

(No Model.)

L. EWALD.
HOT AIR REGISTER.

No. 511,296.

Patented Dec. 19, 1893.

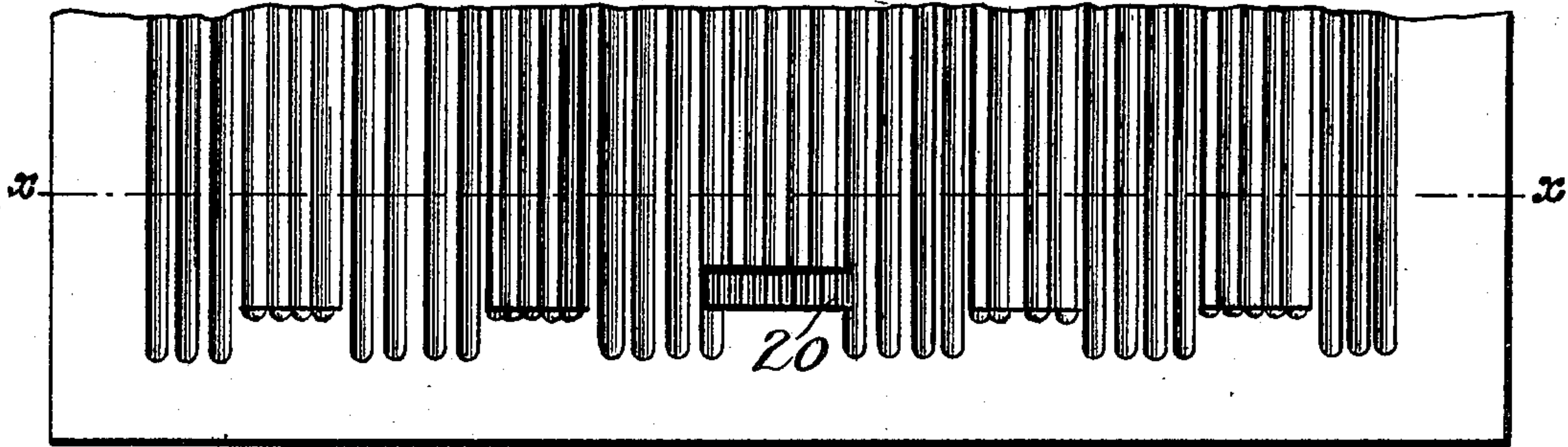


Fig. 1.

