

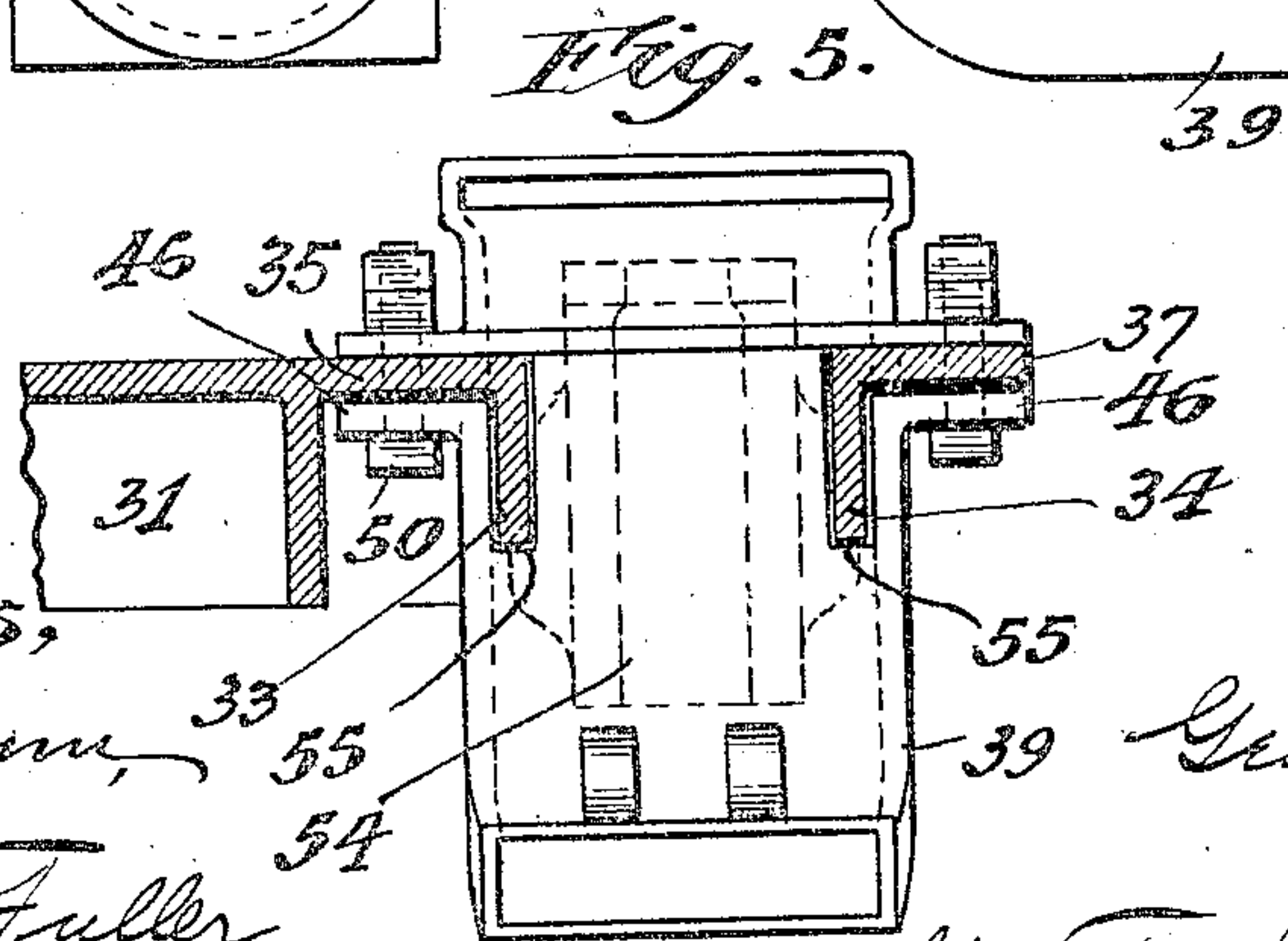
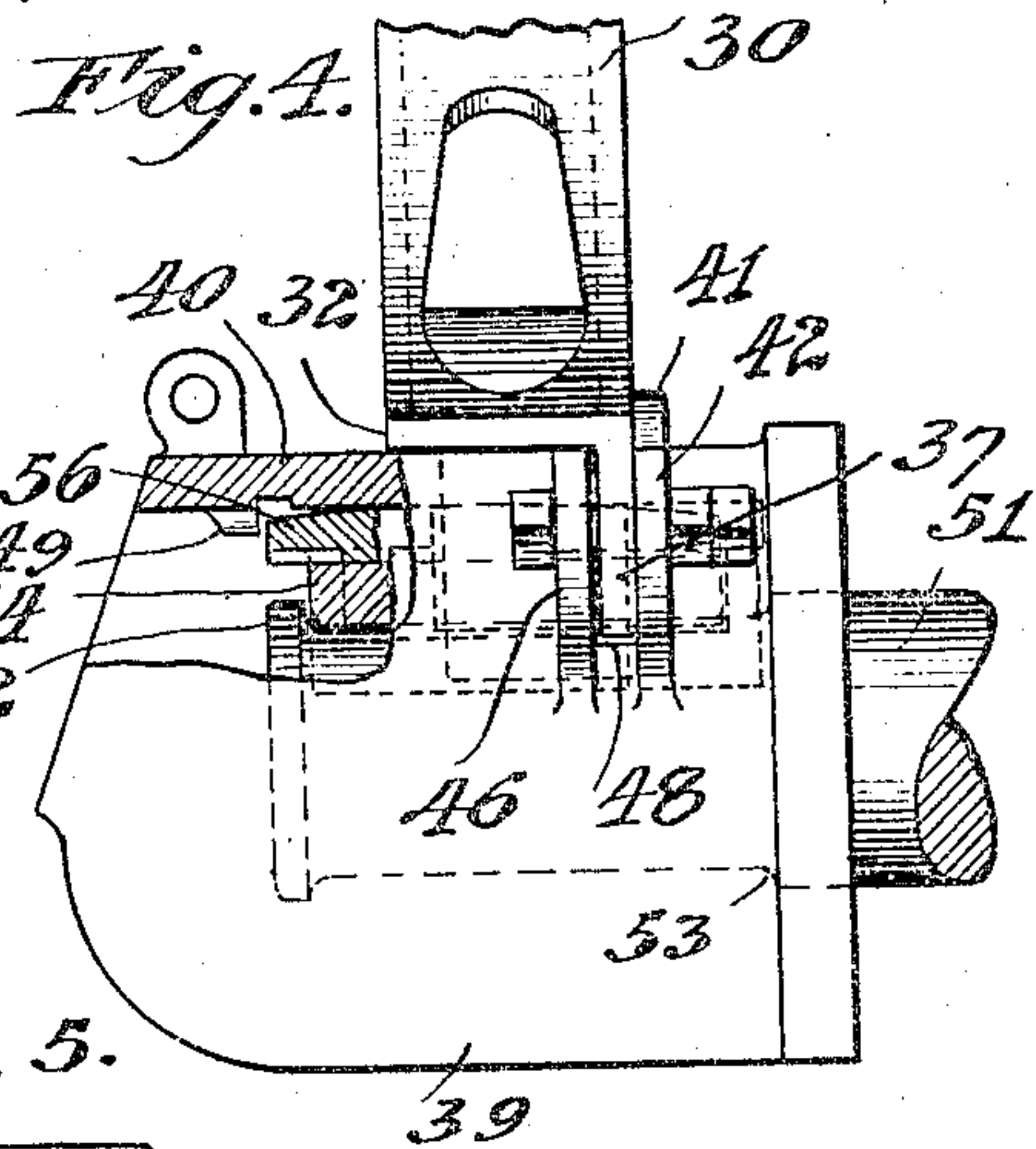
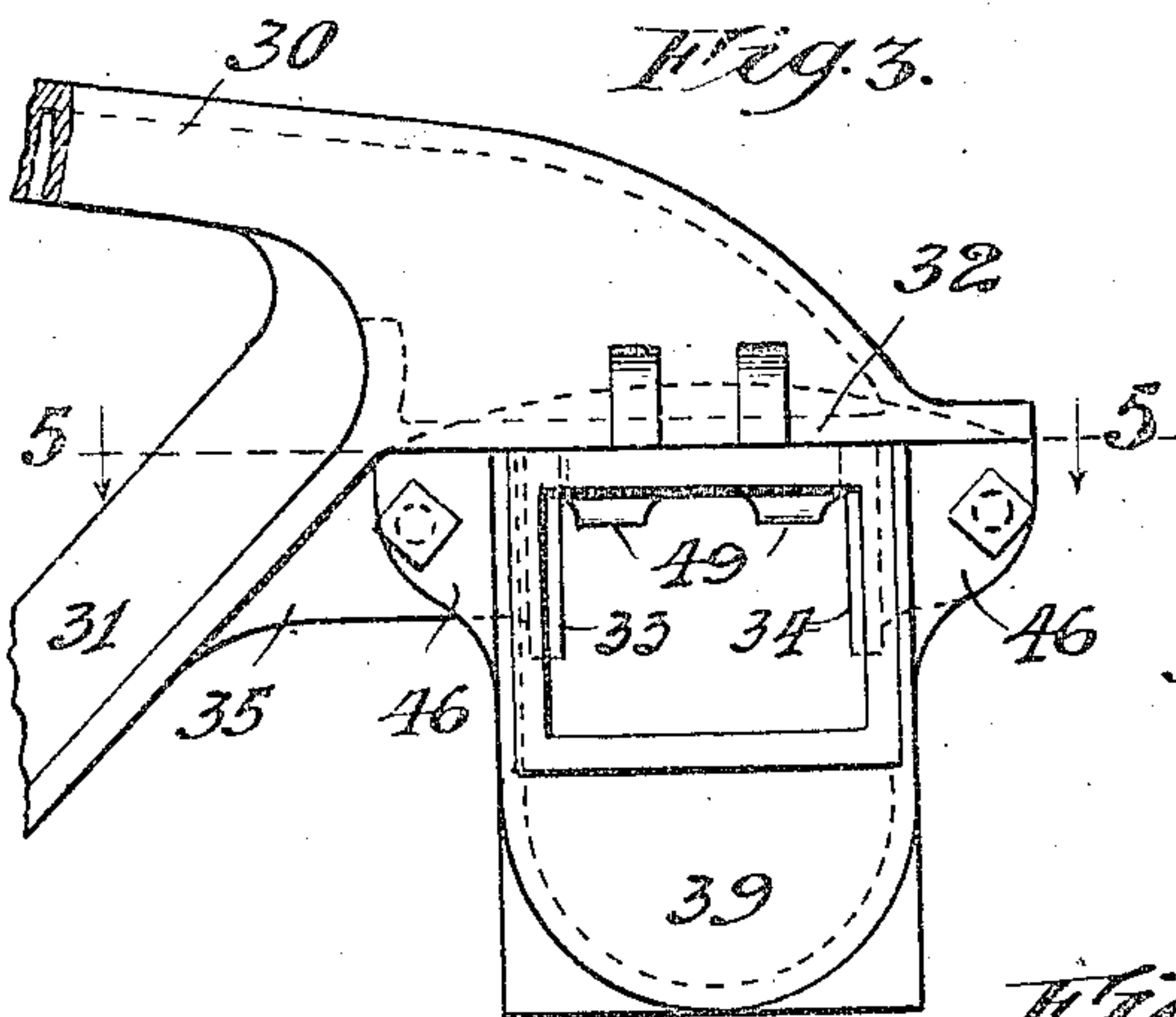
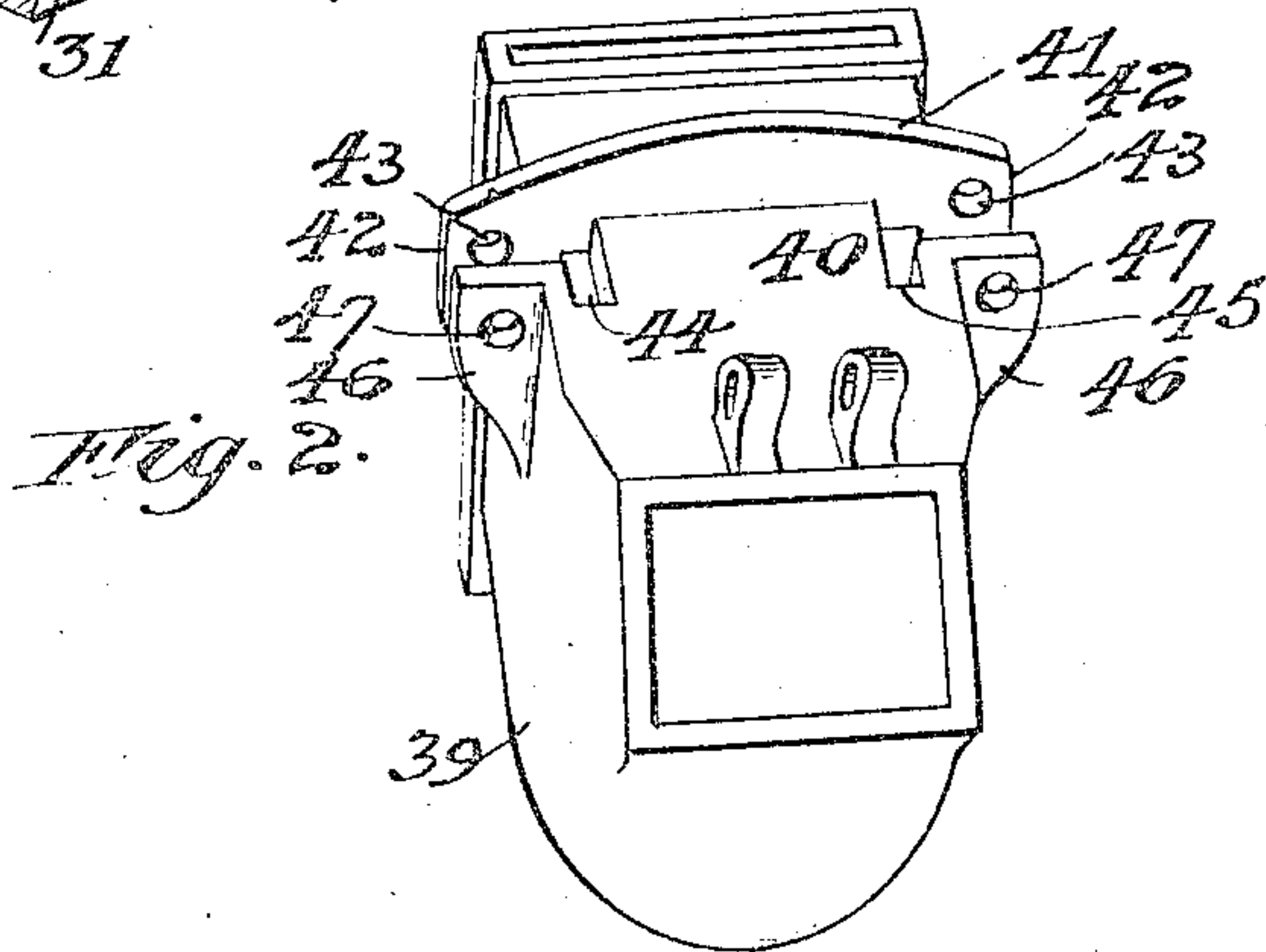
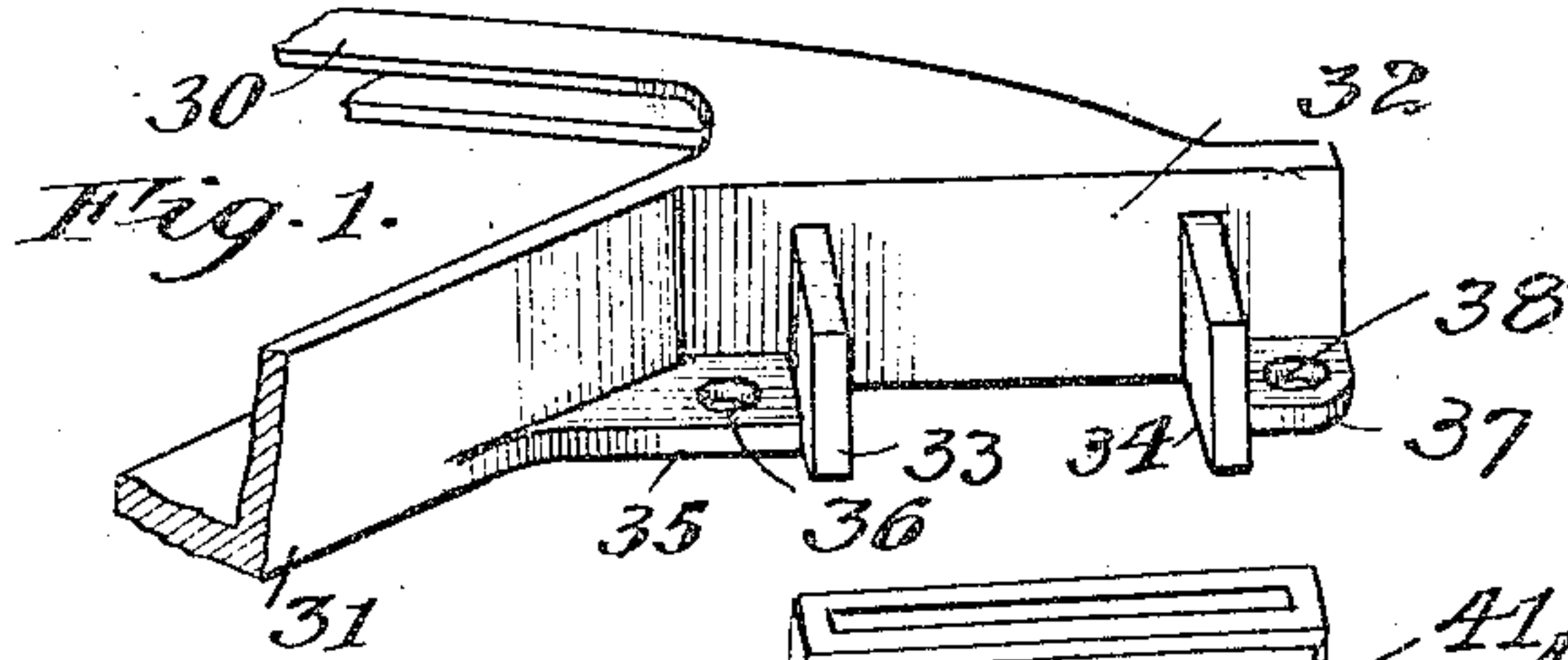
No. 874,949.

