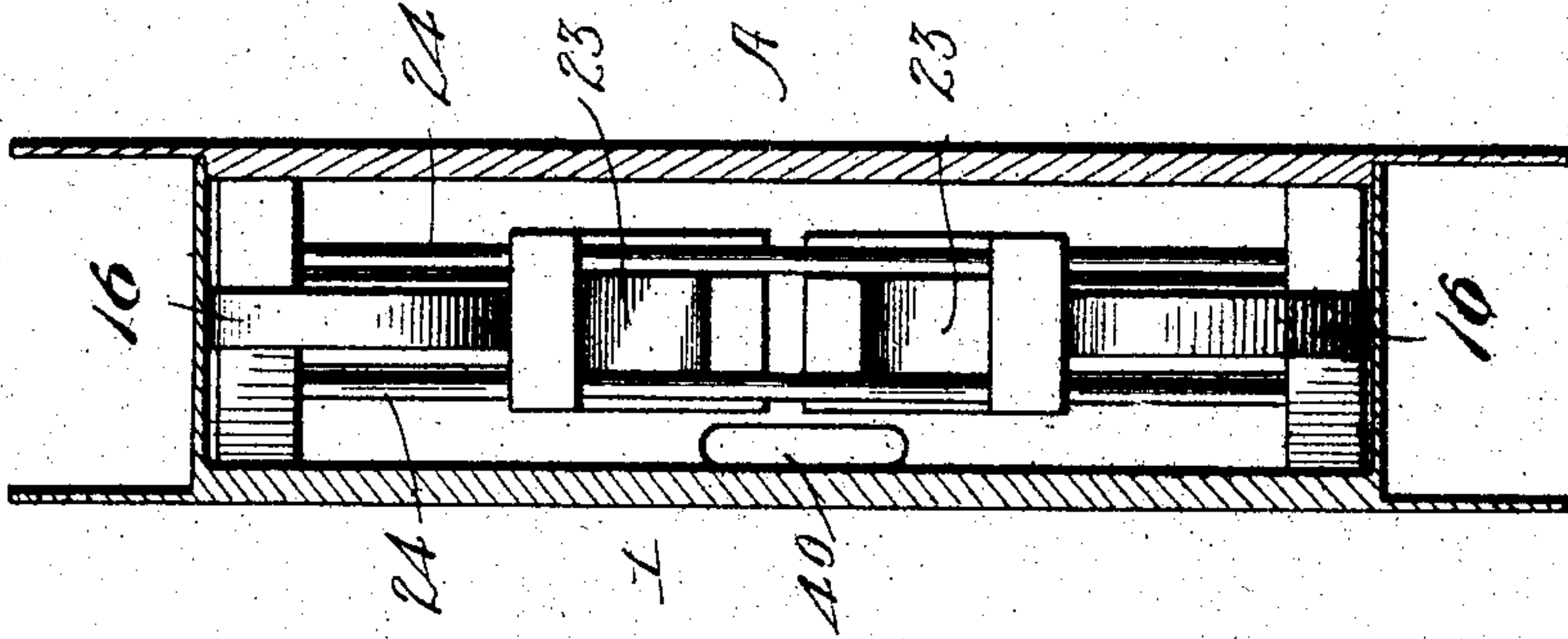


Fig. 15.

