

No. 703,249.

Patented June 24, 1902.

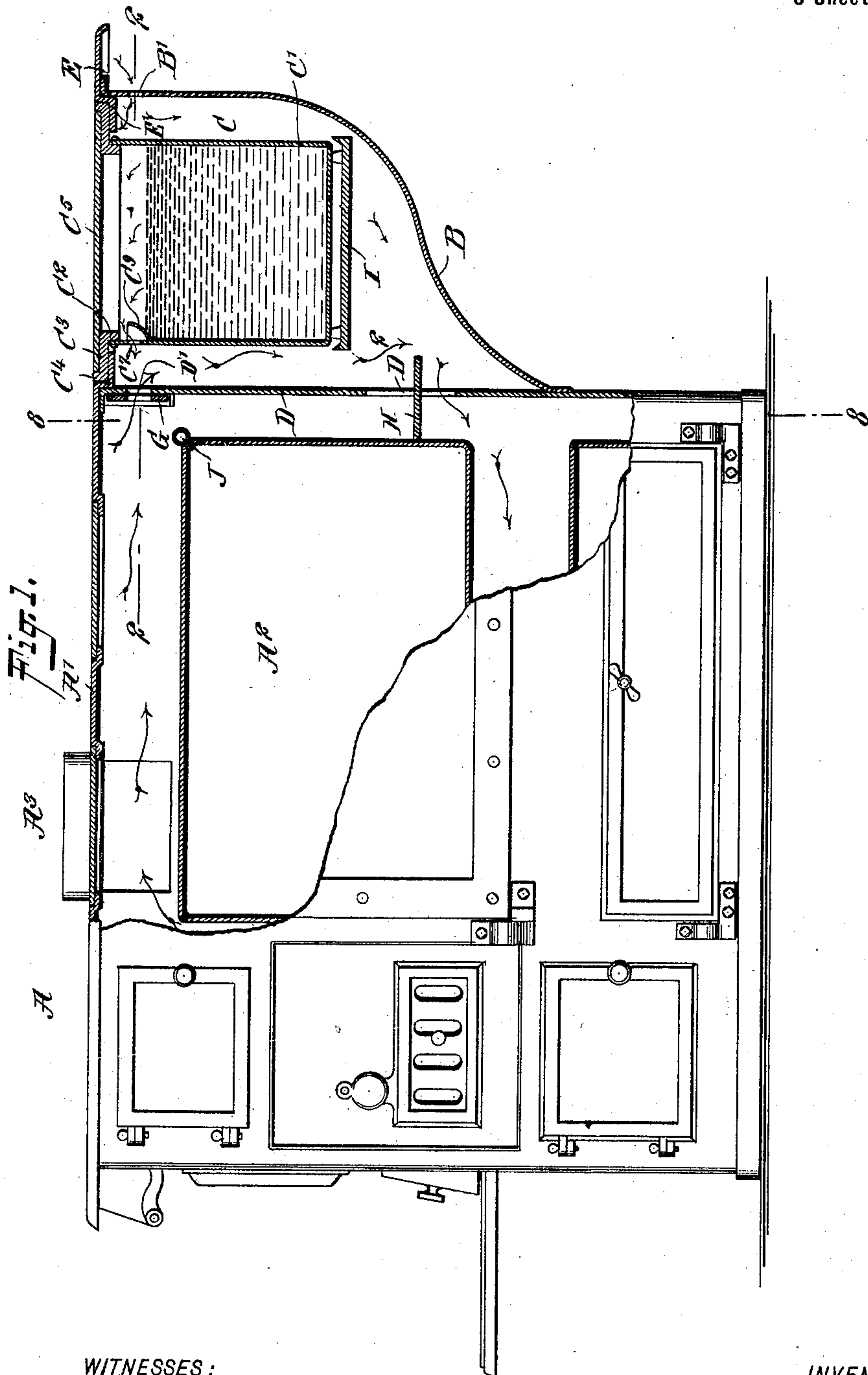
G. H. GRIMM.

WATER RESERVOIR FOR RANGES.

(Application filed June 24, 1901.)

(No Model.)

3 Sheets—Sheet 1.



WITNESSES:

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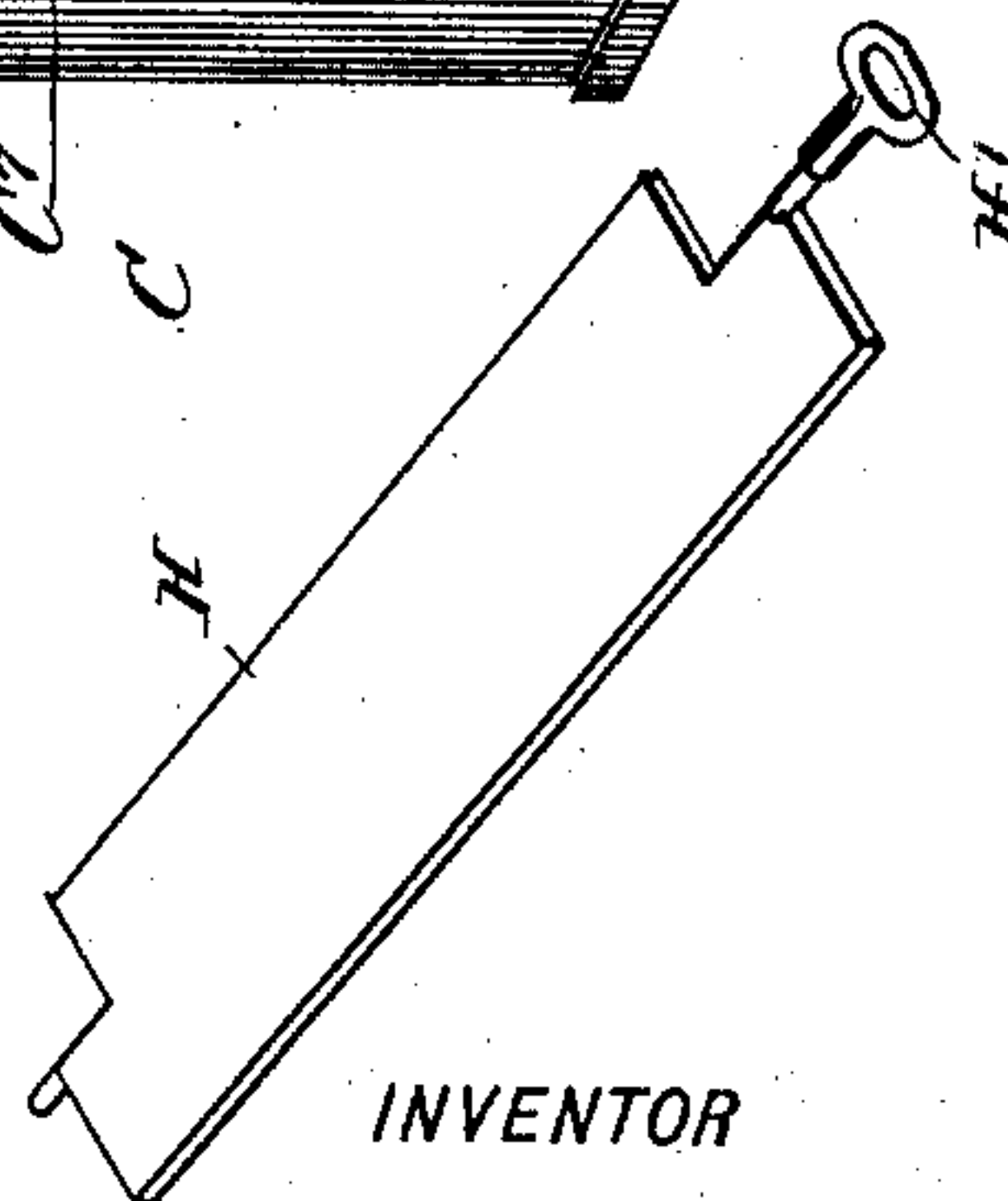
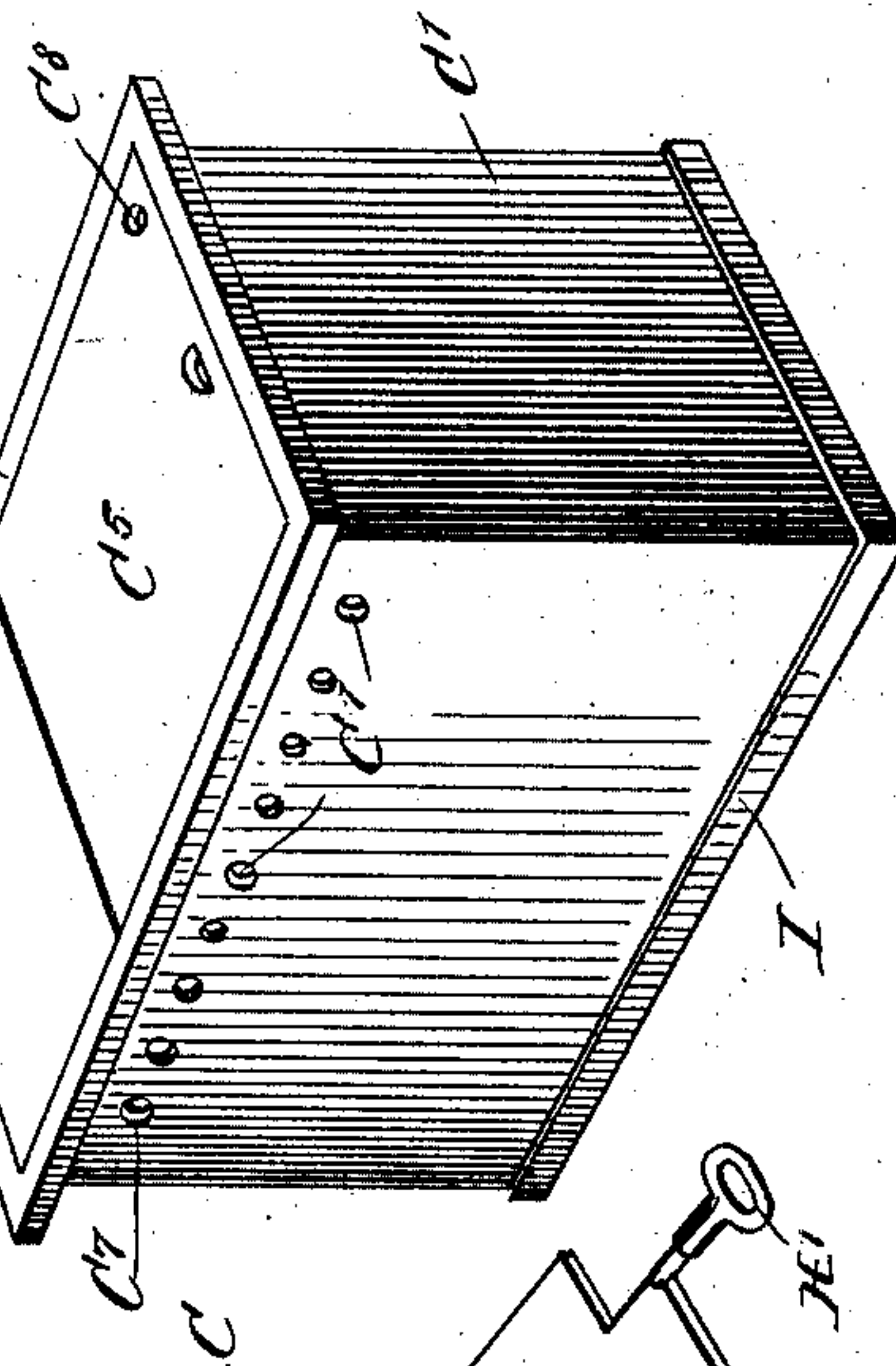