PATENTED DEC. 31, 1907.

G. G. FLOYD.  
TRUCK SIDE FRAME AND JOURNAL BOX.

APPLICATION FILED MAR. 25, 1907.

5 SHEETS—SHEET 1.



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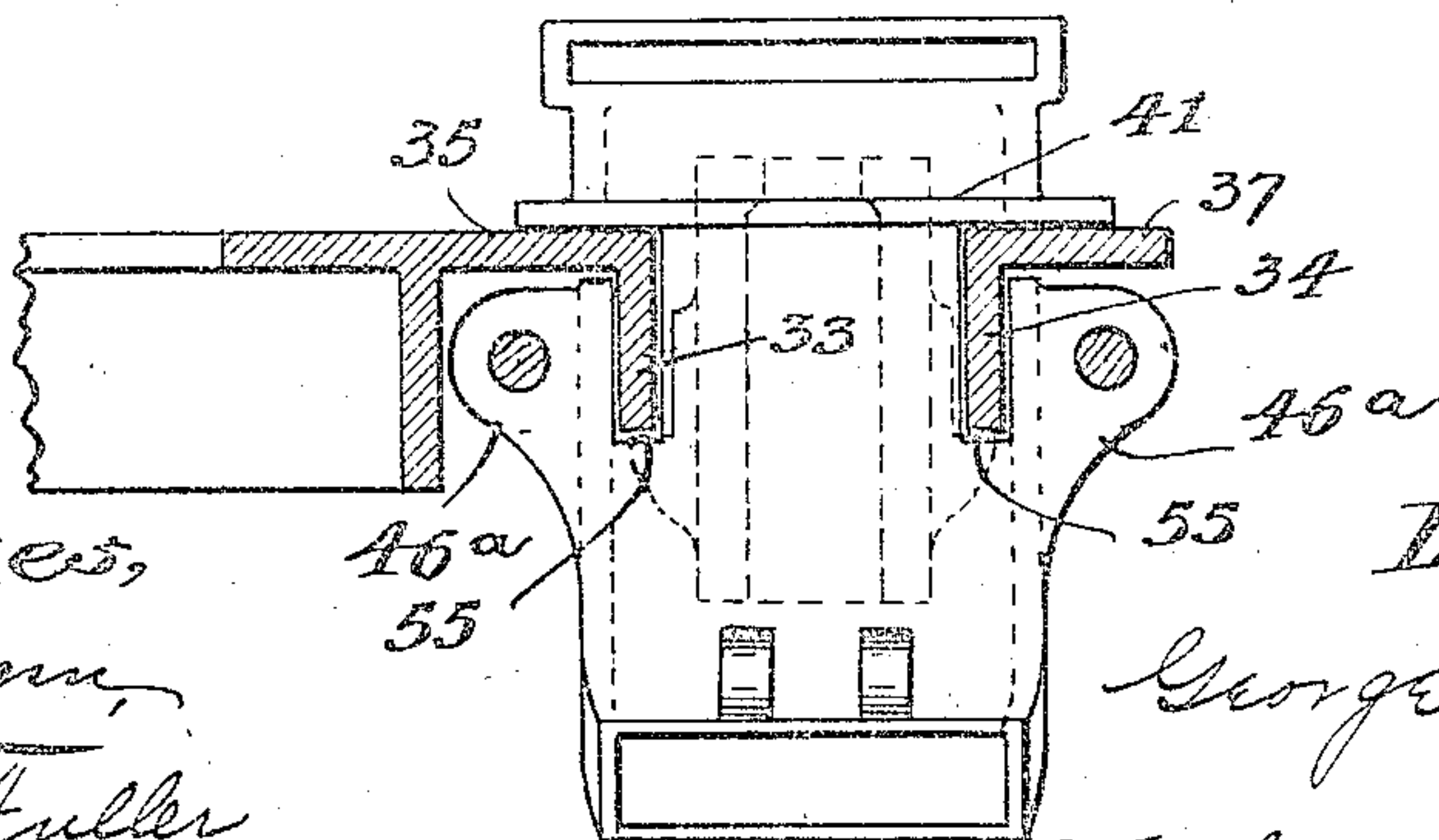