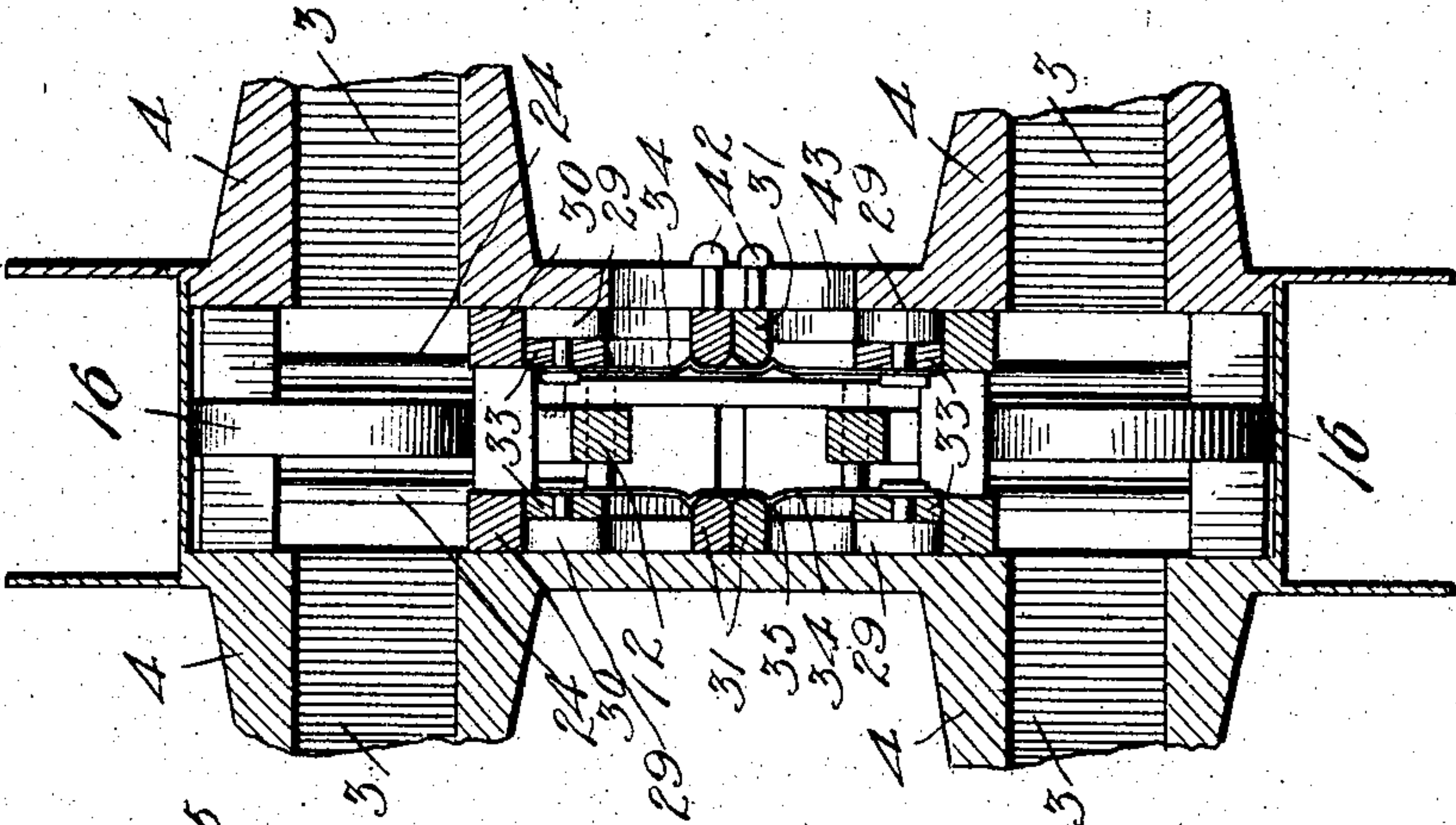
