

No. 754,045.

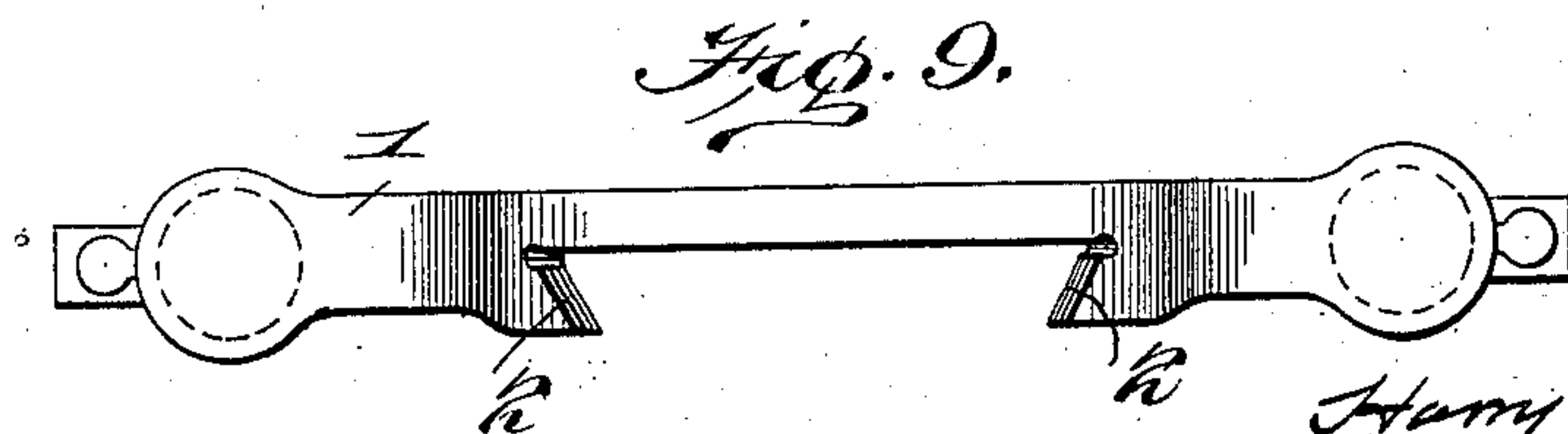
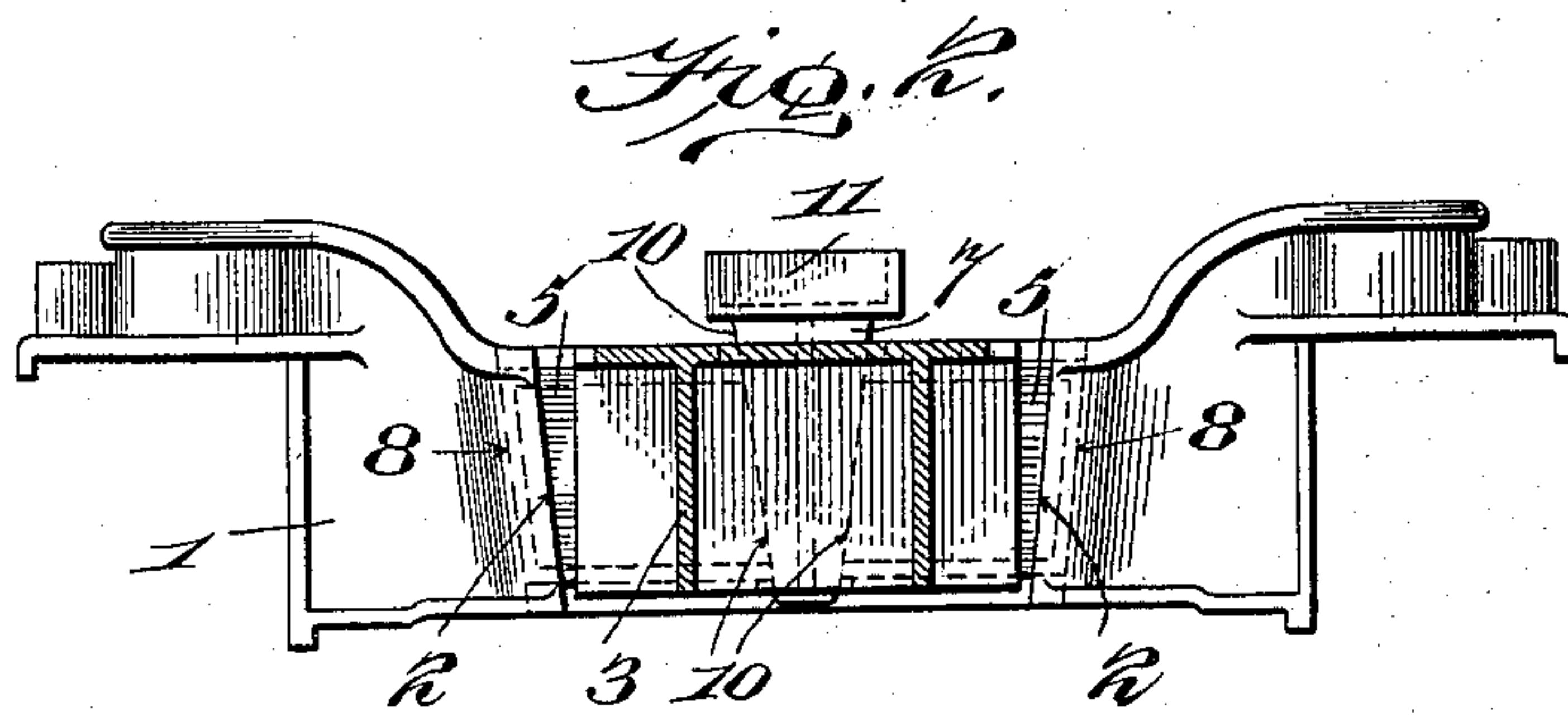
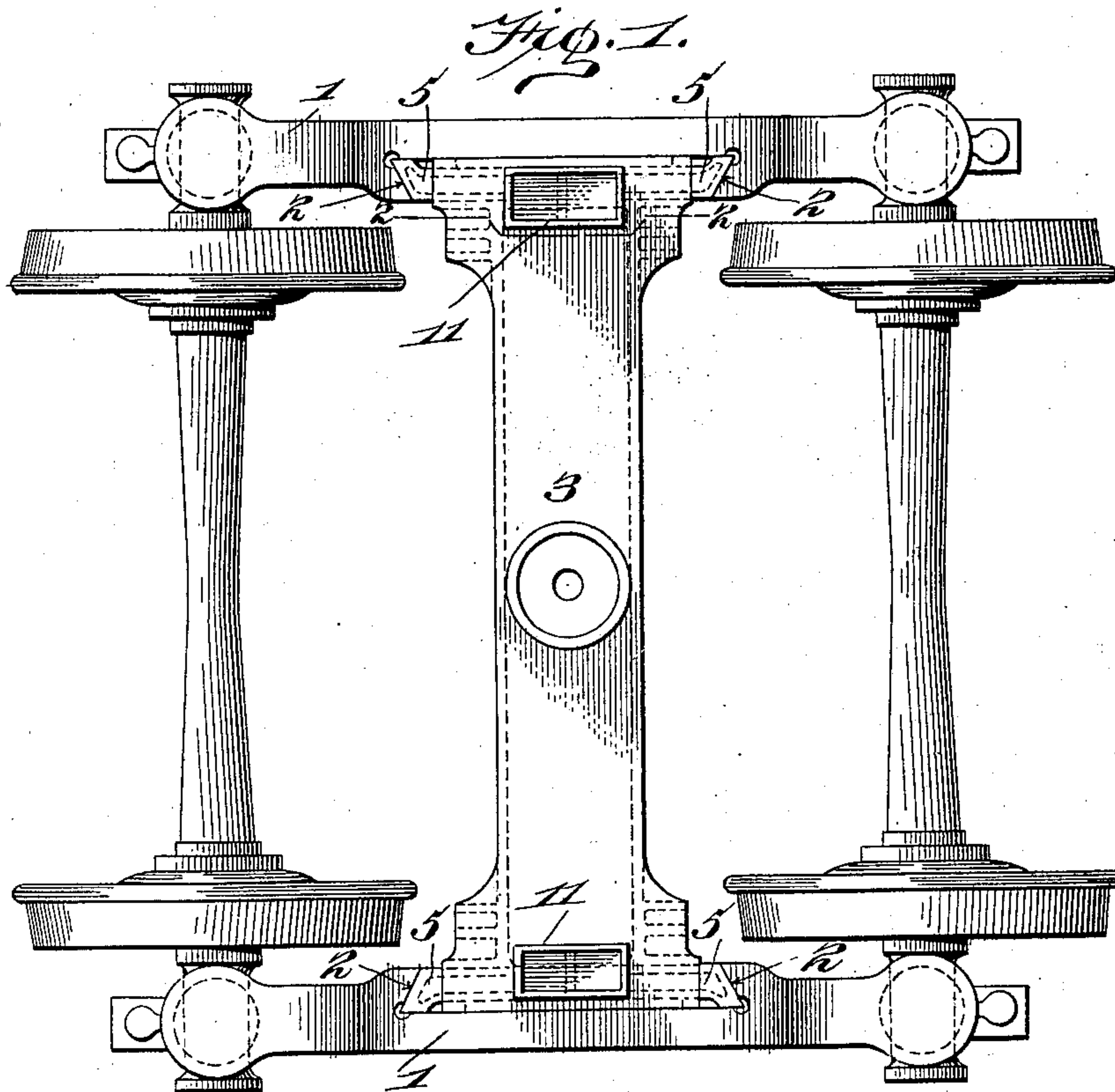
PATENTED MAR. 8, 1904.

H. C. BUHOUP.
CAR TRUCK.

APPLICATION FILED NOV. 24, 1903.

NO MODEL.

