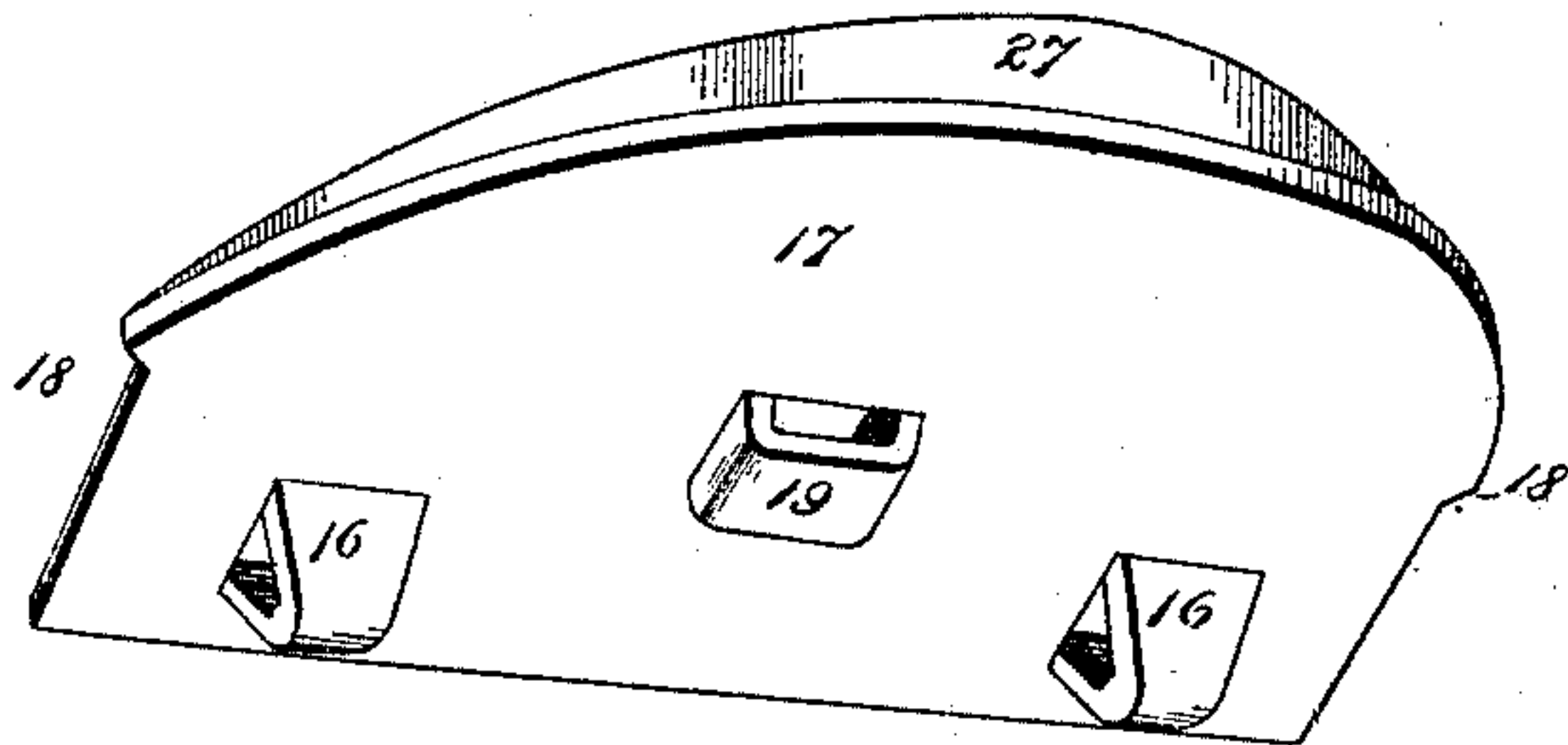