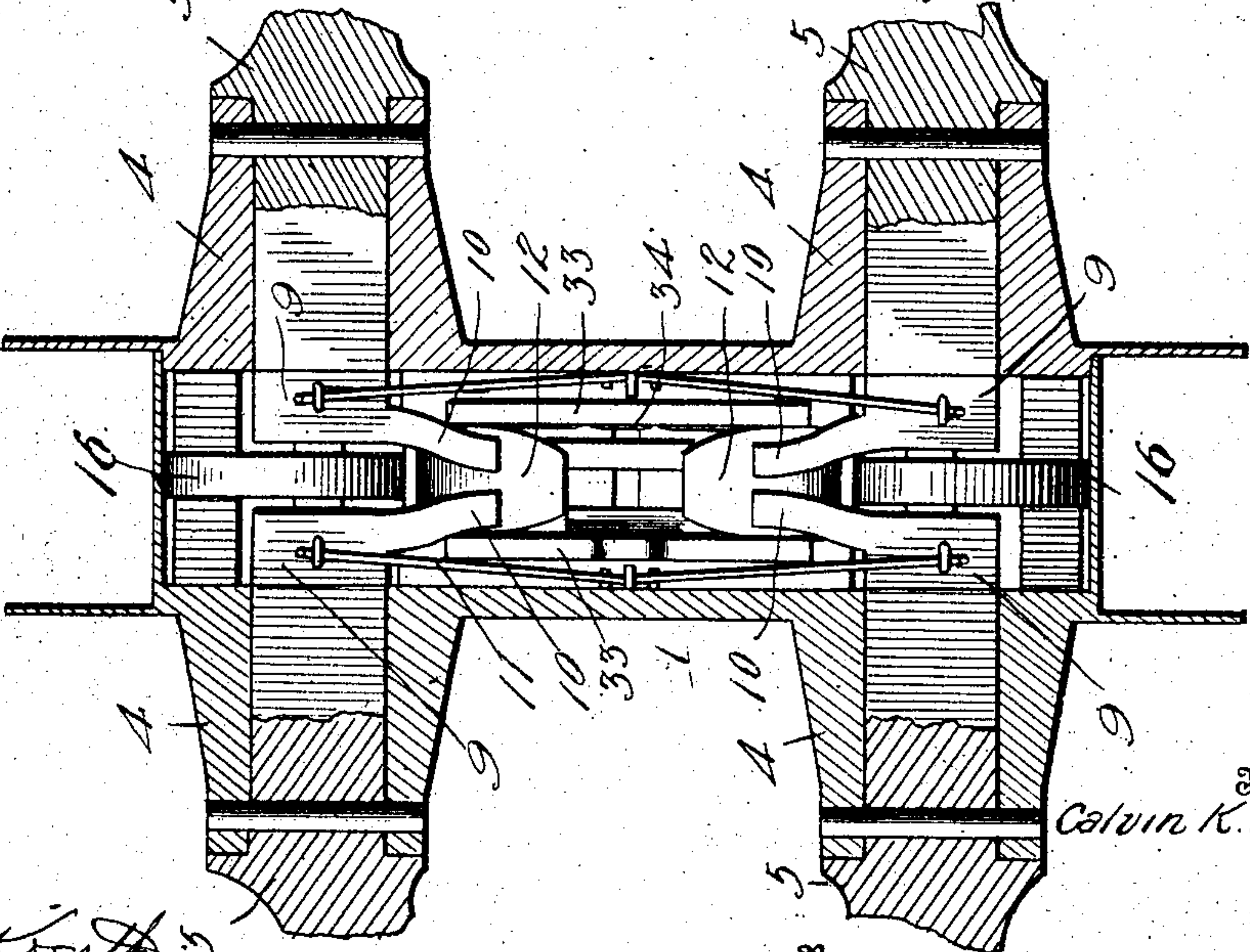


