

R. H. GODDARD.

FOLDING CRATE.

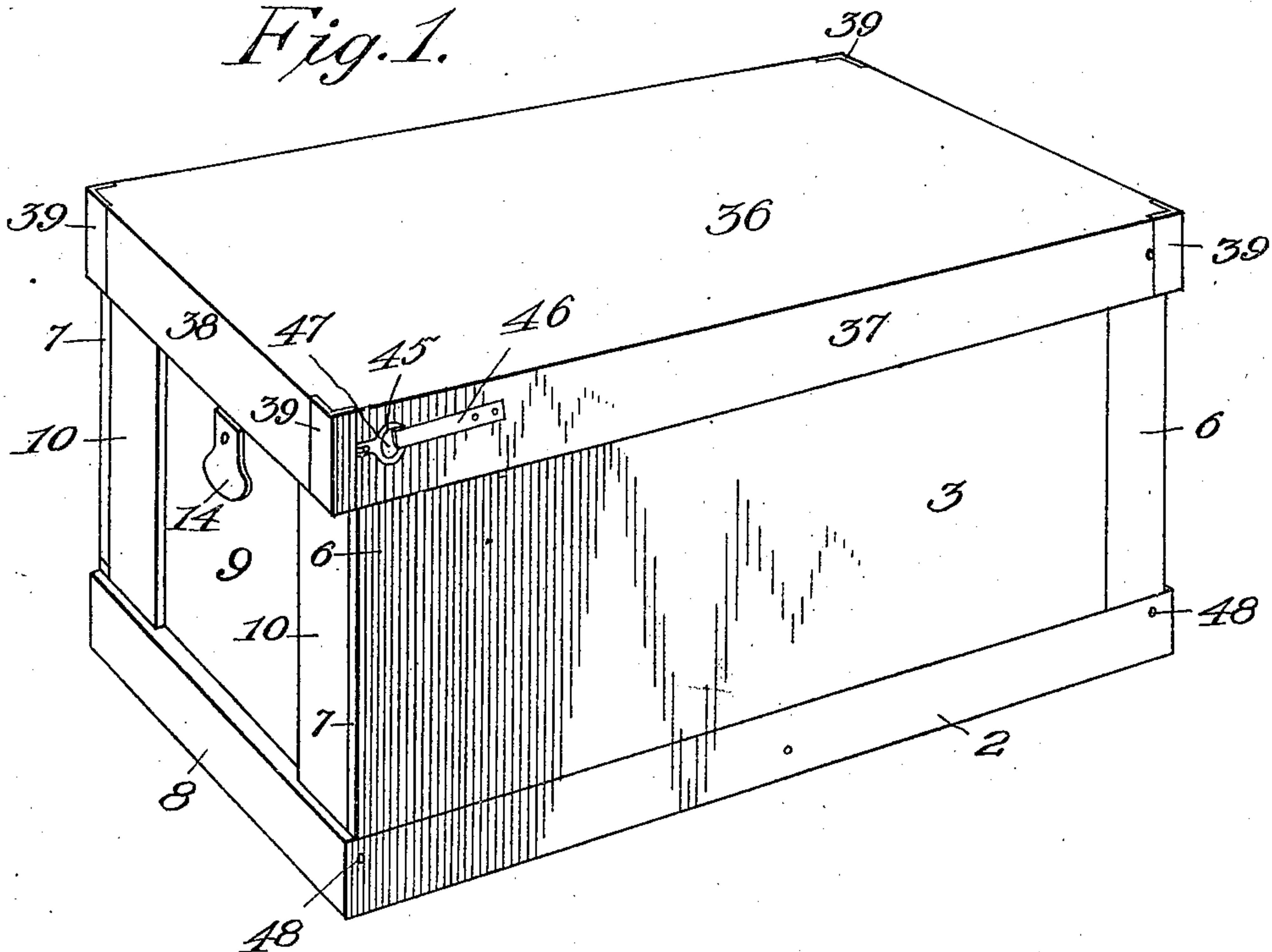
APPLICATION FILED MAY 9, 1908.

934,156.