4 SHEETS—SHEET 1.



Witnesses

H. S. Dieterich
J. P. Ritter

By

Harry C. Buhoup
J. M. Ritter, Jr.
Attorney

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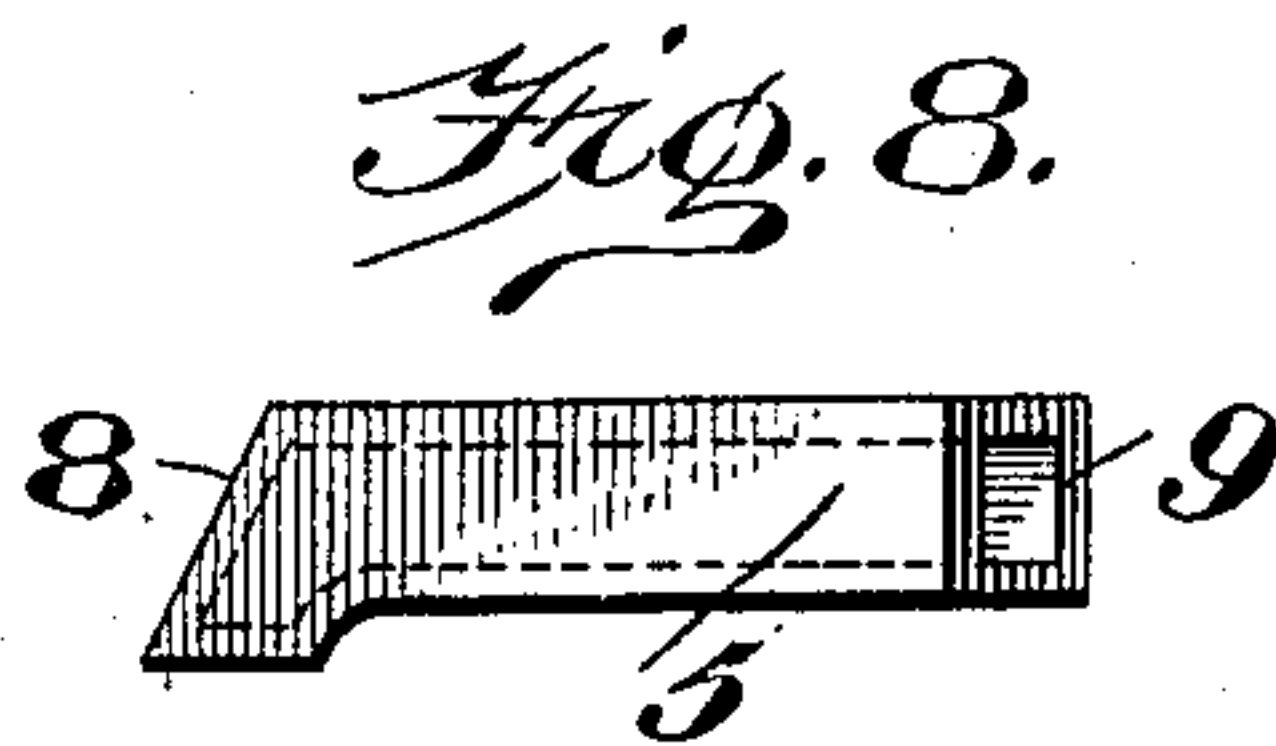
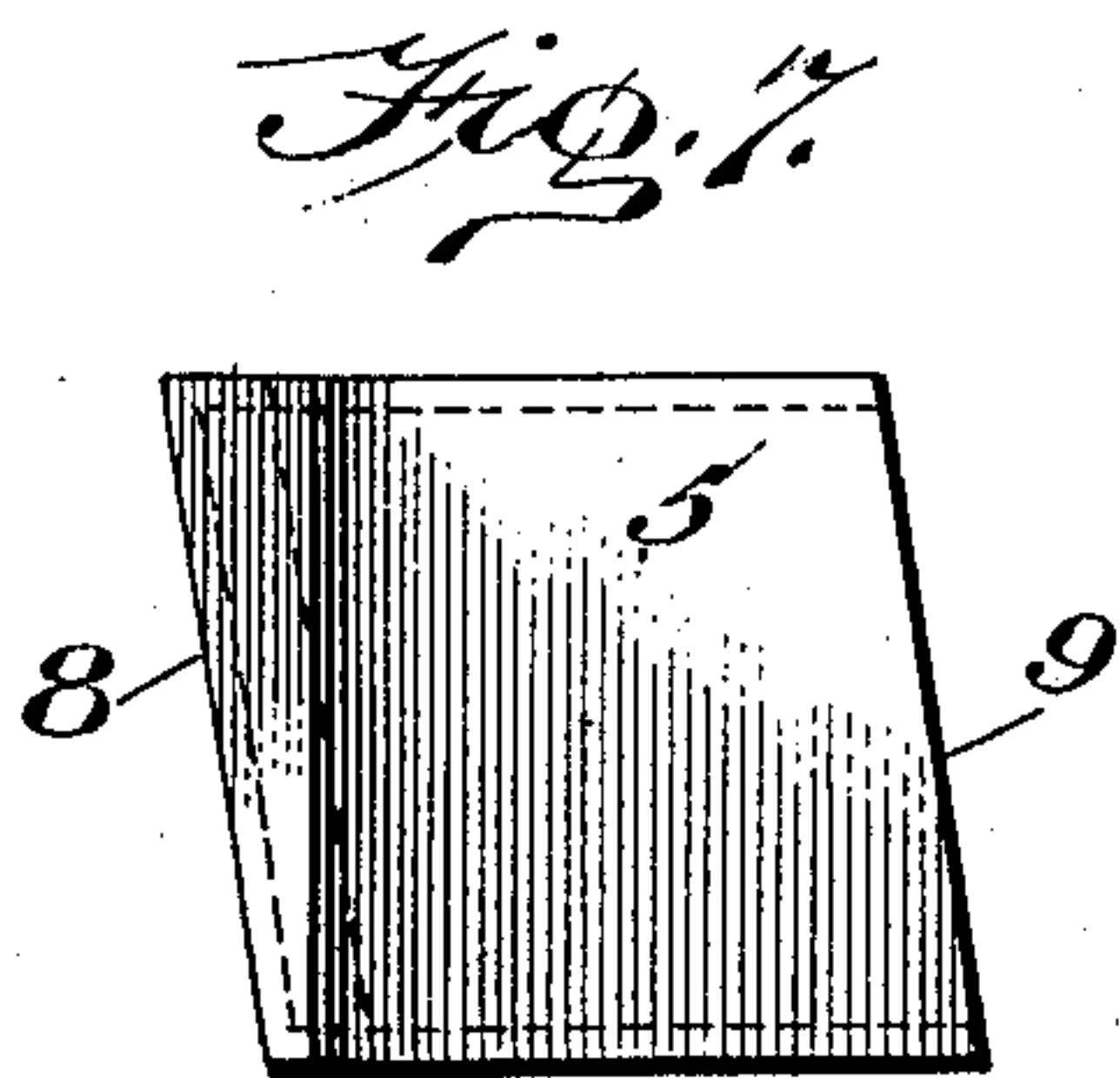
