

No. 835,311.

PATENTED NOV. 6, 1906.

F. E. MCGURRIN.
GARBAGE BURNER.

APPLICATION FILED JUNE 1, 1904.

3 SHEETS—SHEET 1.



Witnesses

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J. L. O'Rand.

Frank G. Breton

F. E. McGurran

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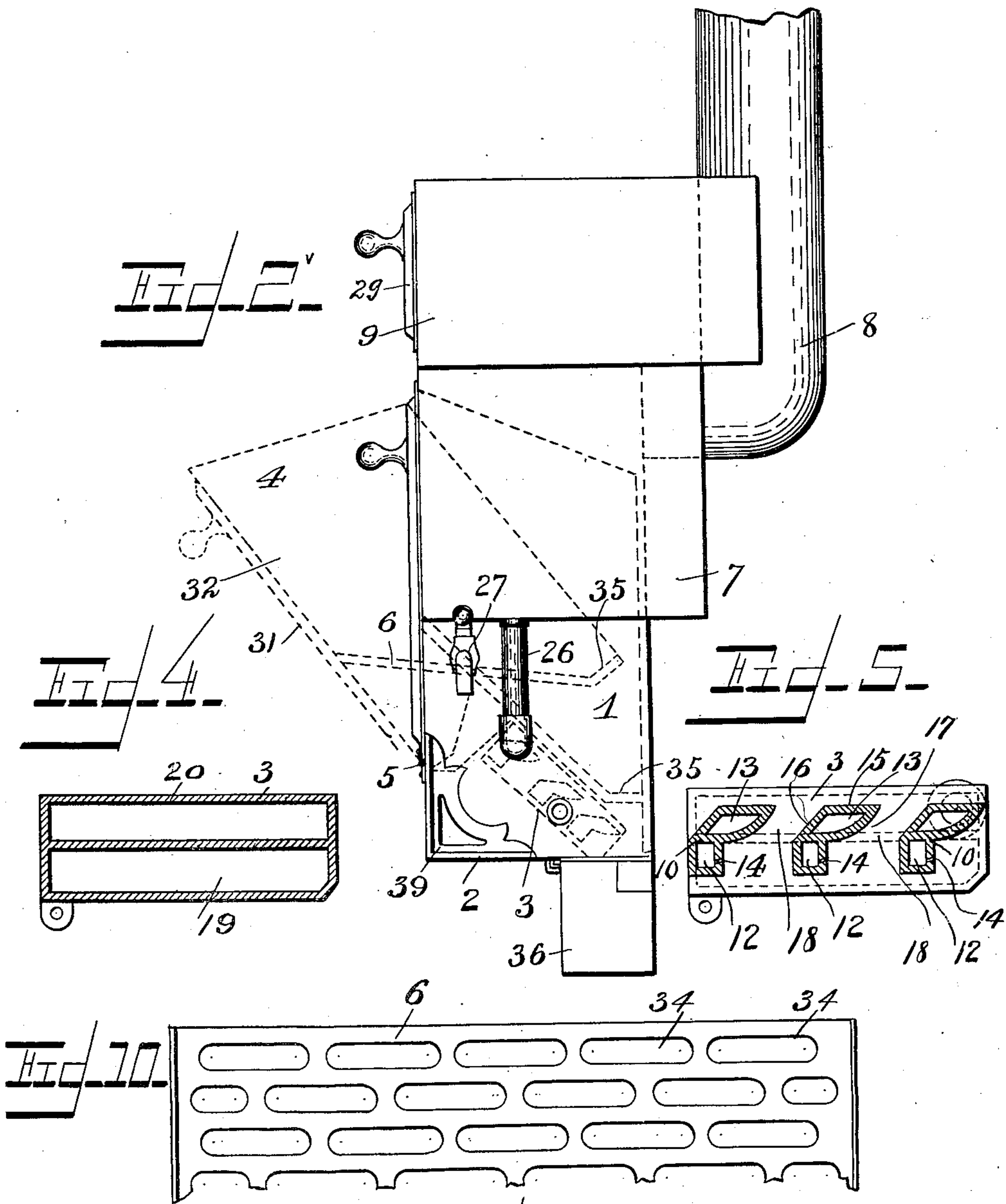
Attorneys