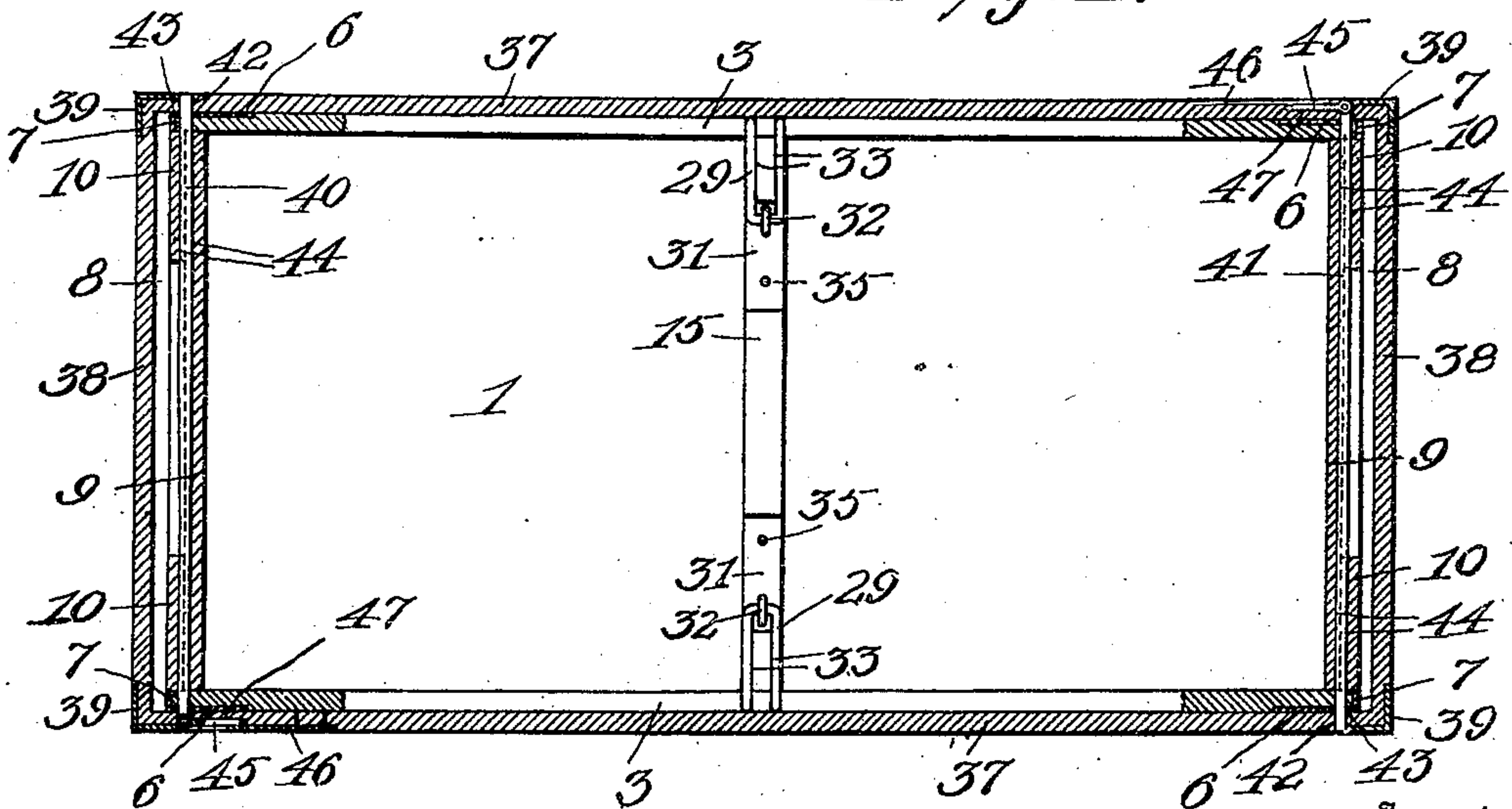
Patented Sept. 14, 1909.

