

No. 874,188.

PATENTED DEC. 17, 1907.

C. W. & E. C. HAMEL.
SELF REGULATING ASH PAN.

APPLICATION FILED JULY 29, 1907.

3 SHEETS—SHEET 1.

Fig. 1.

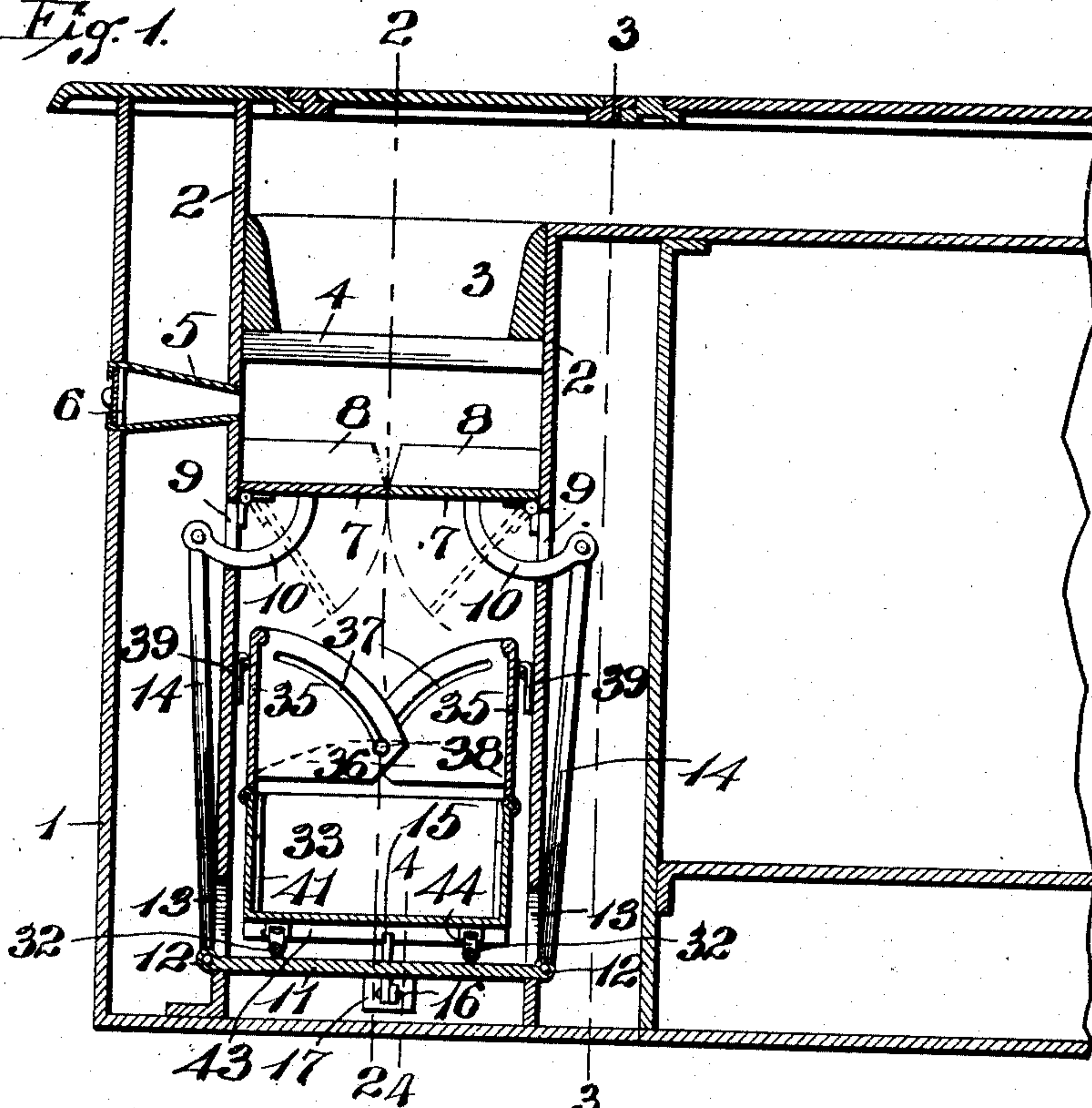
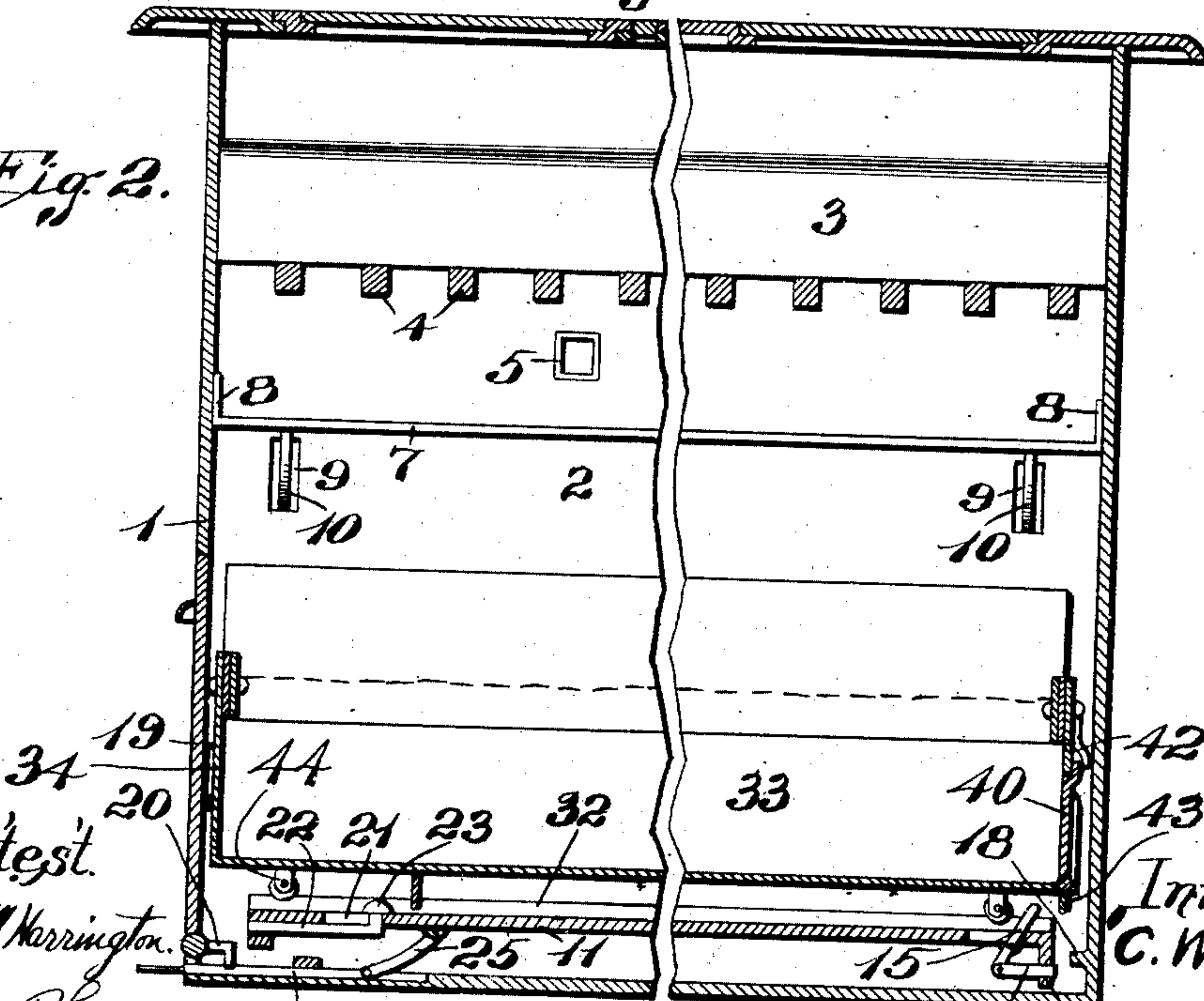