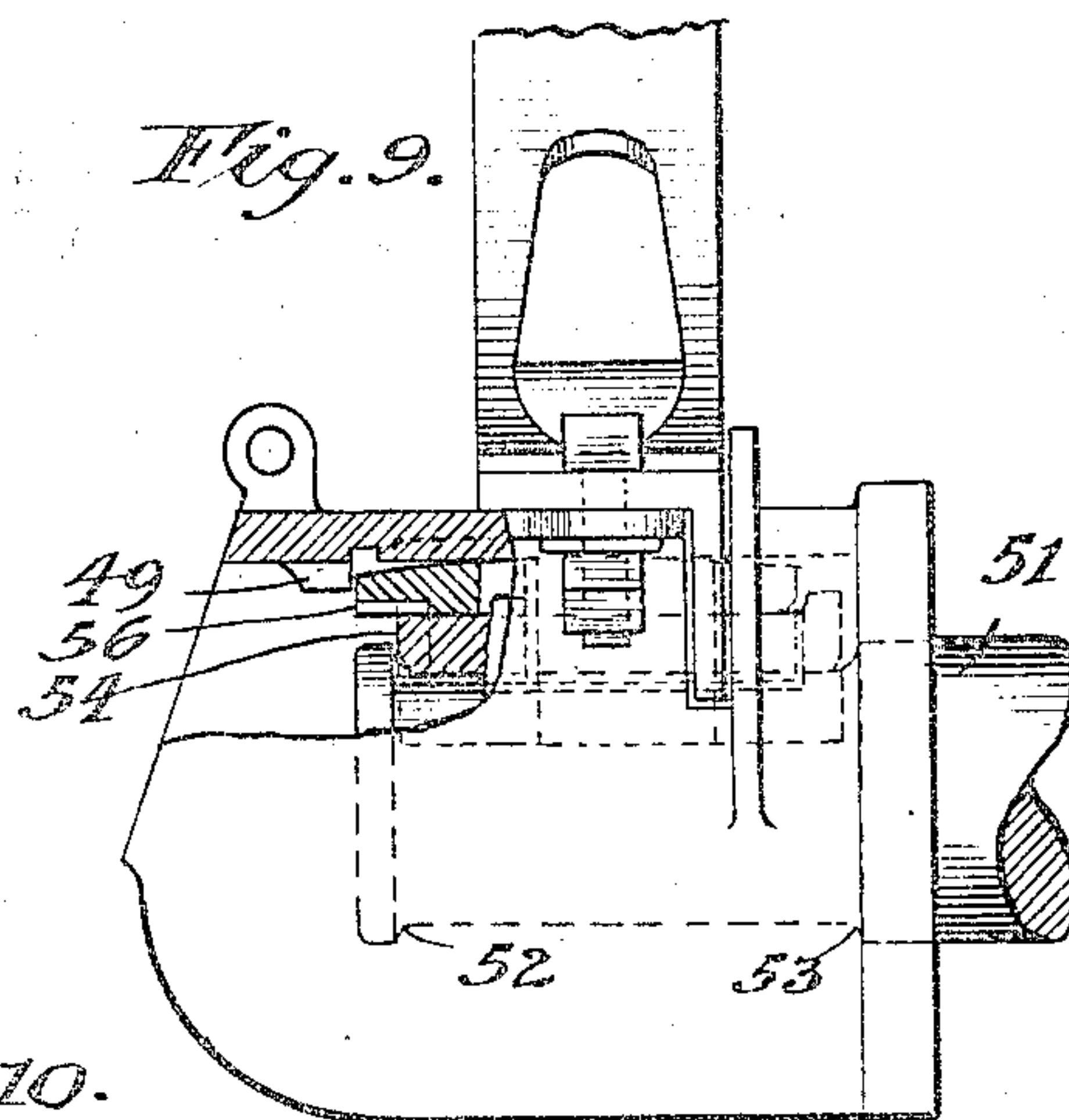
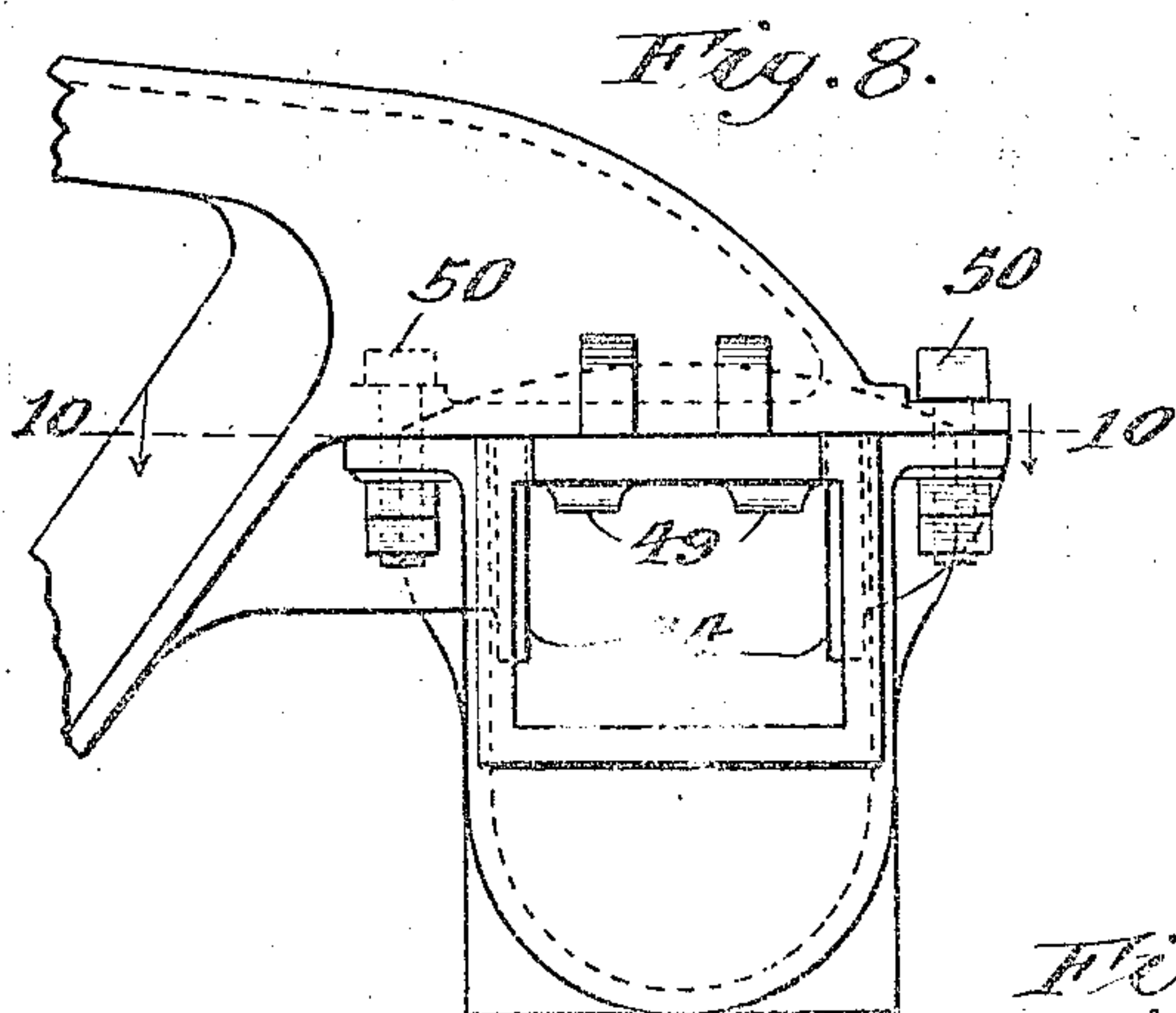
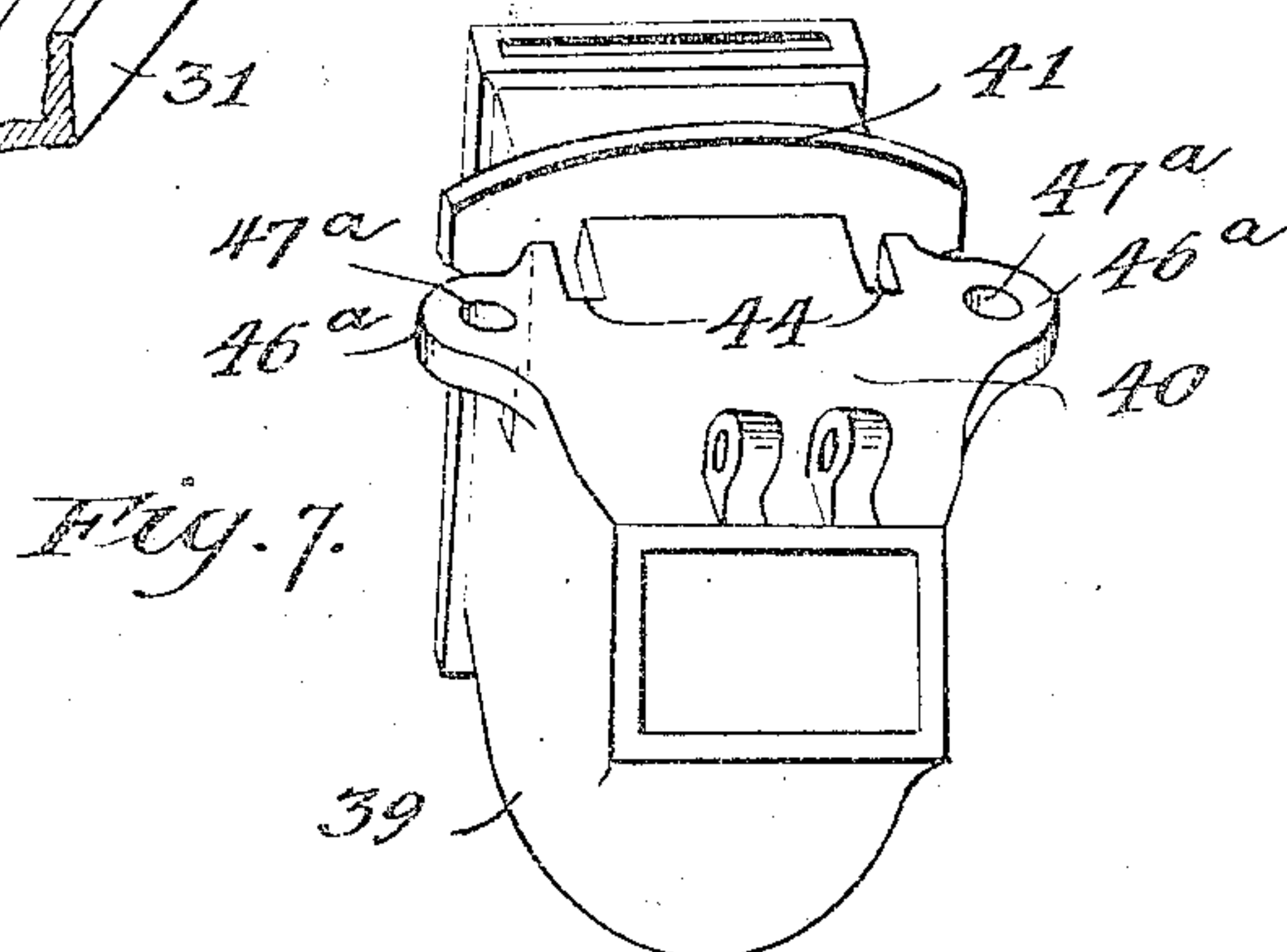
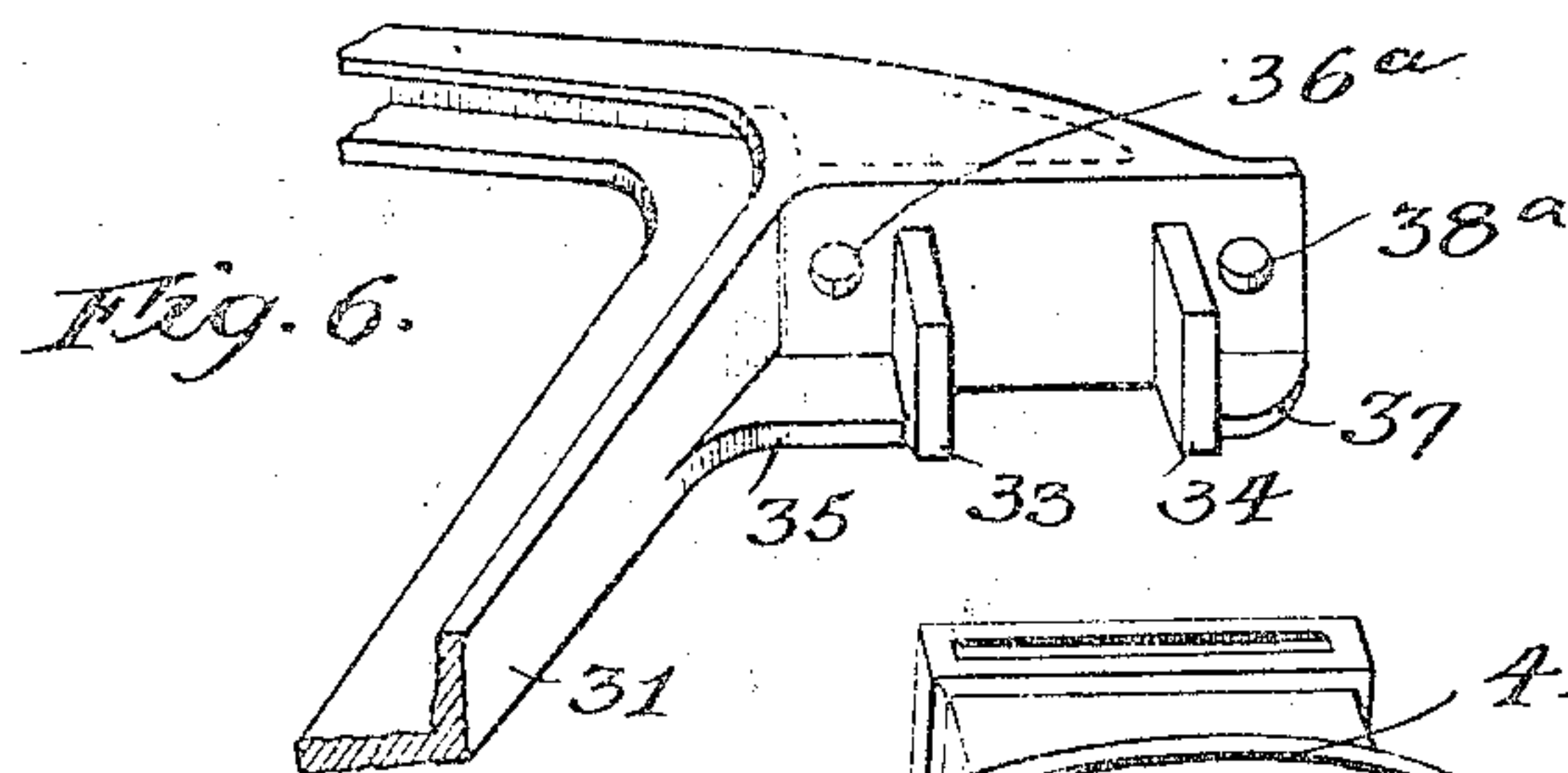
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5 SHEETS—SHEET 2



