

No. 852,294.

PATENTED APR. 30, 1907.

E. A. PROBST.
ADJUSTABLE FIRE BOX AND GRATE.
APPLICATION FILED MAR. 22, 1906.

3 SHEETS—SHEET 1.

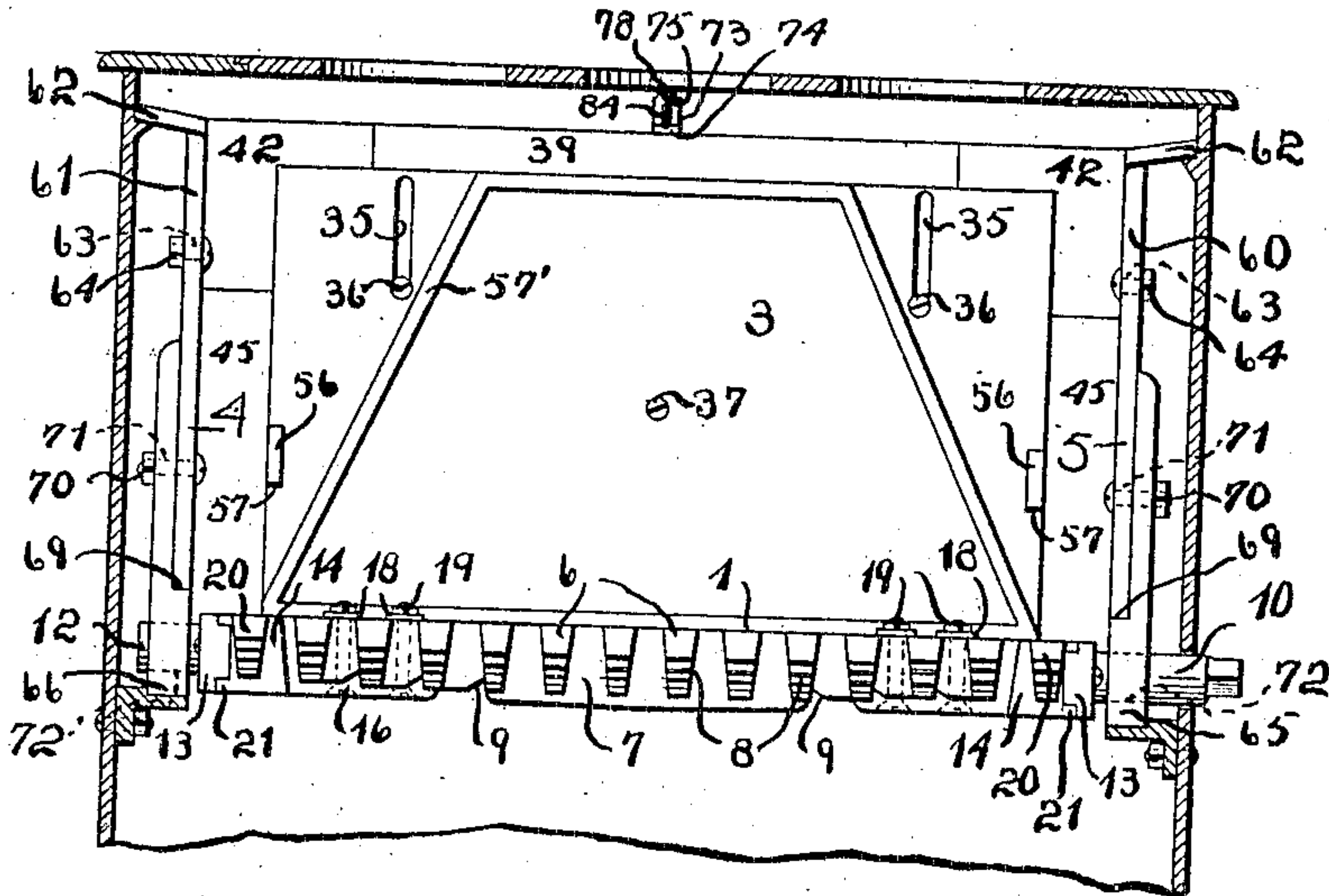


Fig. 1.