Fig. 2.



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3 SHEETS—SHEET 2.

Fig. 3.

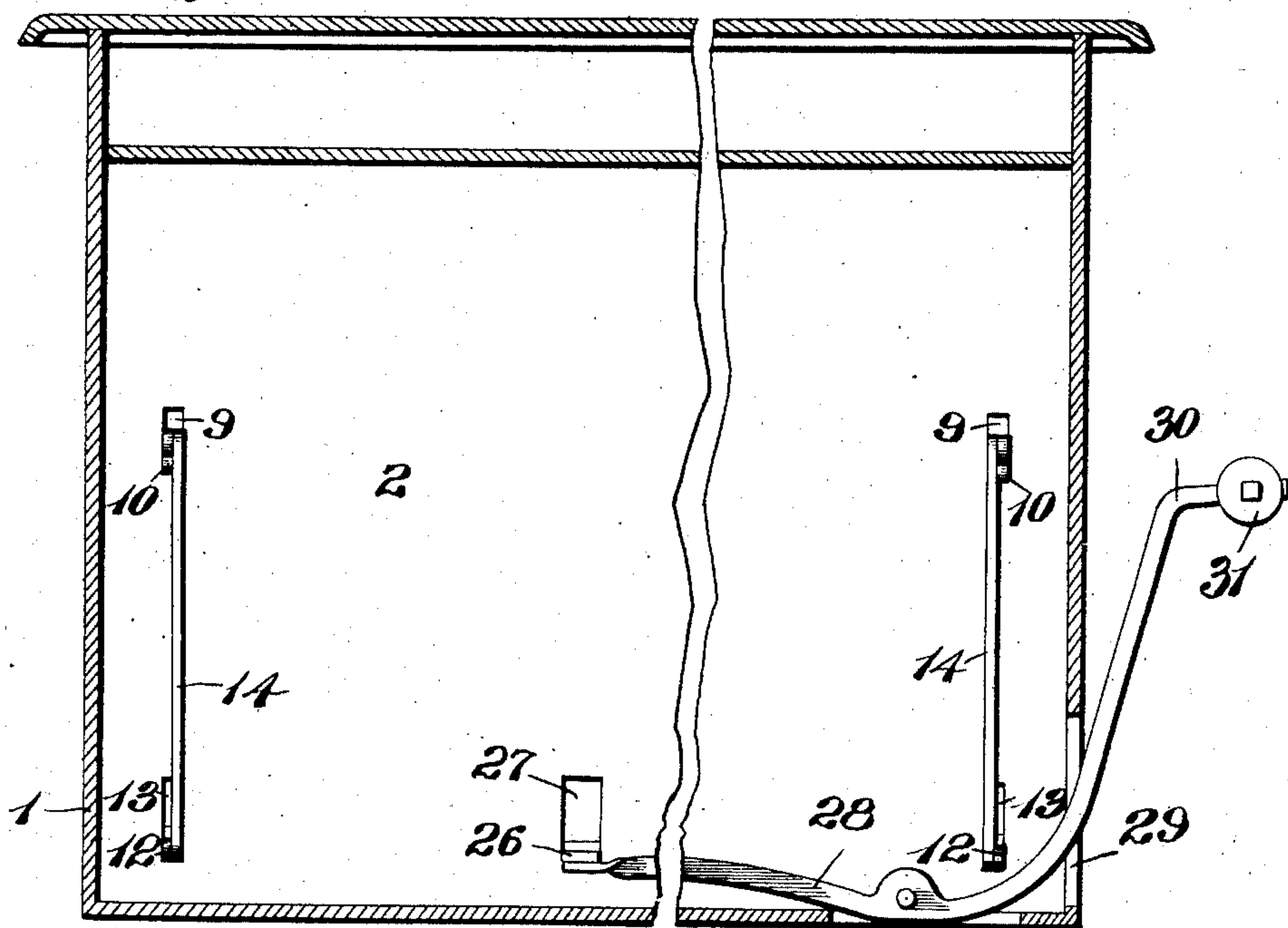
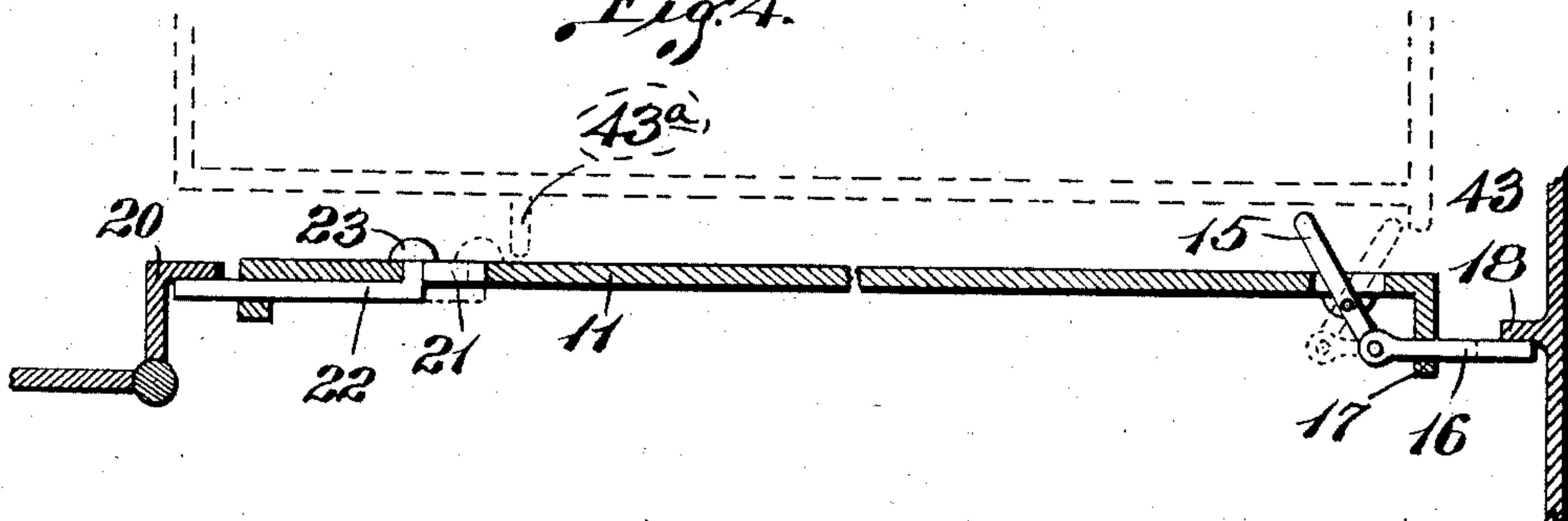


Fig. 4.