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5 SHEETS—SHEET 3.

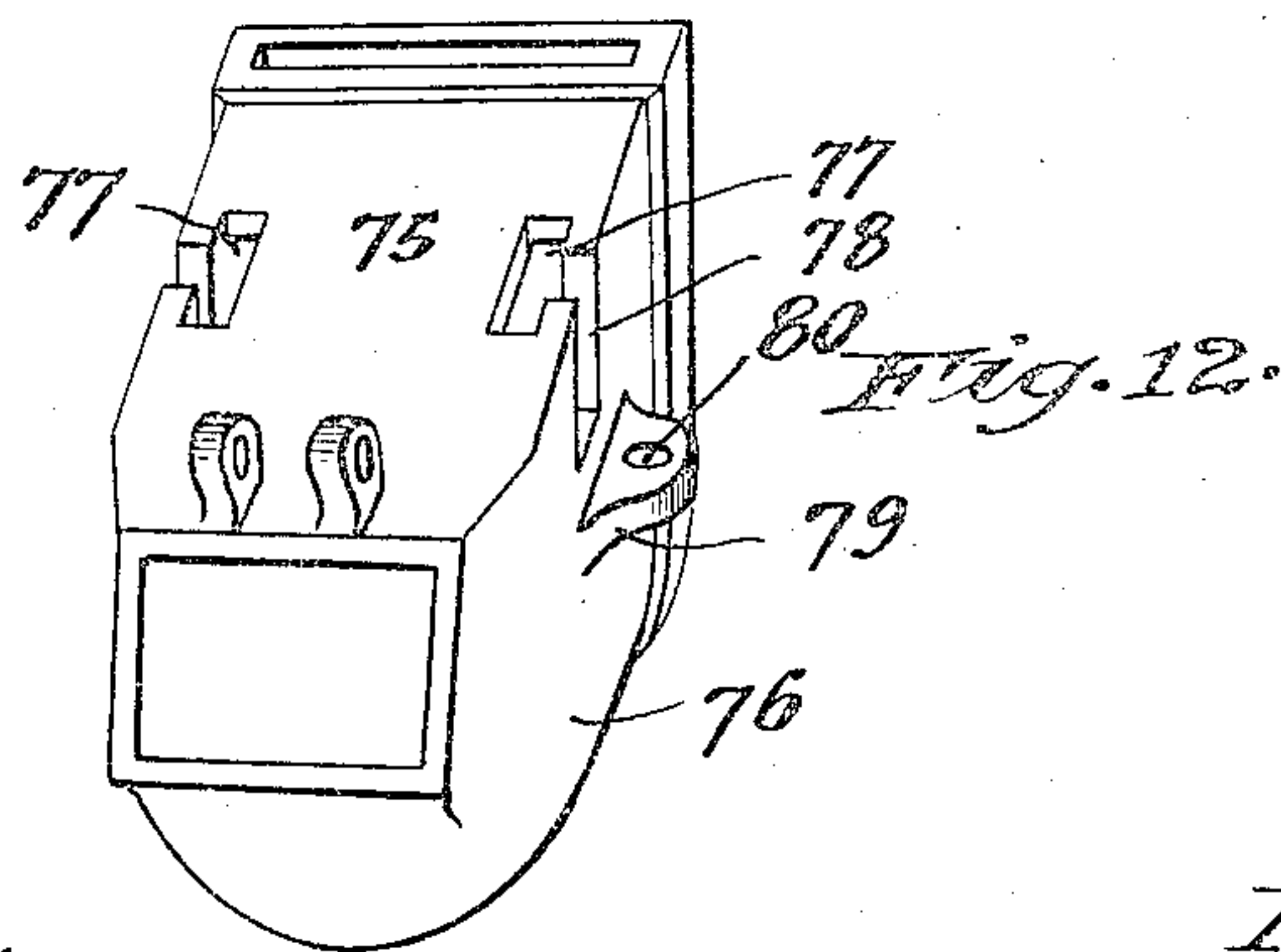
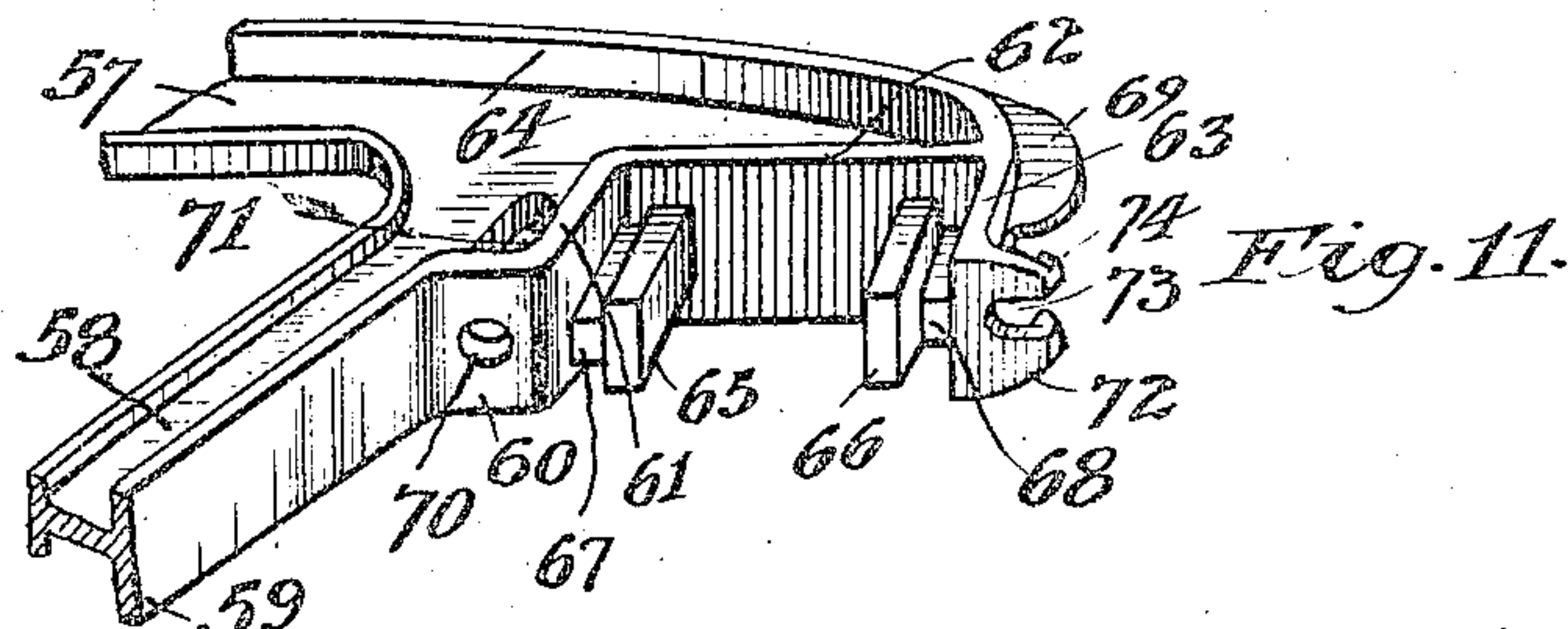


Fig. 13.

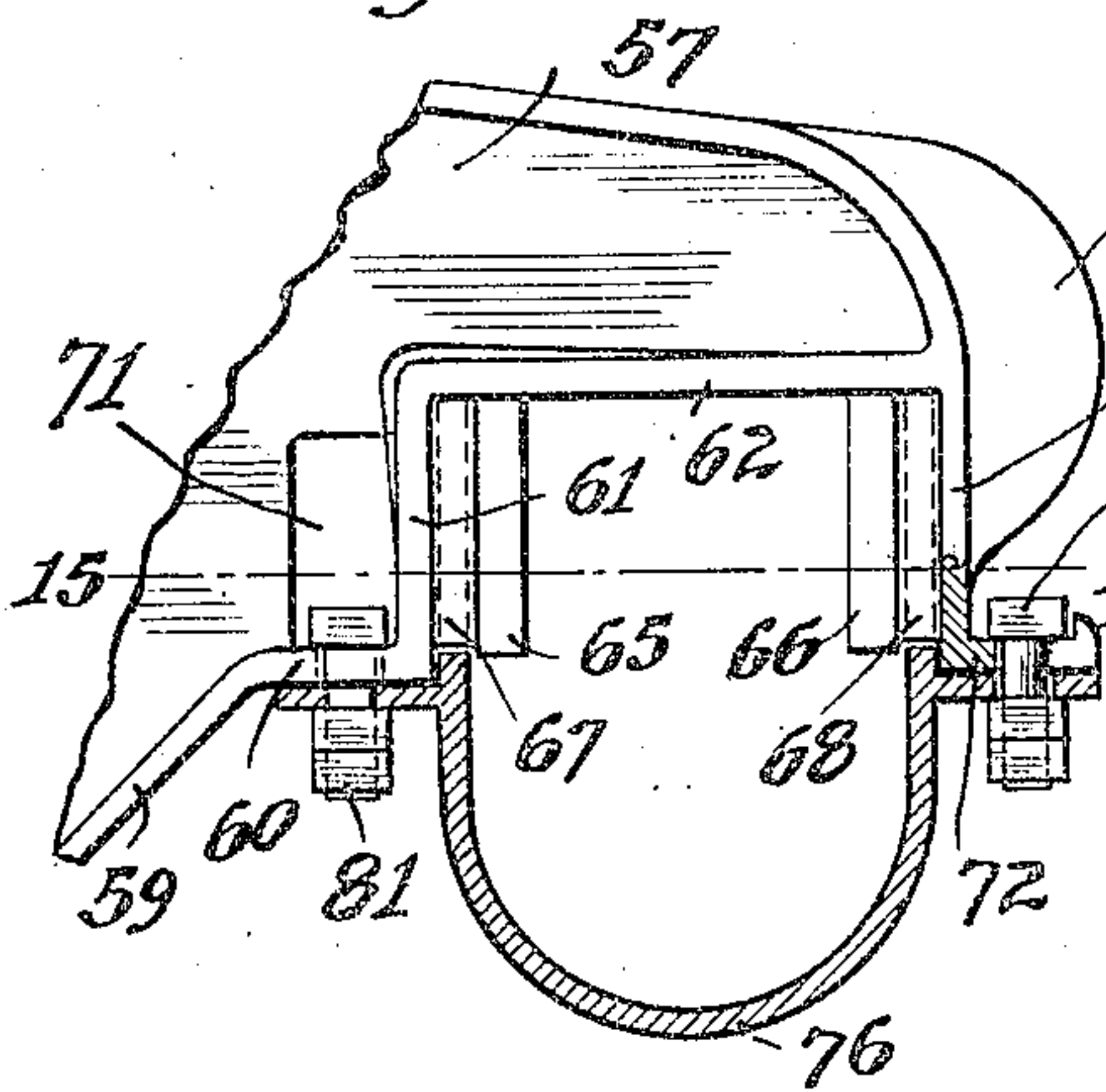


Fig. 14.