3 SHEETS—SHEET 1.

*Fig. 1.*



*Fig. 4.*



Witnesses

James F. Brown  
M. L. Skinner

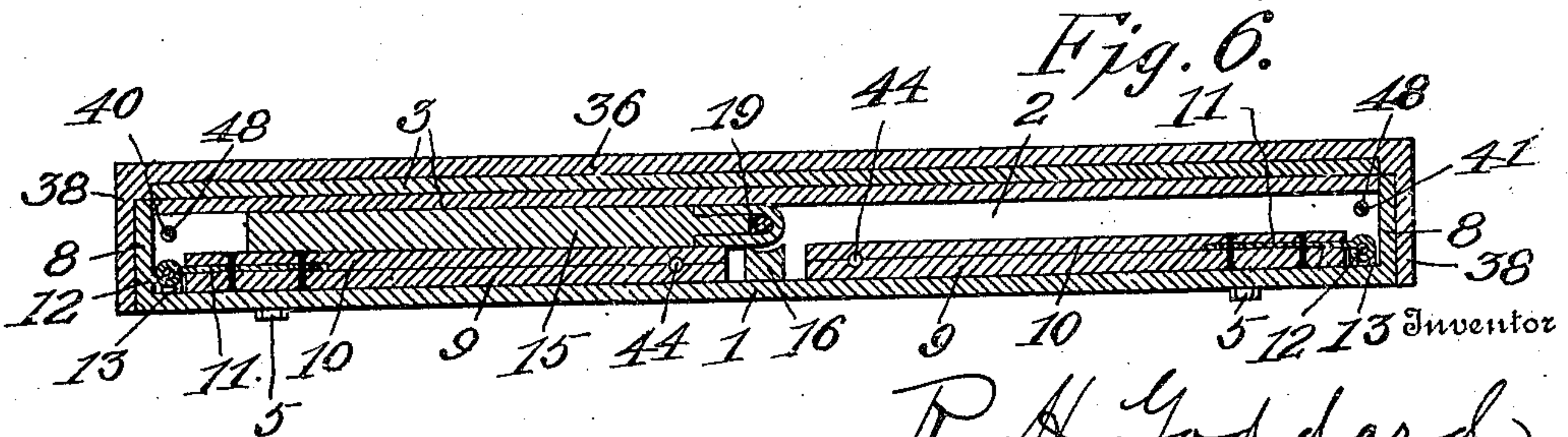
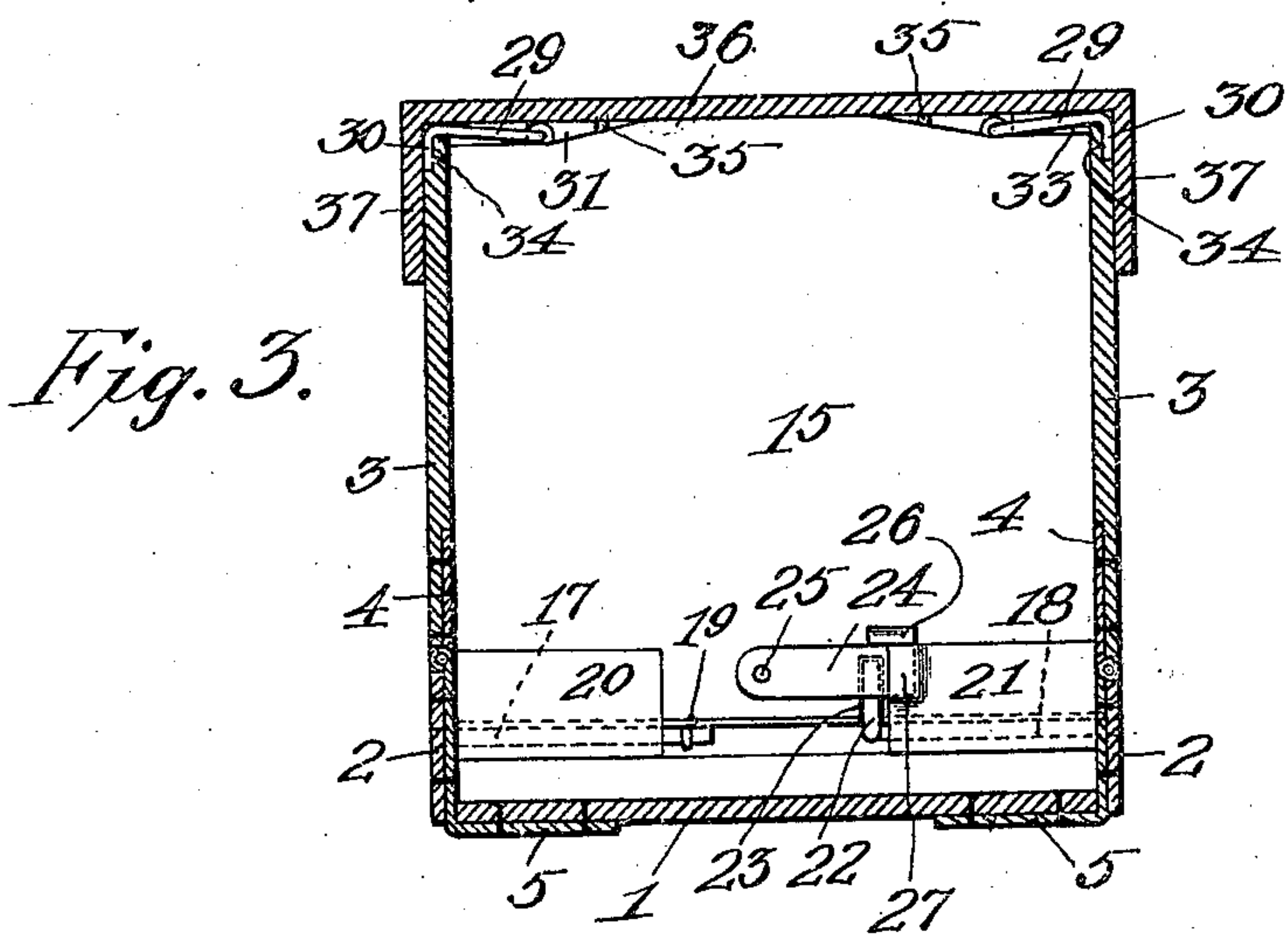
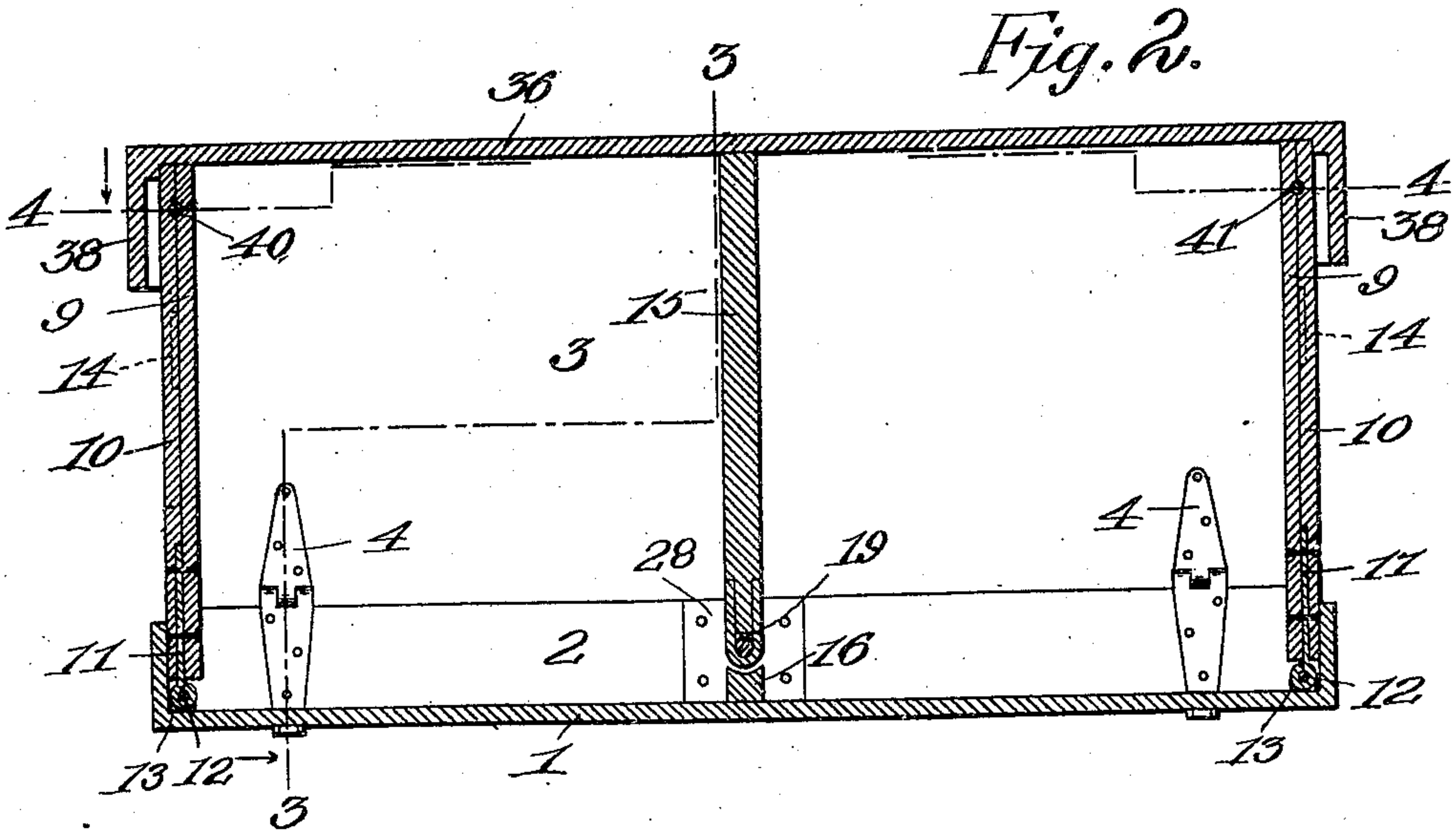
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3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

Fig. 5.