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3 SHEETS—SHEET 3.

Fig. 5.

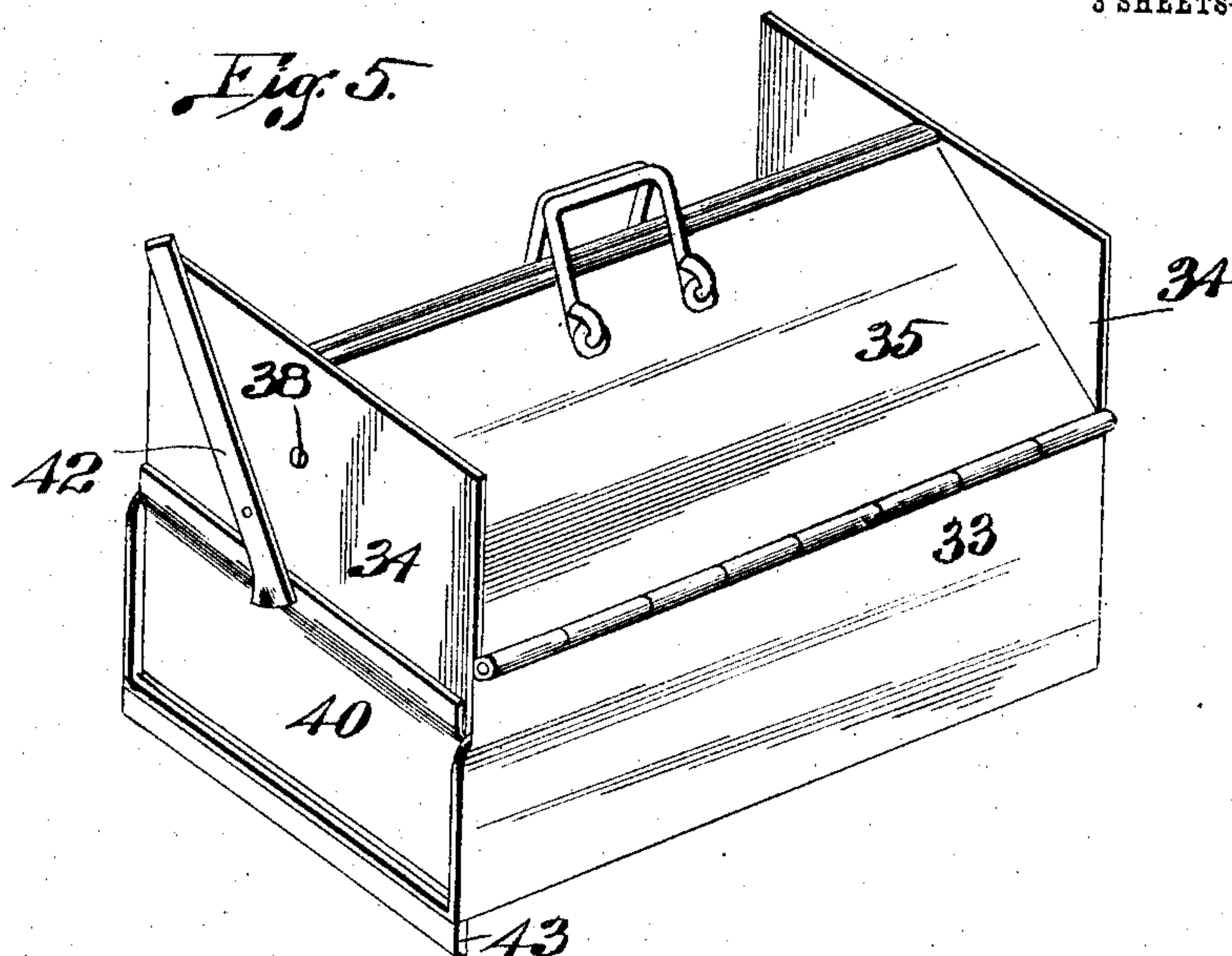


Fig. 6.