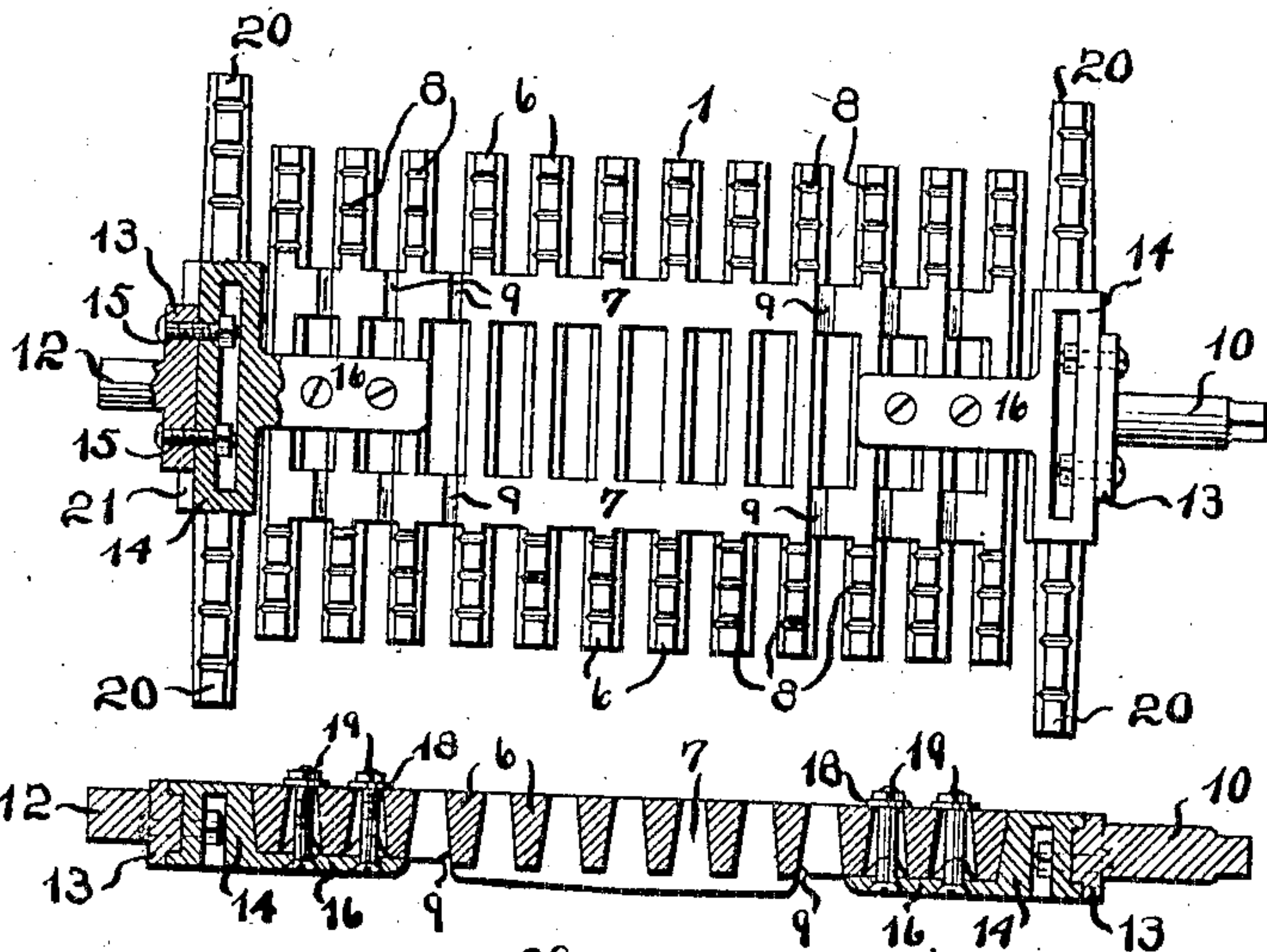


Fig. 2.

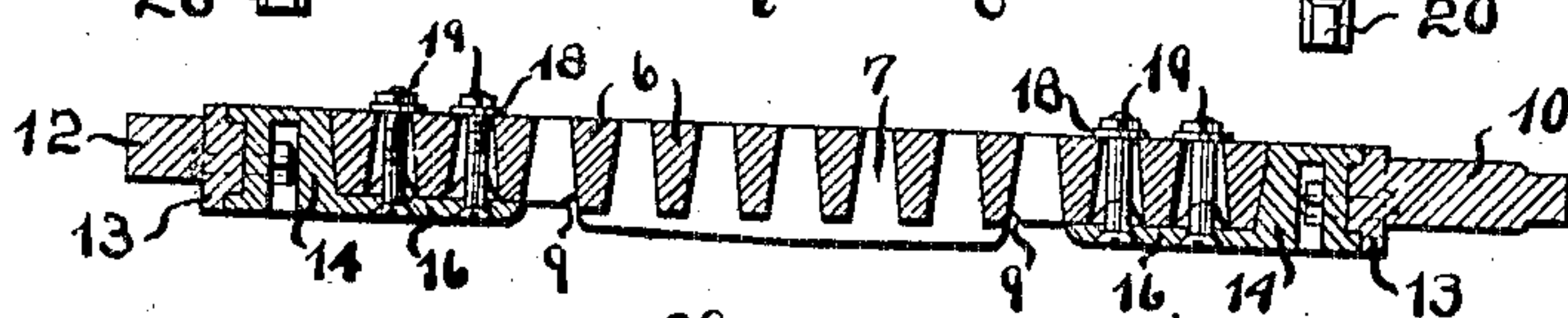


Fig. 3.