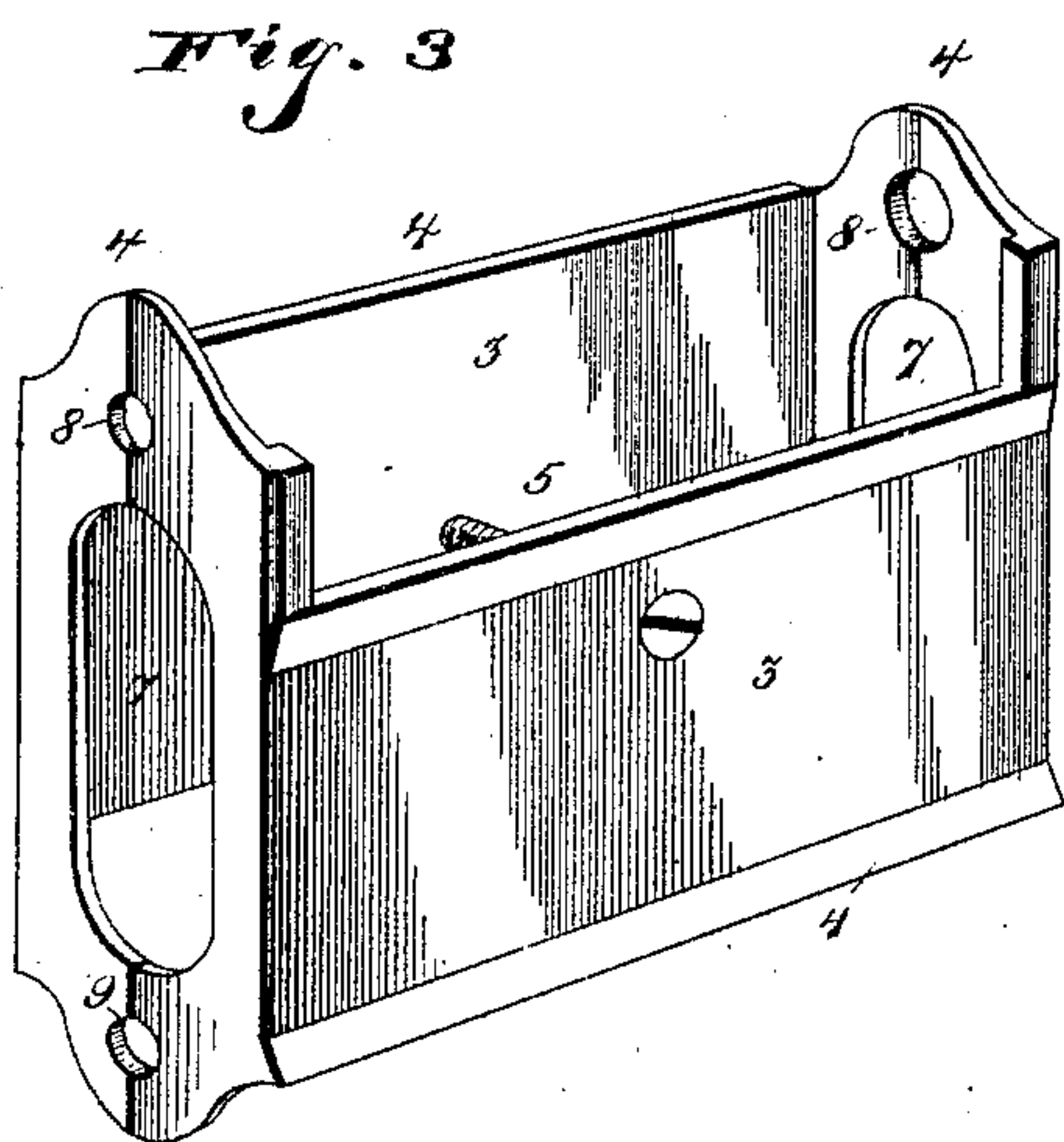