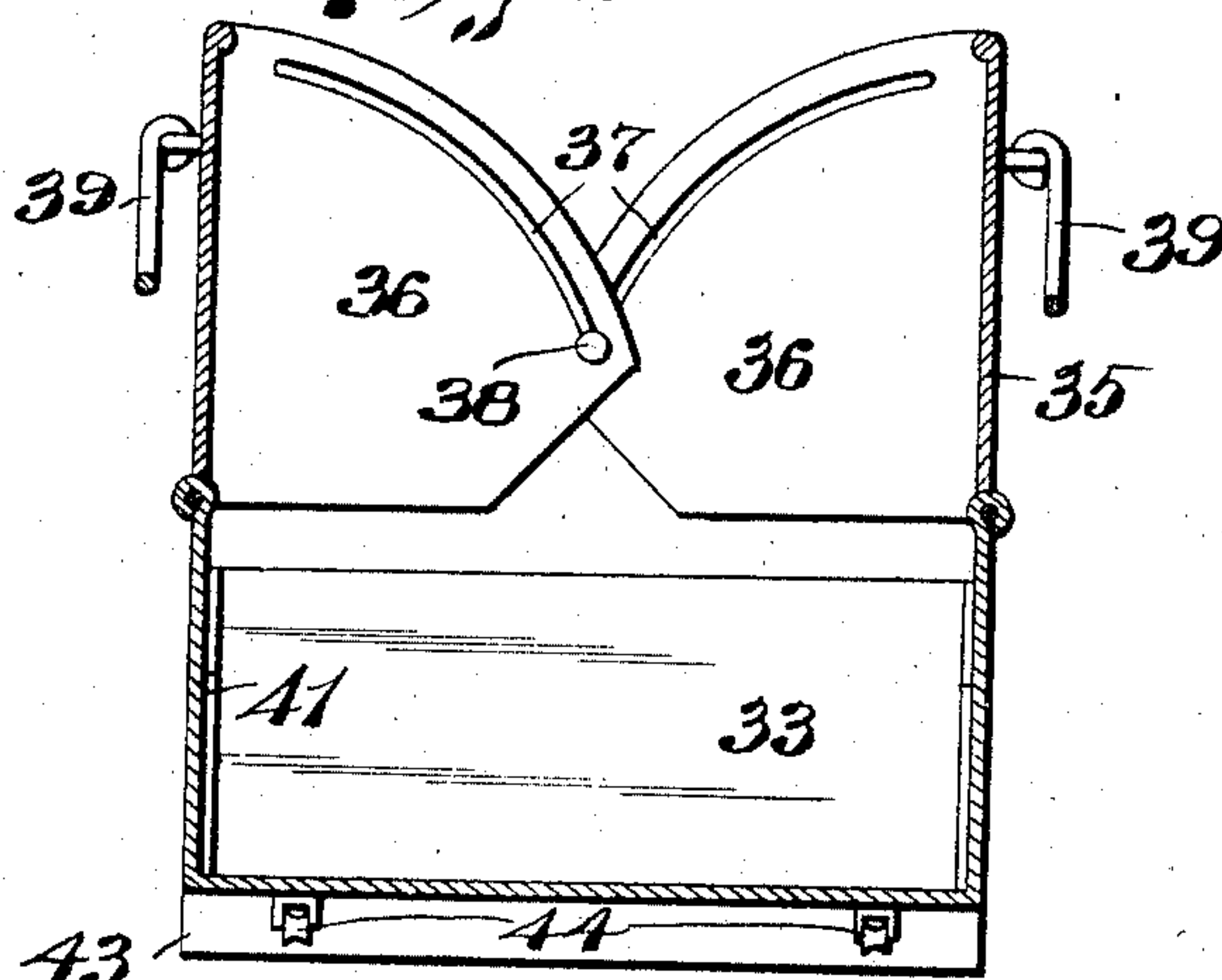
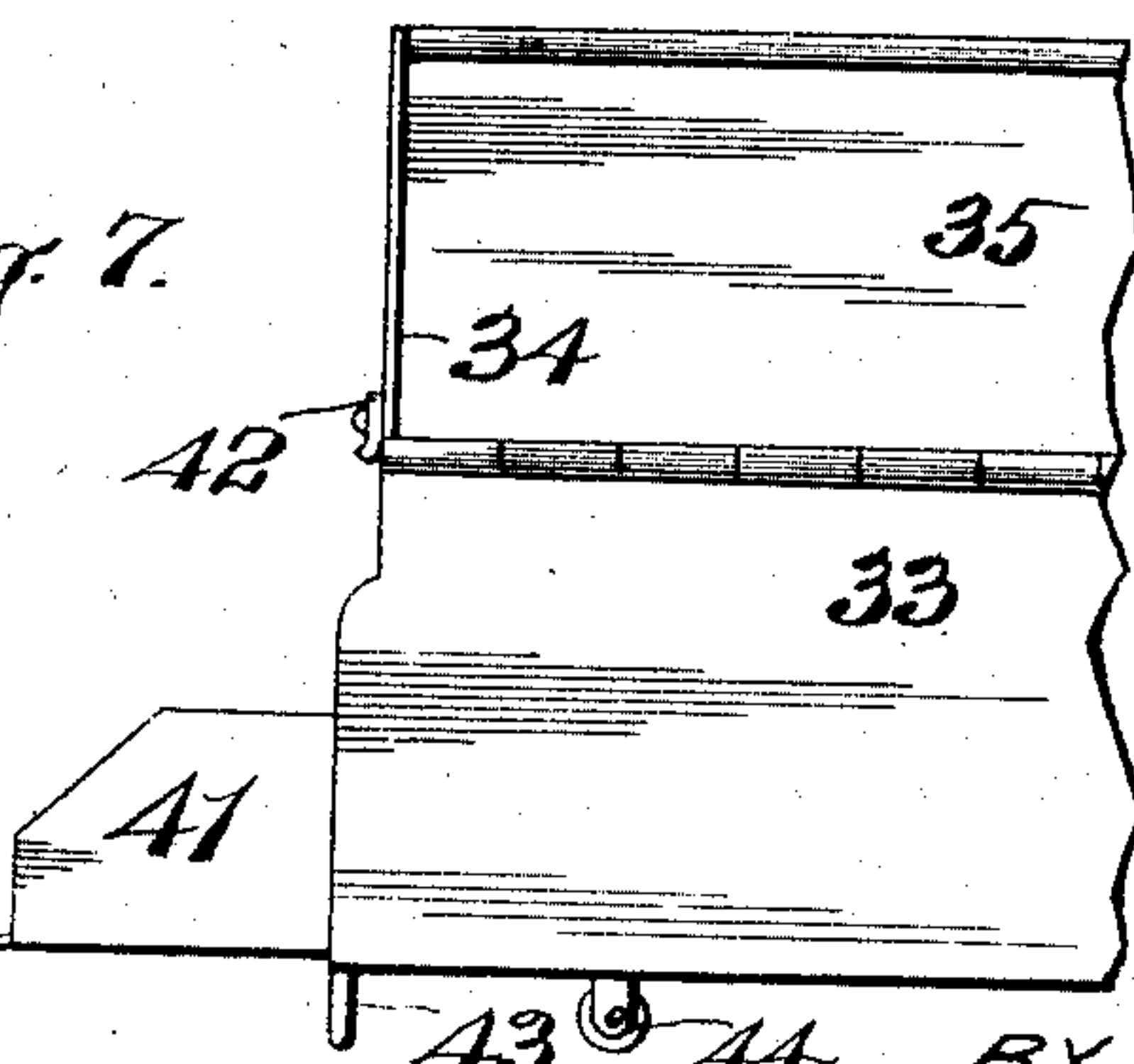