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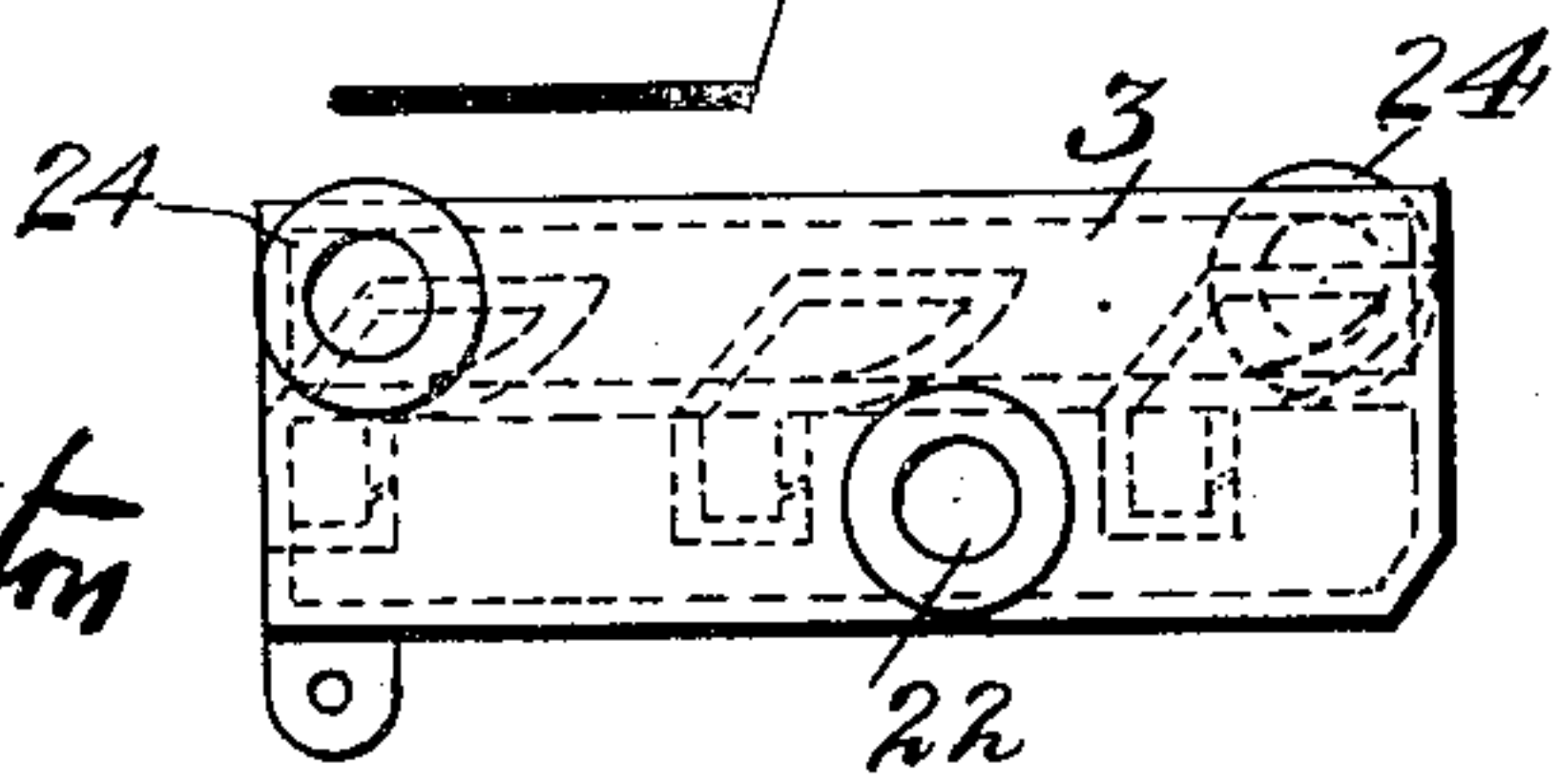
3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