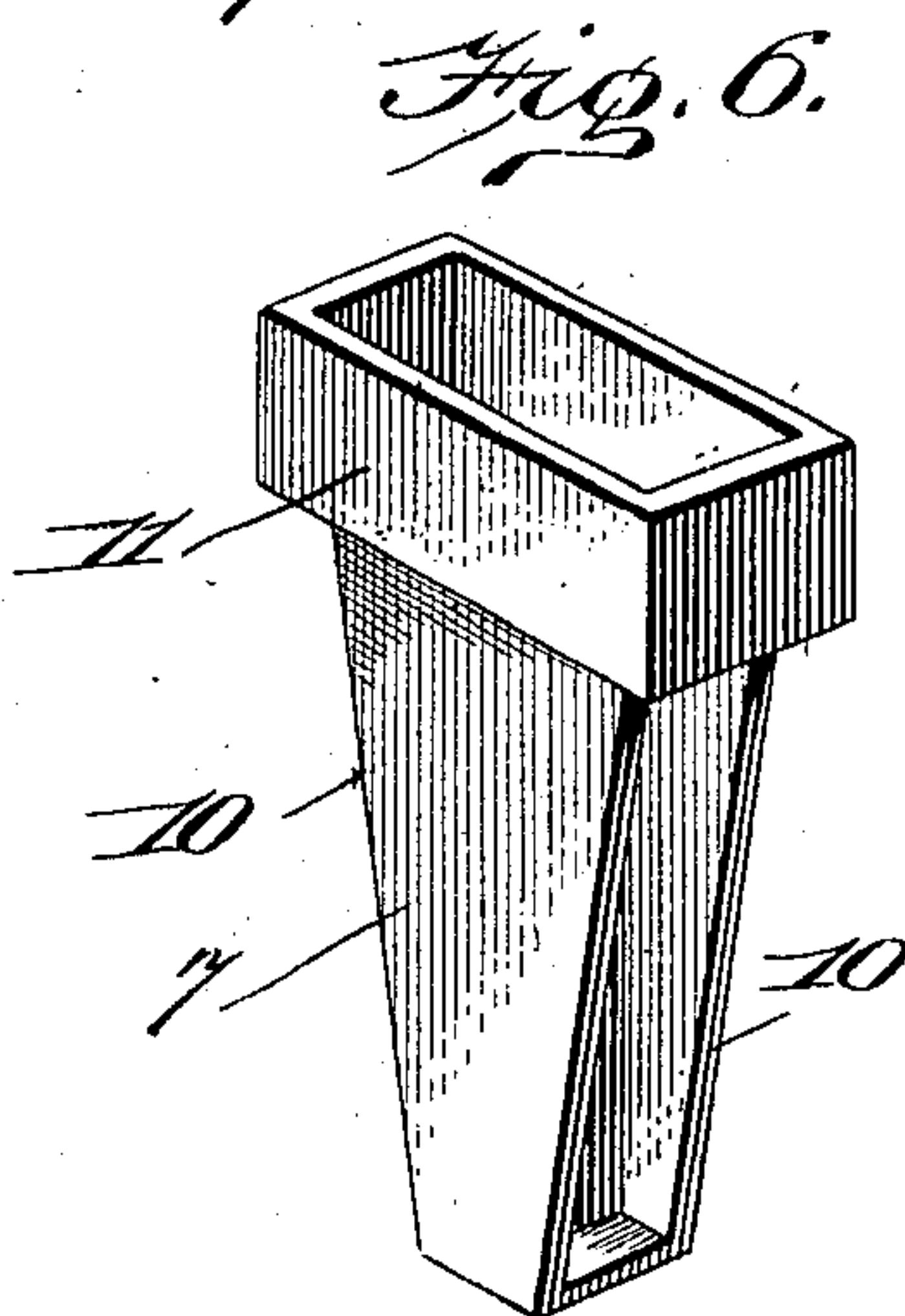
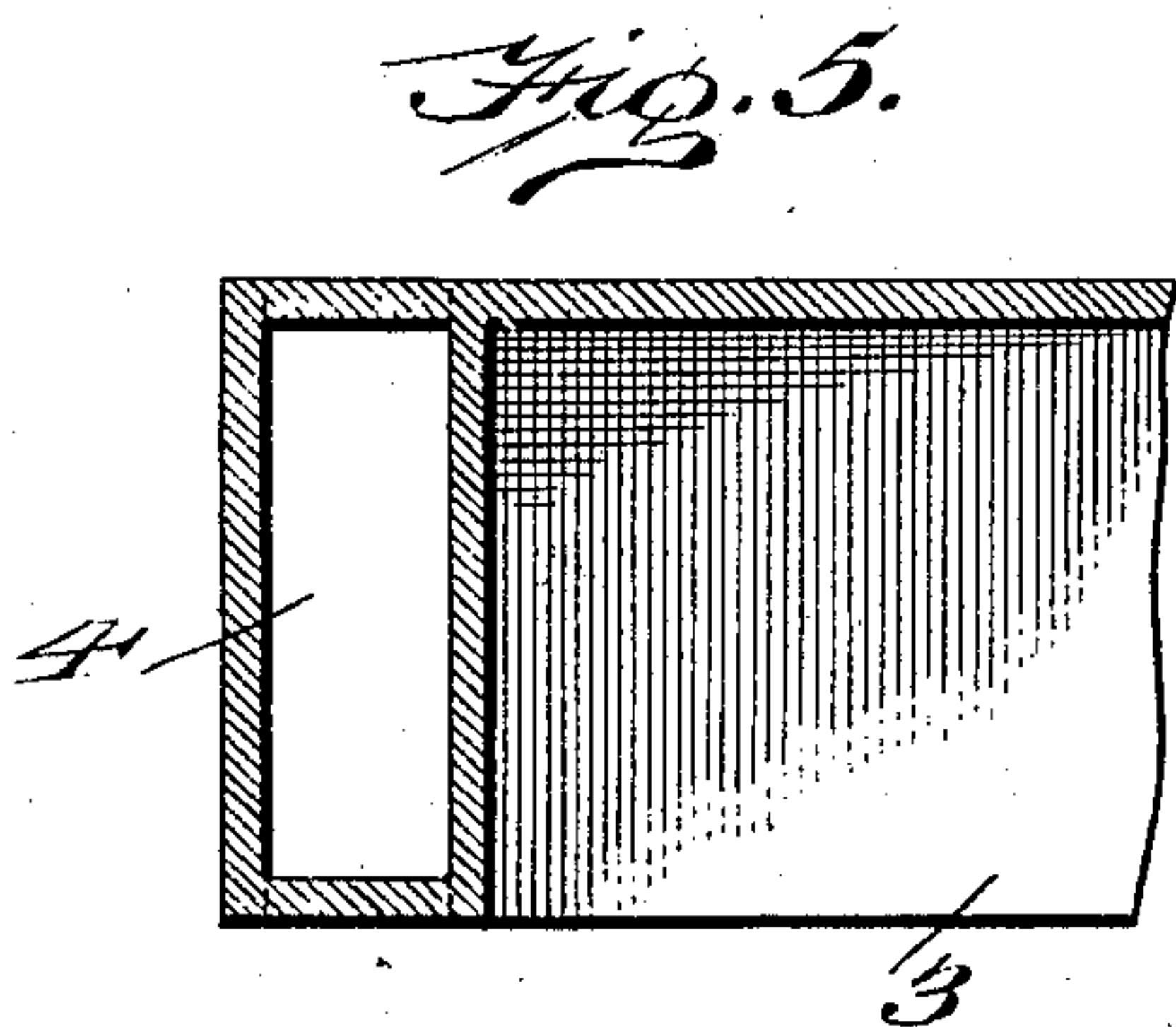
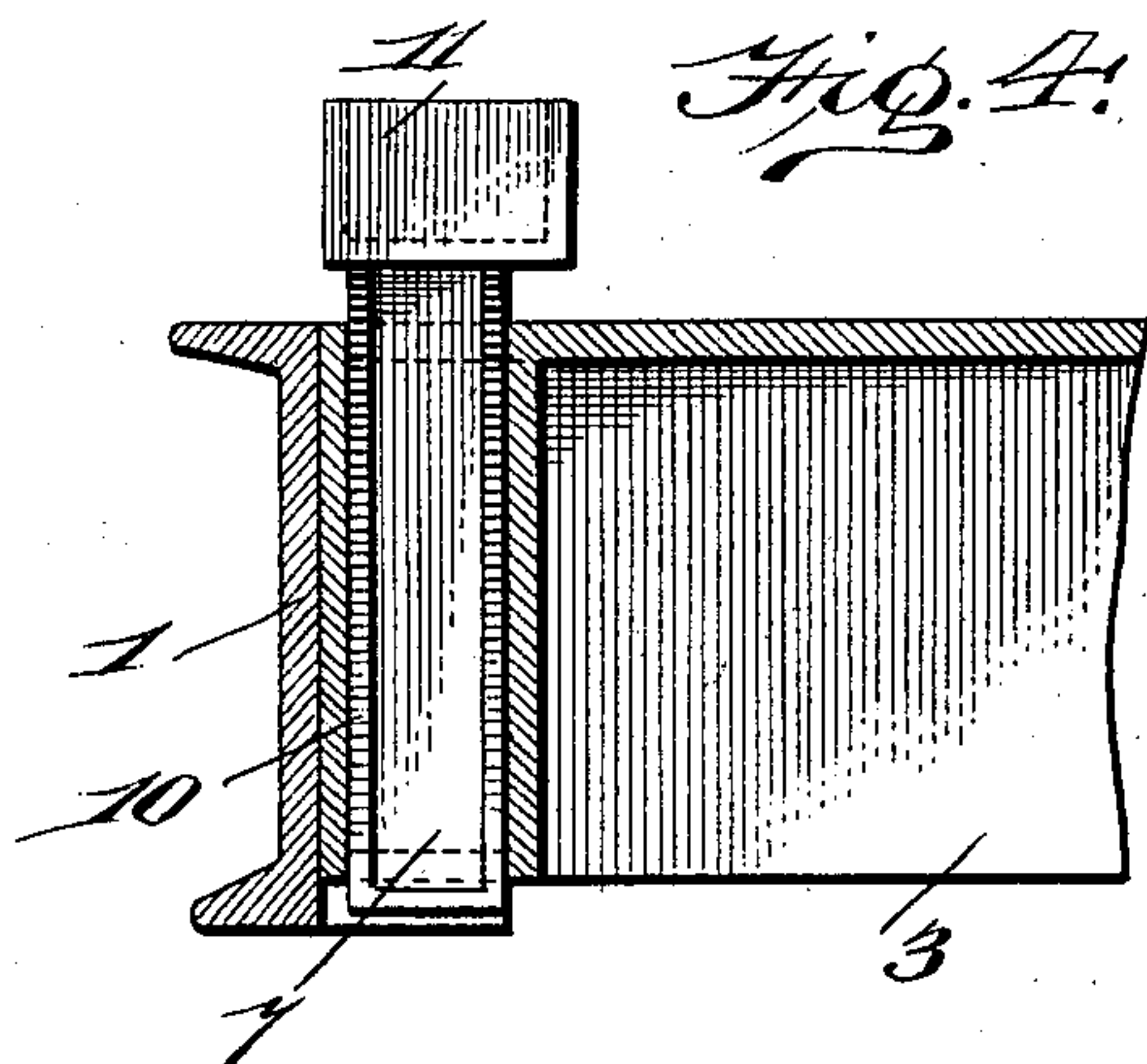
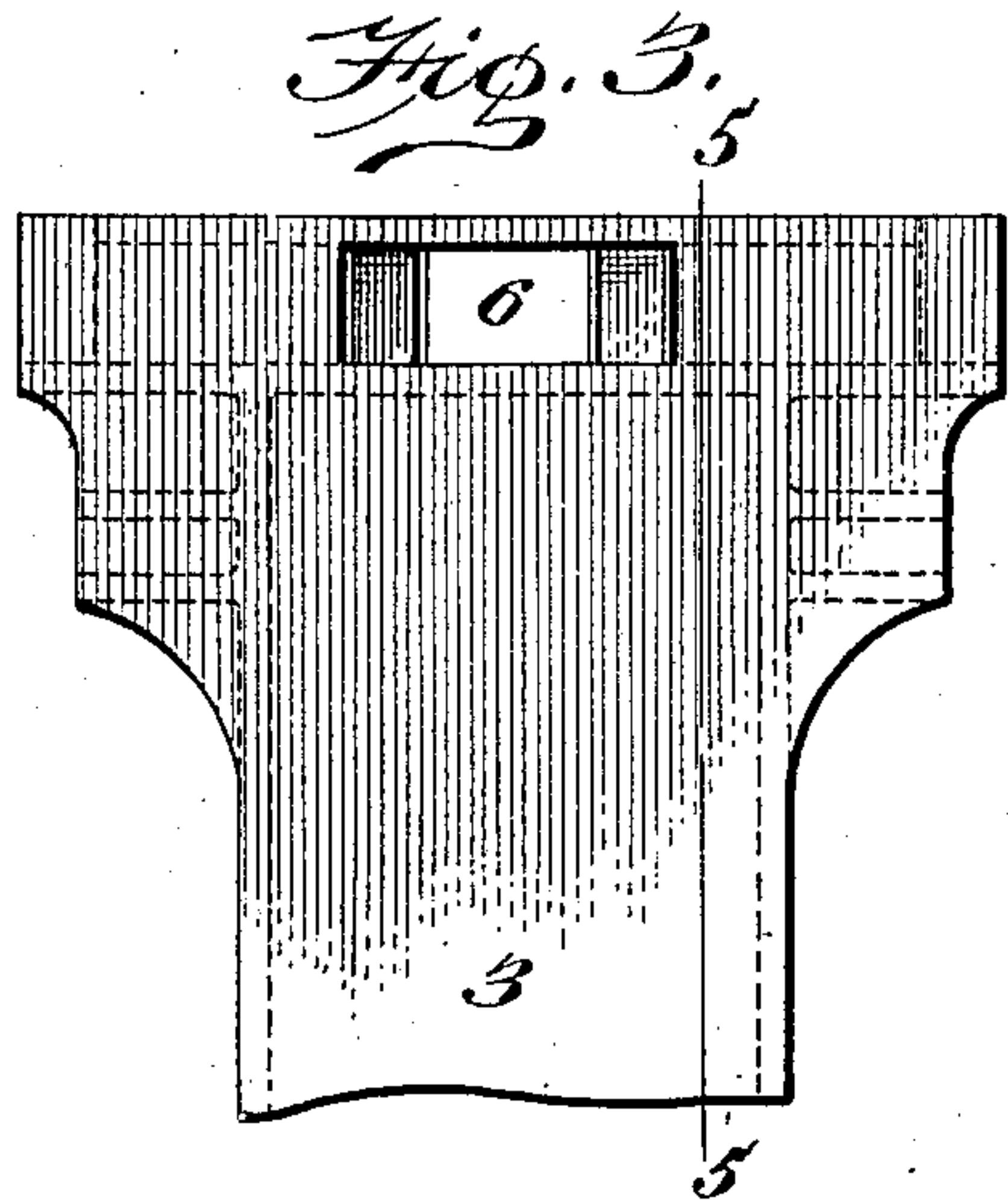
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4 SHEETS—SHEET 2.