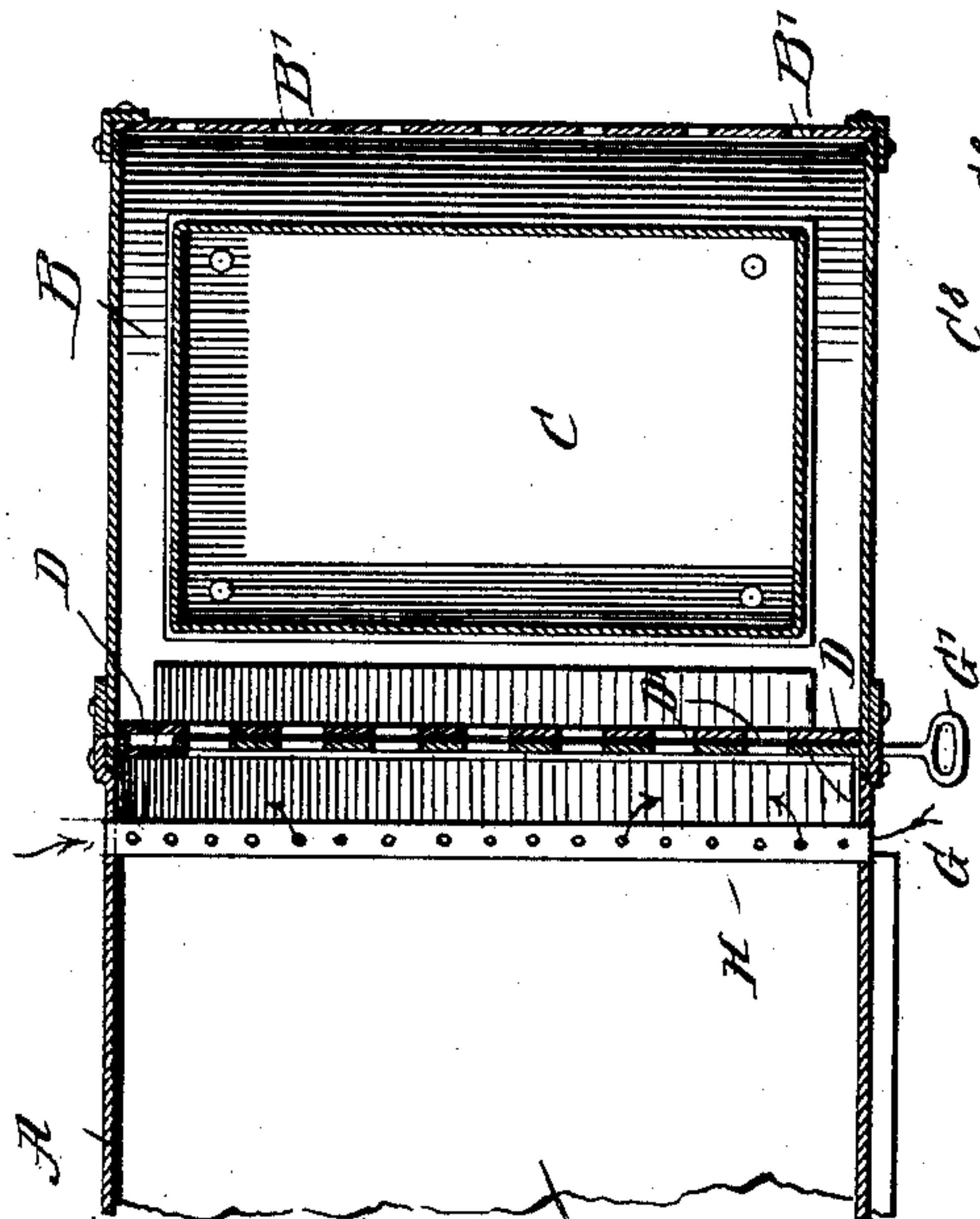
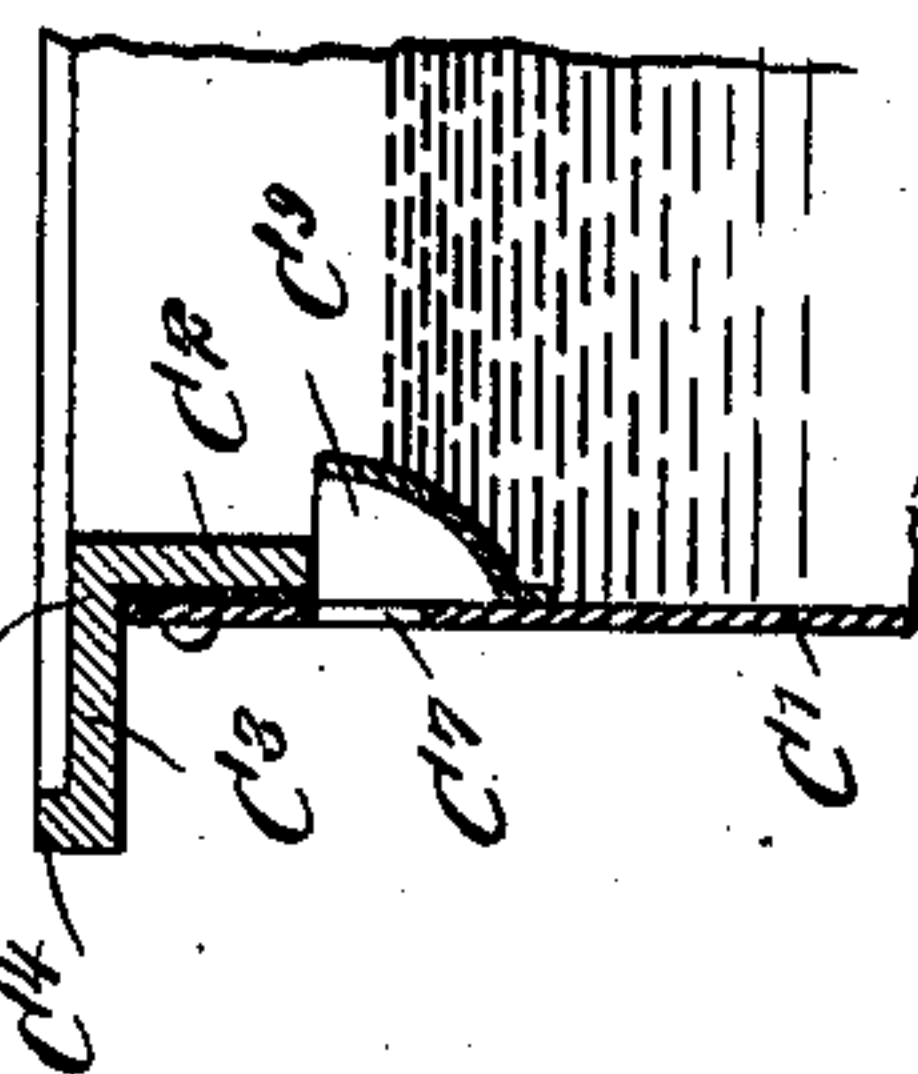
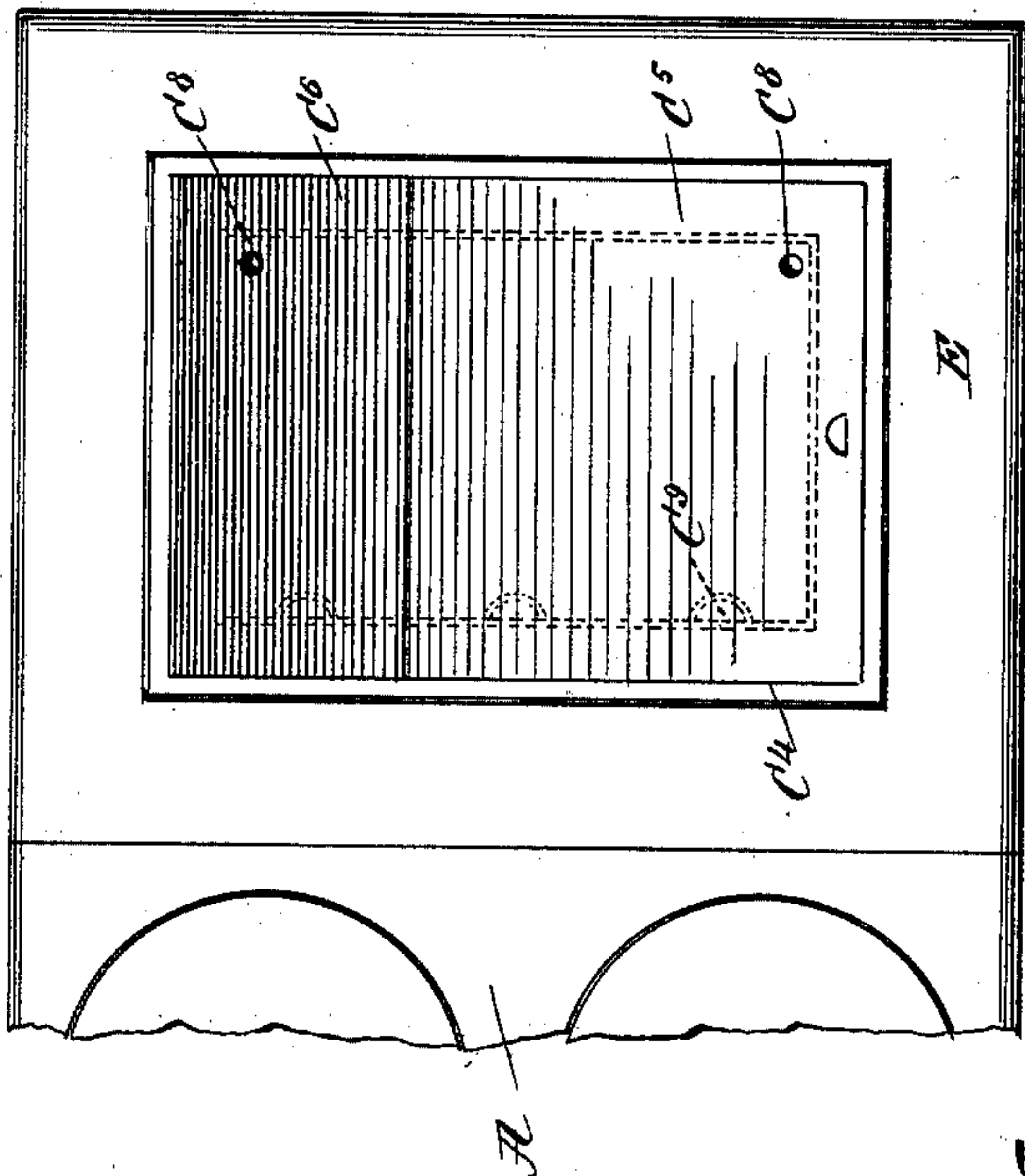