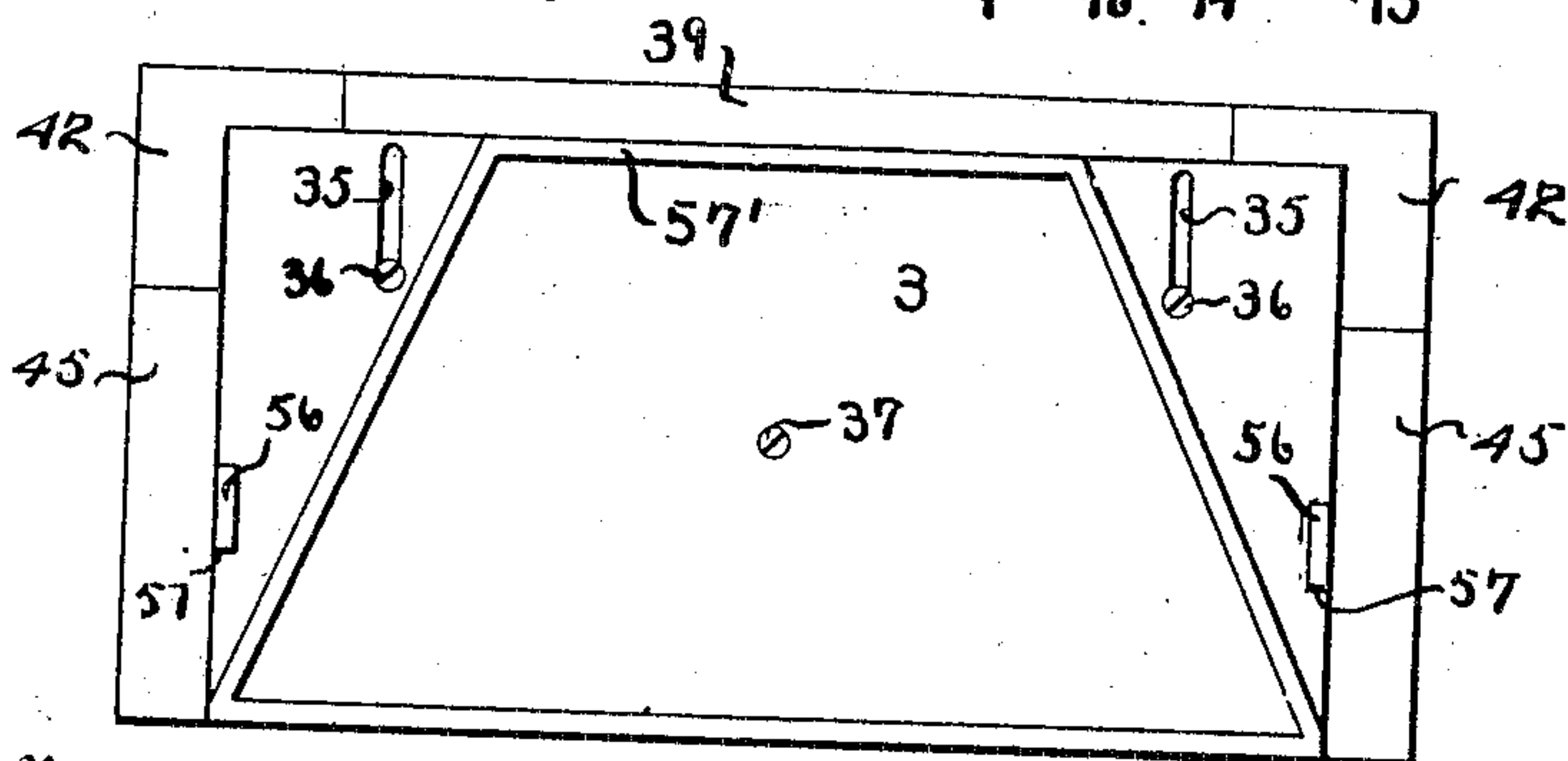


Fig. 4.