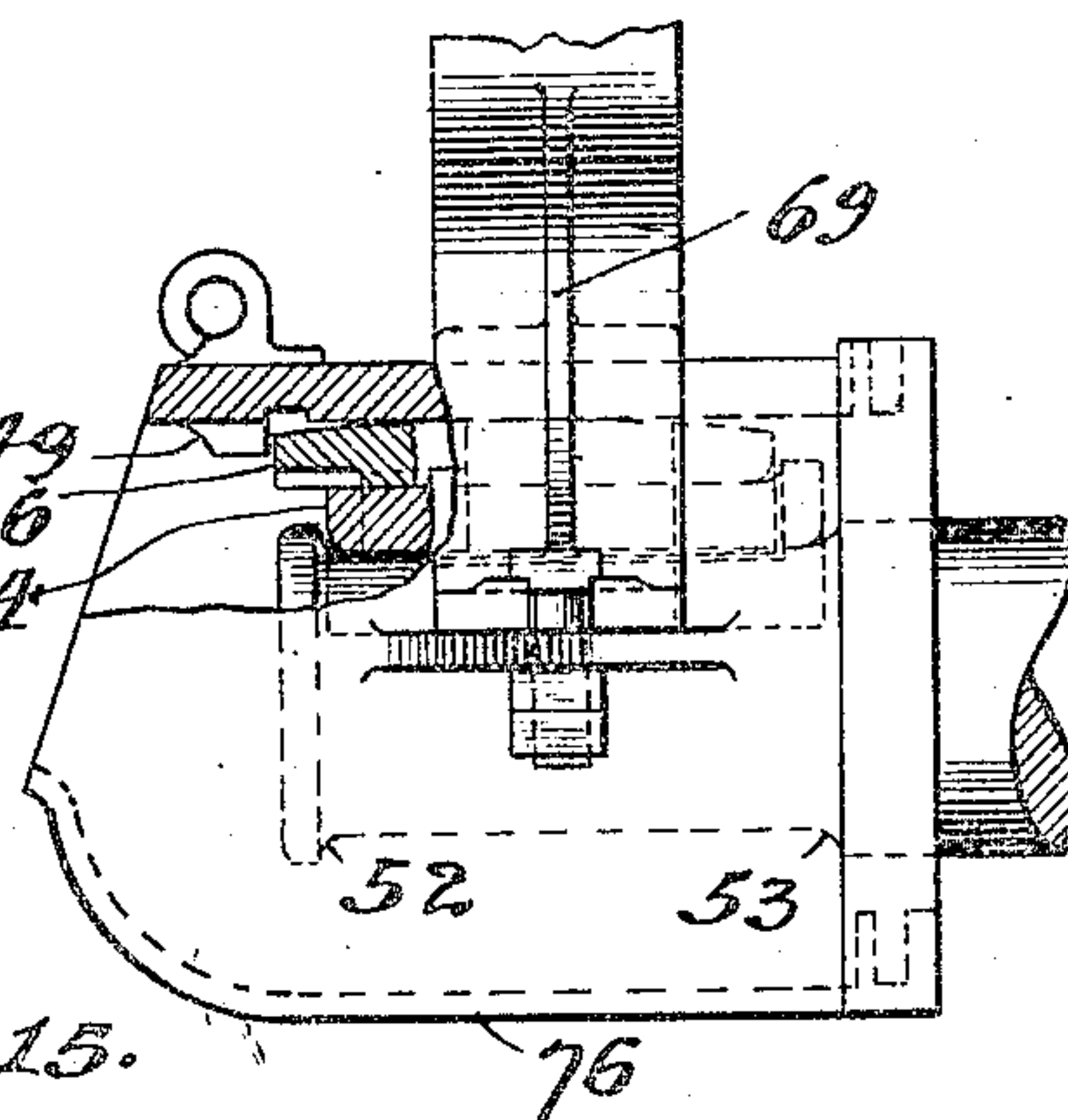
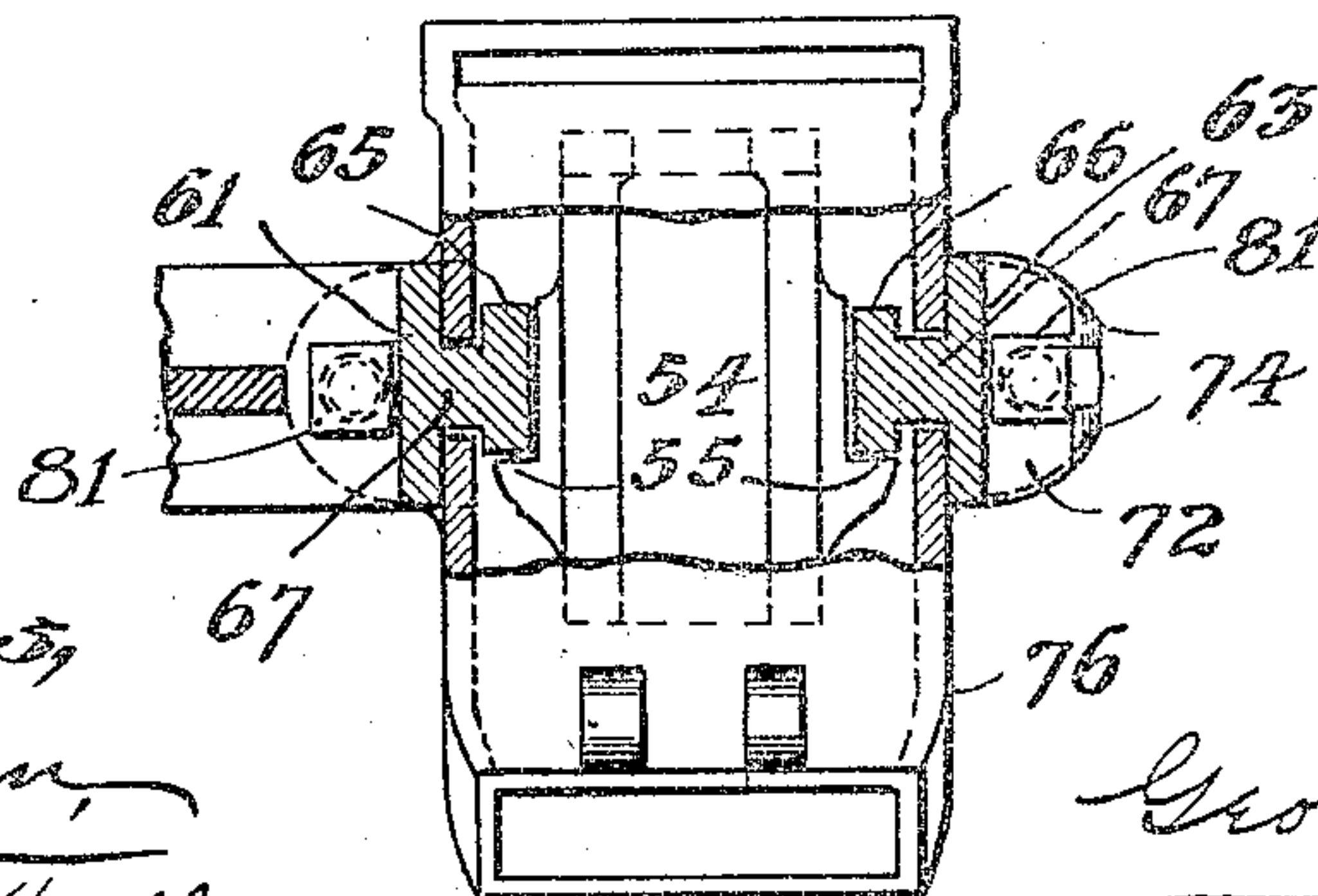


Fig. 15.



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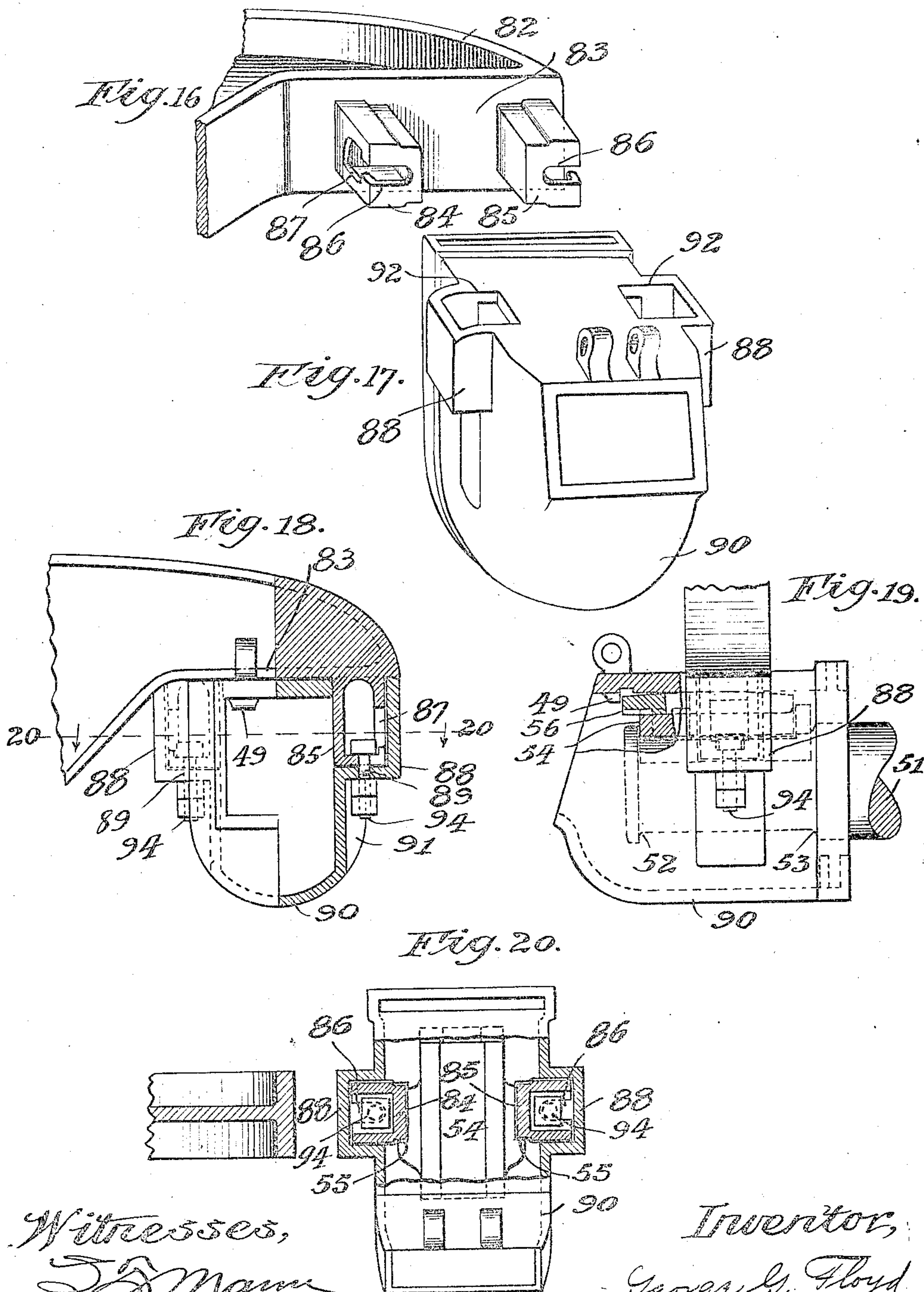
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6 SHEETS—SHEET 4.