Witnesses
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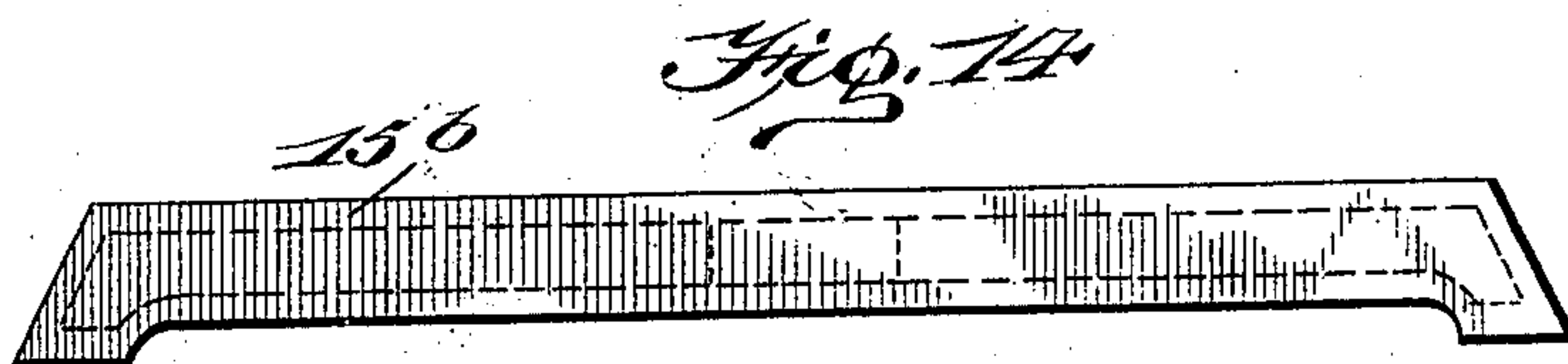
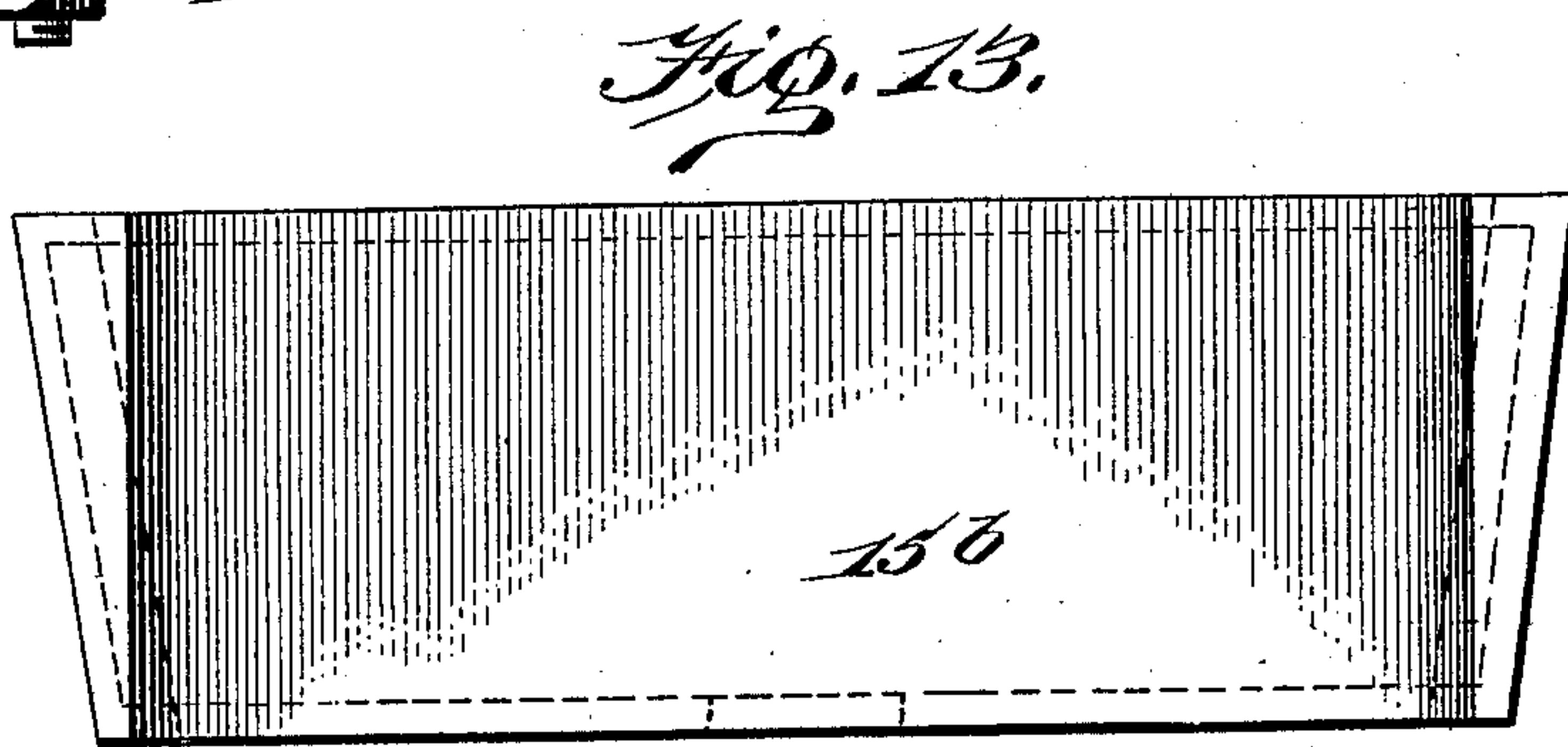
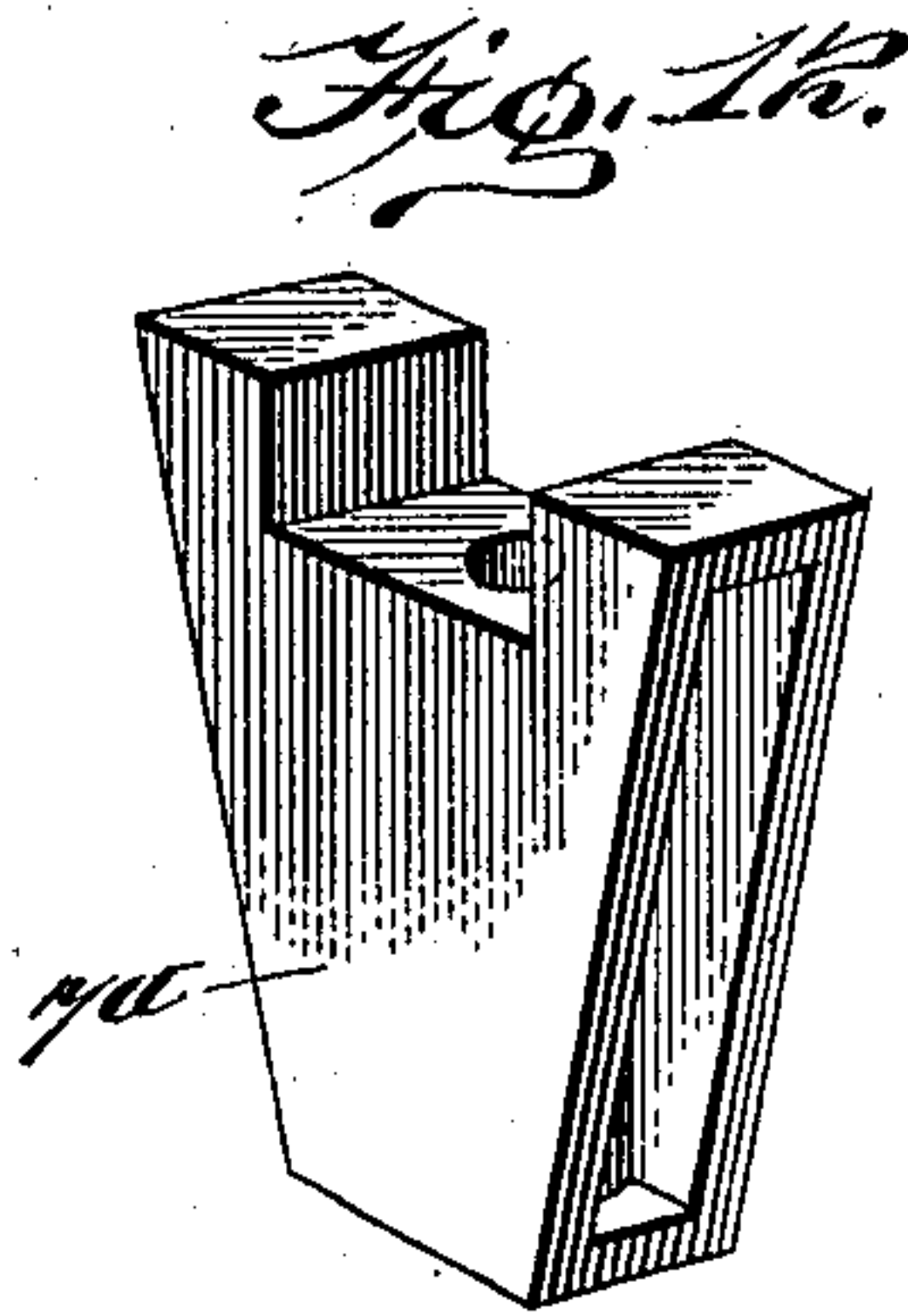
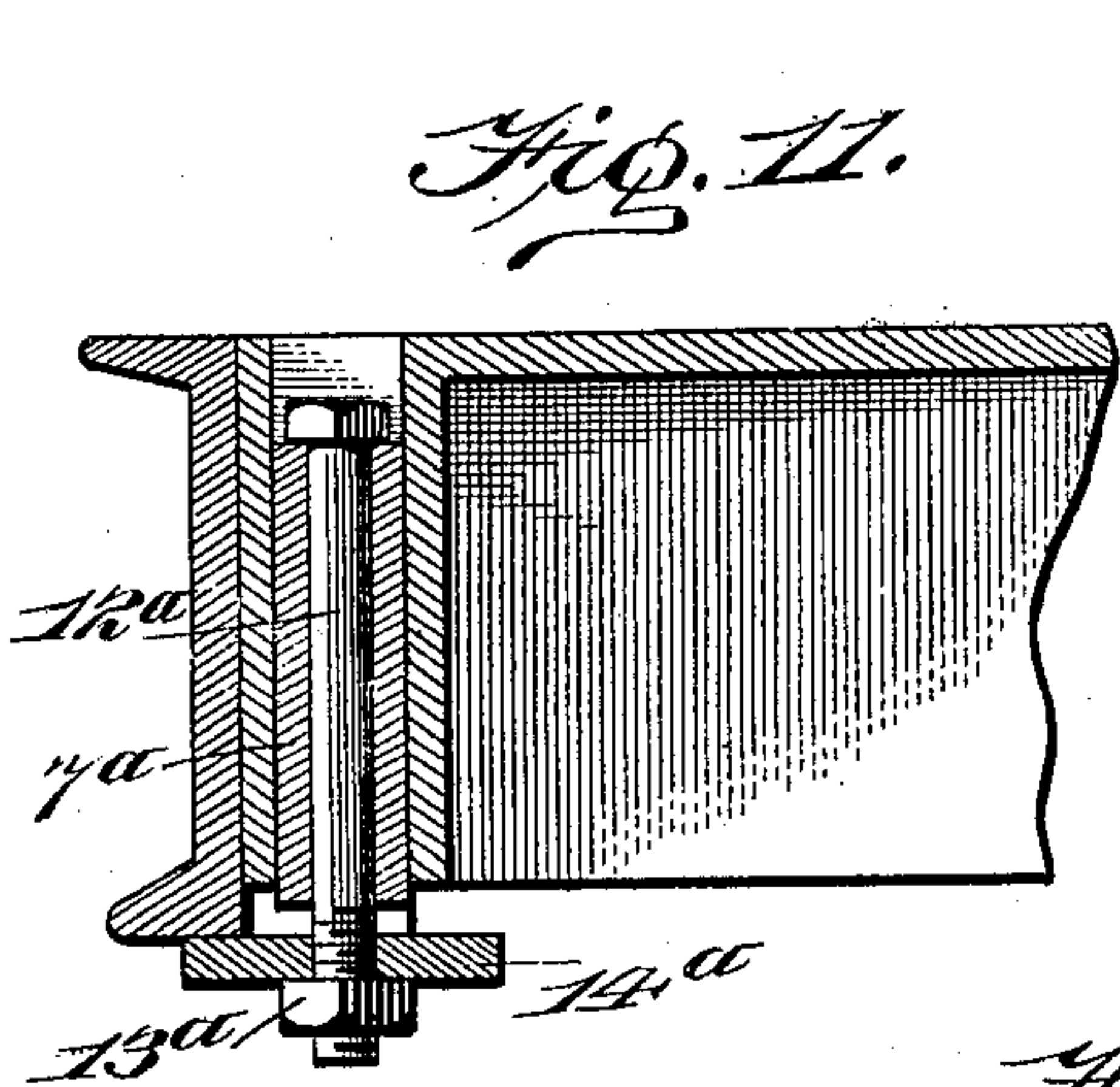
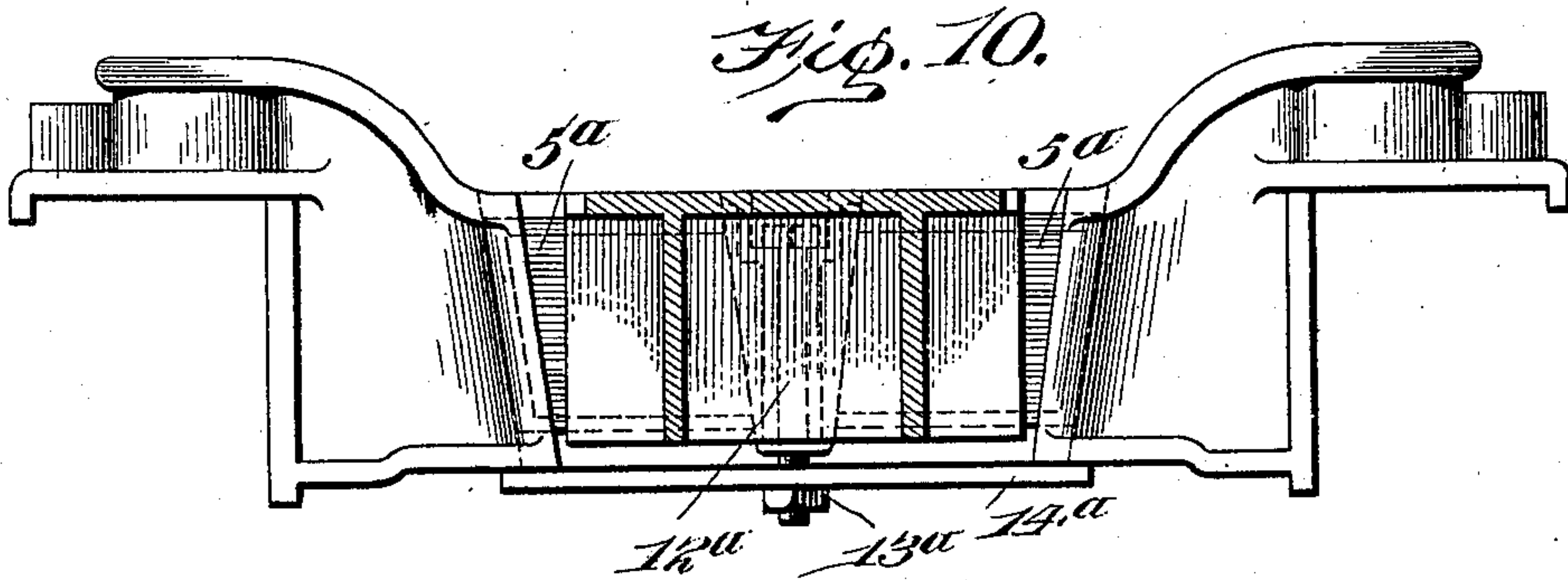
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4 SHEETS—SHEET 3.