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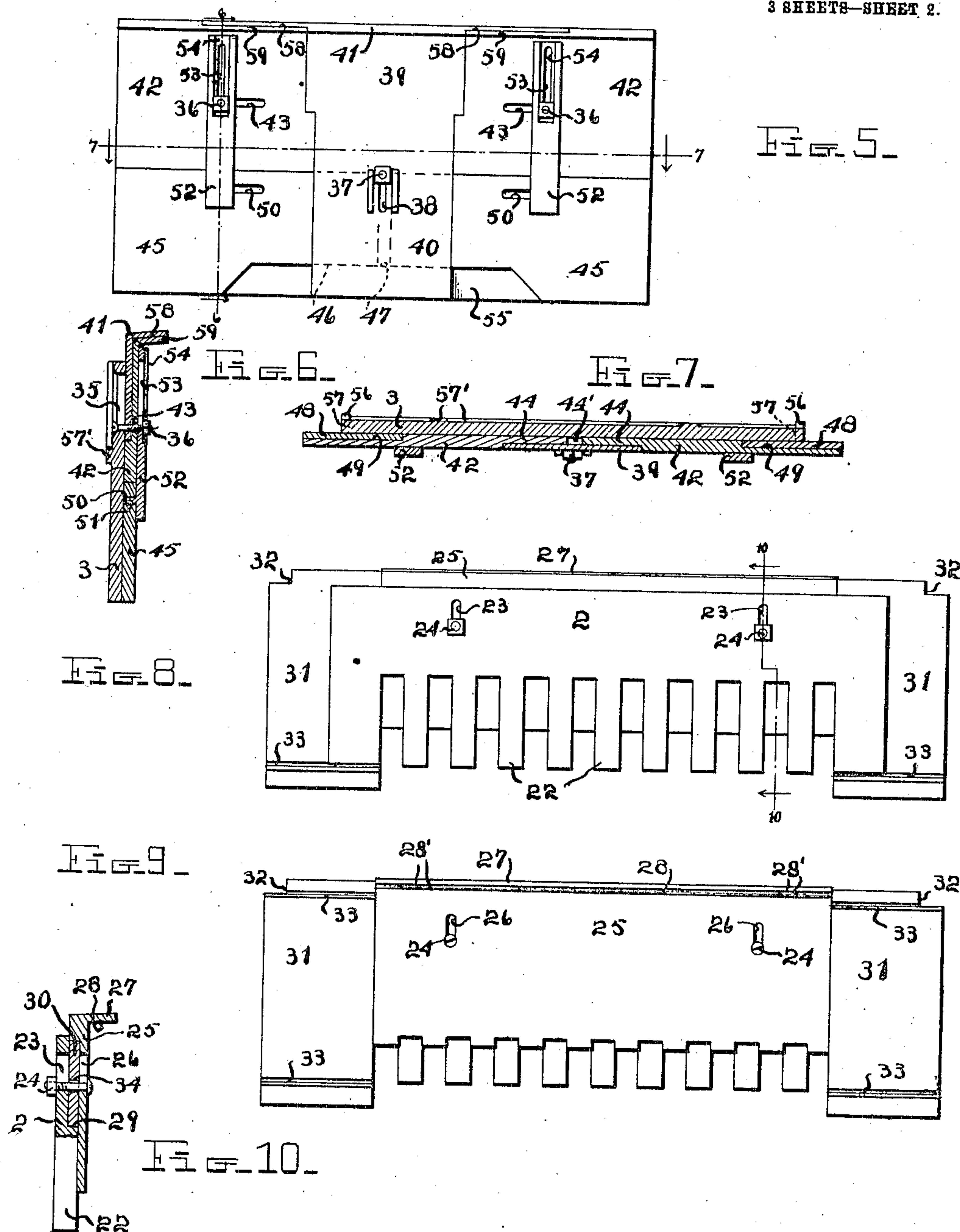
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