Fig. 7.



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UNITED STATES PATENT OFFICE.

CHARLES W. HAMEL AND ERNEST C. HAMEL, OF ST. LOUIS COUNTY, MISSOURI.

SELF-REGULATING ASH-PAN.

No. 874,188.

Specification of Letters Patent.

Patented Dec. 17, 1907.

Application filed July 29, 1907. Serial No. 386,170.

To all whom it may concern:

Be it known that we, CHARLES W. HAMEL and ERNEST C. HAMEL, both citizens of the United States, and residents of St. Louis county, Missouri, have invented certain new and useful Improvements in Self-Regulating Ash-Pans, of which the following is a specification containing a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

Our invention relates to a self-regulating ash pan for stoves and ranges, our object being to provide simple, automatically operating means for controlling the discharge of ashes from a fire box into the ash pan, and which means is automatically locked in a closed position when the ash pan is withdrawn from the stove or range, thereby preventing ashes from falling into the compartment normally occupied by the ash pan.

A further object of our invention is to provide adjustable counterbalancing weights, or their mechanical equivalent, and suitable connections whereby the amount of ashes allowed to discharge into the ash pan is accurately regulated.

To the above purposes, our invention consists in certain novel features of construction and arrangement of parts, which will be hereinafter more fully set forth, pointed out in the claims, and illustrated in the accompanying drawings, in which:—

Figure 1 is a vertical section taken through the center of a range, transversely of the fire box, and which range is equipped with our improved ash pan and connections; Fig. 2 is a vertical section taken on the line 2—2 of Fig. 1; Fig. 3 is a vertical section taken on the line 3—3 of Fig. 1; Fig. 4 is an enlarged detail section taken on the line 4—4 of Fig. 1; Fig. 5 is a perspective view of the ash pan; Fig. 6 is a transverse section taken through the center of the ash pan, the same being open; Fig. 7 is a side elevation of the discharge end of the ash pan.

Referring by numerals to the accompanying drawings:—1 designates the body of the stove or range, in the left hand end of which is arranged a pair of vertically disposed parallel walls 2, which extend from the front to the rear wall of the range, and located between the upper ends of said walls is the usual fire box 3, below which are positioned the grate bars 4.