Witnesses
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No. 754,045.

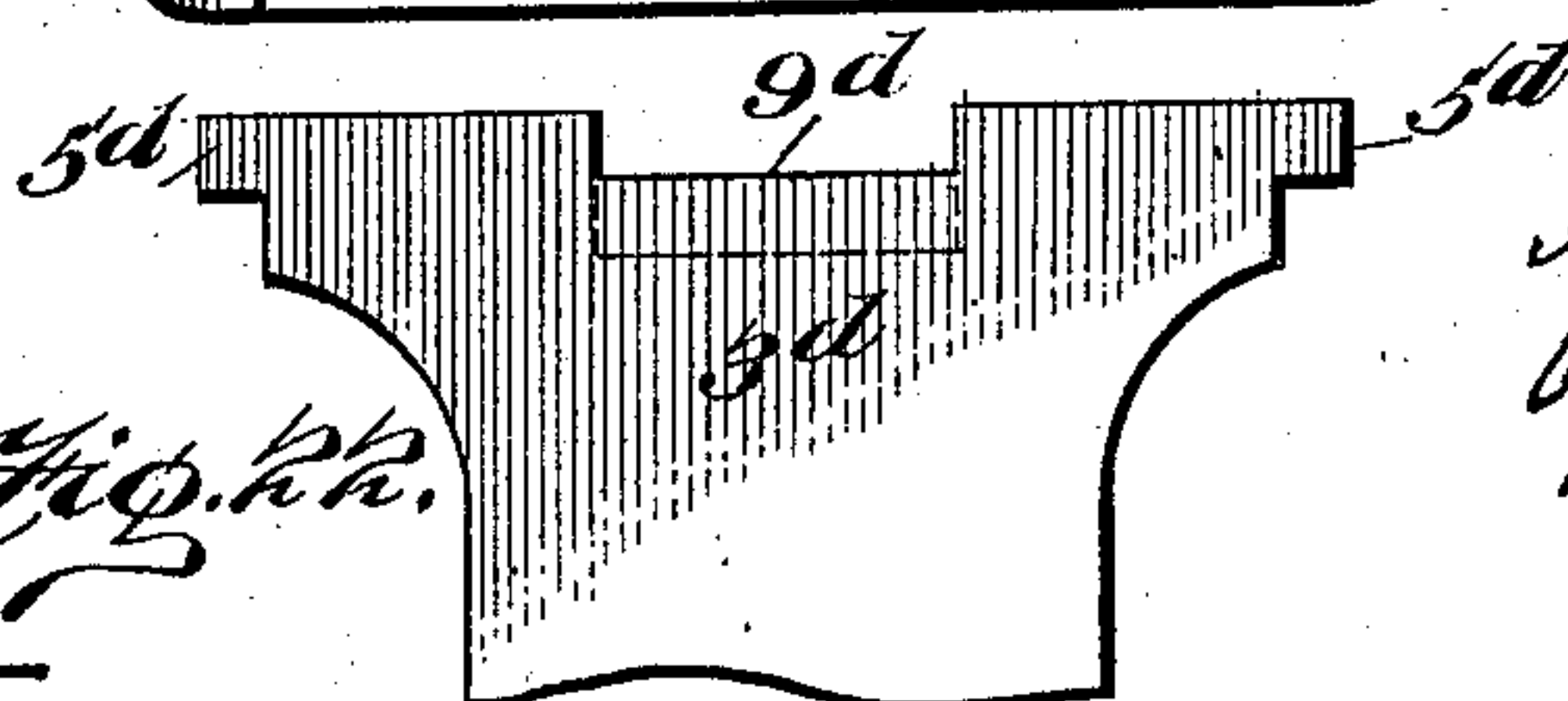
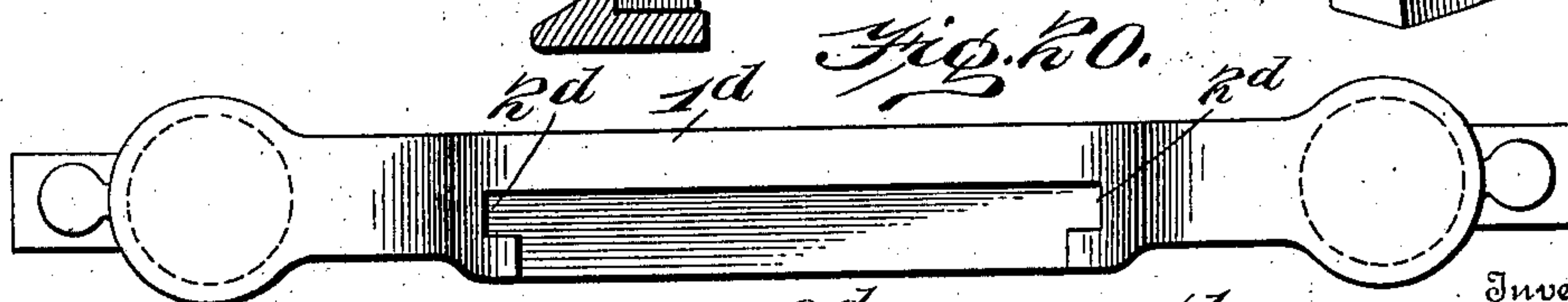
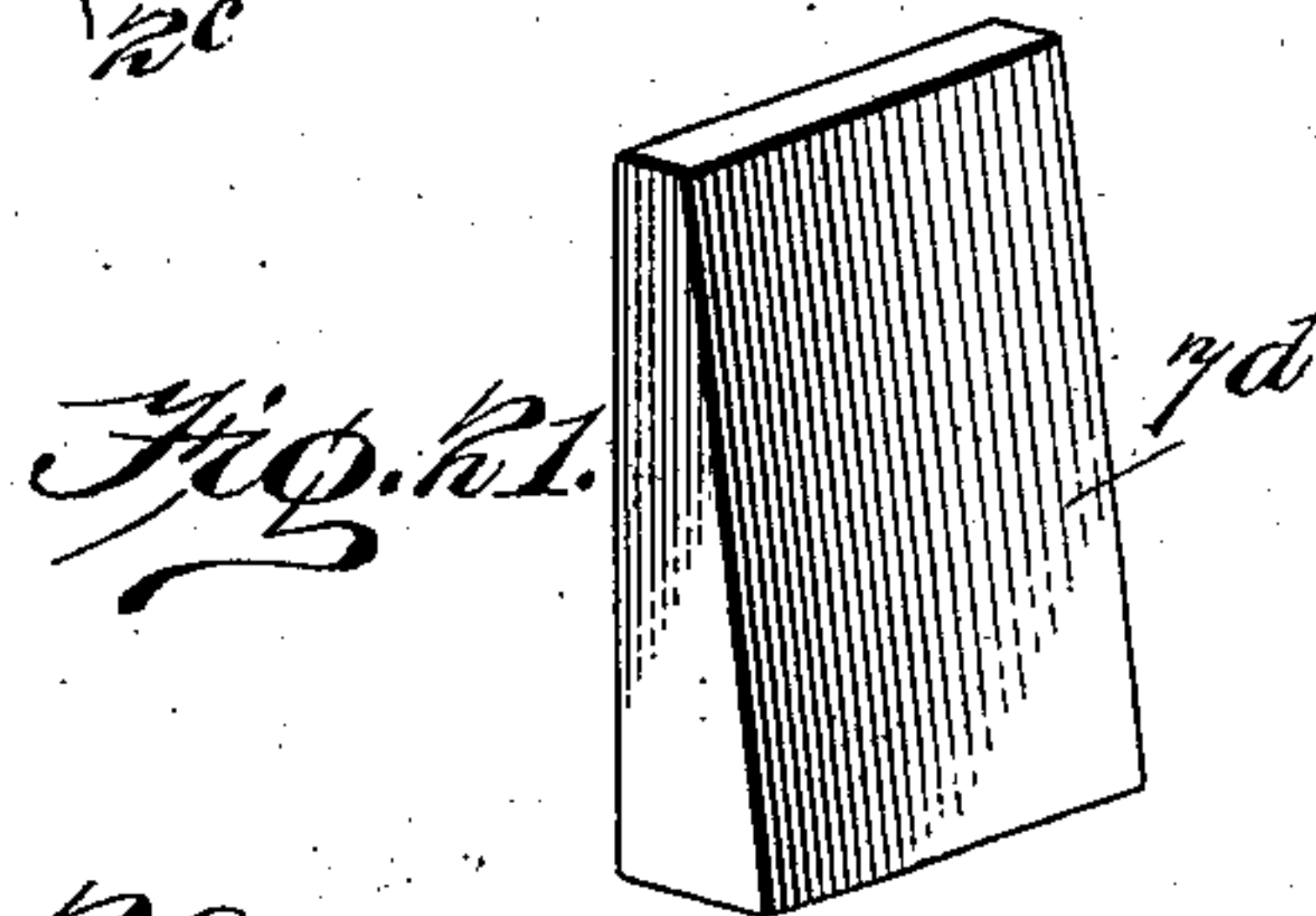
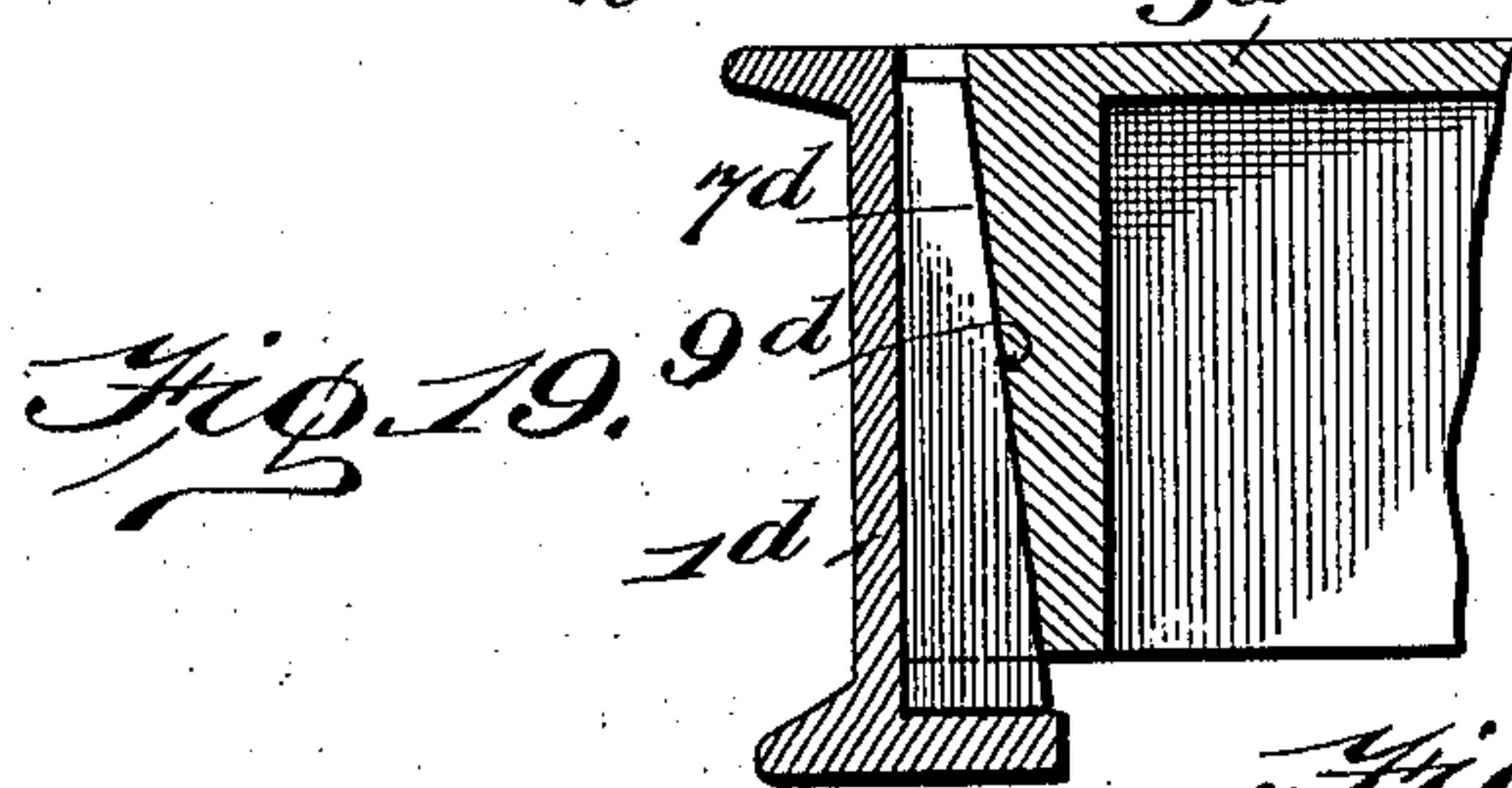