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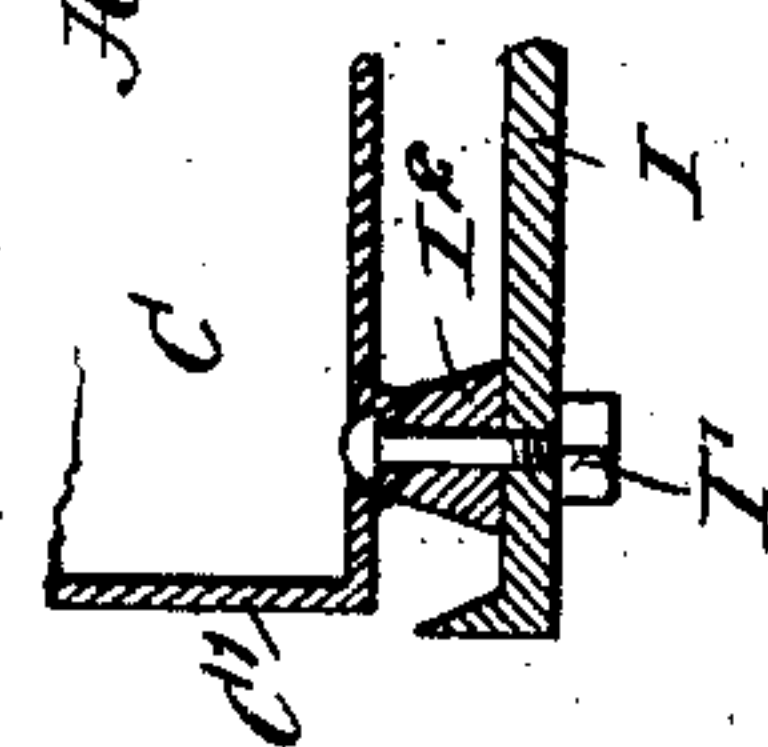
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Fig. 8.