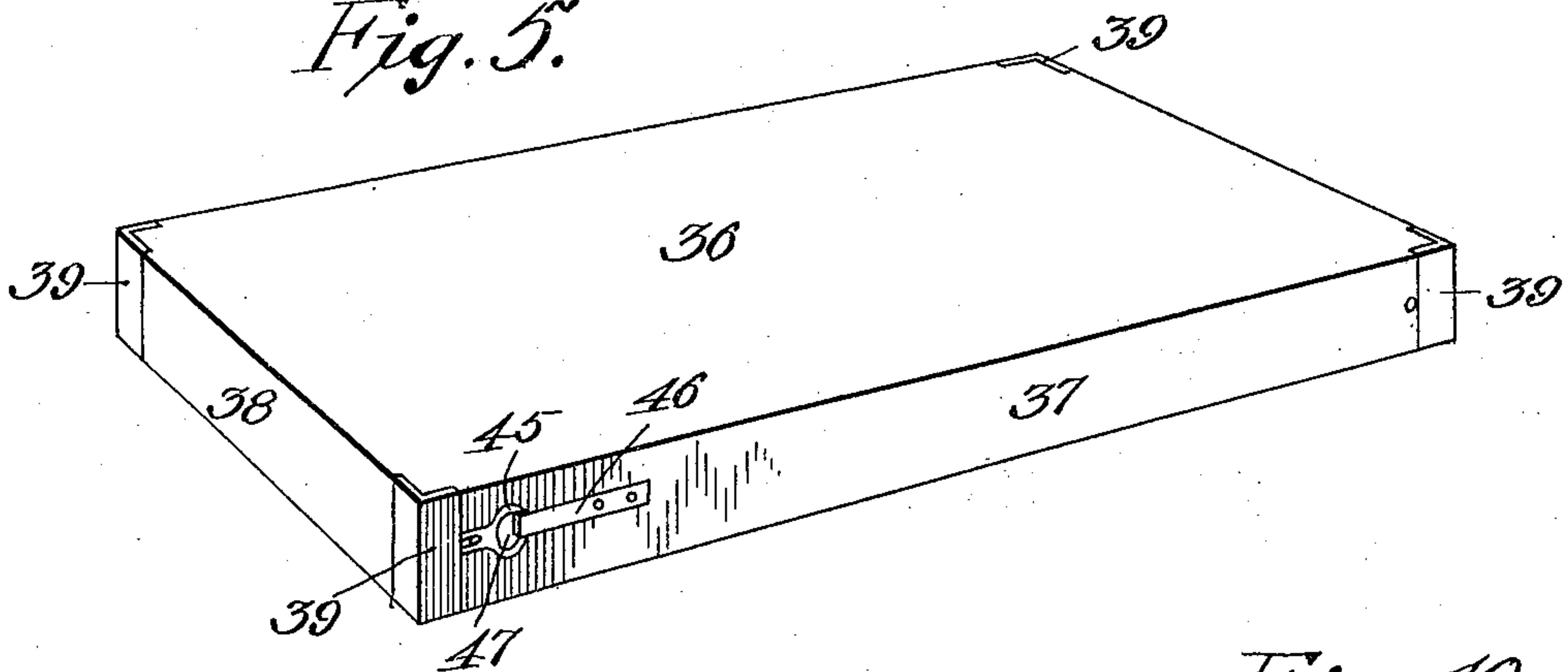


Fig. 10.