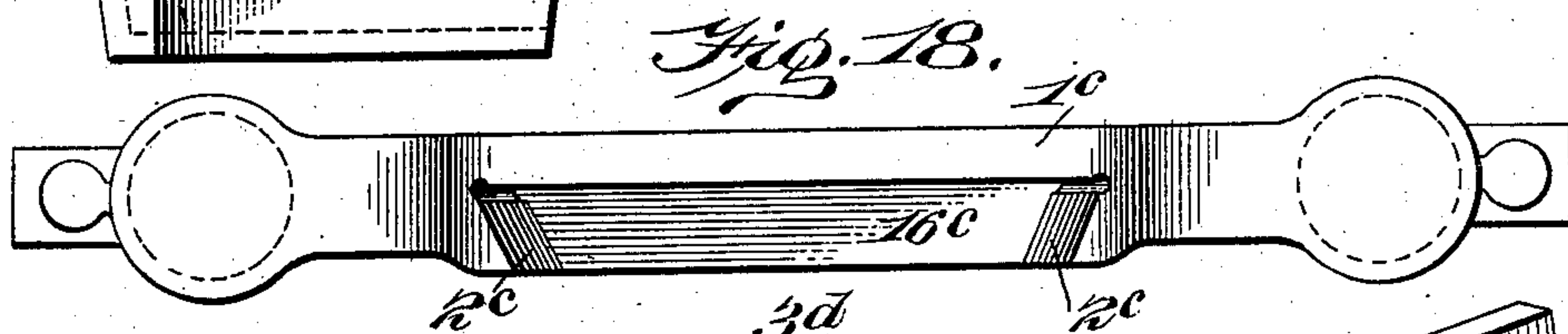
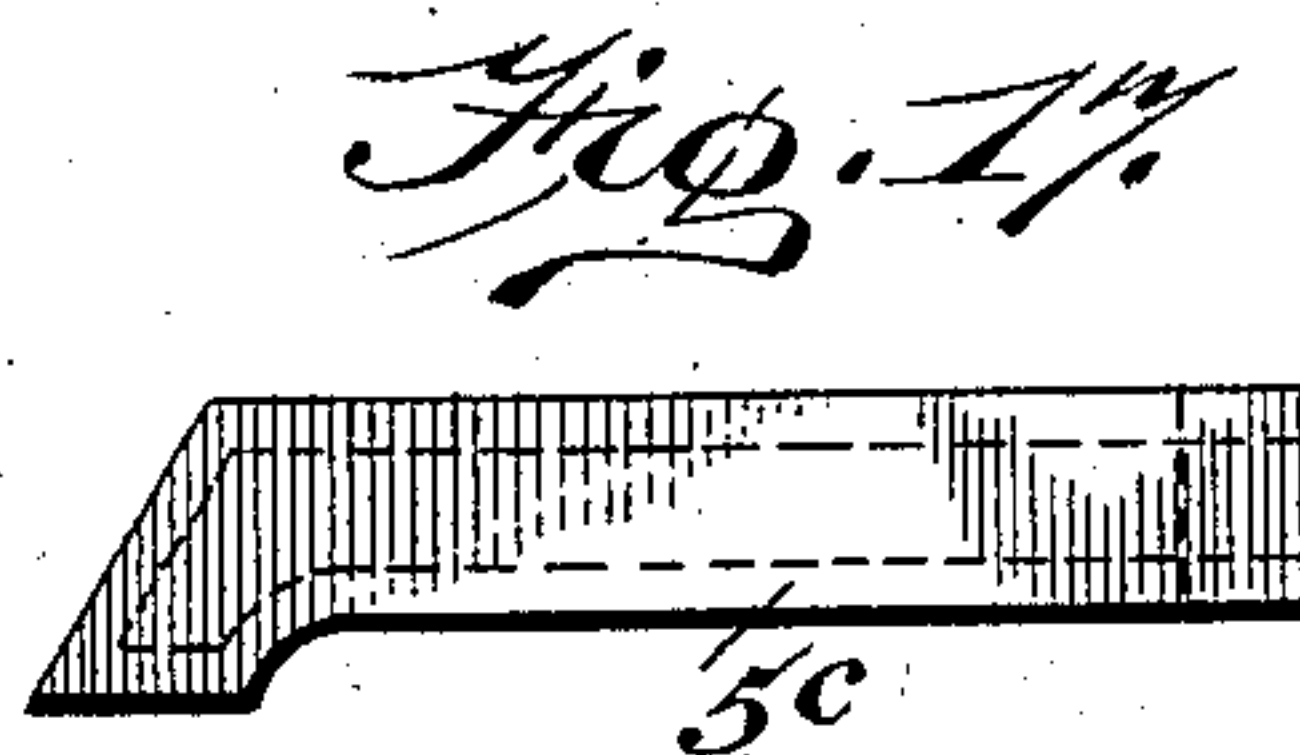
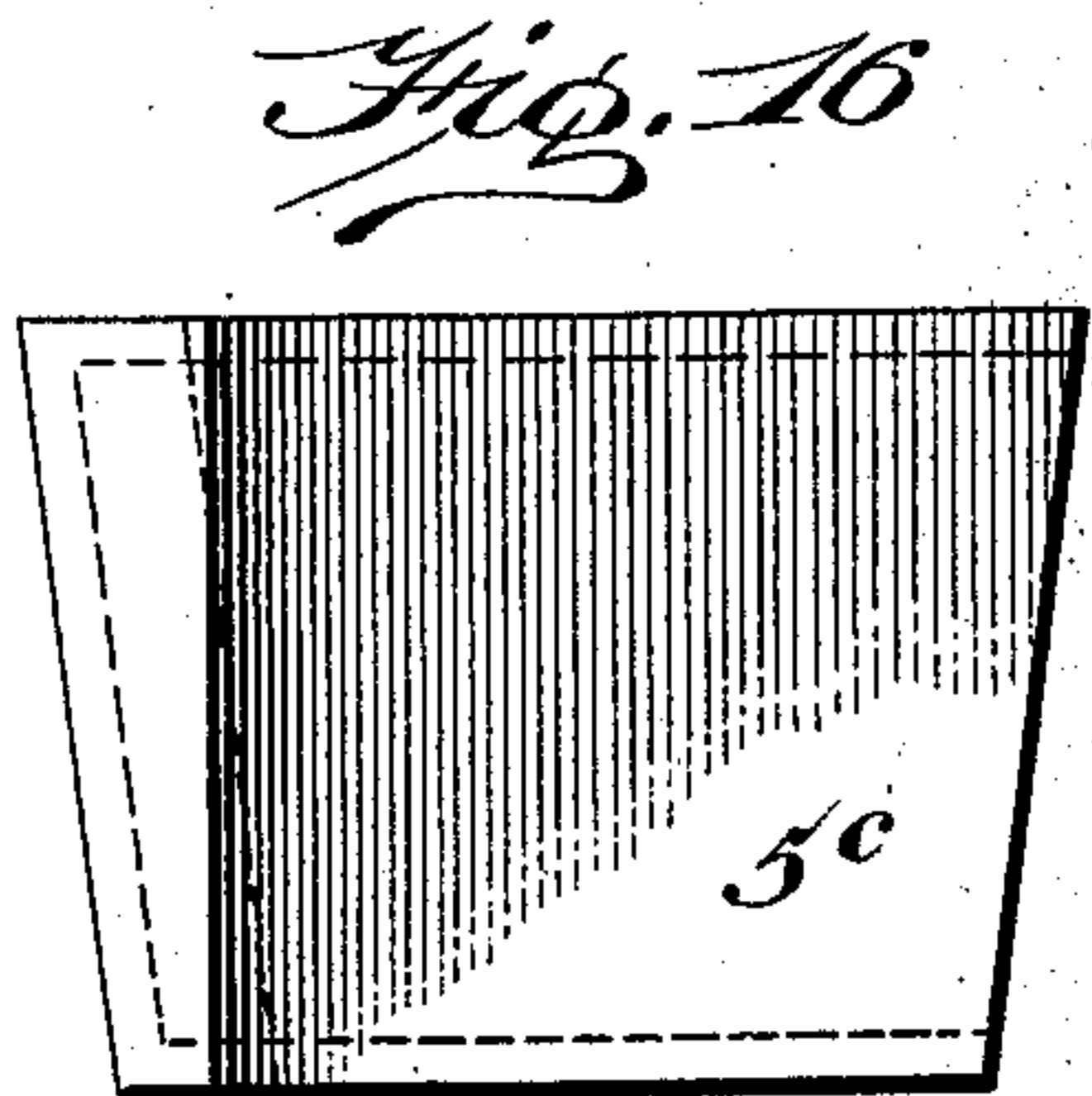
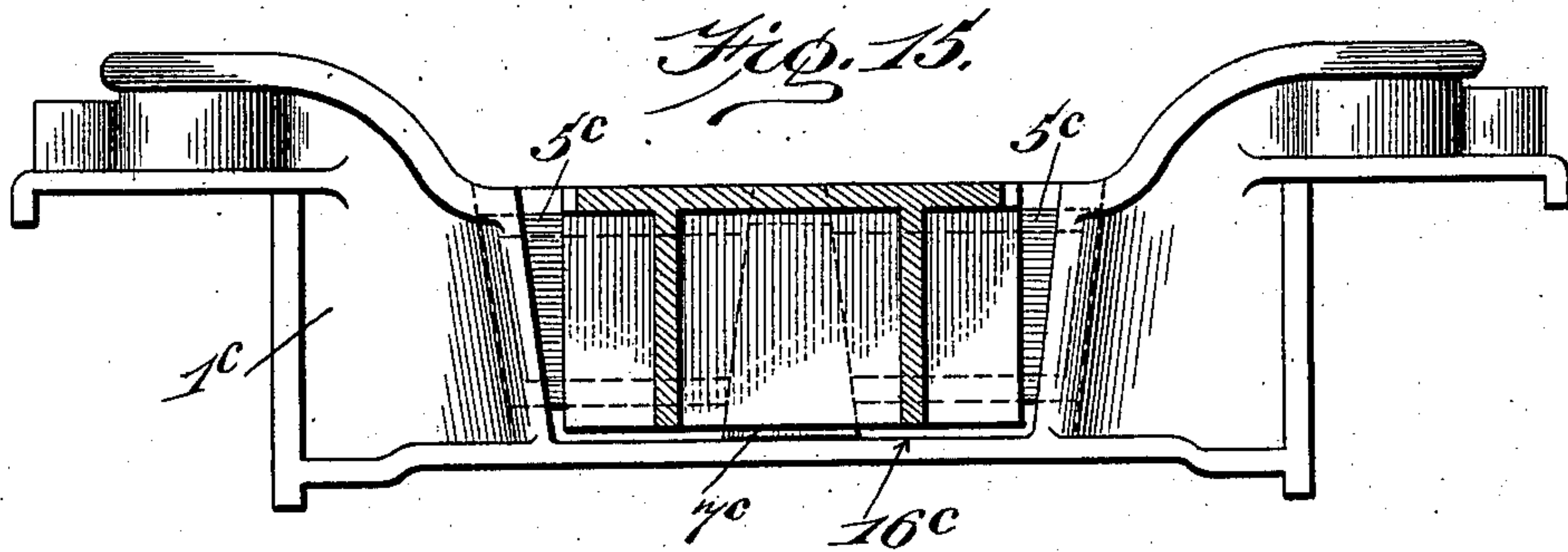
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APPLICATION FILED NOV. 24, 1903.