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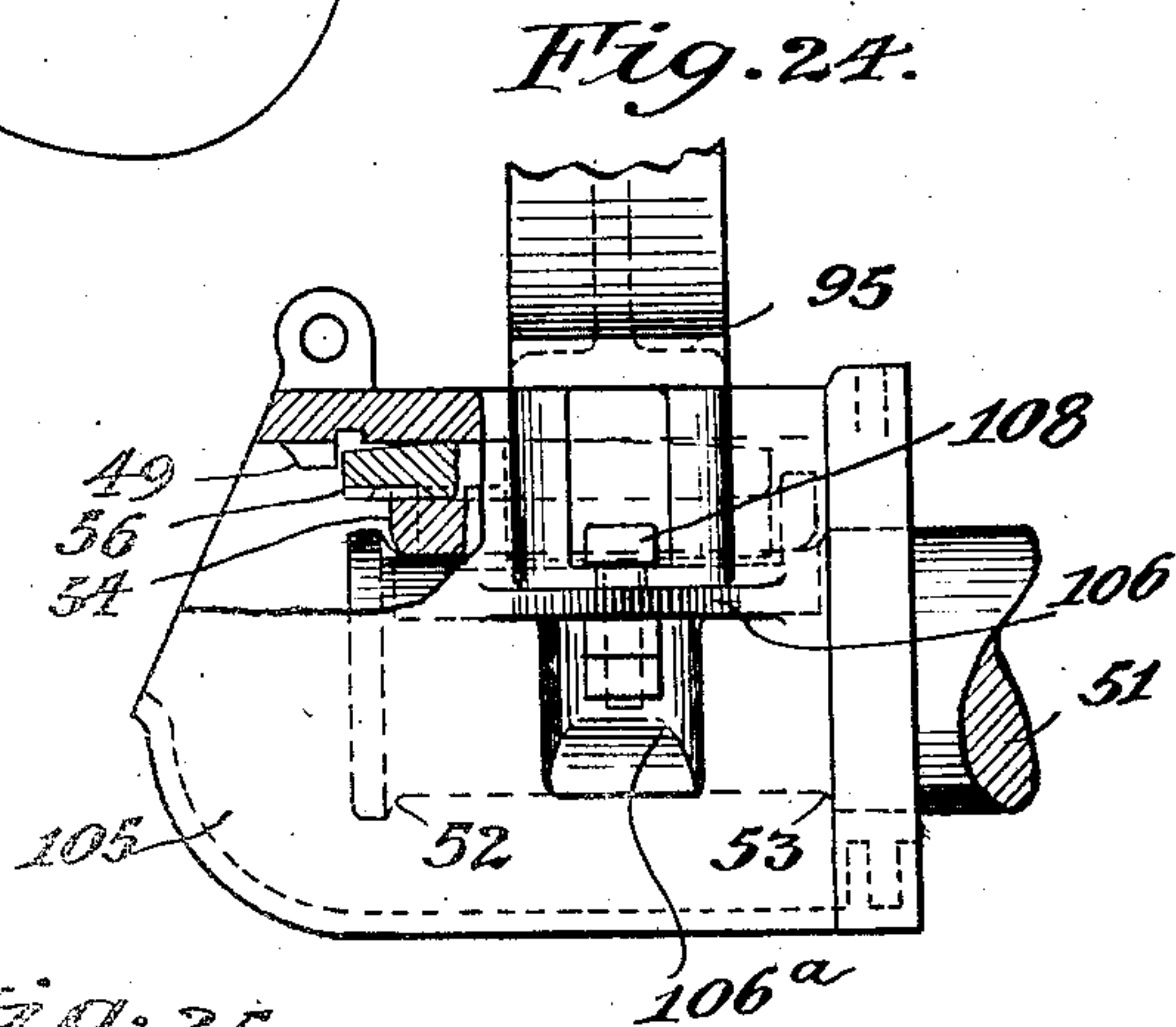
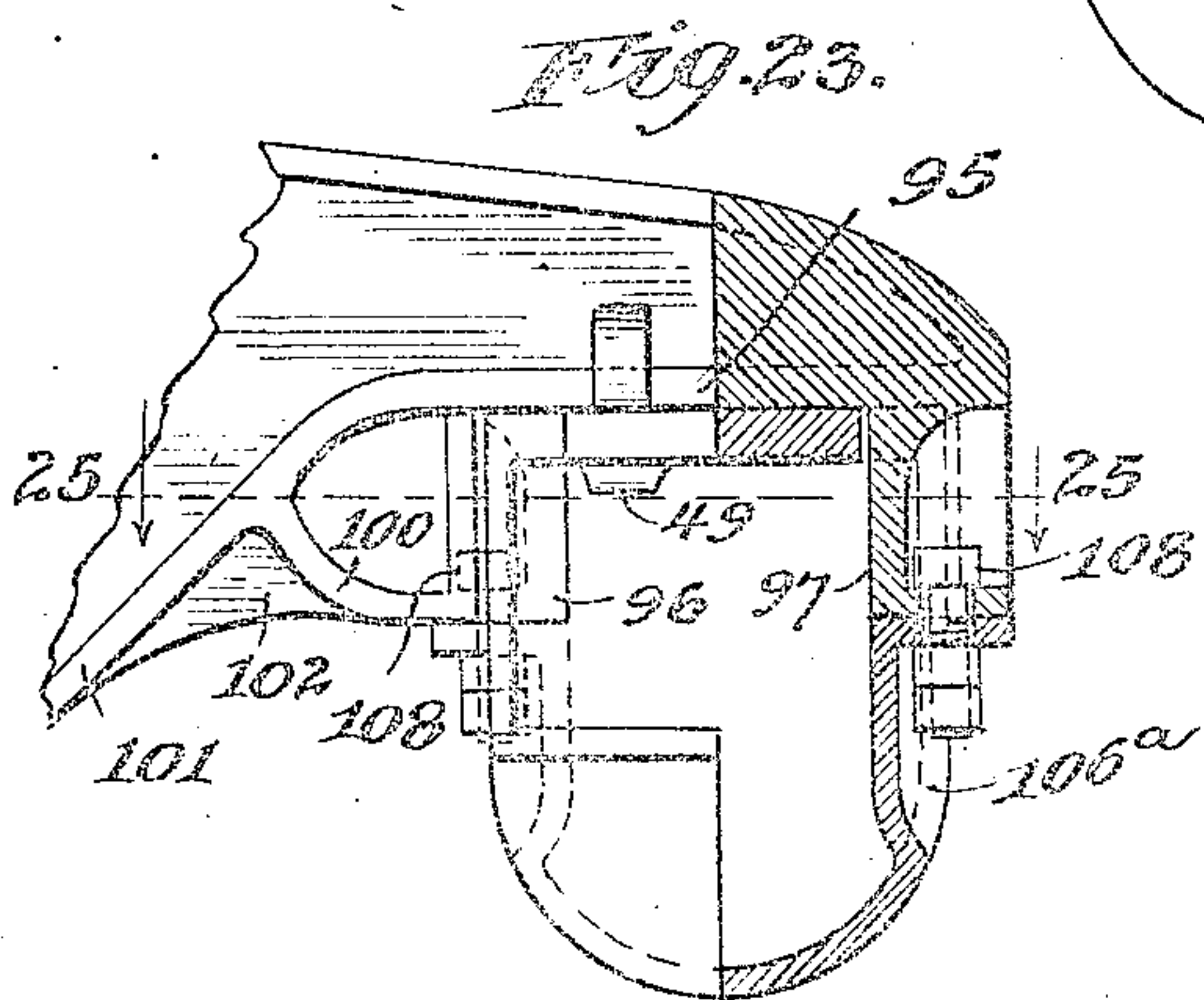
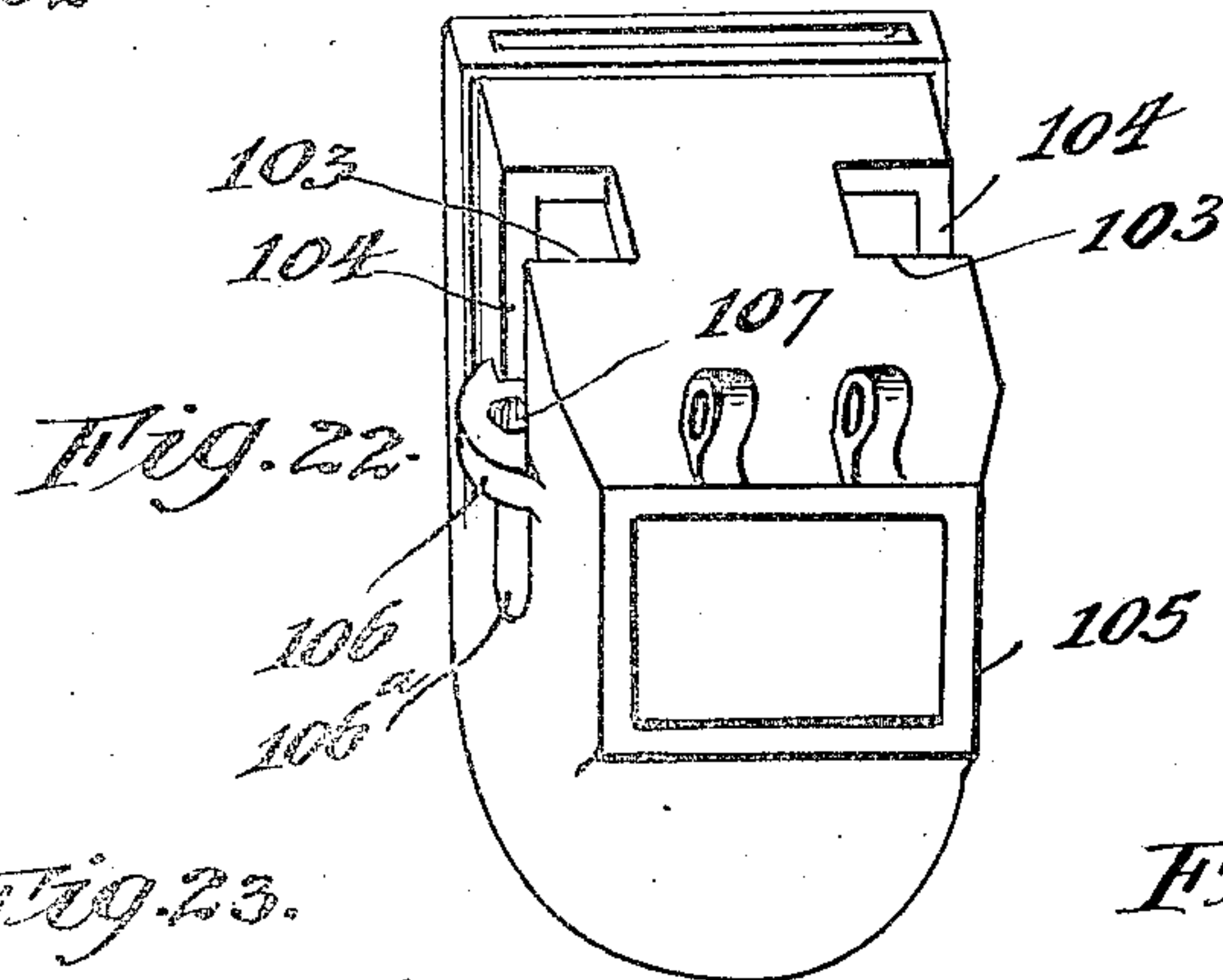
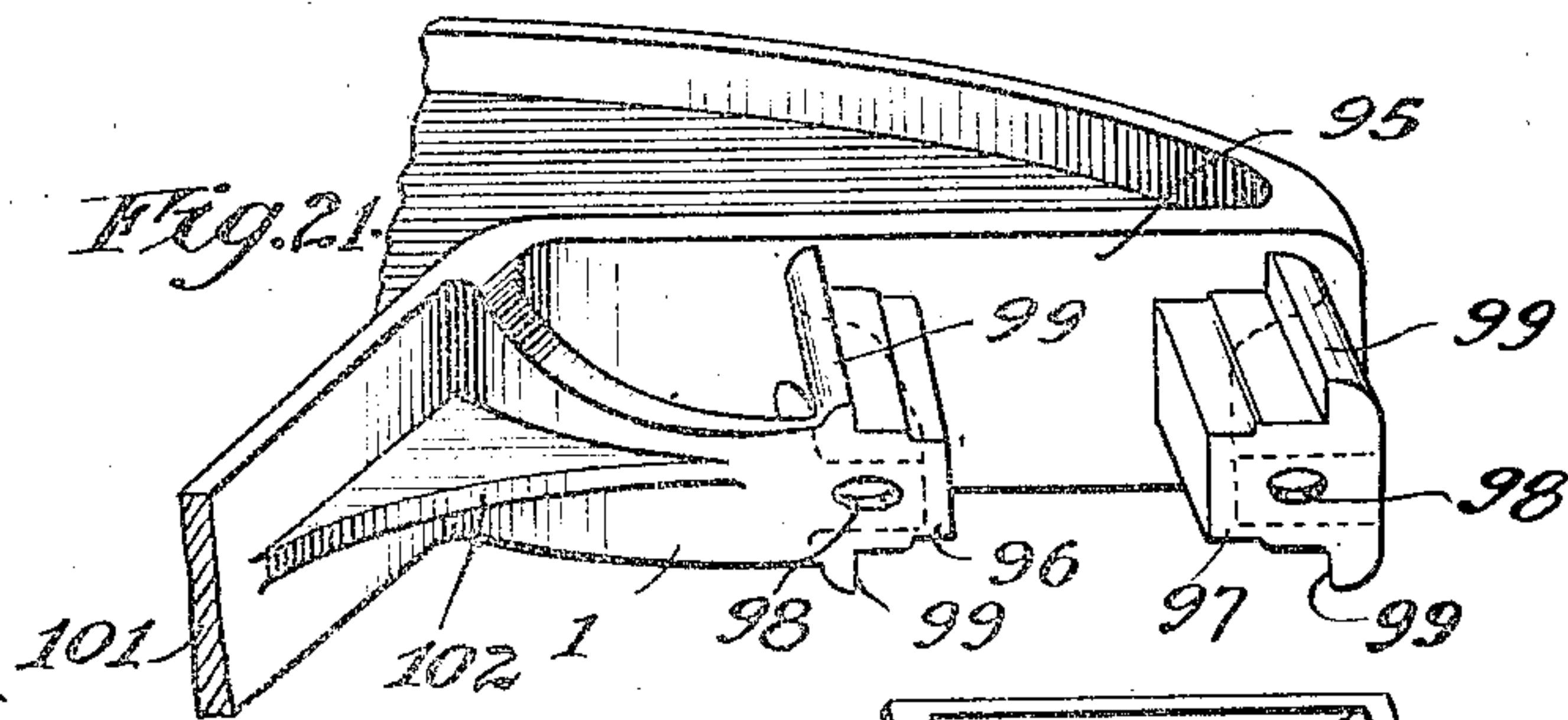
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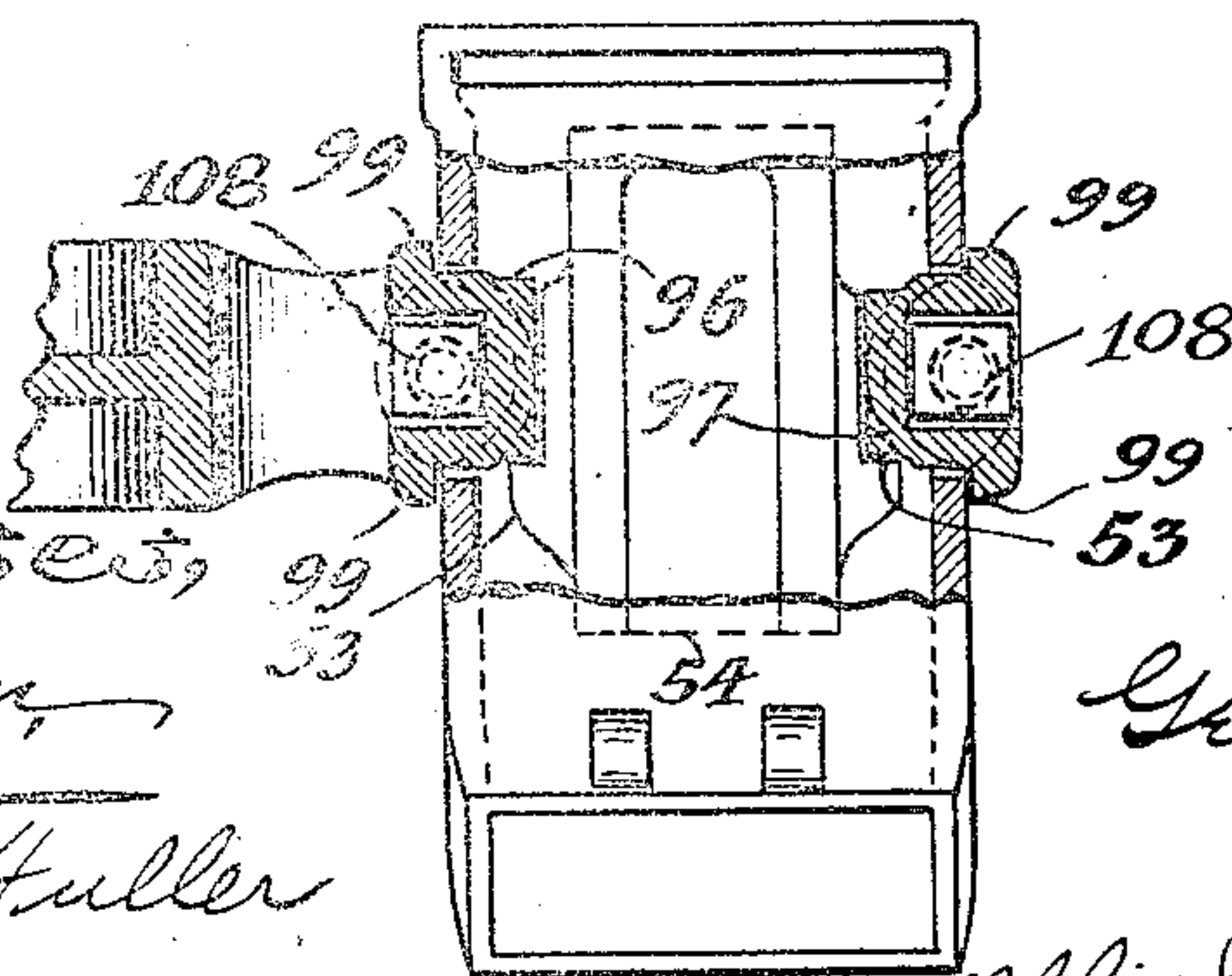
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5 SHEETS—SHEET 5.