Fig. 16.



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UNITED STATES PATENT OFFICE.

CALVIN K. FOREMAN, OF STRAUSSTOWN, PENNSYLVANIA.

LOCK FOR SLIDING DOORS.

SPECIFICATION forming part of Letters Patent No. 790,199, dated May 16, 1905.

Application filed January 23, 1904. Serial No. 190,342.

To all whom it may concern:

Be it known that I, CALVIN K. FOREMAN, a citizen of the United States, residing at Strausstown, in the county of Berks and State of Pennsylvania, have invented new and useful Improvements in Locks for Sliding Doors, of which the following is a specification.

My invention relates to new and useful improvements in locks for sliding doors; and its object is to provide a member for each one of a pair of doors, said members being adapted to automatically engage when closed together.

Another object is to construct lock members adapted to be disengaged or unlocked from each other by pulling laterally upon the door-handles, as when it is desired to open the doors.

A further object is to employ means for preventing the unlocking of the members by means of the door-handles.

With the above and other objects in view the invention consists in the novel construction and combination of parts hereinafter more fully described and claimed, and illustrated in the accompanying drawings, showing the preferred form of my invention, and in which—

Figure 1 is a view in perspective of a pair of sliding doors having my improved lock thereon. Fig. 2 is a detail view of a handle and its cam-blocks detached. Fig. 3 is a vertical section through the two members of the lock and showing them disengaged. Fig. 4 is an inner elevation of the receiving member with its face-plate removed. Fig. 5 is a similar view of the face-plate, showing the means for operating the lock from the inner side of the door. Fig. 6 is an end elevation of the receiving member. Fig. 7 is a vertical section through the receiving member similar to Fig. 3, but showing the parts in normal position as when engaged. Fig. 8 is a vertical section through said member with the ejectors and their operating mechanism removed and showing the handle-locks and their mechanism. Fig. 9 is a view similar to Fig. 5, but with the spring of the handle-locks and the guide-plate removed. Fig. 10 is a section on line *a a*, Fig. 3. Fig. 11 is a section on line *b b*, Fig. 3. Fig. 12 is a section on line *c c*,

Fig. 4. Fig. 13 is a section on line *d d*, Fig. 4. Fig. 14 is a section on line *e e*, Fig. 4. Fig. 15 is a detail view of the handle-lock guide-plate, and Fig. 16 is a similar view of the spring for said lock.

The receiving member A is carried by the door C, and the engaging member B is carried by the door D, and each is provided with a preferably rectangular casing 1, having a face-plate 2 secured to the inner side thereof. A slot 3 is formed in the upper and lower portion of each casing and face-plate, and ears 4 are arranged along the horizontal edges thereof. The arms 5 of vertical handles 6 are pivoted in each pair of ears and extend through the slots 3 into opposite sides of the lock. The inner ends 7 of the arms 5 are angular in section and project into angular apertures 8, formed in blocks 9. One of these blocks is provided for each arm, and they are provided with inclined arms 10. As shown in the drawings, the arms 10 of each handle 6 extend toward each other at the same angle. Springs 11 engage the blocks 9 and serve to hold said blocks normally at the rear ends of the slots 3.

Curved levers 12 are fulcrumed one above the other in each member A and B, and they extend transversely of the casing and lie within the paths of the arms 10 of the blocks 9.

In member A the forward ends of the levers engage shoulders 13, formed upon the inner faces of ejectors 14, slidably mounted upon parallel rods 15 and held normally pressed together at the center of the casing 1 by means of springs 16, interposed between the ends of the ejectors and the casing. The front edge of the member A is provided with a longitudinal groove 17, bridged over at the center to provide a keeper 18 and provided under and above and below the keeper with a slot 19. A foot 20, projecting from the inner end of each ejector 14, extends transversely of the groove 17 and is slidably mounted in the slot 19, and these feet are held normally together under the keeper by means of the springs 16 before referred to. A tapered head 21 is located upon the keeper 18 for the purpose hereinafter described. In member B of the lock the levers 12 engage shoulders 22, formed upon the inner faces of locking

element or jaws 23, slidably mounted on parallel rods 24. These jaws are mounted within a tapered rib 25, extending along the front edge of member B and adapted when the members are brought together to project into groove 17. A slot 26 is formed at the center of the rib 25 for the reception of the keeper 18, and its head 21 and the jaws 23 normally project into opposite sides of the slot.

It will be seen from the foregoing that when the two members are brought together the tapered head 21 will force the jaws 23 apart, thereby compressing springs 27, which hold the jaws normally projected into the slot 26. After the head and keeper passes into slot 26 the jaws 23 will fly back into position and prevent the withdrawal of the keeper. In order to unfasten the members, it is merely necessary to swing one of the four handles backward. If one or both of the handles 6 of member A are moved, the tongues 10 of its blocks 9 will press upon the levers 12 and swing them toward each other. This will cause the forward ends of the levers to spread the ejectors 14 apart, and the feet 20 thereof will force the jaws 23 out from behind bridge 18. If one or both of the handles of member B are moved, the jaws will be withdrawn directly from behind the keeper.