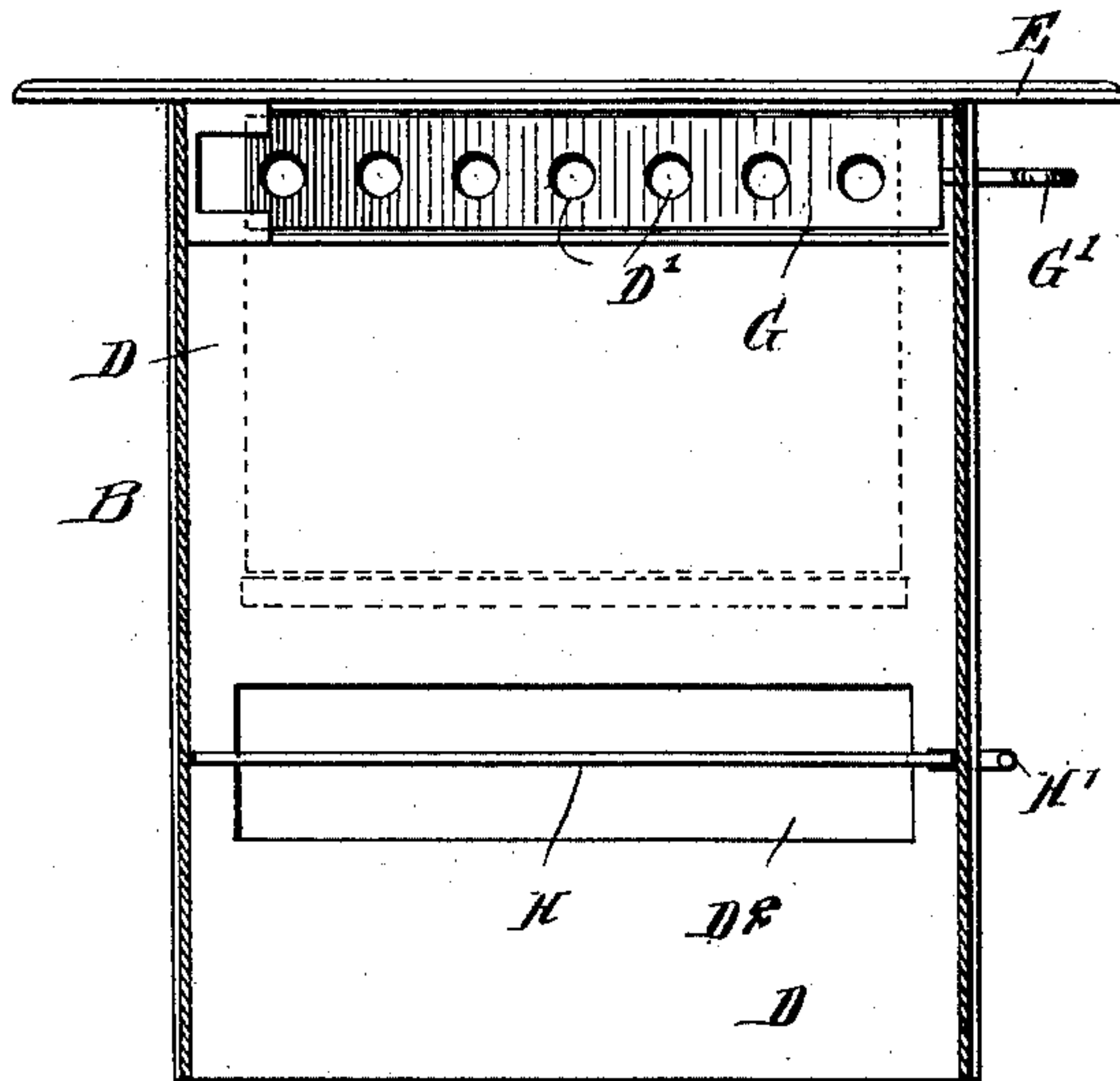


Fig. 9.

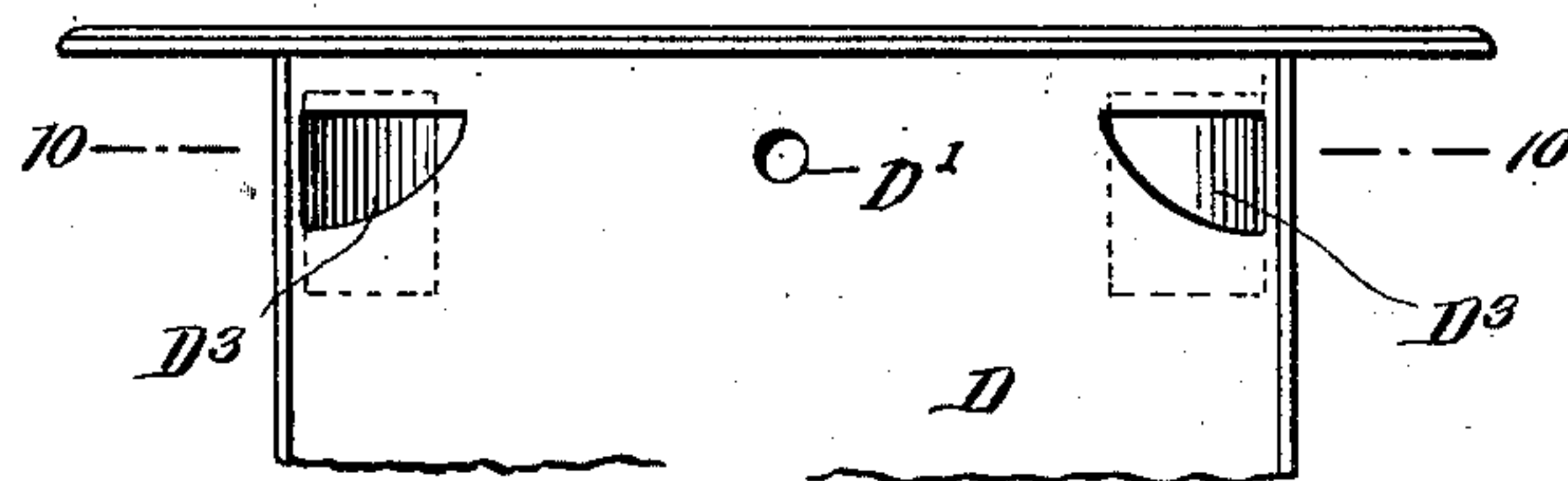


Fig. 10.