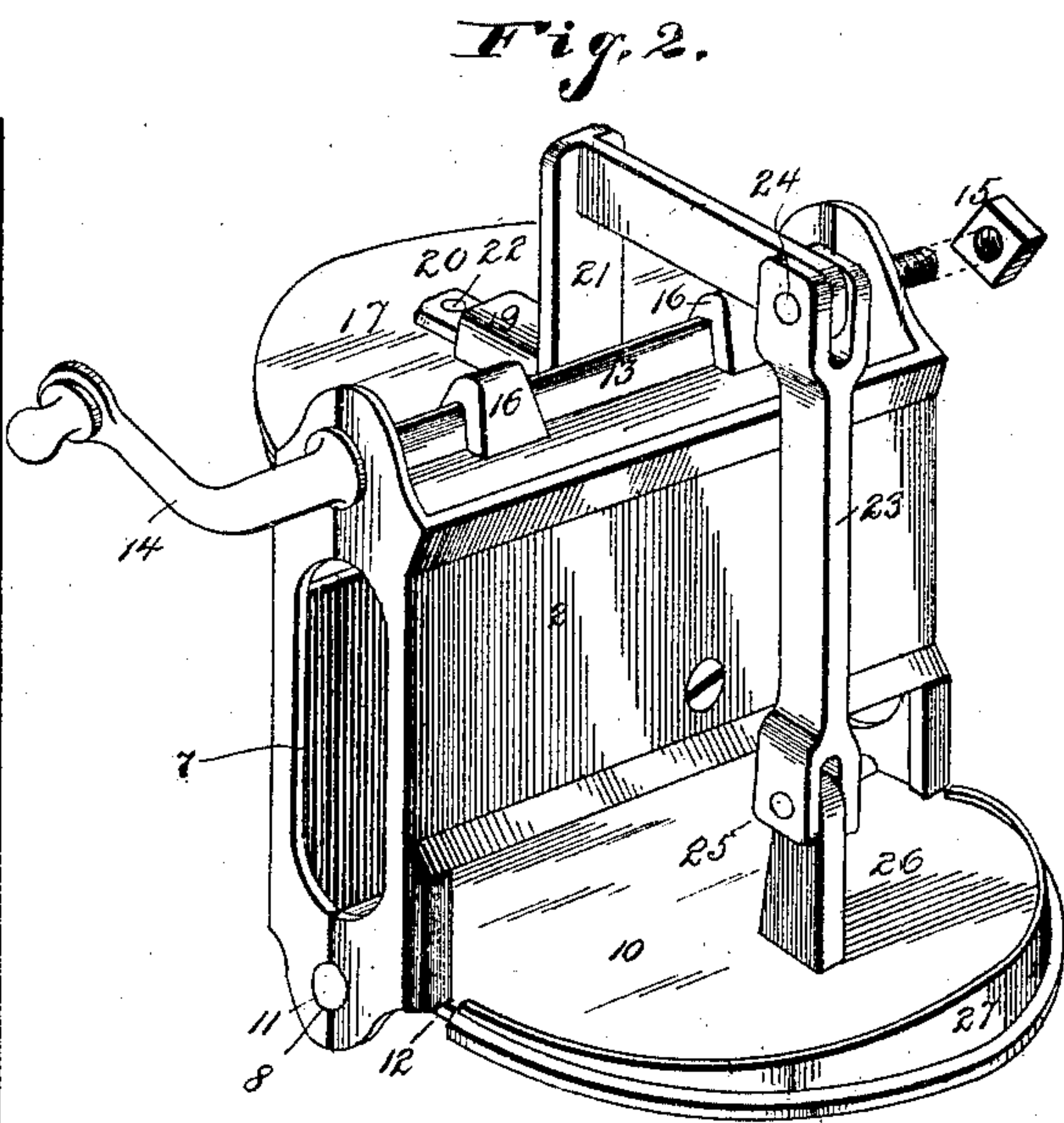