In order to provide means for preventing the unlocking of the doors by means of the outside handles, I employ a locking device of novel construction. Oppositely-extending slotted bolts 28 are arranged between the slots 3 and are mounted on guide-pins 29. Heads 30 are formed at the outer ends of these bolts, while the inner adjoining ends are provided with ribs or beads 31, which extend into a slot 32, formed in a guide-plate 33. This plate is secured in position over the bolts 28, and a spring-strip 34 is fastened at its ends to the plate 33 adjacent to the ends of the slot 32 in said plate. Ribs 35 are formed on this spring and are so positioned as to engage the beads 31 and hold the bolts either together or when in locking position. A lug 36 extends laterally from one edge of each bolt 28, and these are engaged by the forked ends 37 of levers 38, pivoted upon a common fulcrum 39. The forward ends of these levers extend into a slot 40, formed in the front edge of the casing 1. It will be understood that when these forward ends of levers 38 are pressed apart the forked ends thereof will be spread apart, as shown in dotted lines in Fig. 8, and the heads 30 of bolts 28 will be shoved over the uncovered portions of slots 3 and prevent the handle extending into said slots from moving upon its pivots. When the bolts 28 are moved in this manner, the beads 31 thereon will force spring 34 outward until the beads 35 are passed. The spring will then fly back into normal position and hold the bolts in the positions to which they are moved. When the levers 38 are forced together, it is

obvious that the bolts 28 will be retracted. Plate 33 is preferably provided with an arm 41, which serves to prevent displacement of levers 38 from their fulcrum 39. The slots 40 are formed adjacent to and parallel with the slots 19 and 26 of members A and B, respectively.

The handles 6, secured to the inner or face plates 2, are each provided with locking-bolts similar to those above described; but in lieu of employing levers 38 for operating them each is provided with a pin 42, extending through a slot 43, formed in the face. It is obvious that by moving these pins from or toward each other the bolts can be shifted into or out of engagement with the blocks 9.

Stops 44 are arranged at the forward edges of slots 3 to serve as braces for the bolts 28 when they are in locking position.

In the foregoing description I have shown the preferred form of my invention; but I do not limit myself thereto, as I am aware that modifications may be made therein without departing from the principle or sacrificing any of the advantages thereof, and I therefore reserve the right to make such changes and alterations as fairly fall within the scope of the invention.

Having thus fully described the invention, what is claimed as new is—

1. In a lock, the combination with a sliding element, a pivoted handle extending into the lock and means operated by the handle and adapted to operate the sliding element, of a bolt mounted in the lock, and a lever engaging the bolt at one end and extending into a slot in the lock-casing whereby said bolt may be shifted into the path, and prevent movement of the handle.

2. In a lock, the combination with a sliding element, a pivoted handle extending into the lock and means operated by the handle and adapted to operate the sliding element, of a bolt mounted in the lock, a lever engaging the bolt and extending into a slot in the casing, whereby said bolt may be shifted into the path, and prevent movement of the handle, and means for holding the bolt in shifted position.

3. In a lock, the combination with a casing, of handles, arms extending therefrom and pivoted at opposite sides of, and extending into, the casing, blocks upon the arms, projecting portions upon the blocks, levers fulcrumed in the casing and adapted to be operated by either handle, and slides extending into a slot in the casing and operated by said levers.

4. In a lock, a receiving member having a grooved and slotted edge, a keeper across said slot and groove, sliding ejectors extending under the keeper, a handle pivoted to and extending into the casing, and means operated by the handle for withdrawing the slides from the keeper.

5. In a lock, a receiving member, compris-

ing a casing having a slot and groove in one edge thereof, a keeper over said slot and groove, ejector-slides extending under the keeper, guide-rods therefor, levers engaging the slides, handles pivoted to opposite sides of and extending into the casing and adapted to operate the levers, and means for holding the handles normally in position for operating the levers.

6. In a lock, the combination with a slotted casing having ears thereon; of a handle pivoted between the ears and extending into the casing, arms at the inner ends of the handle, sliding elements extending through the slot in the casing, and levers fulcrumed in the casing and engaging said elements, said levers being adapted to be operated by the arms on the handle, whereby the sliding elements may be simultaneously moved in opposite directions.