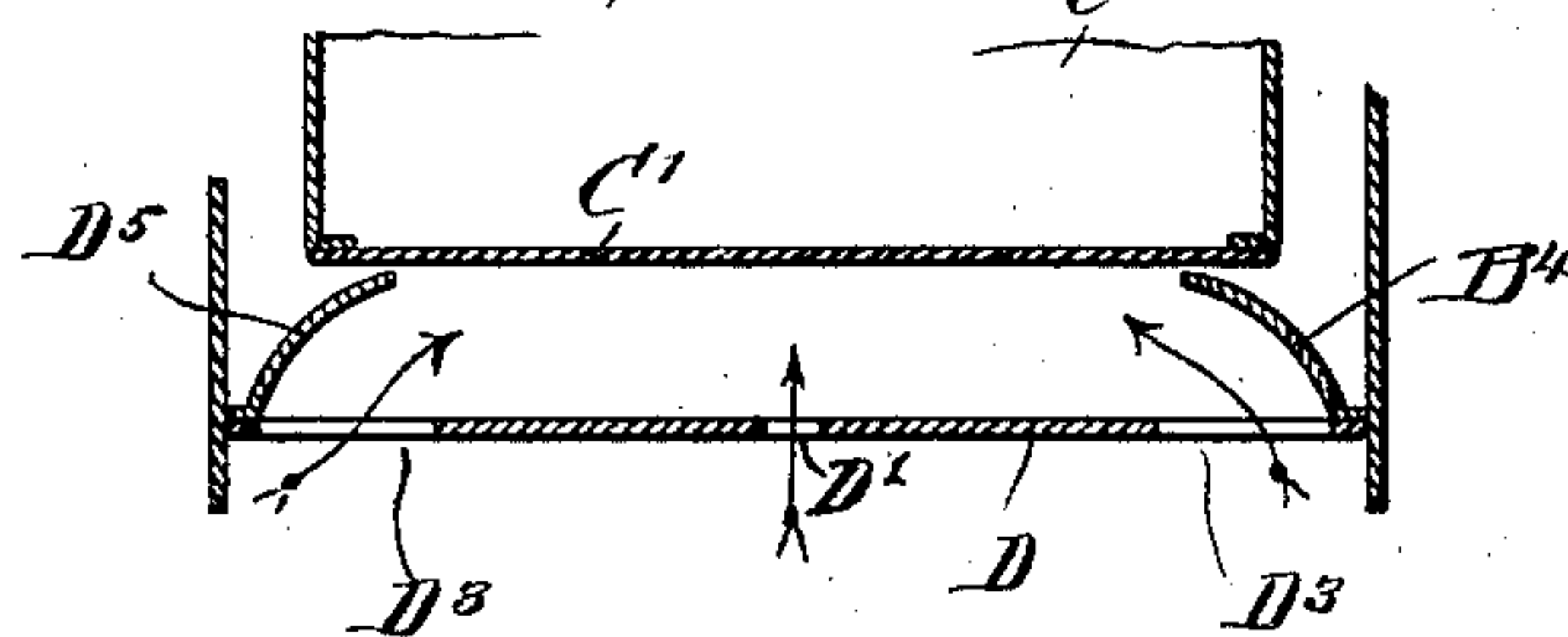
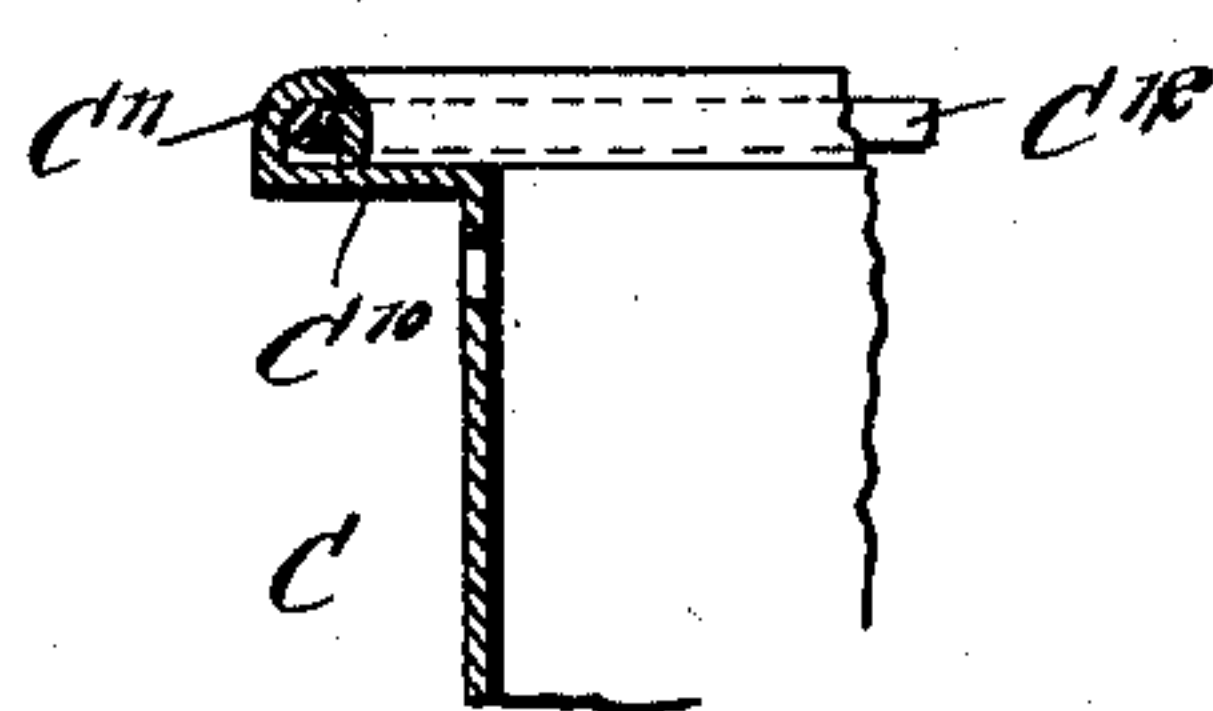


Fig. 11.