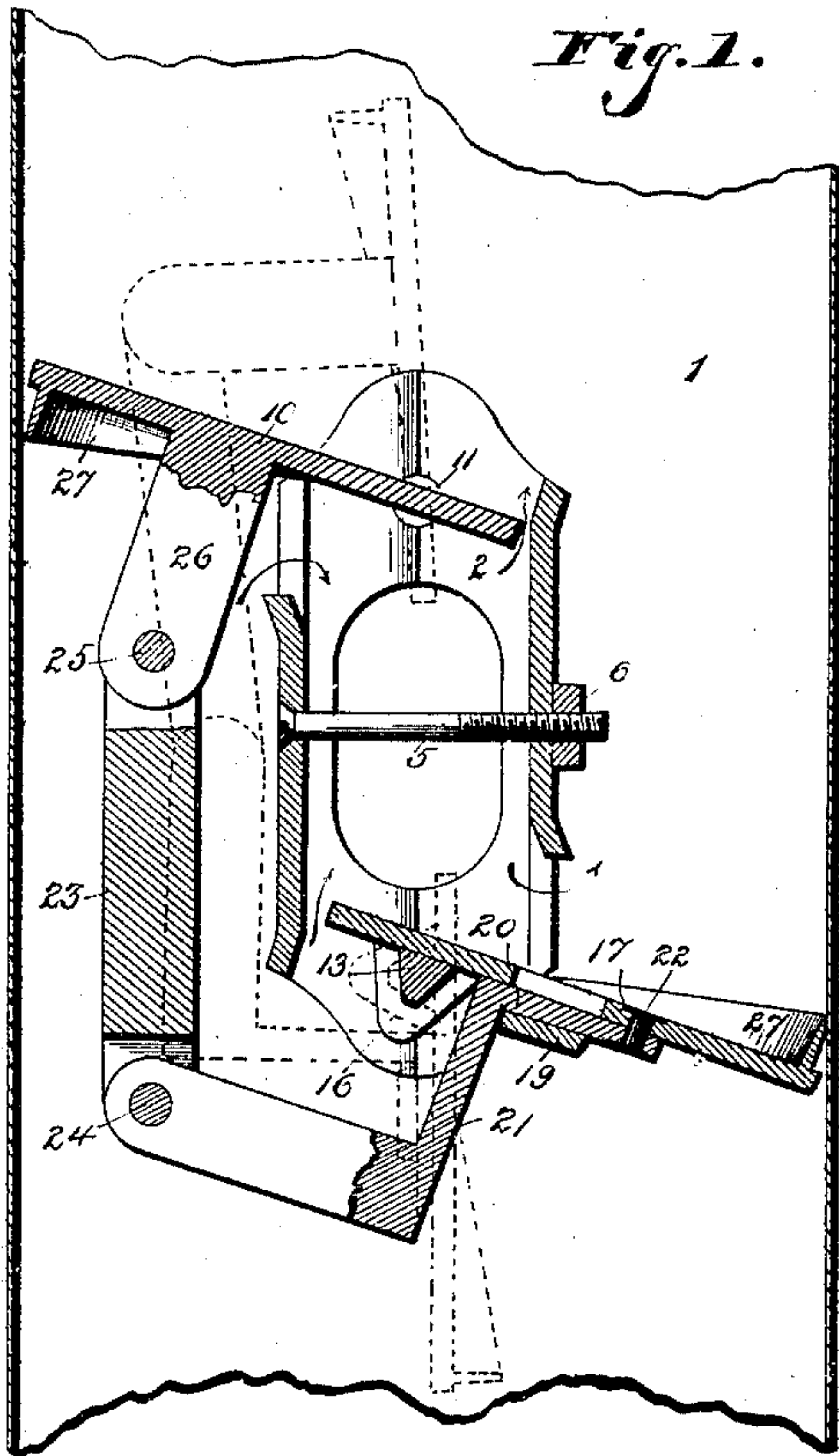