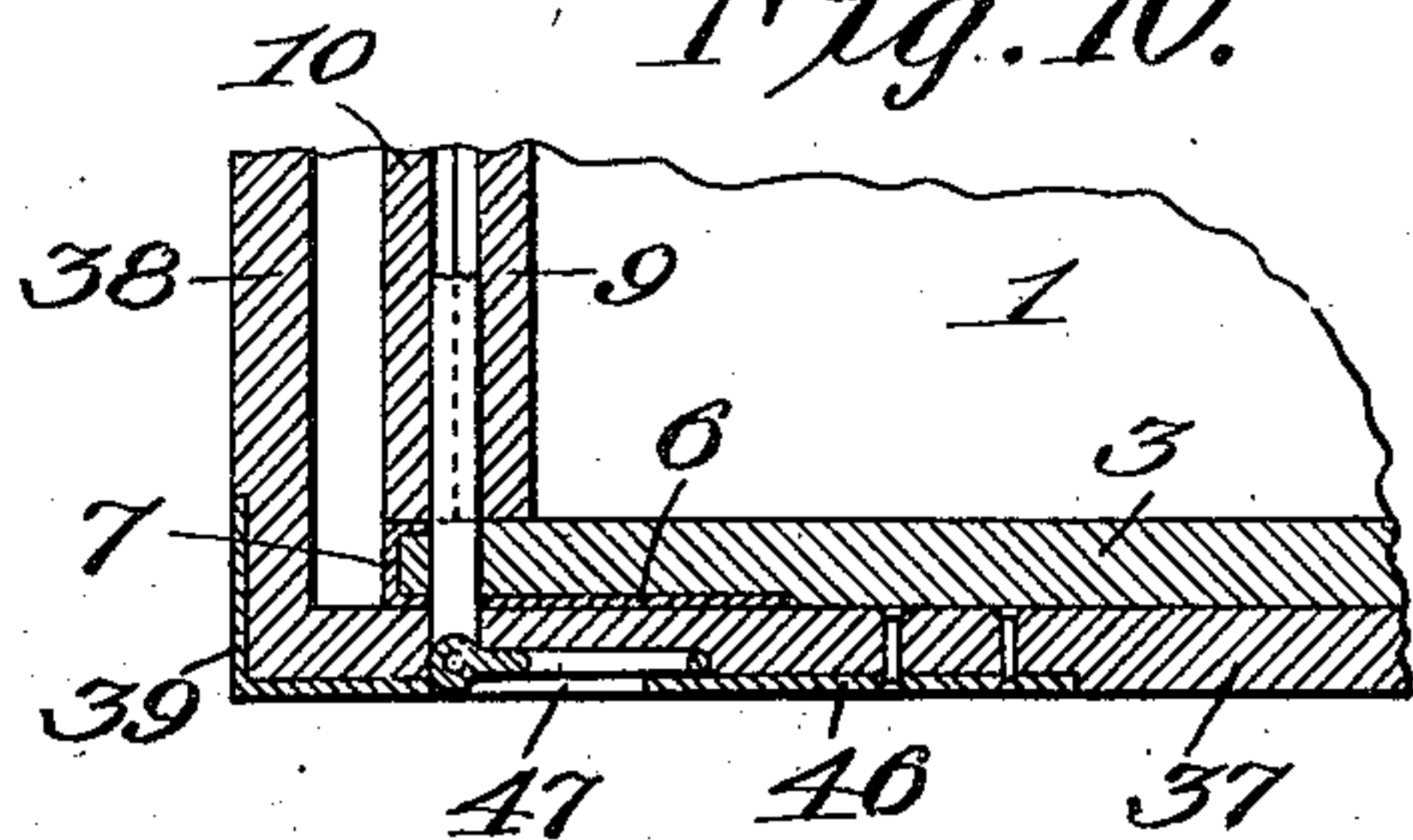


Fig. 7.

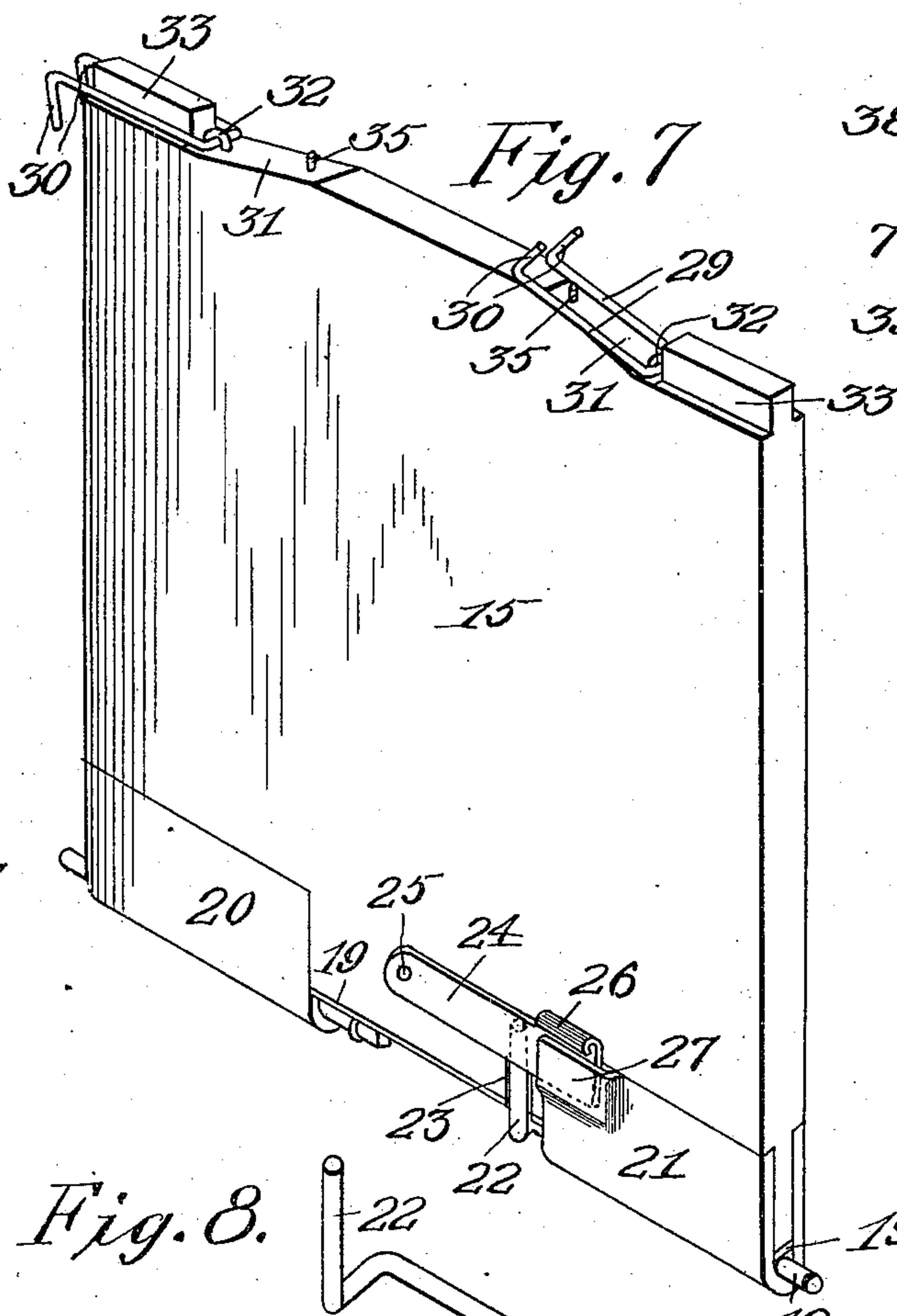


Fig. 9.