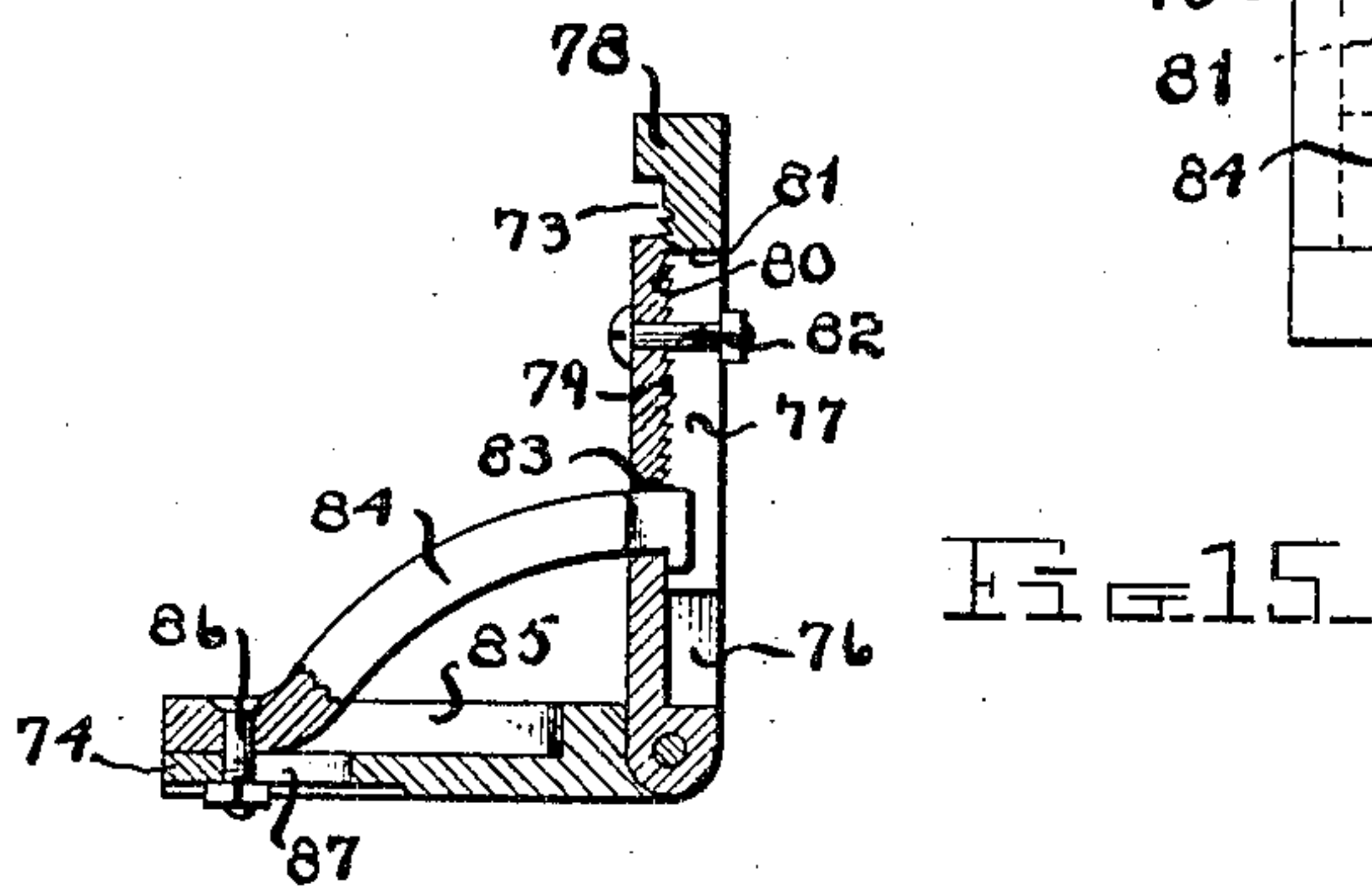
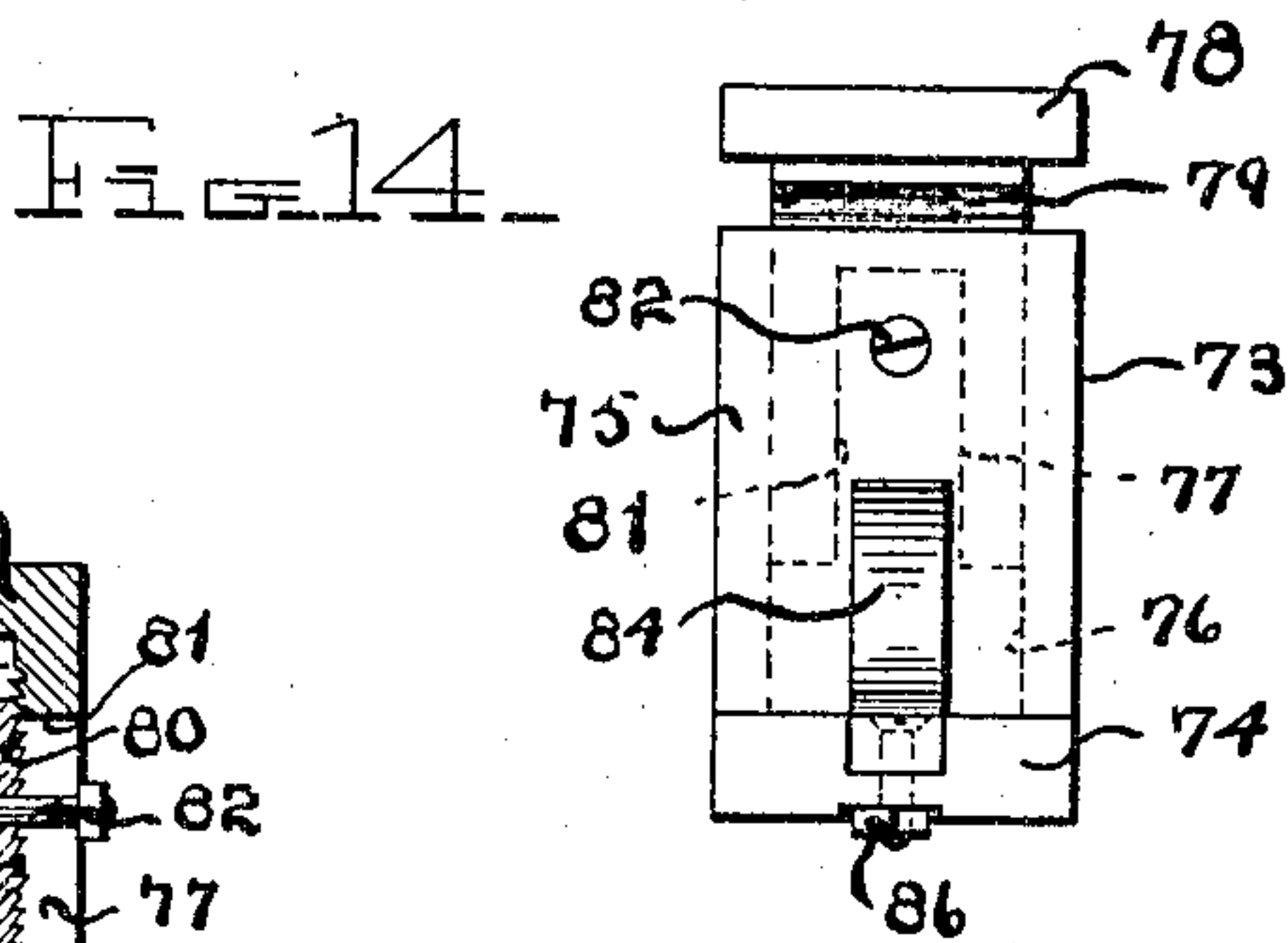
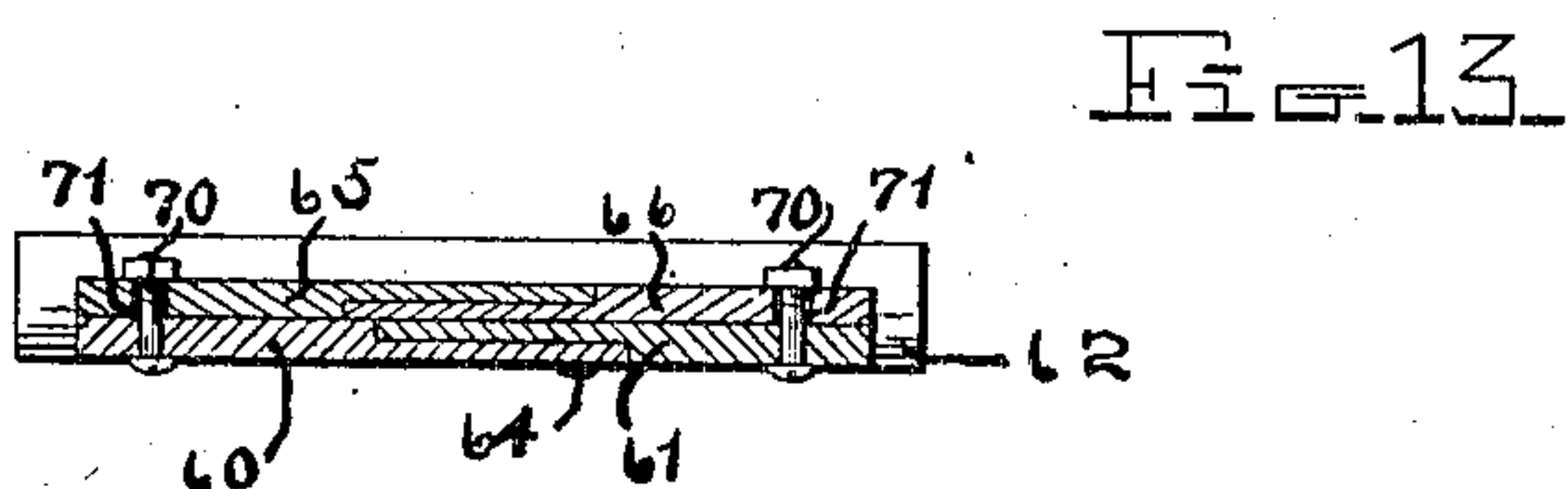