Fig. 7

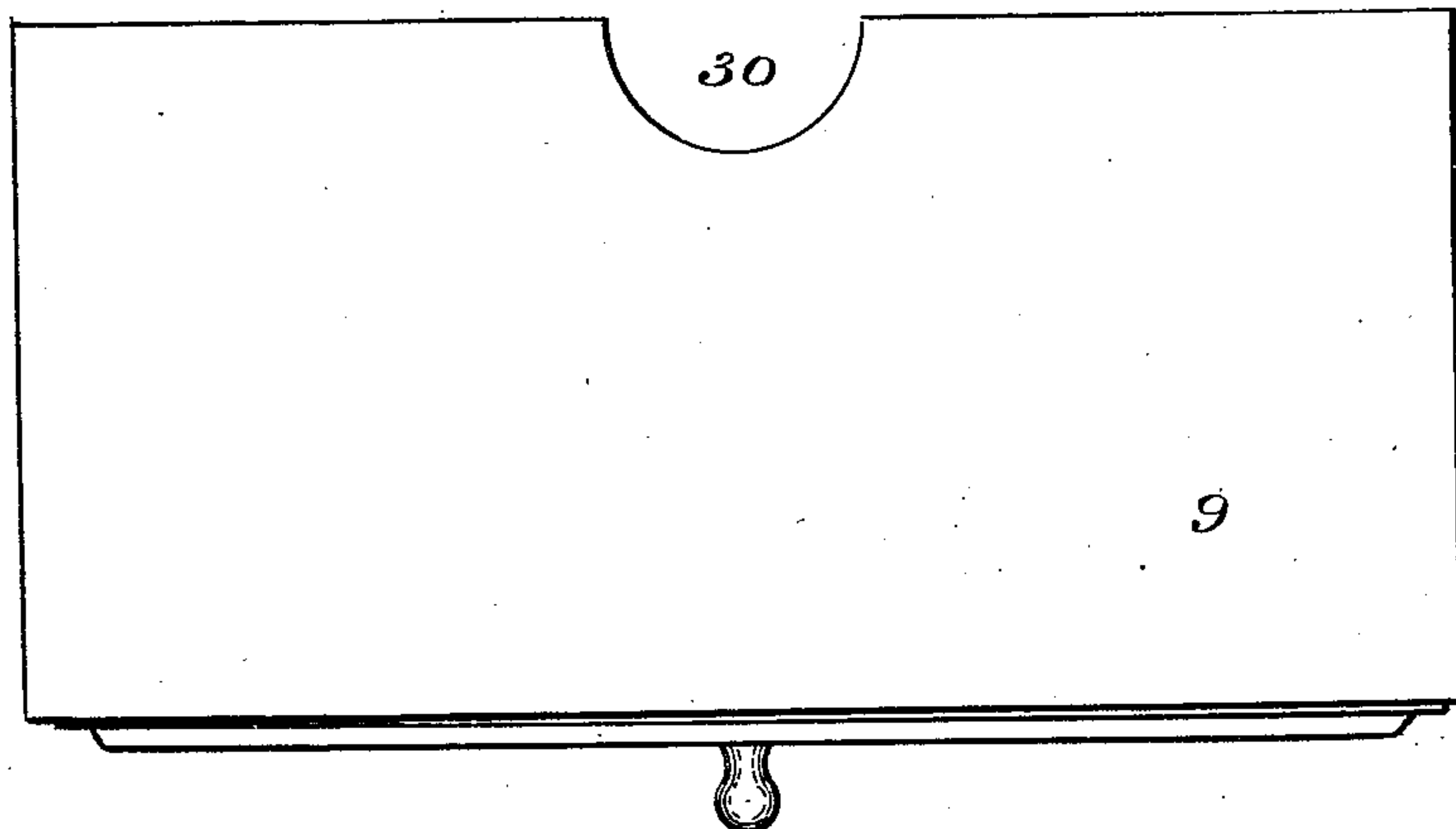


Fig. 8