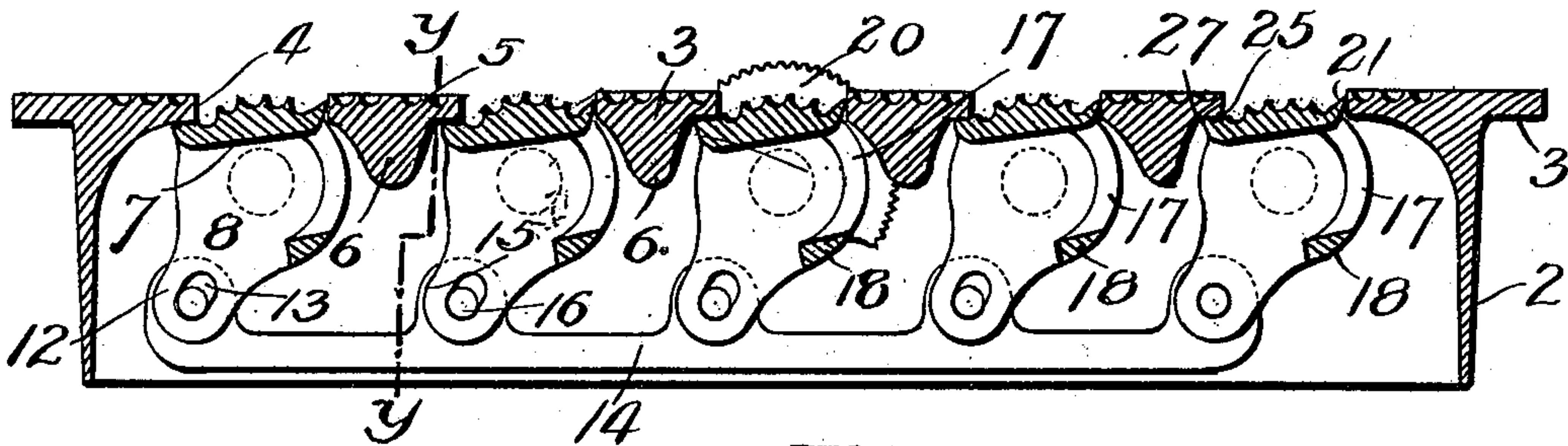


Fig. 2.

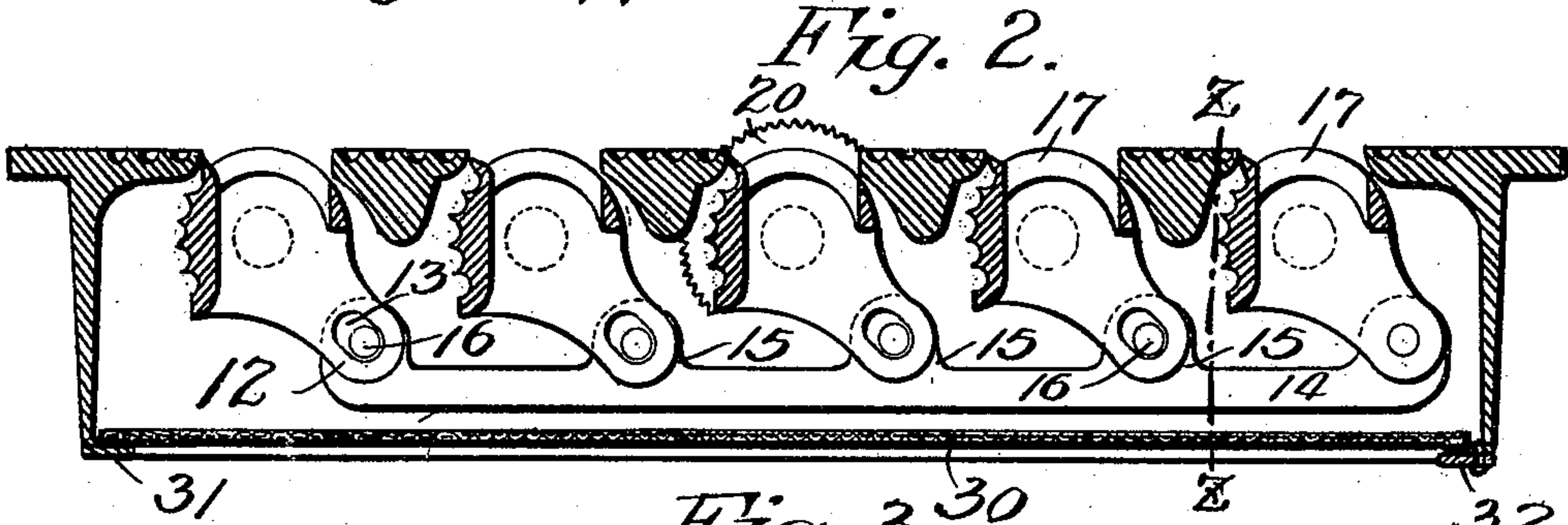


Fig. 3.