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UNITED STATES PATENT OFFICE.

GUSTAV HENRY GRIMM, OF RUTLAND, VERMONT.

WATER-RESERVOIR FOR RANGES.

SPECIFICATION forming part of Letters Patent No. 703,249; dated June 24, 1902.

Application filed June 24, 1901. Serial No. 65,817. (No model.)

To all whom it may concern:

Be it known that I, GUSTAV HENRY GRIMM, a citizen of the United States, and a resident of Rutland, in the county of Rutland and State of Vermont, have invented a new and Improved Water-Reservoir for Ranges, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved water-reservoir for ranges, to insure quick heating of the water, to aid in the combustion of the fuel, to reduce the generation of steam to a minimum, and to prevent the escape of the steam generated into the room or into the reservoir-casing and range, thus avoiding the formation of a destructive alkali by the mixing of the steam with the soot and ashes.

The invention consists of novel features and parts and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

A practical embodiment of my invention is represented in the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a sectional side elevation of the improvement as applied to a range, part of the latter being shown in elevation. Fig. 2 is a sectional plan view of the same on the line 2 2 of Fig. 1. Fig. 3 is a plan view of the same. Fig. 4 is a perspective view of the reservoir. Fig. 5 is an enlarged sectional side elevation of the same. Fig. 6 is a perspective view of the damper for the exit of the smoke and gases from the reservoir-casing. Fig. 7 is an enlarged sectional side elevation of a fastening device for securing a drip-pan to the bottom of the reservoir. Fig. 8 is a transverse section of the improvement as applied, the section being on the line 8 8 of Fig. 1. Fig. 9 is an end elevation of a modified form of the improvement. Fig. 10 is a sectional plan view of the same on the line 10 10 of Fig. 9, and Fig. 11 is an enlarged sectional side elevation of a modified form of the reservoir-body.

On the end of the range or stove A opposite to the end on which the fire-box is located is secured a water-reservoir casing B, into which depends the water-reservoir C, con-

taining the water to be heated by part of the heat emanating from the burning fuel in the fire-box and passing under the top A' of the range and over and around the oven A² in the usual channel to finally pass to the smoke-flue A³.

The casing B is covered by a top E, flush with the top A', and in the top E is formed an opening and a depressed annular seat E' for the reservoir C to rest on, as is plainly indicated in Fig. 1. The reservoir C consists, essentially, of a body C', of copper or other suitable material, riveted or otherwise fastened to the annular depending flange C², extending downwardly from the inner end of a horizontal flange C³, terminating at its outer end in a rising annular rim C⁴, so that a cross-section of the side and end of the rim and flanges C³ C² is Z-shaped, as will be readily understood by reference to Fig. 1. The horizontal flange C³ fits snugly on the seat E', and the rim C⁴ is flush with the tops E and A', and on the said flange C³ rests the reservoir-cover, preferably made in two parts C⁵ and C⁶, as is plainly indicated in Figs. 3 and 4. A packing F, of asbestos or other suitable material, is preferably interposed between the depending flange C² and the body C', as is plainly shown in Fig. 5. The upper surface of the top of the reservoir-casing is flush with the top of the rim C⁴, so that when the device is in use the entire upper face of the range and the water-reservoir is on the same level, thus giving a fine appearance to the range or stove.

The wall D, which separates the interior of the range A from the interior of the reservoir-casing B, is formed at its upper end with an inlet D' and near its lower end with an outlet D². The inlet D' is preferably formed with a number of apertures arranged in a row and adapted to register with corresponding apertures in a damper G, mounted to slide transversely in suitable bearings formed on the wall D. The outer end of the slide G is provided with a handle G', adapted to be taken hold of by the operator to move the damper G transversely, so as to open and close the inlet D'. The outlet D² is adapted to be opened and closed by a damper H, mounted to turn in the front and rear walls of the reservoir-casing B, (see Fig. 6,) and the outer

end of this damper H is provided with a suitable handle H', under the control of the operator, to turn the damper H, so as to open and close the outlet D².

5 Directly opposite the inlet D' is formed a steam-outlet C⁷ for permitting the steam to escape from the interior of the reservoir C to the channel between the inner wall of the reservoir-body and the wall D. This steam-
10 outlet is formed by a number of apertures, as is plainly shown in Fig. 4, and in order to cause the steam to pass through this outlet it is necessary to provide the top of the reservoir with apertures C⁸, so that atmospheric
15 air can pass into the upper portion of the water-reservoir C, and thereby cause the steam to pass through the outlet C⁷ into the channel previously mentioned.

A protecting-hood C⁹ is arranged on the in-
20 side of the water-reservoir C at each opening forming the steam-outlet, so that water contained in the reservoir cannot splash through the outlet into the channel. Below the bottom of the water-reservoir C is arranged a
25 drip-pan I, preferably fastened by bolts I' to the bottom of the reservoir-body C', as is plainly shown in Figs. 1 and 7, suitable spacing-blocks I² being arranged on the bolts between the bottom and the drip-pan to hold
30 the latter a suitable distance below the bottom of the water-reservoir C. Any moisture accumulating on the outside of the body C' of the water-reservoir C finally flows down and passes into the drip-pan I, in which the
35 water is evaporated by the heat circulating around the reservoir C within the reservoir-casing B to prevent the said body from rusting. The drip-pan may be otherwise supported below the reservoir.