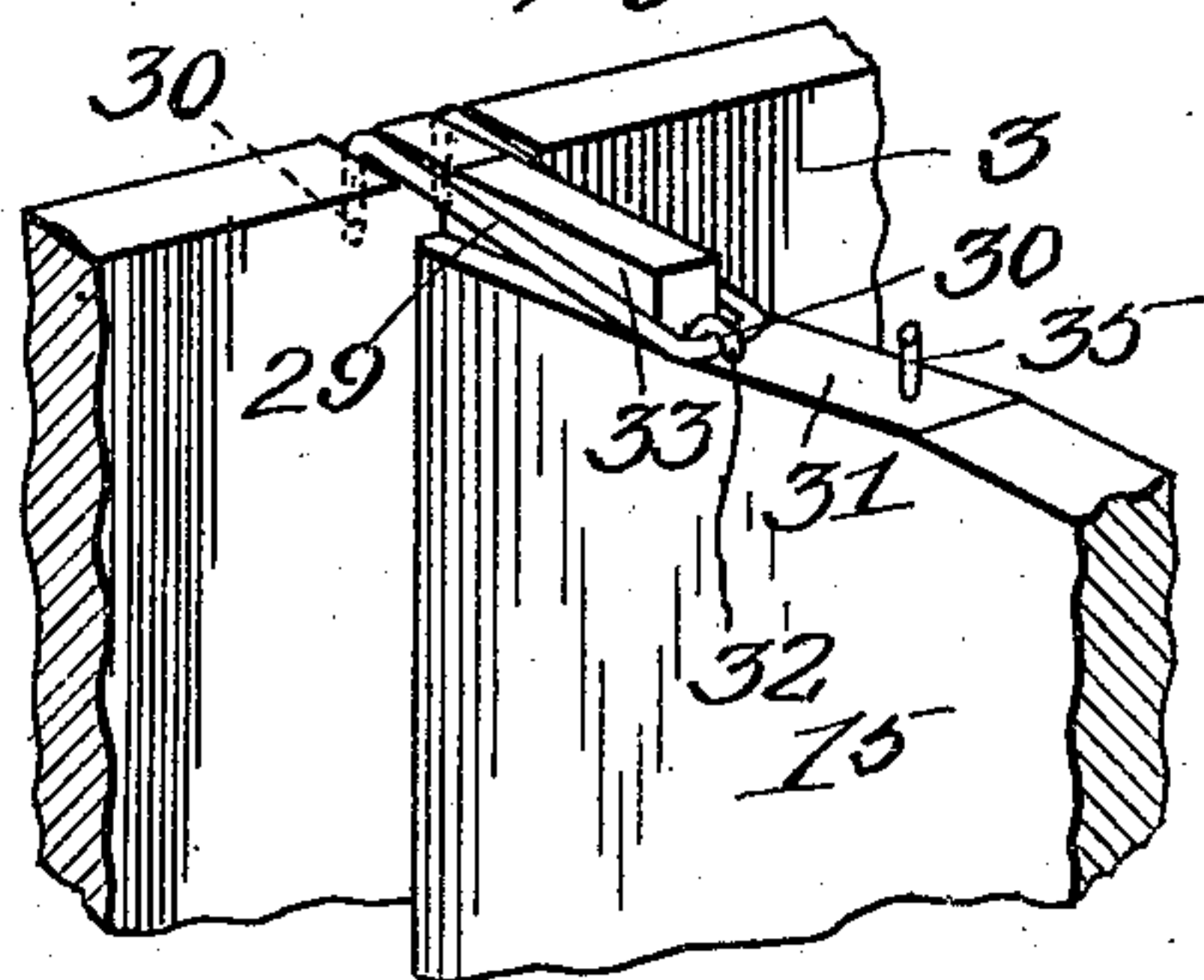


Fig. 8.

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# UNITED STATES PATENT OFFICE.

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## FOLDING CRATE.

934,156.

Specification of Letters Patent. Patented Sept. 14, 1909.

Application filed May 9, 1908. Serial No. 431,964.

*To all whom it may concern:*

Be it known that I, RALPH H. GODDARD, a citizen of the Dominion of Canada, residing at Shelby, Indiana, have invented certain new and useful Improvements in Folding Crates, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to improvements in foldable egg crates and the like, and consists of the novel features of construction and the combination and arrangement of parts hereinafter fully described and claimed.

The object of the invention is to improve and simplify the construction and operation of devices of this character and thereby render the same stronger and more durable in construction, less expensive and more convenient and effective in use.

The above and other objects of the invention, as will hereinafter appear, are attained in its preferred embodiment illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of my improved crate set up for use; Figs. 2 and 3 are vertical longitudinal and transverse sections; Fig. 4 is a detail horizontal section; Fig. 5 is a perspective view showing the crate collapsed or closed; Fig. 6 is a sectional view through the crate in its closed position; Figs. 7 and 8 are detail views showing the detachable pivotal connection for the partition; Fig. 9 is a detail view showing one of the pivoted catches for the partition; and Fig. 10 is an enlarged detail section showing the finger piece on one of the fastening rods.

The body of my improved crate comprises a bottom 1 from the opposite side edges of which rise the stationary parts 2 of the two sides of the crate, said sides also having swinging parts 3 which are united to the parts 2 by strap hinges 4 so that said parts 3 fold inwardly. The part 2 on one side is slightly higher than said part on the other side so that the swinging parts will lie horizontal and in parallel relation on each other when the crate is collapsed. The strap hinges 4 are preferably set in the inner faces of the parts 2, 3 and their lower leaves are bent inwardly at right angles, as shown at 5, and secured to the under face of the bottom 1 to strengthen said bottom and also to form wear plates for the same. The ends of the swinging parts 3 are reinforced by metal plates 6 set in the outer faces of the latter and bent around their end edges, as

shown at 7, so as to effectively reinforce and strengthen the same.