Leading through the end wall of the range and through the vertical wall 2, adjacent

thereto, and below the grate bars 4, is a draft inlet 5, the outer end of which is provided with a sliding plate 6, which provides means for controlling the passage of air through the inlet 5.

Hinged to the inner faces of the walls 2, a short distance below the grate bars 4, is a pair of downwardly swinging plates 7, the inner edges of which meet at a central point between the walls 2, and the ends of these plates are provided with vertically disposed wings 8, which are positioned immediately against the front and rear walls of the stove or range.

Fixed to the under sides of the plates 7, and extending downward and outward through the openings 9 formed in the walls 2, are the curved arms 10, there being a pair of said arms for each plate 7.

Located at the lower end of the space between the walls 2 is a vertically moving platform 11, and formed integral with each side thereof is a pair of ears 12, which project outward through vertically disposed openings formed in the lower portions of the walls 2; and connecting the outer ends of the curved arms 10 with these ears 12 are vertically disposed rods 14.

Pivotally mounted at the rear end of the platform 11, and operating through a slot therein is a vertically disposed finger 15, the lower end of which is pivotally connected to the inner end of a horizontally disposed pin 16, which operates through a perforated ear 17, carried by the rear end of the platform 11; and the outer end of said pin 16 is adapted to engage beneath the flange 18 formed integral with the rear wall of the range when said platform 11 is at its lower limit of movement. A door 19 normally closes an opening formed in the lower portion of the front wall of the stove or range, between the lower ends of the walls 2; and formed integral with the lower end and inner face of this door 19 is an inwardly projecting hook 20.

Arranged to move horizontally through a slot 21, formed in the front end of the platform 11, is a pin 22, provided on its end above the platform 11 with a knob 23; and the outer end of said pin is adapted to engage beneath the end of the hook 20 when the door is open and the platform 11 is at its lowermost limit of movement.

Arranged to slide in the base plate of the range and through the lower end of the front wall thereof is an indicating finger 24, which

is connected by a link 25 to the under side of the platform 11; and when said platform is at its lowermost limit of movement, the end of the finger 24 projects through the front wall of the range, and thus indicates that the ash pan carried upon the platform 11 is full and ready to be removed.

Formed integral with the side edges of the platform 11 and at the center thereof are the outwardly projecting lugs 26, which project through the vertically disposed slots 27 formed in the walls 2; and fulcrumed to said side walls, adjacent the rear of the stove or range, are the bell crank levers 28, the forward ends of which engage beneath the lugs 26. The rear ends of these bell crank levers pass through vertically disposed slots 29 formed in the rear wall of the stove or range, and their upper ends are bent horizontally, as designated by 30, and upon said bent ends are located adjustable weights 31.

Fixed on top of the platform 11, adjacent the side edges thereof, are rods 32, which serve as tracks for grooved rollers carried by the under side of the ash pan. The ash pan comprises a rectangular receptacle 33, preferably constructed of sheet metal, the end walls 34 of which extend above the upper ends of the side walls; and hinged to the upper ends of the side walls are covers 35, with the ends of which are formed integral wings 36, which bear directly against the inside faces of the end walls 34, and said wings are provided with curved slots 37, through which pass pins or rivets 38 carried by the end walls 34. Each plate 35 is provided with a handle 39, which, when said plates are closed, serves as means for lifting and carrying the ash pan. The lower portion of one end wall 34 is cut away, and adapted to normally close the open end thus formed is a plate 40, hinged at its lower end to the bottom of the ash pan, and the ends of said plates are provided with wings 41, which bear against the inside faces of the side walls of the body of the ash pan. This arrangement provides a chute or spout which automatically opens when the ashes are discharged from the pan; and the plate is normally maintained in a closed position by a pivoted latch 42 mounted on the end wall 34, immediately above said plate, and which latch is adapted to engage the upper edge of said plate 40 when closed.

Formed integral with the under side of the body of the ash pan, immediately beneath the hinge plate 40, is a downwardly projecting flange 43, which, when the ash pan is moved in and out, is adapted to engage with the upper end of the finger 15; and depending from the under side of the ash pan, adjacent the opposite end thereof, is a lug 43^a, which is adapted to engage the knob 23 when the ash pan is moved into and out of position. The flange 43 is shorter than the lug 43^a, so that said flange 43 does not engage with the

knob 23 during the in and out movement of the ash pan. Fixed to the under side of the ash pan are grooved rollers 44, which ride upon the rods 32 when the ash pan is moved longitudinally upon the platform 11.