40 In order to assist combustion of the fuel and of the burning gases passing into the reservoir-casing B, it is necessary to introduce atmospheric air, and for this purpose the outer side of the reservoir-casing B is provided near its top with openings B', so that
45 air can pass into the interior of the casing B for the purpose above mentioned.

By the particular arrangement of the flanges on the body C', I prevent steam that
50 is generated within the body C' from passing into the interior of the casing B, and I also prevent such steam from passing up into the room in which the stove or range is located. By having the steam-outlet C⁷ and the air-
55 inlet C⁸ it is evident that steam generated in the water-reservoir passes into the channel at the entrance of the intensely-heated gases, so that the steam is at once dissipated and aids in the complete combustion of the burn-
60 ing fuel.

It is understood that when the dampers G and H are in the position shown in Fig. 1 the smoke and gases from the burning fuel in the fire-box of the stove or range can pass through
65 the inlet D' to the outlet of the casing B, so as to completely surround the body of the water-reservoir C to heat the water contained

therein, the products of combustion finally passing through the outlet D² to the channel extending under the oven A² and to finally
70 reach the smoke-flue A³. During this passage of the smoke and gases through the reservoir-casing B the drip-water in the pan I is readily evaporated and carried along with the gases, it being understood that by the
75 entrance of fresh air through the openings B' complete combustion is obtained for any unconsumed gases during their passage through the casing B. Thus by the arrangement described sufficient draft is established in the
80 water-reservoir B, so that the steam, and in fact all the moisture, is taken care of to finally pass with the smoke and gases to the flue A³, and consequently the steam does not mix with the soot and ashes and form an alkali,
85 which has proved so destructive in stoves and ranges as heretofore constructed.

The damper G may be dispensed with, and in this case large openings D³ are formed in the walls D, and on the inside of the said
90 openings are arranged deflectors D⁵ to cause the smoke and gases to be deflected away from the corners of the water-reservoirs, as will be readily understood by reference to Figs. 9 and 10.
95

As illustrated in Fig. 11, the water-reservoir C may have its top formed of a single piece integral with the body, and in this case the horizontal flange C¹⁰ extends integrally
100 from the upper end of the body to be turned over at its outer end to form a seam C¹¹ for containing a wire C¹² to strengthen the rim thus formed by the parts C¹¹ and C¹².

In order to insure rapid combustion of the gases and smoke passing over the oven to the
105 damper G and wall D, I prefer to introduce atmospheric air to the smoke and gases by a perforated pipe J, extending over the corner of the oven A², at the outside thereof, directly opposite the damper G, the ends of the pipe
110 opening into the room.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A water-reservoir for stoves and ranges,
115 comprising a casing extending from the stove or range and connected with the interior thereof by an inlet and an outlet for the products of combustion, and a water-reservoir set in the said casing and having an air-inlet and
120 a steam-outlet, the inlet for the products of combustion being arranged directly opposite the steam-outlet from the reservoir, and a damper for controlling said inlet, as set forth.

2. A water-reservoir for stoves and ranges,
125 comprising a casing extending from the stove or range and connected with the interior thereof by an inlet and outlet for the products of combustion, the casing having an air-inlet, and a water-reservoir set in the casing
130 and spaced from the walls thereof, the reservoir having an air-inlet, and a steam-outlet above the water-line, the casing-inlet for the heated gases being arranged directly opposite

the steam-outlet from the reservoir, and dampers for controlling the said casing inlet and outlet, as set forth.

3. A water-reservoir for stoves and ranges
5 having a water-reservoir casing connected with the interior of the stove or range by an inlet and an outlet arranged one above the other in the wall between the reservoir and stove or range, the inlet being formed by a
10 series of apertures arranged in a row, a water-reservoir set in the said casing and having an air-inlet in the cover, a steam-outlet above the water-level opposite the casing-inlet, and a damper for controlling the casing-inlet, the
15 said damper being mounted to slide transversely and provided with apertures adapted to register with the inlet-apertures of the casing, as set forth.

4. A water-reservoir for stoves and ranges,
20 comprising a reservoir-body formed in one of its walls with a steam-outlet above the water-line, protecting means arranged on the inside of the reservoir for preventing water passing through the steam-outlet, a cover for
25 the reservoir having an air-inlet, and a drip-pan suspended below the reservoir-bottom, as set forth.

5. A water-reservoir for stoves and ranges, comprising a reservoir-body, formed in one of
30 its walls with a steam-outlet, protecting means for said outlet, a cover for the reservoir-body having an air-inlet, and a drip-pan below the reservoir-bottom, as set forth.

6. A water-reservoir for stoves and ranges
35 comprising a water-reservoir casing extending from the stove or range and connected with the interior thereof by an inlet and outlet, the casing having an air-inlet at the outer side, a water-reservoir set in the said casing
40 and spaced from the walls thereof, a drip-pan suspended below the said reservoir-bottom,

and means for detachably connecting the drip-pan with the reservoir-bottom and holding it a suitable distance below the reservoir, as set forth. 45

7. A water-reservoir for stoves and ranges having a water-reservoir casing extending from the stove or range and connected with the interior thereof by an inlet and outlet, the casing having an air-inlet at the outer
50 side, a water-reservoir set in said casing and spaced from the sides and bottom thereof, the reservoir having an air-inlet in its cover and a steam-outlet above the water-line, the steam-outlet being opposite the casing-inlet
55 and provided with protecting devices to prevent the water from passing to the said steam-outlet, and dampers for controlling the said casing inlet and outlet, as set forth.

8. A water-reservoir for stoves and ranges 60 having a water-reservoir casing extending from the stove or range and connected with the interior thereof by an inlet and outlet, arranged one above the other in the wall between the reservoir and stove or range, the
65 said casing having an air-inlet at the outer side at or near the top thereof, and a water-reservoir set in the said casing and spaced from the walls and bottom thereof, the said reservoir having an air-inlet in its cover and
70 a steam-outlet above the water-line, the steam-outlet being opposite the said casing-inlet, and protecting-cups over the said steam-outlet to prevent the water from passing to the said steam-outlet, as set forth. 75

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GUSTAV HENRY GRIMM.

Witnesses:

EDW. A. KINSLEY,
FRANK R. KINSMAN.