(No Model.)

S. G. SEARIGHT.
DAMPER.

No. 435,125.

Patented Aug. 26, 1890.



Witnesses:

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UNITED STATES PATENT OFFICE.

SAMUEL G. SEARIGHT, OF BUTLER, INDIANA.

DAMPER.

SPECIFICATION forming part of Letters Patent No. 435,125, dated August 26, 1890.

Application filed March 15, 1890. Serial No. 344,029. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL G. SEARIGHT, a citizen of the United States, residing at Butler, in the county of De Kalb and State of Indiana, have invented a new and useful Damper, of which the following is a specification.

This invention has relation to improvements in dampers for stove-pipes and drums; and among the objects in view are to provide a damper so constructed as to permit of a direct draft when so desired and when the damper is closed to permit of an indirect draft, whereby the heat of the products of combustion may be radiated and not lost, by which a saving of fuel is readily obtained.

A further object of the invention is to provide means for increasing the capacity or openings for the indirect draft without in any way establishing a direct draft.

With these general objects in view the invention consists in certain features of construction hereinafter specified, and particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a vertical central section of a stove-pipe provided with a damper constructed in accordance with my invention. Fig. 2 is a perspective of the damper removed, the same being shown inverted. Fig. 3 is a detail in perspective of the box, the damper-plates removed. Fig. 4 is a detail in perspective of the lower damper-plate.

Like numerals of reference indicate like parts in all the figures of the drawings.

The pipe 1 is provided with an internally-located cast-metal oblong box 2, which box is secured therein as hereinafter described, and comprises two cast-metal sections 3. Each of the cast-metal sections is provided at its ends with inwardly-disposed flanges 4, the flanges of the one section extending below the lower edge of that section and the flange of the opposite section extending above the upper edge of said opposite section, as clearly shown, and through said sections there is passed a securing-bolt 5, bound in position by a nut 6. The flanges 4 of each of the sections are provided with one-half of a central recess 7 and above and below said recess with one-half of a bearing-opening 8 and 9, respectively.

10 represents a semi circular damper-plate, which at opposite sides is provided with bearing-trunnions 11, which bearing-trunnions are pivotally mounted in the upper bearing-opening 9. The rear end of the damper-plate 10 projects sufficiently far in rear of the trunnions to close the space between the two box-sections when the damper is in a horizontal position. One side of the damper-plate is shouldered, as at 12, so that said shoulder rests upon the upper end of the side of the box and prevents the damper-plate from falling below a horizontal position. This upper plate 10 is adapted to fold over that one of the box-sections which has its side flanges 4 extended above its upper edge, so that when the plate is in a horizontal position it closes the space between the sections and forms the upper boundary for a space between the upper edge of the box-sections and itself.

Journalled in the lower bearings 9 of the cast-metal box and projecting through opposite registering openings formed in the stove-pipe itself is a crank-shaft 13, provided at one extremity with a crank 14 for operating the shaft, and at the other extremity with threads, upon which is mounted a removable nut 15. The intermediate portions of the shaft are triangular in cross-section, and receiving the same are a pair of oppositely-located depending loops 16, correspondingly shaped and formed upon the under surface of the lower damper-plate 17, which plate is oppositely disposed to the upper plate 10, and is semicircular in plan and has its rear portion covering the lower end of the space or opening between the box-sections and combining with the lower edge of the box-section provided with the flanges which depend below its lower edge to form an opening when said damper is in a horizontal position, and said damper is also provided with a shoulder 18, designed to abut against the lower edge of one of said flanges for the purpose of preventing the damper-plate from being elevated above a horizontal position. The lower plate 17 is further provided with a depending loop or keeper 19 at its center, in which there is located the upper bent portion 20 of a depending bell-crank-shaped arm 21, said upper bent portion being riveted, as at 22, to the damper-plate and the bell-crank-shaped arm project-

ing to the rear beyond the side wall of the box and into a vertical alignment with the upper damper-plate to which is connected by a bifurcated connecting-link 23, pivoted at its lower end, as at 24, to the extremity of the bell-crank-shaped arm, as at 25, to the lower extremity of a stud 26, depending from the under surface of the upper damper-plate 10.

As before stated, the two damper-plates are slightly more than semicircular in plan, and combined they would form a complete circle sufficient to entirely occupy the circular space bounded by the stove-pipe.

For purposes hereinafter apparent, I provide each of the semicircular plates at their edges outside or beyond their respective flanges 4 with curved flanges 27, said flanges being inwardly disposed—that is to say, the flange of the upper damper being downwardly disposed and the flange of the lower damper being upwardly disposed, all as clearly shown in the drawings. The edge of the flange is in this instance curved or gradually reduced in a curve-like manner toward its ends, so that the widest portion of each of the flanges 27 will be at the point farthest from the damper-box.

By operating the crank so as to bring the same to a vertical position it will be apparent that both damper-plates will be vertically disposed, and thus permitting of a direct and unimpeded draft for the upward movement of the products of combustion. By bringing the crank to a horizontal position it will be apparent that both damper-plates will assume a corresponding position and that the products of combustion will be prevented from passing upward beyond the damper.