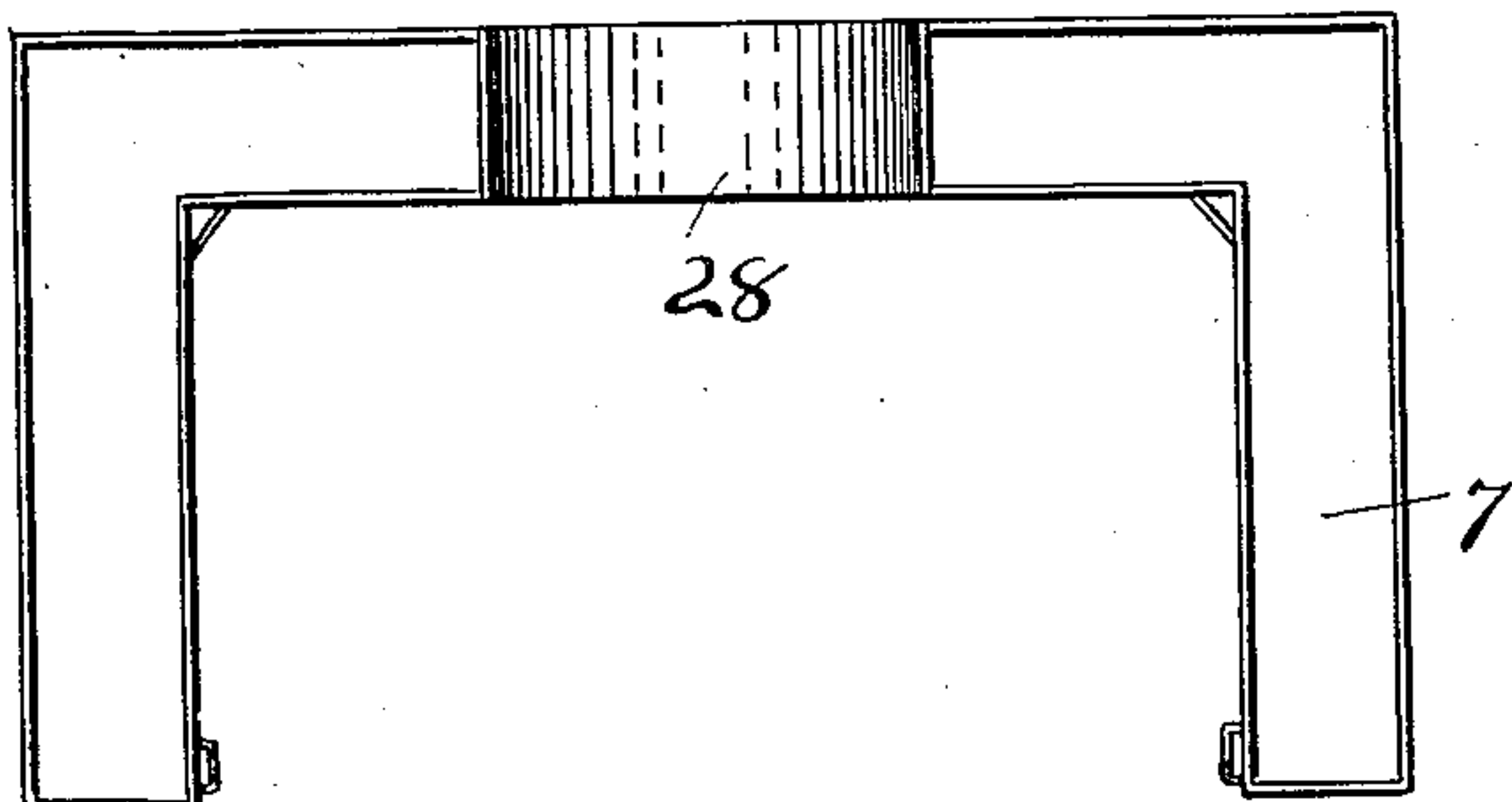
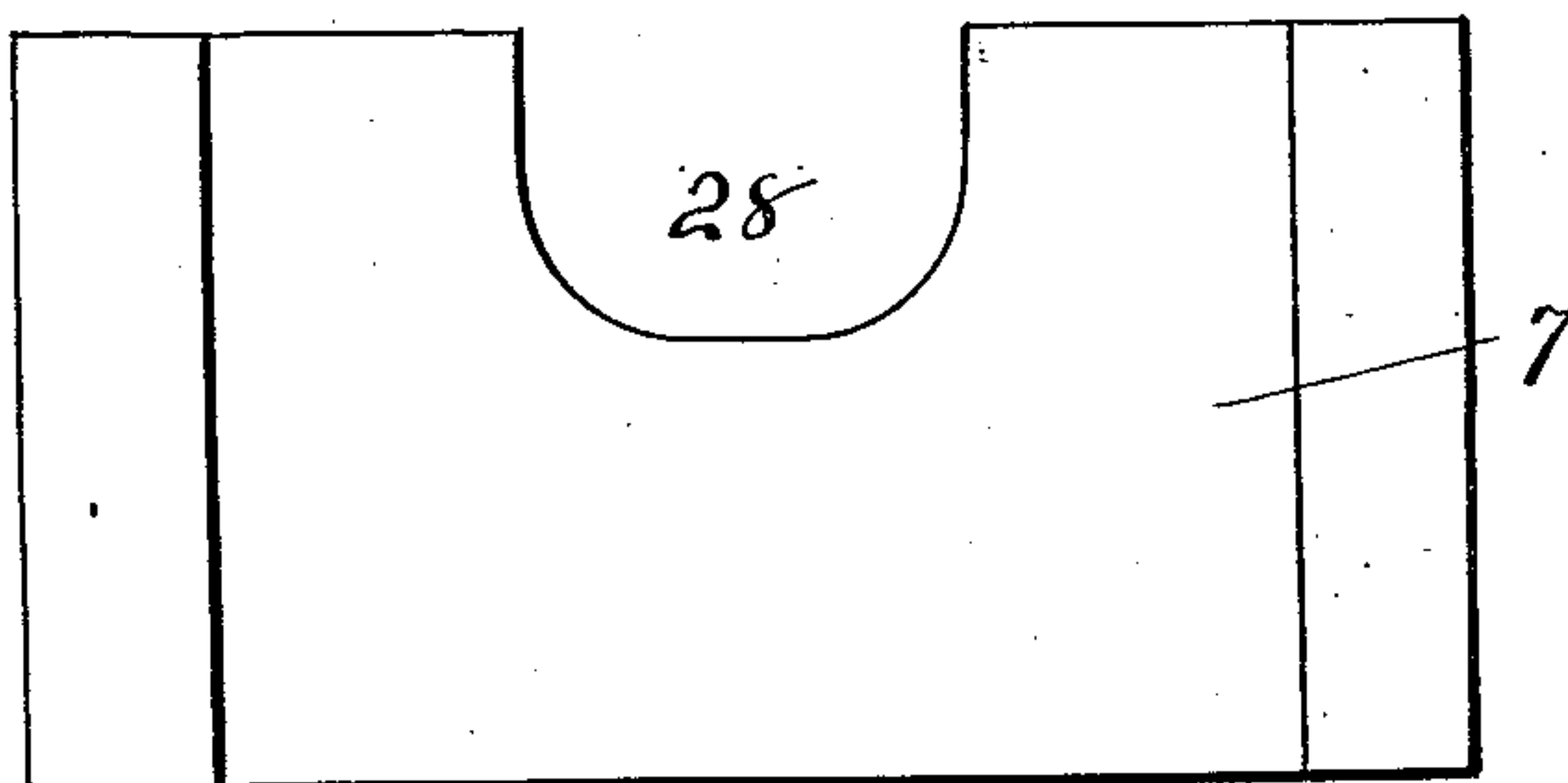