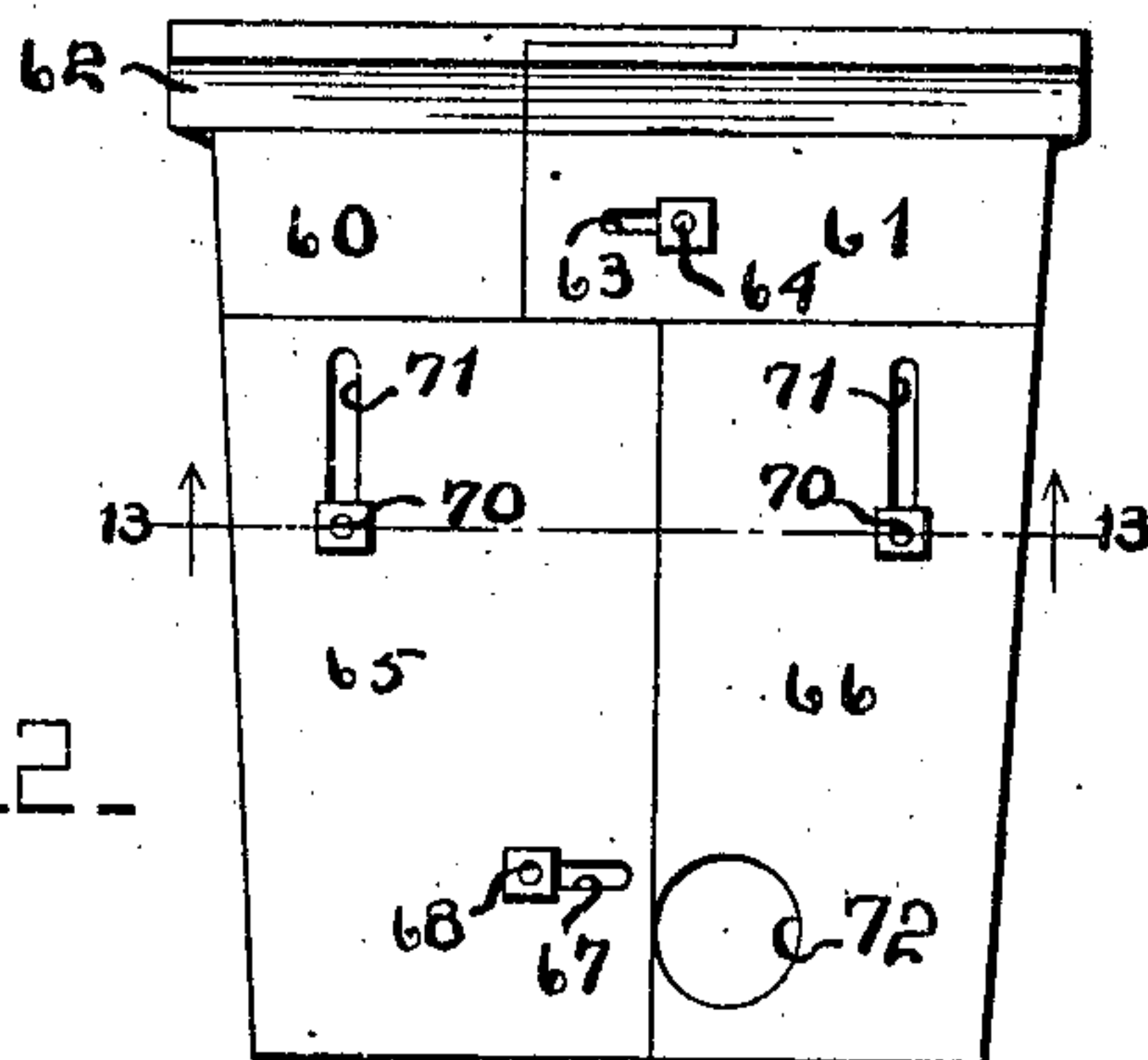
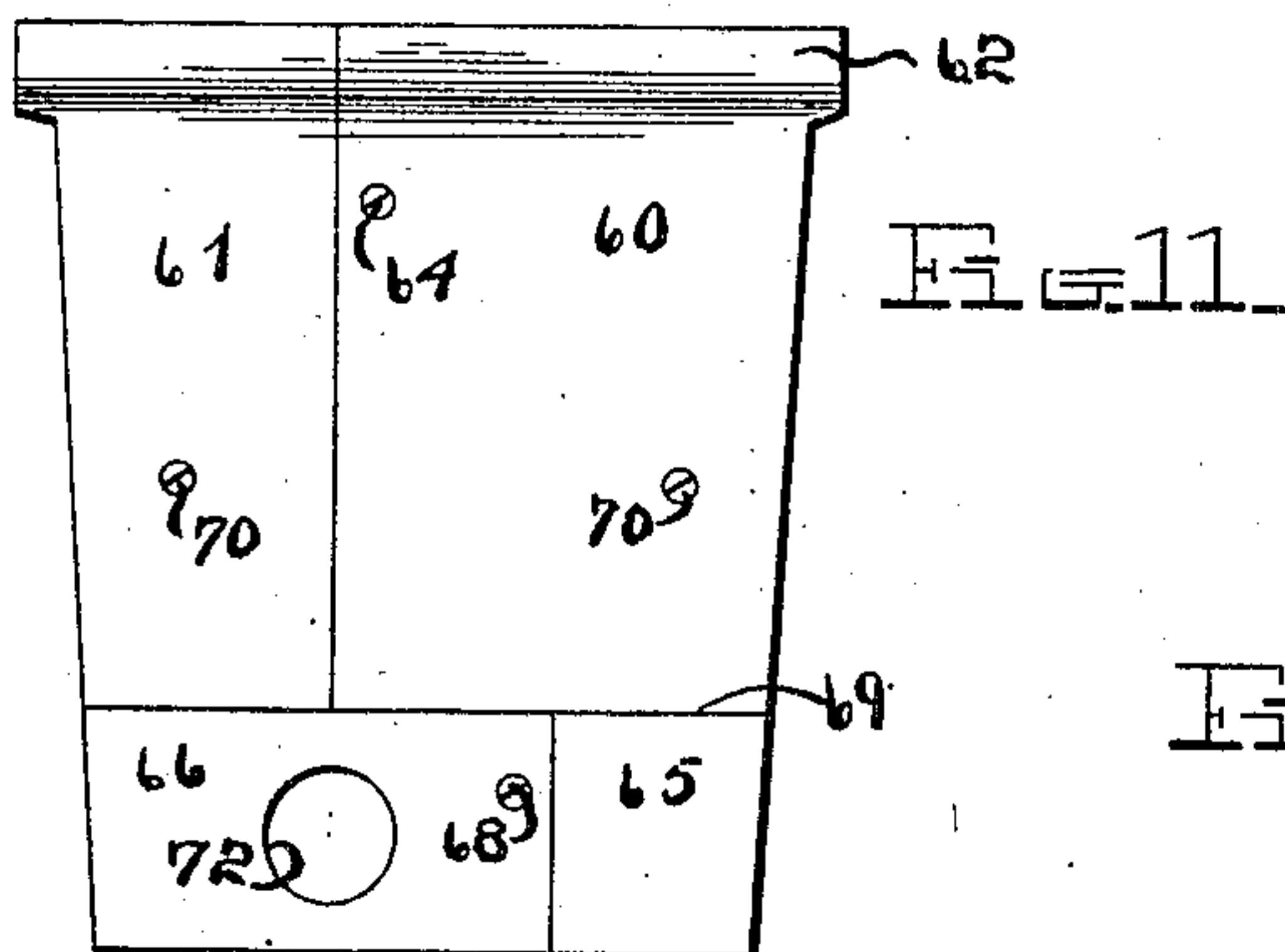
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3 SHEETS—SHEET 3.