NO MODEL.

4 SHEETS—SHEET 4.



Witnesses:
H. J. Dieterich
G. F. Ritter

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UNITED STATES PATENT OFFICE.

HARRY C. BUHOUP, OF CHICAGO, ILLINOIS.

CAR-TRUCK.

SPECIFICATION forming part of Letters Patent No. 754,045, dated March 8, 1904.

Application filed November 24, 1903. Serial No. 182,516. (No model.)

To all whom it may concern:

Be it known that I, HARRY C. BUHOUP, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Car-Trucks; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a plan view of a truck embodying my invention, the journal-boxes omitted. Fig. 2 is a transverse section taken on the line 2 2, Fig. 1, the wheels, journal-boxes, and journal-springs omitted. Fig. 3 is a plan view of one end of the transom. Fig. 4 is a vertical section of one end of the truck, taken on the longitudinal axis of the transom, the central wedge and side bearing being shown in elevation. Fig. 5 is a vertical section of one end of the transom, taken on the line 5 5, Fig. 3. Fig. 6 is a perspective view of the central wedge, showing the side bearing attached. Fig. 7 is a side elevation of one of the interlocking members. Fig. 8 is a plan view of one of the interlocking members. Fig. 9 is a plan view of one of the truck side frames. Figs. 10, 11, and 12 are enlarged views which illustrate a modification of my invention, the several views corresponding, respectively, to Figs. 2, 4, and 6. Figs. 13 and 14 are a modification, on an enlarged scale, illustrating an integral construction on the locking elements. Figs. 15, 16, 17, and 18 show in enlarged views a modification of my invention, wherein the central wedge-adjusting element is inverted. Figs. 19, 20, 21, and 22 are somewhat enlarged views which illustrate a modification of my invention, wherein the jaws of the side frames which engage the transom are constructed with vertical walls.

Like symbols refer to like parts wherever they occur.

My invention relates to the construction of trucks for railway-cars and similar rolling-stock, and has for its objects to produce a structure which is easily assembled, readily repaired, requires no fitting of parts, and which is locked and rendered rigid by the superimposed load.

To this end the main feature of my inven-

tion consists in combining with the side frames and transom of a car-truck or their equivalents an element independent thereof whereby the truck is rendered rigid by the load imposed thereon.

There are other minor features of invention, all as will hereinafter fully appear and be particularly pointed out in the claims.

I will now proceed to describe my invention more fully, so that others skilled in the art to which it appertains may apply the same.

In the drawings of the particular form of truck chosen for the purpose of illustrating my invention, 1 is a side frame provided with the inclined faces, ways, pockets, or jaws 2 2, which are preferably convergent both horizontally and vertically; but the said jaws or ways may be of other form, if desired—as, for example, they may have vertical parallel inner walls or faces, as is illustrated in the modified application of my invention shown in Fig. 20.

The transom 3 or other transverse connecting element is provided at each end with a horizontal transversely-extending pocket, passage, socket, or case 4 for the reception of the interlocking elements 5, and at each end of the said transom there is also provided a vertically-extended opening 6, adapted to receive an incline, wedge, or other element 7, which is operative to produce a separation of the interlocking elements 5 5.

5 5 are the interlocking elements, having each an inclined face 8, corresponding to the face of the inclined jaw 2, and an inclined face 9, corresponding to an inclined face 10 of the wedge element 7, which thereby coacts with a pair of interlocking elements 5 5 to cause a separation or a lateral movement thereof. If desired, the central wedge or separating element 7 may be made integral with the transom 3.

The central wedge 7, which is a means of expanding, adjusting, or separating the interlocking elements 5 5 and which may carry or have integral therewith the truck side bearing 11, if desired, is preferably constructed with equally-inclined faces 10 10 of such inclination that the angle included between them is equal to or less than double the

angle of friction corresponding to the character of contacting surfaces of the central wedge 7 and interlocking member 5, or, in other words, the angle of the central wedge is preferably equal to or less than the angle of the cone of friction, by which means, as will hereinafter appear, the central element or wedge 7 is maintained in an adjusted position relatively to the interlocking elements; but other means of fixing the position of the central element 7 with respect to the interlocking elements 5 5 may be adopted, whereby the said central element and interlocking elements are rendered immovable with respect to each other.

From the drawings it will be evident that any force acting upon the interlocking members 5 5 and tending to force or forcing them inwardly toward each other will act upon the central wedge 7 in such manner that there will be one component of the force or pressure acting normal to the contacting surfaces of the central element 7 and interlocking element 5, and another force component acting along such contact-surfaces tending to cause or causing the upward movement of the central frictional wedge element 7. So long, however, as the thrust of the interlocking member upon the central wedge is in a direction such that it is within the cone of friction (generated by revolving about the normal to the contacting surfaces of the aforesaid members a line making the angle of friction with such normal) the central wedge will not be forced upwardly, and even though the direction of interlocking member thrust upon the wedge-block should lie outside the cone of friction upon one side of the central wedge, yet the wedge element 7 will remain at rest with respect to the interlocking members 5 if the direction of interlocking member thrust upon the opposing face thereof lies within the cone of friction and near enough to its normal, so that the friction between the central element and interlocking members is greater than the upward force components acting upon such central wedge element.

When the central adjusting element or central wedge 7 carries the side bearing 11, the frequent impacts of the body side bearing upon such truck side bearing 11 cause an extremely tight engagement of the interlocking members with the side frames, thus acting to increase the like effect due to the load imposed upon the transom.

The interlocking elements 5 5 having been inserted in the sockets, openings, or guideways 4 of the transom and the transom having been brought into the desired relation to the side frames, the central wedge is forced or driven downwardly, thus causing the interlocking members to tightly engage the side frames.

It will be noted that by reason of the ad-

justability toward and from each other of the interlocking members 5 5 and that the inclined faces 8 8 thereof engage correspondingly-inclined faces 2 2 of the side frames 1 1 the transom will occupy a definite vertical relation with respect to the side frames and is capable of a vertical adjustment through the agency of such interlocking members 5 5 and the central element 7. It will also be noted that when the load is imposed upon the transom the same is transmitted to the tops of the interlocking elements 5 5, which by reason of the character of their outer faces 8 8 and the corresponding character of the jaws or ways 2 2 of the side frames thereupon create an inward horizontal thrust upon the side frames, drawing such side frames and transom rigidly together, each pair of interlocking members 5 5 and their interposed wedge or separating element forming a wedge consisting of a plurality of separate elements capable of relative adjustment, yet acting in the same manner as a solid wedge interposed between the transom and side frames and coacting with each.

It will be noted that the several members constituting this structure are all relatively adjustable and relatively movable, thus obviating the necessity of machine-work upon the parts in order to obtain a rigidly-connected truck and permitting any slight wear of the several members to be compensated for.

In Figs. 10, 11, and 12 is shown a modified means of retaining the central wedge 7^a in its fixed or adjusted position with respect to the interlocking elements 5^a 5^a, the same consisting of a through-bolt 12^a, which connects the central wedge element 7^a with the side frame by means of a nut 13^a and a plate 14^a, bearing upon the under side thereof.