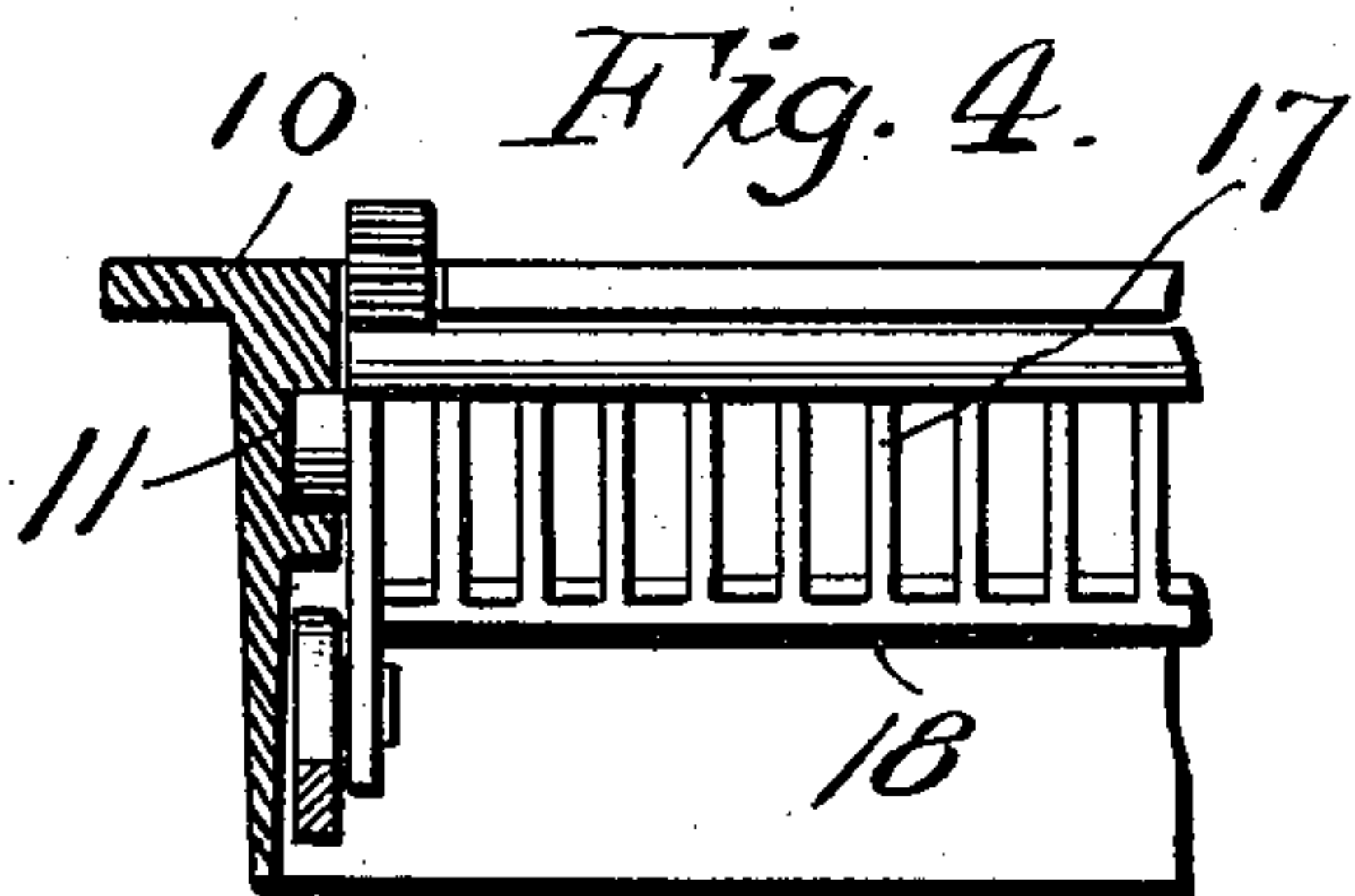


Fig. 4.