Fig. 9



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UNITED STATES PATENT OFFICE.

FRANK EDWARD MCGURRIN, OF SALT LAKE CITY, UTAH.

GARBAGE-BURNER.

No. 835,311.

Specification of Letters Patent.

Patented Nov. 6, 1906.

Application filed June 1, 1904. Serial No. 210,647.

To all whom it may concern:

Be it known that I, FRANK EDWARD MCGURRIN, a citizen of the United States, residing at Salt Lake City, in the county of Salt Lake, State of Utah, have invented certain new and useful Improvements in Garbage-Burners, of which the following is a description, reference being had to the accompanying drawings and to the figures of reference marked thereon.

My invention relates to garbage-burners for domestic use, for disposing of the garbage in the small quantities in which it accumulates in a household by carbonizing it or converting it into ashes; and it is the object of my invention to provide a device of this character adapted to be used independently of a stove or range and in which the heat from the burning garbage, as well as the waste heat from the burner, shall be utilized for the purpose of heating water for domestic use and for heating or cooking food or other purposes for which an oven may be used.

Garbage-burners have heretofore been arranged for use in connection with stoves or ranges. Such garbage-burners are useful in that they utilize for burning the garbage the waste heat and products of combustion from a stove or range; but they are not capable of use except when there is a fire in the stove or range. Gas stoves or ranges are now largely used, particularly in summer, for cooking purposes, and it is desirable to provide for the disposal of garbage where such stoves or ranges are used as well as for its disposal where ordinary stoves are used in case it is not desirable to have a fire in the stove.