8 denotes two end strips which rise from the ends of the bottom 1 and unite the ends of the stationary parts 2 of the sides. These strips or parts 8 not only effectively strengthen and reinforce the bottom but also serve as abutments and braces for the swinging ends 9 of the crate. Said ends 9 are pivoted or hinged at their lower ends to the bottom 1 close to the strips 8 so as to swing downwardly into the body and to lie flat against the bottom 1 when the crate is collapsed. Each of said ends 9 consists of a rectangular portion of less height than half the length of the bottom and two upright cleats 10 which are secured upon the outer faces of the rectangular body portion of the end, suitable recesses being provided in the inner face of each strip 8 to receive the cleats 10 when the crate is set up for use. The hinge connection for each of the ends 9 consists of hinge straps 11 secured beneath the cleats 10 and engaged with a transverse pivot rod 12 secured upon the bottom 1 adjacent to one of the strips 8 by staples or similar fastenings 13. It will be seen that this construction provides an exceedingly strong and durable structure and that the hinge connections will be effectively braced by the strips 8. If desired, hand pieces 14 may be provided upon the outer faces of the ends 9.

15 denotes the partition which is removably pivoted to the parts 2 of the sides and above a transverse strip or cleat 16 arranged upon the bottom 1 to strengthen and reinforce the same. Said strip or cleat 16 extends through the parts 2 and in its top is a semi-circular groove or channel to receive the bottom edge of the partition. The detachable pivotal connection for the partition consists of a stationary pivot 17 projecting from one of its lower corners and a retractable pivot 18 projecting from the other lower corner of the same. The stationary pivot is in the form of a rod fixed between a metal binding strip 19 secured on the bottom edge of the partition 15 and a U-shaped metal plate 20 which fits over the bottom of said partition adjacent to one of its ends and is suitably secured, as clearly shown in the drawings. A similar U-shaped plate 21 is secured on said bottom edge of the partition adjacent to its other end and it is adapted to form a bearing for the retractable pivot



18, which latter is slidably and rotatably mounted between its closed portion and the metal strip 19. At the inner end of the pivot rod 18 is a double right angular bend which forms an operating arm 22 by means of which said pivot 18 may be operated. When the pivot 18 is projected beyond the vertical edge of the partition said arm 22 is adapted to lie in a recess 23 formed in one face of the partition and is retained in said recess so as to prevent the pivot from becoming casually retracted, by a pivoted catch or locking plate 24 pivoted at 25 and having its other end provided with a finger piece or projection 26 by means of which the lower corner of said end may be inserted beneath and removed from a raised portion 27 of the plate 21, which portion 27 forms a keeper. When the catch 24 is raised to disengage the arm 22 the latter may be swung downwardly to throw it out of the recess 23 and it may be then moved longitudinally in an inward direction to retract the pivot 18. Said pivots 17, 18 are adapted to engage bearing openings formed in metal reinforcing plates 28 set in the inner faces of the stationary parts 2 of the sides at the ends of the strip or cleat 16. When it is desired to place the partition in position in the crate the pivot 18 is retracted and the pivot 17 is then engaged with its bearing opening in one of the plates 28 and after the end of the pivot 18 is brought into alinement with its bearing opening in the other plate 28 the finger piece or arm 22 is operated to project the pivot 18 and then locked by means of the catch 24.

In order to secure the partition in an upright position so as to prevent it from collapsing and to strengthen the sides of the crate I provide, adjacent to each of the upper corners of the partition, pivoted catches 29 adapted to engage the upper edges of the swinging members 3 of the sides of the crate. Said catches 29 are U-shaped and have the ends of their arms bent at right angles to provide hooks 30 to take over the parts 3. The catches are pivoted in recesses 31 in the upper edge of the partition by means of staples 32 which engage their closed inner portions. The arms of said catches, when the latter are in an operative position, are adapted to drop into recesses 33 formed in the opposite faces of the partition adjacent to its corners and recesses or notches 34 formed in the upper edge of the parts 3, as clearly shown in Fig. 3. When the catches are retracted they are held upon the upper edge of the partition by means of keeper pins 35 which project upwardly from the upper edge of the partition and are adapted to extend between the arms of the catches.

36 denotes the cover of the crate which has depending from its edges side and end flanges 37, 38 to fit over the sides and ends

of the body. The corners of this top or cover are preferably reinforced by angle metal plates 39. The cover is secured upon the body and the sides and ends of the latter are effectively united by two removable rods 40, 41 which are passed transversely through the flanges 37 of the cover, the parts 3 of the sides, and the ends 9, as clearly shown in Fig. 4 of the drawings. The flanges or parts 37 are formed with openings 42 to receive said rods and to aline with openings 43 in the metal plates 6 of the parts 3, which openings 43 in turn register with opposing grooves 44 formed in the ends 9 and their cleats 10. In order to retain the rods in their locking position I preferably provide upon them at one end pivoted finger pieces or rings 45 and upon the flanges 37 spring catches 46 to hold said finger pieces in recesses 47 in said flanges 37. The spring catches 46 are in the form of flat leaf springs secured at one end to the flanges 37 and having their other ends provided with heads to engage said finger pieces and press them into the recesses and beneath the outer face of the flanges 37. Owing to this construction it will be seen that there will be no projecting parts upon the exterior of the crate to become caught and broken while the latter is in transportation. When the cover is removed from the body of the crate the tie rods may be passed through the openings 43, 44 in the sides and ends of the crate to hold said parts together, but if desired, the cover may be inverted and the bottom of the crate set in it and secured therein by said tie rods. To permit of the latter, openings 48 are formed in the parts 2, said openings 48 being so disposed as to register with the openings 42 in the flanges 37 when the bottom of the body is set in the cover, thereby permitting of the insertion of the fastening rods. When said rods are thus applied it will be seen that they will hold the ends in an upright position. In collapsing or folding the crate, the ends are folded down upon the bottom, the partition is then folded in either direction upon one of the ends, the two sides are then folded inwardly, the one having the narrow stationary strip being below the other and the top of the crate is then placed in position upon the folded parts and secured by the tie rods, as shown in Fig. 6. When the crate is folded it occupies but little space so that it may be conveniently stored away or transported.