It is often desirable to provide for a slight indirect draft, whereby the products of combustion are forced to radiate their heat before escaping and yet at the same time to avoid any approach to a direct draft of said products, whereby a portion of the same would escape without any radiation whatever of their inherent heat. To accomplish this, therefore, I provide the flanges 27; and it will be apparent that the crank may be swung down a short distance, which will swing the circular edges of the opposite plates in opposite directions and away from the diametrically-opposite sides of the pipe, and were it not for these flanges 27 a direct draft-opening would be formed in the pipes; but with the flanges 27 provided at the circular edges of the plates it will be apparent that when such plates are but partially operated or swung to a point intermediate a horizontal and vertical position the edges of the flanges will assume temporarily the functions of the dampers and will themselves take the place of the dampers, and while the rear ends of the dampers partially uncover the upper open ends of the boxes yet the flanges of the plates will be in such position as to direct all products of combustion in a tortuous path through the openings in the boxes around under the dampers at their

rear edges before they can escape, and by this time said products will have to a great extent radiated their heat.

A construction like the above avoids the storage of poisonous gases and their final escape through the fuel-opening of the stove, and while serving every function of a complete cut-off—namely, the interruption of the complete draft—yet they permit of the escape of all poisonous gases arising from the combustion of fuel, but previous to such escape separate therefrom their caloric properties and radiate the same into the room or compartment in which the stove pipe or drum may be located.

Having thus described my invention, what I claim is—

1. A damper for stove-pipes and heating-drums, consisting of a box open at both ends and at diagonally-opposite sides, pivoted semicircular damper-plates mounted in the ends of the box, adapted to close the opposite end openings and project beyond that side of the box at which are located said diagonal openings, a crank-shaft for operating said plates, connections between the plates whereby an operating of one plate causes a similar operation of the other, and inwardly-disposed flanges provided at the semicircular portions of the plates, the edges of the flanges being curved, substantially as specified.

2. A damper for stove-pipes and drums, comprising a box open at opposite ends having their opposite sides at opposite ends extended beyond each other to form side openings, and formed in opposite cast-metal longitudinal halves or sections having inwardly-disposed meeting flanges, in the edge of each of which flanges is formed halves of bearing-openings, a binding-bolt passed through the sections and connecting the same, opposite damper-plates, one of which is provided with trunnions taking in a pair of said bearings, and the other of which is provided with a pair of angular loops depending therefrom, an angular shaft mounted in the opposite pair of bearings and passing through the loops and terminating in a crank, and connections loosely connecting the two plates, substantially as specified.

3. The combination, with a stove-pipe or heating-drum, of a cast-metal damper-box having opposite bearings and upper and lower openings, a crank-shaft mounted in the lower pair of bearings and in similar bearings formed in the stove pipe or drum, a similar circular damper-plate mounted on a shaft and closing the lower opening, a similar damper-plate having trunnions mounted in the upper bearing-openings, connections between the two plates, and semicircular flanges secured to and inwardly disposed from the circular edges of said plates and reduced in a circular manner toward their extremities, substantially as specified.

4. A damper for stove-pipes and heating-drums, consisting of a box, pivoted damper-

plates mounted in the ends of the box, a crank-shaft for operating said plates, connections between the plates whereby an operating of one plate causes a similar operation of the
5 other, and inwardly-disposed flanges provided at the semicircular portions of the plates, the edges of the flanges being curved, substantially as specified.

10 5. A damper for stove-pipes and heating-drums, consisting of a box made in opposite sections held together by bolts, pivoted damper-plates mounted in the ends of the box, a crank-shaft for operating said plates, con-

nections between the plates whereby an operating of one plate causes a similar operation 15 of the other, and inwardly-disposed flanges provided at the semicircular portions of the plates, the edges of the flanges being curved, substantially as specified.

In testimony that I claim the foregoing as 20 my own I have hereto affixed my signature in presence of two witnesses.

SAMUEL G. SEARIGHT.

Witnesses:

J. A. CAMPBELL,
J. HAVERSTOCK.