My invention has for its object to provide a device for the disposal of garbage which shall be so far independent of the stove or range used for cooking purposes that it may be operated to burn the garbage at any time, whether the stove or range is in operation or not.

The invention is preferably attached to the stove or range used for cooking purposes, but may be entirely separate therefrom.

With these objects in view my present invention consists in the construction and combination of elements hereinafter described, and particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a front view, and Fig. 2 a side view, of my improved garbage-burner complete. Fig. 3

is a top plan view of the burner. Figs. 4 and 5 are cross-sectional views of the burner, taken, respectively, on lines *a a* and *b b* of Fig. 3. Fig. 6 is an end view of the burner. Fig. 7 is a top plan view of the oven or heating-chamber. Fig. 8 is a top plan view, and Fig. 9 a front view of the water-tank, and Fig. 10 is a detail plan view of the hopper bottom.

In the drawings, 1 indicates the frame or casing of my device having base 2, adapted to rest on a table or other convenient support or on the top of a stove. In the lower portion of the casing 1 is arranged a burner 3, and in the portion above the burner is arranged a garbage-hopper 4, hinged at 5 in the front of the casing and having a rearwardly-inclined bottom 6. Surrounding the sides and back of the upper part of the hopper in a water-tank 7, which may be on the exterior or interior of the casing, as desired. To the upper portion of the casing a smoke-pipe 8 is connected, preferably at the back of the casing. On the top of the casing is arranged an oven or heating-chamber 9.

The burner 3 is preferably inclined, as shown, at an angle corresponding with the inclination of the bottom of the hopper and comprises a series of parallel bars 10, extending from side to side, connected at their ends to headers 11. The bars 10 comprise a lower portion 12 and an upper portion 13, both of which are hollow from end to end. The lower portions 12 serve as the burners proper, being provided on their rearward sides with a series of apertures 14 for the escape of the gas. These burner portions 12 of the bars 10 are of any convenient form in cross-section and are preferably not made larger than may be necessary to properly distribute the gas to the burner-apertures 14. The upper portions 13 of the bars 10, which may be considered as, in effect, grate-bars, are hollow from end to end and are preferably of such form as to expose as much surface as possible to the action of the flames from the burner-apertures 14. These grate-bar portions 13 have, preferably, flat upper faces 15 with inclined front and rear faces 16 and 17 and project rearward from the line of the burner portions 12, the cross-section of the bars being somewhat like an inverted L. The bars are relatively so arranged as to leave between adjacent grate-bar portions 13 openings 18, the walls of which are formed by the front face 16 of one grate-bar

and the rear face 17 of the grate-bar immediately in its rear. The inclination of the burner and the inclination of the front face 16 of the grate-bar is such that when the burner is in position the front face 16 will be substantially horizontal.

The headers 11 comprise a lower chamber 19 and an upper chamber 20, the chambers being separated by a partition 21. The passages formed in the lower or burner portions 12 of the bars 10 communicate with the lower chambers 19. One of the headers, preferably the one at the right, is provided with a coupling 22, leading to the lower chamber 19 for attachment of a gas-supply pipe. The passages formed in the upper or grate-bar portions 13 of the bars 10 communicate with the upper chambers 20 of the headers, and the headers are each provided with a coupling 24, leading to the chamber 20 for attachment of pipes 25 and 26, leading from and to the water-tank 7. The coupling 24 of one of the headers is located at a point near the rear end of the header and receives the pipe 25, leading from the tank, and the coupling 24 of the other header is located near the front end of the header and receives the pipe 26, leading to the tank. Water from the tank thus passes downward through the pipe 25 to the rear end of the burner and fills the chambers 20 and the hollow grate-bars 13 and as it becomes heated it rises through the pipe 26 to the tank, thus establishing a circulation of water and causing the water to be quickly heated.

The water-tank 7 is secured to the frame or casing by any convenient means and is preferably open at the top to permit of filling it. It is provided with a draw-off faucet 27, and at its rear it is cut away, as shown at 28, to permit of the passage of the smoke-pipe 8. The upper end of the water-tank is preferably flush with the top of the casing.