It will be understood that my improved crate may be used for shipping merchandise of various kinds but it is especially adapted for use as an egg crate and when used as such suitable filler sections are arranged in it to separate the eggs. These filler sections are collapsible and can be placed in the crate when the latter is collapsed or folded.

From the foregoing description taken in



connection with the accompanying drawings it is thought that the construction, operation and advantages of the invention will be readily understood without a more extended explanation.

Having thus described my invention what I claim is:

1. A folding crate comprising a body having a bottom, two sides, each composed of a stationary part rising from one edge of the bottom and formed with openings adjacent its ends and a swinging part hinged to the stationary part, end strips rising from the end edges of the bottom and rigidly uniting the stationary parts of the sides, folding end members hinged to the bottom within the end strips, and adapted to be braced by the latter, said folding end members being formed adjacent to their upper edges with openings extending transversely there-through, a cover having a surrounding flange, the side portions of the flange being formed with openings to register with the transverse openings in the swinging end members when the crate is set up and to register with the openings in the stationary parts of the sides when the crate is folded, removable tie rods arranged in said registering openings to hold the cover upon the crate in either its set up or folded position, and means for securing said tie rods in position.

2. A folding crate comprising a body having a bottom, two sides each composed of a stationary part rising from one edge of the bottom and a swinging part hinged to the stationary part, end strips rising from the end edges of the bottom and rigidly uniting the stationary parts of the sides, folding end members hinged to the bottom within the end strips and adapted to be braced by the latter, a downwardly folding partition hinged to the bottom of the body, catches upon the partition to engage the sides of the body, a flanged cover, removable tie rods for holding the cover upon the body, said tie rods being passed transversely and horizontally through alined openings in the flange of the cover, the swinging parts of the sides, and said end members, and means for securing said tie rods in position.

3. In a folding crate, the combination of a body having a bottom, inwardly folding ends and sides carried by the bottom, a flanged cover, removable tie rods for holding the cover on the body, said tie rods being passed through alined openings in the flanges of the cover, said sides and said ends, hand loops pivoted upon the ends of said tie rods and adapted to enter recesses in the flanges of the cover, and spring catches upon the flanges of the cover to engage said hand loops and retain them in said recesses.

4. In a folding crate, the combination of a body having a bottom, inwardly folding

ends and sides carried by the bottom, a flanged cover, removable tie rods for holding the cover upon the body, said tie rods being passed through alined openings in the flanges of the cover, said sides and said ends and having hand pieces, and catches upon the flanges of the cover to engage the hand pieces of the tie rods and retain them in position.

5. In a folding crate, the combination of a body, foldable sides and ends, a detachably pivoted partition in the body, a stationary pivot at one side of said partition, a retractable pivot at the other side of said partition and a pivoted catch for holding said retractable pivot in projected position.

6. In a folding crate, the combination of a body, foldable sides and ends, a detachably pivoted partition in the body, a stationary pivot at one side of said partition, a retractable pivot at the other side of said partition, and a pivoted catch for holding said retractable pivot in its projected position.

7. In a folding crate, the combination of a body having a bottom, foldable ends and sides carried by the bottom, each of said sides having stationary parts rising from the side edges of the bottom and swinging parts hinged to the stationary parts, a detachably pivoted partition, a stationary pivot at one of the lower corners of the partition to engage a bearing upon the stationary part of one side, a retractable pivot at the other lower corner of the partition to engage a bearing upon the stationary part of the other side, a pivoted catch for holding said retractable pivot in projected position, means for attaching the upper portion of the partition to the swinging parts of the sides and means for holding said sides and ends in open position.

8. In a folding crate, the combination of a body having a bottom, foldable ends and sides carried by the bottom, each of said sides having stationary parts rising from the side edges of the bottom and swinging parts hinged to the stationary parts, bearing plates upon the stationary parts of the sides, a stationary pivot at one of the lower corners of the partition to engage one of said bearing plates, a retractable pivot at the other lower corner of the partition and adapted to engage the other bearing plate, said retractable pivot being slidably and rotatably mounted and having an operating arm, the latter being adapted to engage a recess in the partition when the pivot is projected, a catch for holding said arm in said recess, means for attaching the upper portion of the partition to the swinging parts of the sides, and means for holding the sides and ends in open position.

9. In a folding crate, the combination of a body, a detachably pivoted partition arranged within the same, a stationary pivot



at one corner of the partition to engage a bearing upon one side of the body, a retractable pivot slidably mounted at the opposite corner of the partition to engage a bearing upon the other side of the body and a pivoted catch for holding said retractable pivot projected.

10. In a folding crate, the combination of a body having a side, a partition in the body, said partition having in its edge a transverse recess and in its opposite sides longitudinal recesses communicating with the transverse recess and forming between them a reduced portion or tongue, and a U-shaped catch pivoted at its closed end in the transverse recess of the partition and adapted to receive said tongue, the arms of said catch being adapted to enter said longitudinal recesses and having their ends bent to form hooks to take over the side of the body.

11. In a folding crate, the combination of a body having a side, a partition in the body, said partition having in its edge a transverse

recess and in its opposite sides longitudinal recesses communicating with the transverse recess and forming between them a reduced portion or tongue, a U-shaped catch having its parallel arms bent to provide hooks to take over the side of the body, a staple pivoting the closed portion of the catch in the transverse recess in the partition, said parallel arms of the catch being adapted to enter said longitudinal recesses whereby the tongue extends into the catch and serves as a guide for the same when in its operative position and engaged with the side of the body, and a pin upon the partition to enter between the arms of the catch when the latter is swung over to an inoperative position upon the edge of the partition.

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

RALPH HOWARD GODDARD.

Witnesses:

D. F. WILSON,  
F. HALLIWELL.