*Fig. 25.*



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# UNITED STATES PATENT OFFICE.

GEORGE G. FLOYD, OF GRANITE, ILLINOIS, ASSIGNOR TO AMERICAN STEEL FOUNDRIES, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

## TRUCK SIDE FRAME AND JOURNAL-BOX.

No. 874,949.

Specification of Letters Patent.

Patented Dec. 31, 1907.

Application filed March 25, 1907. Serial No. 364,303.

*To all whom it may concern:*

Be it known that I, GEORGE G. FLOYD, a citizen of the United States, residing at Granite, in the county of Madison and State of Illinois, have invented certain new and useful Improvements in Truck Side Frames and Journal-Boxes, of which the following is a specification.

It has been proposed heretofore to cast the journal boxes of a railway car truck integral with the side frames, but owing to the difficulty in casting side frames with such boxes the same have not met with a full measure of success. After such structures have been cast and are cooling in the mold, the journal boxes act as anchors and prevent the central portion of the frame from contracting as it cools. As a result the part of the frame between the boxes either breaks or becomes considerably weakened, and for this reason side frames with unitary journal boxes have not been used to any great extent. When the journal box is integral with the side-frame longitudinal movement of the axle bearing, and wedge are prevented by lugs or projections within the box and integral with the side frame, and because these lugs or projections form a unitary part of a cast steel frame, they are less likely to be broken off or injured than when they form parts of a cast-iron box separate from the frame. With the integral frame and box the thrust of the axle is transmitted directly instead of indirectly to the side frame. It is therefore advisable to have the lugs or projections unitary with the frame and since it is not feasible from a foundry standpoint to cast the whole box integral with the frame, I have devised means which has the advantages of a unitary frame and box and free from the difficulties of producing a strong and perfect casting.

On the accompanying drawings, forming a part of this specification I have illustrated several embodiments of my invention.

Figure 1 is a fragmentary perspective view of an end portion of a truck side frame disclosing one embodiment of my invention; Fig. 2 is a perspective view of a journal box or casing adapted to cooperate with the frame shown in Fig. 1; Fig. 3 is a side elevation of the parts shown in Figs. 1 and 2; Fig. 4 is an end elevation of the same side-frame and box, the latter being partially broken away to more clearly illustrate the

construction of the internal parts; Fig. 5 is a horizontal section on line 5—5 of Fig. 3, as viewed looking downwardly, no part of the journal box being sectioned; Fig. 6 is a fragmentary perspective view of a modified form of side frame embodying my invention; Fig. 7 is a perspective view of the journal box or oil-casing adapted to cooperate with the frame shown in Fig. 6; Fig. 8 is a side elevation of the end portion of the side frame and the journal box; Fig. 9 is an end view of the frame and box, a portion of one wall of the latter being broken away; Fig. 10 is a horizontal section on line 10—10 of Fig. 8, as viewed in the direction indicated by the arrows, no portion of the box being shown in section; Figs. 11 and 12 are views similar to those of Figs. 1 and 2 and 6 and 7 of a still further modified form of side frame and journal box; Fig. 13 is a fragmentary side elevation of the end portion of the side frame, showing the journal-box in vertical section; Fig. 14 is an end view of the side frame and journal box, parts being broken away to illustrate the internal construction; Fig. 15 is a horizontal section on line 15—15 of Fig. 13 looking downwardly; Figs. 16 and 17 are views similar to Figs. 11 and 12 of another modification of the side frame and journal box; Fig. 18 is a partial side elevation and partial vertical central section of the frame and box assembled; Fig. 19 is an end elevation of the frame and box, one wall of the latter being partially broken away; Fig. 20 is a horizontal section on line 20—20 of Fig. 18, a portion of the top of the box being removed to illustrate the cooperation of the bearing with the downwardly extended lugs at the end of the frame; Figs. 21 and 22 are perspective views of another modified form of cooperating side-frame and journal-box; Figs. 23 and 24 are views similar to those shown in Figs. 18 and 19; and Fig. 25 is a section on line 25—25 of Fig. 23, as viewed in the direction indicated by the arrows, the top of the box being partially broken away to illustrate the internal cooperation of the parts.