The oven or heating-chamber 9 consists of a rectangular box adapted to rest upon the top of the frame or casing and provided with a door 29. The oven or heating-chamber is shown cut away at the back, as shown at 30, to receive the smoke-pipe 8; but, if desired, the smoke-pipe may be extended rearward from the casing sufficiently to avoid the necessity of cutting the oven away. The oven is preferably made to extend laterally somewhat beyond the lines of the water-tank, as shown in Figs. 1 and 2; but its front face is preferably flush with the front of the frame or casing.

The garbage-hopper 4 is in the form of a box open at the top, having its front plate 31 hinged at its lower edge to the front of the casing. The sides 32 of the hopper are cut away at their upper ends, as shown, to permit the hopper to be swung outward, as shown in dotted lines in Fig. 2, to permit the material to be burned to be inserted, and the

sides are also cut away at their lower ends to form an inverted V, as shown, to permit of their fitting over the headers of the burner. The inclined bottom 6 preferably consists of a flat plate provided with apertures or openings 34. The inclination of the bottom 6 is such that when the hopper is in closed position it is parallel with and immediately above the upper faces of the grate-bars 13 on the inclination described. The bottom 6 extends nearly to the rear of the hopper and at the rear is horizontal, as shown at 35, the horizontal portion of the bottom being provided with apertures or openings 34.

The base or bottom 2 of the casing consists of a plate of metal imperforate except at its rear, where it is provided with a suitable opening for the escape of ashes to the ash-box. When used in connection with a gas-stove, this bottom or base will be arranged directly over the vent-pipe, which is ordinarily used to carry off fumes and odors from the oven. By reason of there being only such openings in the bottom or base 2 as may be necessary for escape of ashes it serves as a damper, preventing excessive draft and at the same time permits fumes and odors to pass off from the oven and also permits waste heat from the cooking to be utilized to aid in drying the garbage.

The hopper is preferably made to nearly fit the interior of the casing, leaving only a slight space between its sides and back and the sides and back of the casing to permit of the passage of a portion only of the flame from the burner about the hopper.

The bottom 6 being flat permits the ashes of the burned garbage to slide freely to the rear of the hopper and to pass through the apertures in the horizontal portion of the bottom. Below the rear of the hopper an ash-box 36 is provided, which may be secured in any convenient manner to the bottom of the casing. An opening 38 is preferably formed in one end of the ash-box to permit air to enter.

The garbage to be incinerated is placed in the hopper, the latter being tipped forward, as indicated in dotted lines in Fig. 2, and then returned to closed position. The flames from the burner portions 12 of the bars 10 pass upward through the passages between the grate-bars and through the apertures 34 into the hopper, or portion of the flames passing about the hopper between its walls and the walls of the casing, the products of combustion passing off through the smoke-pipe 8, which may lead to a chimney or otherwise to the open air. The waste heat is utilized to heat the water-tank directly, and the water is also heated by the action of the flames upon the hollow grate-bars, and the waste heat is also utilized to heat the oven or heating-chamber 9. The garbage is soon reduced to ashes, and these ashes slide to the rear on

the bottom 6. The blast of the flame is generally sufficient to prevent the ashes from falling through the apertures 34 until they reach the rear of the hopper, from which they drop into the ash-box. Any ashes which may fall through the apertures in the inclined portion of the bottom will drop upon the flat upper faces of the grate-bars, and as these are inclined rearward the ashes will slide rearward and drop onto the front face of the next bar to the rear, from which they will be swept rearward by the blast of the flame until they finally fall from the rearmost grate-bar into the ash-box. The base or bottom 2 prevents the possibility of any ashes which may not be disposed of as above described from falling into the cooking-stove.

The bars 10 are preferably made with the burner portions 12 and grate-bar portions 13 integral.

Brackets 39, secured to the sides of the frame or casing, may be used for securing it to its support.

The hopper, if preferred, may be arranged to slide into the casing instead of being hinged, as shown, and it will be obvious that other changes may be made in the construction and arrangement shown without departing from the spirit of my invention.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In a domestic garbage-burner, the combination with a casing, a burner in the lower part thereof, a hopper pivoted to said casing and arranged to rest in close proximity to said burner when in operative position, a water-tank surrounding said casing and a series of hollow bars constituting an integral part of said burner and connected to said tank whereby a circulation of water through said bars and tank is set up and the water is heated.