When our improved apparatus is in position for use, the ash pan 33, with the plate 40 closed, and the plates 35 open, is located upon the platform 11, and said platform is held elevated, or at its upper limit of movement by reason of the weights 31, which bear downward upon the rear ends of the bell cranks 28 and cause the forward ends thereof to bear upward against the under sides of the lugs 26 carried by the sides of the platform 11. When so positioned, the plates 7 are swung downward, as indicated by dotted lines in Fig. 1, owing to the connections between the platform 11 and said plates; and, when so positioned, said plates form a chute to deliver the ashes from the fire box to the ash pan. When a sufficient amount of ashes has discharged into the ash pan to overbalance the weights 31, the ash pan and platform will descend to the lower limit of movement, which action moves the lugs 26 to the lower ends of the slots 27, thus bearing downward upon the forward ends of the bell crank levers 28, in turn elevating the rear ends thereof and the weights carried thereby; and, at the same time, the rods 14 are moved downward and the curved arms 10 are moved inward; and, as a result, the plates 7 are swung upward, thus cutting off the further discharge of ashes into the ash pan. When the platform 11 moves downward, the indicating finger 24 is moved through the opening in the front wall of the range, thus indicating that the ash pan is full and ready for removal. The door 19 is now swung downward into an open position, thus bringing the hook 20 into position immediately in front of the front end of the platform 11, and the ash pan is now drawn forward through the opening normally closed by the door 19; and, in so doing, the flange 43 engages the upper end of the finger 15, pulling the same forward, which movement throws the rear end of the pin 16 into position immediately beneath the flange 18; and at the same time the lug 43^a engages the knob 23; and, as a result, the pin 22 is moved outward so that the end thereof is engaged beneath the hook 20, thus locking the platform in its lowered position, and holding the plates 7 closed. These locking devices are essential, as it is necessary to prevent the elevation of the platform 11 when the weighted ash pan is removed therefrom.

After the ash pan has been removed, the plates 35 are closed, and said pan can now be carried by means of the handles 39; and when the ashes are discharged from the pan, the latch 42 is moved so as to disengage the plate 40, which latter swings open by reason

of the weight of the ashes within the pan. When the pan is again positioned on the platform 11, the flange 43 engages the upper end of the finger 15, and at the same time the lug 5 43^a engages the knob 23; and, by so doing, the pins 22 and 16 are released from the parts with which they are engaged; and the weights 31 now act to elevate the platform 11 and empty ash pan. As the platform 11 10 is elevated, the plates 7 swing downward and the ashes which have accumulated thereon discharge into the open ash pan.

Our improved construction is entirely automatic in operation in so far as the cut-off of 15 the discharge of ashes to the ash pan is concerned, and the entire arrangement, including the construction of the pan, prevents the dust ordinarily arising from the ashes from discharging into the room during their re- 20 moval from the stove or range.

The weights 31 are adjustable on the rear ends of the bell crank 28 in order to regulate the automatic operation of the device, which, as herein explained, is due to the weight of 25 the ashes accumulating in the ash pan. In some instances, the bell cranks 28 may be done away with, and weights arranged on cords or cables passing over pulleys, and which are secured direct to the lugs 26, may 30 be utilized; or the weights may be done away with and replaced by suitable springs, or other mechanical means which will automatically act to regulate the discharge or fall of the ashes, and which automatic action 35 is due to the weight or volume of said ashes.

Our improved apparatus can be modified so as to be applied to all forms of stoves, ranges, and furnaces, and the entire apparatus is simple, inexpensive, and entirely 40 automatic in operation.

We claim:—

1. The combination with a stove or range, of a pair of hinged plates arranged beneath the fire box, movable means for normally 45 maintaining the plates in open positions, and an ash pan supported by said movable means.

2. The combination with a stove or range, of an ash pan arranged for movement beneath the fire box, means arranged between the fire box and ash pan for cutting off the 50 discharge of ashes from the fire box to the ash pan, and which cut off means is normally open, and means whereby the weight of the ashes in the ash pan is utilized to close the cut-off means. 55

3. The combination with a stove or range, of a removable ash pan, a movable platform supporting the ash pan, a counterbalance for the movable platform, and means arranged between the ash pan and the fire box of the 60 stove or range for controlling the discharge of ashes from the fire box into the ash pan.

4. The combination with a stove or range, of a movable platform arranged beneath the fire box, a counterbalance for normally hold- 65 ing the platform elevated, an ash pan removably positioned on the platform, means arranged between the fire box and the ash pan for cutting off the discharge of ashes into the ash pan, and connections between the plat- 70 form and the cut-off means.

5. The combination with a stove or range, of a movable platform arranged beneath the fire box, a counterbalance for normally hold- 75 ing the platform elevated, an ash pan removably positioned on the platform, means arranged between the fire box and the ash pan for cutting off the discharge of ashes into the ash pan, connections between the platform and the cut-off means, and means whereby 80 the platform is locked at its lowermost limit of travel when the ash pan is removed from said platform.

In testimony whereof, we have signed our names to this specification, in presence of 85 two subscribing witnesses.

CHARLES W. HAMEL.
ERNEST C. HAMEL.

Witnesses:

M. P. SMITH,
E. L. WALLACE.