7. In a lock, the combination with oppositely-disposed similar sliding elements; of a door-handle extending into the lock, means operated by the handle for simultaneously moving the elements in opposite directions, and guide-rods for the sliding-elements.

8. In a lock, the combination with oppositely-disposed similar sliding spring-pressed elements; of a door-handle extending into the lock, blocks connected thereto, arms extending from the blocks, levers adapted to be simultaneously contacted and operated by the arms, said levers engaging and adapted to operate the sliding elements, and guides for said elements.

9. In a lock, the combination with a casing having oppositely-disposed similar sliding elements therein adjacent one edge, and means for holding said elements normally adjacent the center of said edge; of a door-handle pivoted to and extending within the casing, and levers fulcrumed in the casing and engaging the sliding elements and adapted to be operated by the handle, whereby said elements are caused to move from each other simultaneously in opposite directions.

10. The combination with oppositely-sliding doors C, D, a keeper secured to the door C, a locking element carried by the door D and adapted to engage the keeper to lock the doors against sliding movement, a handle pivotally secured to the door D and having connection with the locking element whereby when the handle is grasped to slide the door the locking element will be disengaged from the keeper, an ejector carried by the door C and adapted to disengage the locking element from the keeper, and a handle pivotally secured to the door C and having connection with the ejector whereby the locking element will be disengaged from the keeper when the handle is grasped to slide the door.

11. The combination of oppositely-sliding doors C, D, a keeper secured to the door C, a sliding element carried by the door D and

adapted to engage the keeper to lock the doors against sliding movement, a handle carried by the door D and having connection with the locking element, and adapted to disengage it from the keeper, an ejector carried by the door C to disengage the locking element from the keeper, and a handle carried by the door C and having connection with the ejector.

12. The combination of, oppositely-sliding doors C, D, a keeper secured to the door C, a locking element carried by the door D and adapted to engage the keeper to lock the doors against sliding movement, a handle carried by the door D, levers connecting the handle and locking element whereby a movement of the former will disengage the locking element from the keeper, an ejector carried by the door C to disengage the locking element from the keeper, a handle carried by the door C and a lever connecting the ejector, and handle whereby movement to the handle will operate the ejector.

13. The combination of oppositely-sliding doors C, D, a keeper secured to the door C, a locking element carried by the door D and adapted to engage the keeper to lock the doors against sliding movement, a handle carried by the door D and in connection with the locking element whereby movement of the handle will lock the element from the keeper, and means carried by the door C to disengage the locking element from the keeper independent of the movement of said handle.

14. The combination of oppositely-sliding doors C, D, a keeper secured to the door C, a locking element carried by the door D and adapted to engage the keeper to lock the doors against sliding movement, means carried by the door D to disengage the locking element from the keeper, and means carried by the door C to disengage the locking element from the keeper, independent of the first-named means.

15. The combination of oppositely-sliding doors C, D, a keeper secured to the door C, a locking element carried by the door D and adapted to engage the keeper to lock the doors against sliding movement, means carried by the door D to disengage the locking element from the keeper, means carried by the door C to disengage the locking element from the keeper independent of said first-mentioned means, and means for securing the locking element against movement by either of the first-mentioned means.

16. The combination of oppositely-sliding doors C, D, a keeper secured to the door C, locking elements carried by the door D and adapted to engage the keeper to lock the doors against sliding movement, spring members adapted to keep said locking elements normally projected, handles pivotally secured to the door D, levers having connection with the handles and locking elements whereby move-

ment of the handle will disengage the locking
elements from the keeper, ejectors carried by
the door D to engage under the locking ele-
ments, spring members adapted to normally
5 keep said ejectors together, a handle pivot-
ally secured to the door C, and means con-
necting the handle and ejectors whereby a
movement of the handle will separate the

ejectors to disengage the locking elements
from the keeper. 10

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

CALVIN K. FOREMAN.

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