2. In a domestic garbage-burner, the combination with a casing, of a water-tank surrounding said casing, a hopper within said casing, provided with an inclined bottom having apertures formed therein, an inclined burner below said hopper consisting of a series of bars each divided into two sections, one of said sections being connected to a source of gas-supply and constituting the burner proper, the other of said sections being connected to said tank.

3. In a domestic garbage-burner, the combination with a casing, of a water-tank mounted exteriorly on said casing, an oven above said casing, a hopper for garbage within said casing having an inclined bottom provided with apertures therein, a series of hollow grate-bars arranged below said hopper at the same inclination as the said bottom thereof, connections from said grate-bars to said tank to permit a circulation of water,

each of said grate-bars carrying a gas-burner in its lower portion; the heat from which and from the burning garbage on the inclined bottom of the hopper serves to heat the said oven as well as the water in said grate-bars and tank.

4. In a domestic garbage-burner the combination with a casing of a hopper within the casing provided with a bottom having apertures formed therein, a series of hollow grate-bars and burners below the hopper-bottom, a water-tank on the exterior of the casing and connections between the water-tank and the hollow grate-bars.

5. In a domestic garbage-burner the combination with a casing of a hopper within the casing provided with a bottom having apertures formed therein, a series of hollow grate-bars and burners below the hopper-bottom arranged on an incline corresponding therewith, a water-tank on the exterior of the casing, a connection between the water-tank and the lower grate-bar and a connection between the water-tank and the upper grate-bar.

6. In a domestic garbage-burner the combination with a casing of a hopper within the casing having a bottom provided with apertures, a series of hollow grate-bars and burners below the hopper-bottom, headers at the ends of the grate-bars with which the hollow grate-bars communicate, a water-tank on the exterior of the casing and connections between the headers and the water-tank.

7. In a domestic garbage-burner the combination with a casing of a hopper within the casing having a bottom arranged on an incline, and provided with apertures, a series of hollow grate-bars and burners below the hopper-bottom arranged at an incline corresponding to the incline of the hopper-bottom, headers at the ends of the grate-bars with which the hollow grate-bars communicate, a water-tank on the exterior of the casing and connections between the headers and the water-tank.

8. In a domestic garbage-burner the combination with a casing, of a hopper within the casing having a bottom provided with apertures, a burner below the hopper-bottom comprising a series of bars each having a hollow grate-bar portion and a hollow burner portion, headers at the ends of the grate-bars each comprising an upper and a lower chamber, the grate-bar portions of the series of bars communicating with the upper chamber and the burner portions of the bars communicating with the lower chamber, a water-inlet, communicating with the upper chamber of one of the headers and a water-outlet communicating with the upper chamber of the other header, and a gas-inlet communicating with the lower chamber of one of the headers.

9. In a domestic garbage-burner, the combination with a casing, of a hopper within the

casing having a bottom provided with apertures, a burner below the hopper-bottom comprising a series of bars, each having a hollow grate-bar portion and a hollow burner portion, the grate-bar portion being above and of greater width than the burner portion, headers at the ends of the grate-bars, each comprising an upper and a lower chamber, the grate-bar portions of the series of bars communicating with the upper chamber and the burner portion of the bars communicating with the lower chamber, a water-inlet communicating with the upper chamber of one of the headers and a water-outlet communicating with the upper chamber of the other header, and a gas-inlet communicating with the lower chamber of one of the headers.

10. In a domestic garbage-burner, the combination with a casing, of a hopper within the casing having a bottom arranged at an inclination, provided with apertures, a burner below the hopper-bottom and arranged at an inclination corresponding with the inclination

of the hopper-bottom, comprising a series of bars each having a hollow grate-bar portion and a hollow burner portion, the grate-bar portion being above and of greater width than the burner portion, headers at the ends of the grate-bars each comprising an upper and a lower chamber, the grate-bar portions of the series of bars communicating with the upper chamber and the burner portions of the bars communicating with the lower chamber, a water-inlet communicating with the upper chamber of one of the headers and a water-outlet communicating with the upper chamber of the other header, and a gas-inlet communicating with the lower chamber of one of the headers.

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

FRANK EDWARD MCGURRIN.

Witnesses:

CLARENCE E. RAYBOULD,
EDWARD HOWE.