In Figs. 1 to 5 inclusive I have illustrated a simple and desirable embodiment of my invention, the cast metal side frame having a top channel compression member 30 and a lower angle tension member 31, portions of which are illustrated in Figs. 1 and 3.



At each end of the side frame is a horizontal flat surface 32 extended downwardly from which are a pair of transverse lugs or projections 33 and 34 rectangular in shape. 5 The rear vertical edges of these lugs are substantially flush with the inner or back wall of the side frame, while their outer edges are set in somewhat from the front surface of the side frame as is clearly indicated in Figs. 1 and 5. In order to brace 10 this pair of lugs and securely maintain them in position the lug 33 is connected to the under surface of the angle tension member 31 by a vertical web 35 at the rear-face of the frame, integral with the frame, and perforated at 36. In alinement with this web 15 35 is a bracket 37 integral with the side frame and connecting the outer face of lug 34 with the bottom surface of the horizontal plate portion 32. Bracket 37 is provided with a hole 38 for a purpose hereinafter indicated. 20

The journal box or casing which I supply to cooperate with this style of side frame is illustrated in perspective in Fig. 2 and includes a box or casing 39, the lower front portion of which is rounded while the rear lower portion is rectangular as is shown in Fig. 3. This box has a top wall 40 arising 30 from which is a curved transverse flange or plate 41 which projects beyond the side walls of the box and part-way down them to form oppositely-extended ears 42 which are provided with holes 43.

Extended longitudinally of the box just inside of its side walls there is provided a pair of slots 44 and 45 which extend through the top wall 40 of the box and are of dimensions substantially equal to the width and thickness of the projections 33 and 34. Also extended outwardly from the side walls of the box I provide the pair of ears 46 apertured at 47, these ears being parallel to the ears 42 and spaced away from the same a distance 45 substantially equal to the thickness of web 35 or bracket 37. Between the ears 42 and 46 the side walls of the journal box or casing are vertically slotted at 48 to a depth substantially equaling the depth of web 35 and bracket 37. 50

Extending downwardly from the inner surface of the top wall 40 of the journal box and near its outer end is the usual pair of stop fingers or lugs 49 cast integral with the 55 box.

When the journal box or casing and side frame are assembled, the top wall 40 lies immediately below the horizontal plate portion 32 and the flange 41 abuts against the 60 inner face of the side frame as is clearly shown in Figs. 4 and 5. Bolts 50 passing through the ears 42 and 46 and the web 35 and bracket 37 bind the journal box to the side frame, and, when the parts are thus assembled, lugs or projections 33 and 34 extend 65

into the interior of the box or casing and lie adjacent to or against the inner surfaces of its side walls. As is usual, the car axle 51 projects into the journal box and is equipped with shoulders 52 and 53 as is customary. 70 Resting upon the upper surface of the reduced portion of the axle is a bearing 54 of any suitable shape and dimensions, the bearing having lateral shoulders 55 which project in front of the outer edges of lugs 33 and 34 75 and cooperate therewith to prevent inward shifting of the bearing and axle. Above the bearing is placed the usual wedge 56, the outer end of which is adapted to cooperate with the stops or fingers 49 of the journal 80 box, it being understood that the inner ends of the bearing and wedge overlap whereby inward movement of the axle and bearing are prevented by the lugs 33 and 34 while outward shifting of the axle, bearing, and 85 wedge is prevented by the stops 49. It will be apparent from this description and illustration that the shifting of the axle is transmitted directly to the side frame through its integral projections 33 and 34. As is obvious 90 the inward movement of the axle in relation to one side frame corresponds to the outward movement relative to the other side frame, so that shifting of the axle in either direction is communicated to or prevented by one or the other of the side frames. 95

The side frame and journal box construction shown in Figs. 6 to 10 inclusive is much like that illustrated in Figs. 1 to 5, but in the modification shown in these figures instead 100 of providing the vertical web and bracket 37 with apertures to accommodate the fastening bolts I supply the horizontal plate 32 with corresponding holes 36<sup>a</sup> and 38<sup>a</sup>. The journal box or casing is like that shown in 105 Fig. 2 except that the ears 42 and 46 are omitted and in the place of the latter I equip the box with horizontal ears 46<sup>a</sup> integral with the top wall of the box and apertured at 47<sup>a</sup>. Vertical bolts 50 pass through the 110 apertures or holes of plate 32 and ears 46<sup>a</sup> to bind or hold the journal box in place as is clearly shown. Otherwise the construction of the parts illustrated in these figures is substantially like that of the form described 115 above.

In Figs. 11 to 15 inclusive I have shown another modification of my invention and in this form the compression member 57 as well as the tension member 58 of the cast 120 side frame are substantially I-shape in cross section. Near each end of the frame the lower flange 59 of the tension member is off-set to provide the horizontal abutment 60, the flange then extending vertically to 125 supply the upright wall 61, then horizontally to provide the plate portion 62, and finally downwardly to supply another vertical wall 63 parallel with the strip 61. This latter portion 63 is in reality a continu- 130



ation of the top marginal flange 64 of the compression member or portion of the side frame. Depending from the horizontal plate portion 62 and integral therewith are a pair of lugs 65 and 66 which are spaced apart from the strips 61 and 63 and connected thereto by the webs 67 and 68. In order to brace the wall 63, assist in maintaining it in position, and prevent it from being broken off, the casting is provided with an external curved flange or rib 69. The horizontal wall 60 has a hole 70 there-through and above part 60 the web of the side frame is cut away to form a recess the purpose of which is to permit the insertion of a bolt through the aperture 70 from the inner side of wall 60. At the lower end of wall or flange 63 the frame has an outwardly extended ear 72 slotted at 73 to accommodate a bolt, the two portions of the ear on opposite sides of the slot having integral therewith upwardly-extended hooks or stops 74.

A top wall 75 is provided on the journal box or casing 76, this top wall just inside of the side walls of the box having slots 77 of substantially the same dimensions as the lugs 65 and 66. The side walls of the box are also vertically slotted at 78 to accommodate the webs or connecting portions 67 and 68 of the side frame, it being understood that when the side frame and journal box are assembled the projections 65 and 66 extend through the holes 77 into the interior of the box while the webs 67 and 68 substantially fill the slots 78 of the side walls. About half-way down the side walls of the box are located horizontal outwardly-extended projections or ears 79 having vertical holes 80 adapted when the box and side frame are brought together to register with the hole 70 and slot 73 of the side frame whereby bolts 81 may be passed through the holes of the two parts to securely fasten the box or casing in position on the frame. As in the previous instances the bearing 54 co-acts with the outer edges of projections 65 and 66 while the wedge coöperates with the stop fingers 49 cast integral with the bottom surface of the top wall of the box. In the modification illustrated in Figs. 16 to 20 inclusive the end of the side frame 82 has projecting downwardly from its horizontal terminal portion 83 a pair of hollow projections 84 and 85, the bottom walls of which are slotted longitudinally of the frame at 86 while the remote vertical walls respectively of the projections have communicating with the slots 86 other slots or openings 87 somewhat wider than the width of slots 86. The journal box or casing which is adapted to be used with this form of side frame is illustrated in perspective in Fig. 17 and has on its two sides pockets 88 which are open at the top and which also communicate

with the interior of the box whose side walls at these points are omitted. The bottoms of these pockets have vertical holes 89 there-through to accommodate fastening bolts or similar securing means. Beneath the pockets 88 the side walls of the journal box have depressions or recesses 91 in their outer surfaces to accommodate and receive the nuts of the fastening bolts. It is to be understood that the mouths or top openings 92 of these pockets extend inwardly or toward each other sufficiently beyond the inner surfaces of the side walls of the box whereby when the box and side frame are brought together in proper relation the adjacent portions of the hollow projections 84 and 85 will be in position to form stops with which the lateral shoulders 55 of the bearing 54 may coöperate. When the box and frame are assembled the projections 84 and 85 fit in the pockets 88 as is clearly illustrated, the bottom walls of the projections lying just above the bottom walls of the pockets with the holes 89 of the latter in register with slots 86. The fastening bolts pass through the slots 86 their heads within the projections 84 and 85 having been introduced through the larger apertures of slots 87. By screwing nuts on the lower ends of these bolts 94, it being understood that the bolts pass through the holes 89, the box may be firmly and securely held in place as shown in Figs. 18, 19 and 20. The coöperation of the axle, bearing, web, box, and side frame is substantially the same as in the embodiments of my invention described above.

Another modification of my improved side frame and journal box I show in detail in Figs. 21 to 25 inclusive. As in the previous instances the side frame has at each end a flat horizontal surface or strip 95 from which project downwardly the companion hollow lugs 96 and 97, the bottom walls of which are each supplied with an aperture 98. The remote walls of these projections are preferably omitted to facilitate the introduction of the fastening bolts through the holes 98 and from the side walls of these projections there extend transversely to the side frame integral shoulders 99 adapted to lie against or overlap the outer surface of the side walls of the box as is clearly shown in Fig. 25. To brace the lug or projection 96 the side frame casting has a metal strip 100 integral therewith connecting the bottom wall of the lug to the marginal flange 101 of the tension portion of the side frame. In addition the frame has a bracket 102 integral therewith between the strip 100 and flange 101, this construction being illustrated clearly in Figs. 21 and 23. An open space above the strip 100 is provided so that no difficulty is experienced in inserting the bolt in aperture 98 of projection 96, the head of the bolt being



within the projection. Slots 103 and 104 are supplied in the top and side walls of the journal casing 105, these slots being of sufficient size to permit the projections 96 and 97 to extend within the box as shown in Fig. 25. At the bottom of slots 104 the box on its opposite sides has horizontal shelves or ears 106 each being supplied with a hole 107 for the passage of a fastening bolt, the side walls of the box below the portions 106 being recessed or extended inwardly at 106<sup>a</sup> to allow space for the nuts of the securing bolts. After the box and frame have been brought together as shown in Fig. 23 nuts are tightened on the ends of bolts 108, these bolts having their heads within the projections 96 and 97 with their shanks extended outwardly through the holes 98 and 107. As in the previous instances the bearing co-acts with the integral projections on the side frame to prevent displacement of the axle relative thereto.

The coöperation between the parts of the truck so far as this invention is concerned has been explained above and it may be stated that in order to prevent cinders, dirt, and other foreign substances from entering the journal boxes suitable packing may be used at the places where such substances are likely to find entry. Such packing has not been illustrated on the drawing since its use would be obvious to those skilled in the art.

I have illustrated in detail the features of the various embodiments of my invention, but I desire to have it understood that my invention is not restricted to the details of construction shown and described, and that many changes may be made in the parts set forth without departing from the essence or heart of my invention.

I claim:

1. A car truck side frame having a part adapted to project into the interior of an independent journal box or casing, substantially as described.

2. A car truck side frame having a portion integral therewith adapted to project into

the interior of an independent journal box or casing, substantially as described.

3. The combination of a car truck side frame and a journal box or casing, the latter having an aperture through which a part of said side frame projects into the interior thereof, substantially as described.

4. The combination of a car truck side frame having a lug integral therewith and a journal box or casing having an aperture through which said lug projects into the interior of said box or casing, substantially as described.

5. The combination of a car truck side frame having a lug or projection integral therewith, a journal box or casing having an aperture through which said lug projects into the interior of said box or casing, an axle the end of which extends into said box or casing, and a bearing for the said axle having a shoulder co-acting with said lug or projection of the side frame to prevent said bearing from moving transversely to the side frame in one direction, substantially as described.

6. The combination of a car truck side frame having a lug or projection integral therewith, a journal box or casing having an aperture through which said lug projects into the interior of said box or casing, said journal box having one or more stop lugs, an axle the end of which extends into said box or casing, a bearing for said axle having a shoulder co-acting with said lug or projection of the side frame to prevent said bearing from moving in one direction, and a wedge co-acting with the stop lug or lugs of said journal box or casing, substantially as described.

7. A journal box or casing for use in a railway car truck having an aperture in one of its walls through which a projection on a truck side frame is adapted to extend into the interior of the box, substantially as described.

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