Witnesses

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UNITED STATES PATENT OFFICE

EDWARD A. PROBST, OF BRIGHAM, UTAH.

ADJUSTABLE FIRE BOX AND GRATE.

No. 852,294.

Specification of Letters Patent.

Patented April 30, 1907.

Application filed March 22, 1906. Serial No. 307,498.

To all whom it may concern:

Be it known that I, EDWARD A. PROBST, a citizen of the United States, residing at Brigham, in the county of Boxelder and State of Utah, have invented certain new and useful Improvements in Adjustable Fire Boxes and Grates; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in adjustable fire boxes and grates.

The object of the invention is to provide a fire box having side and end walls provided with means for adjusting the sides thereof to fit different sizes and shapes of stoves, and a grate provided with means whereby the bars of the same may be broken off to reduce its size to fit any fire box, said grate being provided with laterally adjustable, removable trunnions for supporting the same.

With the above and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts, as will be hereinafter described and claimed.

In the accompanying drawings:—Figure 1 is a vertical cross sectional view through a portion of a cooking stove or range, showing the application of my improved fire box and grate; Fig. 2 is a bottom plan view of the grate, partly in section; Fig. 3 is a longitudinal sectional view of the same; Fig. 4 is a front view of the back plate or lining of the fire box; Fig. 5 is a rear view of the same; Fig. 6 is a vertical sectional view on the line 6—6 of Fig. 5; Fig. 7 is a horizontal sectional view on the line 7—7 of Fig. 5; Fig. 8 is a front view of the front plate or lining of the fire box; Fig. 9 is a rear view of the same; Fig. 10 is a vertical sectional view on the line 10—10 of Fig. 8; Fig. 11 is a front view of one of the end plates of the fire box; Fig. 12 is a rear view of the same; Fig. 13 is a horizontal sectional view on the line 13—13 of Fig. 12; and Fig. 14 is an end view of the adjustable brace for supporting the top of the stove. Fig. 15 is a vertical sectional view of the same.

Referring more particularly to the drawings, 1 denotes the grate; 2 denotes the front plate or lining; 3 denotes the rear plate or lining; and 4 and 5 denote the end plates of the fire box.

The grate 1 is formed of a series of transversely disposed bars 6, which are formed integral with or connected to a pair of longitudinally disposed bars 7 arranged on each side of the center of the grate. The bars 6 and 7 are heavier or thicker at the central portion of the grate and gradually taper on their under sides toward their ends. In the tapering under sides of the cross bars 6 are formed a series of notches 8, and in the tapering under sides of the bars 7 are formed notches 9. Said notches permit breaking off of the ends of the longitudinal bars and cross bars at suitable points, thus reducing the size of the grate to fit various sizes of fire boxes.

Arranged on the ends of the grate are supporting trunnions 10 and 12, the trunnion 10 being extended and provided on its outer end with a squared portion to receive a shaker by means of which the grate may be shaken or dumped. The trunnions 10 and 12 have formed on their inner ends heads 13 which are adapted to be bolted or otherwise secured to slotted blocks 14, through a series of bolt holes 15 formed therein, thus providing for the lateral adjustment of said trunnions on the blocks. The blocks 14 are provided with projecting notched lugs 16, which are adapted to be engaged with the under side of the cross bars 6 of the grate and are held in engagement therewith by means of screw bolts which are passed upwardly between the bars 6 and through washers or clamping plates 18 and receive on their projecting upper ends nuts 19 by means of which the lugs 16 are clamped to the grate bars. The ends of the blocks 14 are provided with lateral extensions 20 which form the end cross bars of the grate and are provided with breaking notches by means of which the same may be shortened. The heads 13 on the inner ends of the trunnions are adapted to fit between flanges 21 formed on the outer faces of the blocks 14, as shown, thereby increasing the strength of the joint.

The front plate 2 of the fire box is provided on its lower edge with a grating 22. In the upper portion of said front plate adjacent to each end is formed vertically disposed slots 23, through which are passed clamping bolts 24 by means of which an adjustable section 25 is secured to the plate, said section being also provided with vertically disposed slots 26, through which the bolts 24 are adapted to pass. On the upper edge of the section

25 is formed a longitudinally disposed, laterally projecting guard flange 27 adapted to engage the inner front wall of the stove to prevent ashes or other obstructions from falling between the front plate and the side of the stove. In the under side of the flange 27 is formed a longitudinally disposed groove 28 and obliquely disposed grooves 28' by means of which parts of said flange may be broken off to enable the front plate to be properly fitted within the stove. The inner side of the upper portion of the plate 2 is recessed, as shown at 29, to receive slotted tongues 30 formed on the inner edges of end extension sections 31. Said sections have their upper outer corners notched, as shown at 32, to permit the same to be fitted to the end plates of the fire box. The sections 31 are further provided adjacent to their upper and lower edges with longitudinally disposed grooves 33, by means of which parts of the sections may be broken off to diminish the width of the same. The tongues 30 of the sections 31 which engage the recesses 29 of the front plate, are provided with longitudinally disposed slots 34, through which the bolts 24 are passed, and by means of which said sections are held in their longitudinally adjusted positions.

The rear or back plate 3 of the fire box is provided with vertically disposed slots 35 which are arranged adjacent to each end and near the upper edge thereof. Through the slots 35 are inserted clamping bolts 36 and through the center of the plate 3 is passed a clamping bolt 37. The bolt is adapted to engage a slot 38 formed in a vertically adjustable upper section 39 arranged on the rear side of the back plate 3, as shown. The section 39 is provided with a centrally disposed downwardly projecting extension 40 and on the upper edge of the section 39 is formed a rearwardly projecting longitudinally disposed guard flange 41 adapted to engage the upper wall of the oven, thereby preventing ashes or other obstructions from falling between the back plate 3 and the adjacent side of the oven, as will be understood.