While it is recommended that in practice the special means adopted to maintain the central wedge element in any given fixed or adjusted position be that shown in the principal figures of the drawings—viz., the angularity of the center wedge element, whereby the same is frictionally retained against being thrust upward by the action of the interlocking members—yet the use of other means, such as shown in this modification, will enable a greater angle to be employed for the central wedge or interlocking member separating element, and in case of derailment of the truck the side frames and transom would not become separated.

In Figs. 13 and 14 is shown a construction wherein the tripartite adjustable wedge is made as an integral member 15^b, it being thus similar to and the equivalent of the tripartite wedge for some definite relation of the several members thereof. In this construction the wedge 15^b is inserted laterally into the opening 4 of the transom, the vertical opening 6 for the introduction of the central wedge element being omitted, and the transom

is caused to rigidly engage the side frames by the insertion of the wedge 15^b in the inclined guideways or jaws 2 2 of the side frames 1 1.

In Figs. 15, 16, 17, and 18 is shown a further modification of my invention wherein the center wedge element 7^c rests upon the lower portion 16^c of the side frame 1^c, the interlocking elements 5^c 5^c having their inclined faces convergent, and the opening in the transom which receives the central wedge element (corresponding to 6 of Fig. 3) being made wider at the bottom than at the top in order to accommodate the inverted position of the said central wedge element 7^c. In assembling this construction the central wedge element 7^c is placed upon the lower rail 16^c of the side frame 1^c, and the interlocking elements 5^c 5^c having been inserted in the transverse openings 4 4 at the end of the transom the transom is brought into the desired relation with the side frames, the central wedge element 7^c expanding the interlocking members 5^c 5^c and causing them to engage the inclined guideways 2^c 2^c of the side frames 1^c 1^c.

In Figs. 19, 20, 21, and 22 is shown a further modification of my invention wherein the guideways or jaws 2^d 2^d of the side frames 1^d 1^d are vertical instead of inclined to the vertical, and the projections 5^d 5^d of the transom 3^d are caused to engage therewith by the action of the wedge 7^d upon the inclined face 9^d of said transom, the wedge 7^d being seated upon the lower rail of the side frame 1^d. Instead of forming the opening in the side frame 1^d, which receives the central wedge 7^d, with a vertical wall for the bearing of the wedge opposite the end of the transom the same may be given a slight inclination toward the transom from the top to the bottom of such opening in the side frame, thus permitting a vertical adjustability of the transom and relieving the lower rail of the side frame 1^d of the direct strain due to such wedge 7^d resting thereon.

It is obvious that my invention is susceptible of many modifications in addition to those illustrated in the drawings without departing from the scope thereof—as, for example, the central wedge element may have its inclined faces taper in the direction of thickness of the central element as well as in the direction of its length; the end of the transom may be formed having the transverse opening therein with open bottom, so that the end of the transom is of hook form; more than a single central wedge may be employed; but all such modifications, and modifications of a like character I consider within the scope of my invention, the characteristic of which is the co-ordination of side frames, a transverse connecting element, and independent means whereby the structure is rendered rigid by the action of the load.

Having thus described my invention, what I

claim, and desire to secure by Letters Patent, 65 is—

1. In a car-truck, the combination with side frames, of a transverse connecting element, and frictional means for maintaining the rigid connection of said side frames and transverse connecting element, substantially as and for the purposes specified. 70

2. In a car-truck, the combination with side frames, of a transverse connecting element vertically adjustable with respect thereto, and laterally-adjustable means for maintaining said side frames and transverse connecting element in an adjusted position, substantially as and for the purposes specified. 75

3. In a car-truck, the combination with the side frames and a transverse connecting element, of a coacting inclined member independent thereof, said inclined member adapted to transmit force from the said transverse connecting element to the said side frames and to maintain the rigid connection thereof, substantially as and for the purposes specified. 80 85

4. In a car-truck, the combination with the side frames and a transverse connecting element, of means independent thereof adapted to cause a horizontal thrust upon the side frames by imposing a load upon the said transverse connecting element, whereby said transverse connecting element and said side frames are rigidly connected, substantially as and for the purposes specified. 90 95

5. In a car-truck, the combination with the side frames and a transverse connecting element, of independent means operative by the load imposed upon said transverse connecting element to cause the rigid engagement of said side frames and transverse connecting element, substantially as and for the purposes specified. 100

6. In a car-truck, the combination with the side frames and a transverse connecting element, of a wedge comprising a plurality of members, whereby the side frames and transverse connecting element are connected, substantially as and for the purposes specified. 105 110

7. In a car-truck, the combination with the side frames and a transverse connecting element, of a side-bearing-supporting element whereby the said side frames and transverse connecting element are connected, substantially as and for the purposes specified. 115

8. In a car-truck, the combination with the side frames, of a transverse connecting element having a transversely-extending pocket therein adapted to receive means operative by the load for causing the rigid engagement of said side frames and said transverse connecting element, substantially as and for the purposes specified. 120

9. In a car-truck, the combination with the side frames, of a transverse connecting element, a plurality of interlocking members, whereby said side frames and said transverse 125

connecting element are rigidly connected and means for relatively adjusting said interlocking members, substantially as and for the purposes specified.

5 10. In a car-truck, the combination with the side frames and a transverse connecting element, of a plurality of interlocking members, means for relatively adjusting said interlocking members, and means for retaining said interlocking member in an adjusted position, substantially as and for the purposes specified.

10 11. In a car-truck, the combination with the side frames and a transverse connecting element, of a plurality of interlocking members, means for relatively adjusting said interlocking members, and means adapted to frictionally retain said interlocking members in an adjusted position, substantially as and for the purposes specified.

20 12. In a car-truck, the combination with side frames, of a transverse connecting element, an interlocking member, operative by the load to cause a rigid engagement of said side frames and transverse connecting element and means adapted to frictionally retain said interlocking member in an adjusted position, substantially as and for the purposes specified.

25 13. In a car-truck, the combination with side frames, of a transverse connecting element, a plurality of interlocking members, whereby said side frames and said transverse connecting element are rigidly connected and means for expanding said interlocking members, substantially as and for the purposes specified.

30 14. In a car-truck, the combination with the side frames, of a transverse connecting element having a transverse horizontally-extending pocket therein, an independent interlocking member within said pocket, and means for causing said interlocking member to engage the side frame, substantially as and for the purposes specified.

35 15. In a car-truck, the combination with the side frames, of a transverse connecting element having a pocket therein, a plurality of movable interlocking members within said pocket, and means adapted to cause said interlocking members to engage the side frames, substantially as and for the purposes specified.

40 16. In a car-truck, the combination with the side frames, of a transverse connecting element having a pocket therein, inclined interlocking members within said pocket, and means for causing said interlocking members to engage the side frames, substantially as and for the purposes specified.

45 17. In a car-truck, the combination with side frames, of a transverse connecting element, independent inclined interlocking members and means whereby said inclined interlocking members are operative by the action of the load to cause the rigid engagement of said side frames and said transverse connecting element, substantially as and for the purposes specified.

18. In a car-truck, the combination with the side frames, of a transverse connecting element, and means for rigidly connecting said side frames and transverse connecting element, said means comprising a plurality of inclined interlocking members and a wedge adapted to separate said interlocking members, substantially as and for the purposes specified.

70 19. In a car-truck, the combination with the side frames, of a transverse connecting element having a transverse pocket therein, said pocket adapted to receive an interlocking member, and an interlocking member operative by the action of the load to cause the rigid connection of said side frames and transverse connecting element, substantially as and for the purposes specified.

75 20. In a car-truck, the combination with the side frames and a transverse connecting element, of a wedge element coacting therewith, whereby said side frames and transverse connecting element are rigidly connected by the action of the load, substantially as and for the purposes specified.

80 21. In a car-truck, the combination with the side frames, of a transverse connecting element having pockets therein, and means retained in said pockets by the load for connecting said side frames and transverse connecting element, substantially as and for the purposes specified.

85 22. In a car-truck, the combination with side frames having pockets therein, of a transverse connecting element also having pockets, and interposed independent interlocking elements retained in the pockets by the load, substantially as and for the purposes specified.

90 23. In a car-truck, the combination with side frames and a transverse connecting element, of independent laterally-movable interlocking members, operative by the load to cause the rigid connection of said side frames and transverse connecting element, substantially as and for the purposes specified.

95 24. In a car-truck, the combination with the side frames, of a transverse connecting element, and interlocking means independent thereof adapted to be retained in a locked position by the action of the load, substantially as and for the purposes specified.

100 25. In a car-truck, the combination with the side frames, of a transverse connecting element, and an interlocking member having both a vertical and a horizontal inclination whereby said side frames and transverse connecting element are rigidly connected, substantially as and for the purposes specified.

105 26. A connecting device for the side frames and transverse connecting element of a car-truck, comprising a plurality of elements adapted to be retained in a fixed position relative to each other by the frictional engagement of the several elements, substantially as and for the purposes specified.

27. In a car-truck, the combination with side frames, of a transverse connecting element, interlocking means, and a wedge having an angularity equal to or less than the apex angle of the cone of friction, substantially as and for the purposes specified.

28. In a car-truck, the combination with side frames, of a transverse connecting element having pockets therein, a plurality of independently - movable interlocking members within said pockets, and means adapted to cause a horizontal thrust upon the side frames by imposing a load upon the said transverse connecting element, substantially as and for the purposes specified.

29. In a car-truck, the combination with side frames, of a transverse connecting element vertically adjustable with respect thereto, and frictional means adapted to maintain said side frames and transverse connecting element in an adjusted position, substantially as and for the purposes specified.

30. In a car-truck, the combination with the side frames and transverse connecting element, of interposed locking elements, whereby said side frames and transverse connecting element are rigidly connected, the transverse member and locking elements being relatively adjustable with relation to each other and the side frames for varying the height of said transverse connecting element, substantially as and for the purposes specified.

31. In a car-truck, the combination with side frames, of a transverse connecting element, and an interlocking element, all of said parts mutually engaging and relatively movable to effect the rigid interlocking thereof, substantially as and for the purposes specified.

32. In a car-truck, the combination with the side frames, of a transverse connecting element, and independent means whereby the said side frames and transverse connecting element are rigidly connected by the action of the load, substantially as and for the purposes specified.

33. In a car-truck, the combination with the side frames, of a transverse connecting element having a pocket therein adapted to limit the vertical movement of an interlocking member, an interlocking member within said pocket, and means for causing said interlocking member to engage the side frame, substantially as and for the purposes specified.

34. In a car-truck, the combination with the side frames, of a transverse connecting element, and means for connecting said side frames and transverse connecting element, said means consisting of a plurality of wedges mutually engaging and relatively immovable with respect to each other, substantially as and for the purposes specified.

35. In a car-truck, the combination with the side frames, of a transverse connecting element, a plurality of laterally-movable wedges, and a wedge adapted to cause a lateral movement of said laterally-movable wedges and to render them relatively immovable, substantially as and for the purposes specified.

36. In a car-truck, the combination with the side frames, of a transverse connecting element, a plurality of laterally-movable wedges, and means adapted to cause a lateral movement of said laterally-movable wedges and to cause them to be rendered relatively immovable, substantially as and for the purposes specified.

37. In a car-truck, the combination with the side frames, of a transverse connecting element, a plurality of laterally-movable elements, and means adapted to cause a movement of said laterally-movable elements and to render them relatively immovable, substantially as and for the purposes specified.

In testimony whereof I affix my signature, in presence of two witnesses, this 21st day of November, 1903.

HARRY C. BUHOUP.

Witnesses:

HUGH M. STERLING,
G. P. RITTER.