On the ends of the back plate 3 are arranged upper, longitudinally adjustable end sections 42, said sections being provided with longitudinally disposed slots 43, through which the clamping bolts 36 are adapted to pass. The sections 42 are also provided on their inner edges with longitudinally extending tongues 44, which are adapted to slide in the recesses 44' formed in the inner side of the extension 40 of the section 39. On the ends of the plate 3 is also arranged lower, longitudinally adjustable end sections 45 which are provided on their inner ends with longitudinally extending tongues 46 adapted to engage recesses 47 also formed in the rear side of the extension 40. The sections 45

are also provided with upwardly projecting tongues 48 adapted to engage recesses 49 formed in the rear sides of the upper end sections 42, as shown. The sections 45 are provided with longitudinally disposed slots 50 which are engaged by lugs 51 formed on the inner side of retaining bars 52. The upper ends of the latter are provided with vertically disposed slots 53 and similarly disposed recesses 54 to receive the ends of the clamping bolts 36 and the nuts applied thereto. On the lower rear side of the plate 3 is formed a guide flange 55, which is engaged by the inwardly projecting tongues 46 on the lower end sections 45. The lower end sections 45 are provided on their outer sides with laterally projecting lugs 56, which when said sections are in their retracted positions, are adapted to engage recesses or notches 57 formed in the adjacent edges of the back plates 3, as shown. The back plate, if desired, may be provided with an integrally formed strengthening rib or bead 57'. The guard flange 41 on the upper edge of the sections 39 is provided on its under side with longitudinally disposed recesses 58 in which are adapted to slide longitudinally disposed extension strips 59. Said strips 59 have a reduced inner end adapted to be held in sliding engagement with the recesses 58 by means of the upper edges of the end sections 42, as shown.

The end sections 4 and 5 each consist of upper, laterally adjustable sections 60 and 61, the inner ends of which are recessed and overlap each other, as shown. The upper ends of the sections 60 and 61 are provided with a rearwardly projecting guard flange 62 to prevent the entrance of ashes. The section 61 is provided near its inner upper edge with a horizontally disposed slot 63, through which and the recessed overlapping edge of the plate 60 is passed a clamping bolt 64, by means of which said sections are adjustably held together. Adjustably secured to the rear or side of the sections 60 and 61 are lower adjustable end sections 65 and 66, the inner edges of said sections being recessed and overlapped in the same manner as the upper sections 60 and 61. The section 65 is provided near its lower inner edge with a horizontally disposed slot 67, through which and the adjacent overlapping edge of the section 66 is passed a clamping bolt 68, by means of which said lower sections are adjustably connected together. The lower sections 65 and 66 are recessed on their outer faces, as at 69, to receive the lower ends of the upper sections 60 and 61. Said upper and lower sections are held in vertical adjustable positions by means of clamping bolts 70 which pass through the sections 60 and 61 and through slots 71 formed in the lower sections 65 and 66, as shown. In one of the lower sections of the end plate 4 is

formed a longitudinally disposed hole 72, through which the extended trunnion 10 of the grate is adapted to project.

Adapted to be secured on the top plate of the oven is a supporting bracket 73, said bracket consisting of a base portion 74 in the forked outer end of which is pivotally connected the lower reduced end of an adjustable supporting arm or bar 75. This bar is provided in its outer face with a vertically disposed recess 76, in which is slidably mounted an adjustable section 77, the upper edge of which is provided with a head 78 adapted to engage the strengthening bars or ribs on the under side of the stove top, as shown. The inner side of the adjustable sections 77 is provided with a series of ratchet teeth 79 adapted to engage a similar series of teeth 80 formed on the inner wall of the recess 76, thus providing for a firm grip between the sliding section 77 and the bar 75. The section 77 is further provided with a vertically disposed slot 81, through which and the front side of the bar 75 is arranged a clamping bolt 82, by means of which said adjustable section is held in position. The bar 75 is provided with a longitudinally disposed slot 83, through which is adapted to be inserted the reduced headed upper end of an inclined brace 84, the lower end of which is adjustably secured in a recess 85 formed in the base 74. Said lower end of the brace 84 is held in adjusted position by means of a clamping bolt 86 which is passed therethrough and through a slot 87 formed in the base 74, as shown. Said bolt 86 also forms the means for securing the base 74 to the top of the oven. By means of an adjustable supporting bracket such as herein shown and described, the top of the stove may be engaged at the proper position, thereby forming a firm support for the same.

From the foregoing description, taken in connection with the accompanying drawings, the construction and operation of the invention, will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention, as defined by the appended claims.

Having thus described my invention, what

I claim as new and desire to secure by Letters-Patent, is:—

1. A fire box for stoves comprising a grate adapted to be reduced in size, trunnions arranged on the ends of said grate, one of which is extended to receive a shaker, and means to adjustably connect said trunnions to the grate, a grated front plate or lining having a vertically adjustable section, and longitudinally adjustable end sections, having grooves therein to facilitate the breaking of pieces therefrom, a laterally projecting guard flange formed on the upper edge of said vertically adjustable section, said flange having grooves formed therein to facilitate the breaking of the same, a back plate having an upper vertically adjustable section, upper longitudinally adjustable end sections, and lower longitudinally and vertically adjustable end sections, tongues formed on said end sections to engage recesses in said vertically adjustable upper section, a retaining strip adjustably connected with said upper end sections, means whereby the lower ends of said strip are adjustably engaged with said lower end sections, tongues formed on said lower end sections to engage recesses in said upper end sections, a laterally projecting guard flange formed on said vertically adjustable section, adjustable end strips to extend said guard flange, end plates formed of a series of vertically and laterally adjustable sections and securing bolts arranged in slots in the sections and main portions of said front, back and end plates to hold said parts in their adjusted positions, substantially as described.

2. A fire box for stoves comprising a grate having adjustable trunnions, a back plate or lining, means to adjust the size of the same in all directions, a front plate or lining, means to adjust the size of the same in all directions, end plates, means to adjust the size of the same, a top supporting bracket, having a pivoted, adjustable section, and an adjustable brace to hold said pivoted section in position, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

EDWARD A. PROBST.

Witnesses:

E. W. DUNN,
LOUIE BYWATER.