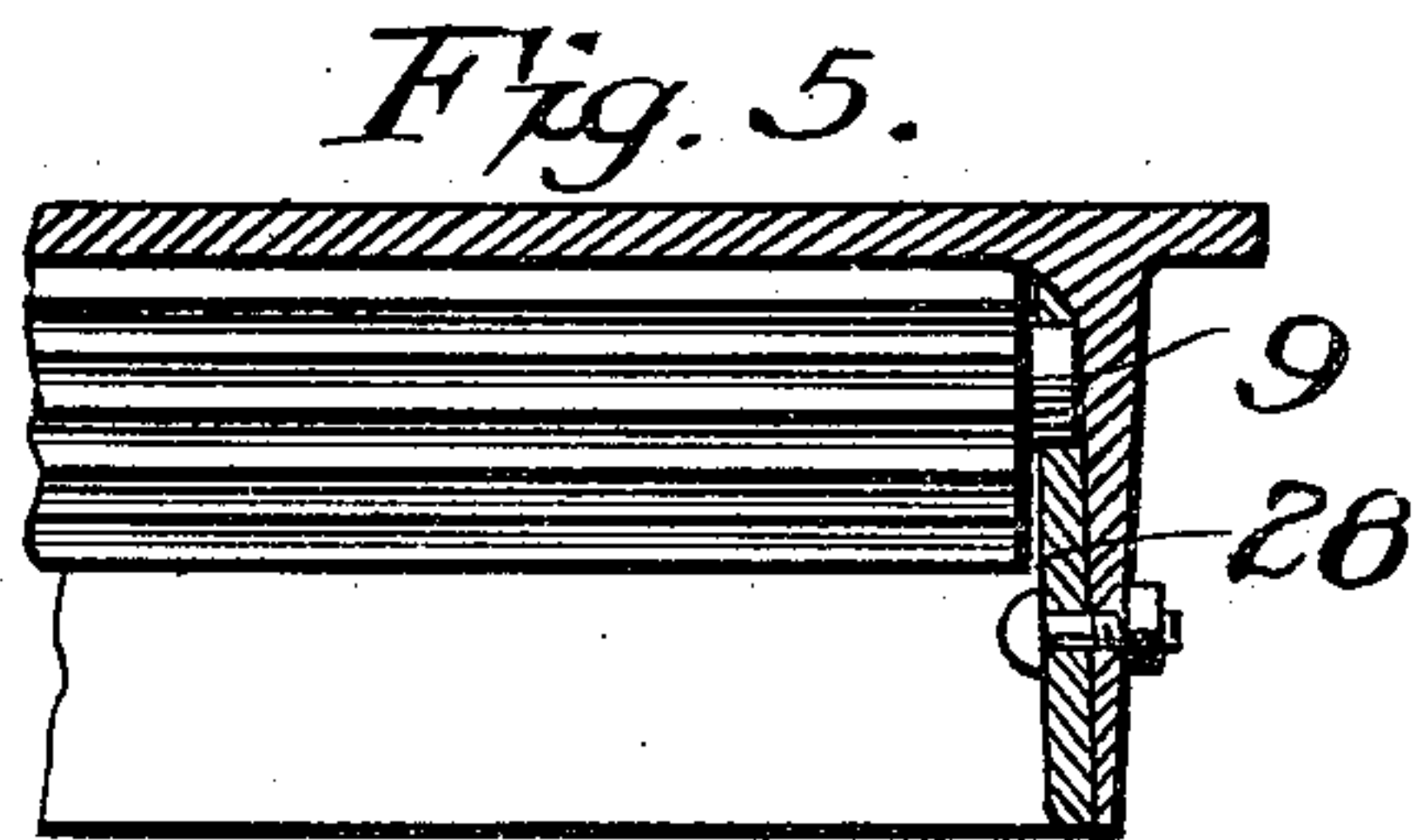


Fig. 5.

Witnesses,
Chas. E. VanDorn
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his attys.

UNITED STATES PATENT OFFICE.

LEO EWALD, OF MINNEAPOLIS, MINNESOTA.

HOT-AIR REGISTER.

SPECIFICATION forming part of Letters Patent No. 511,296, dated December 19, 1893.

Application filed March 13, 1893. Serial No. 465,671. (No model.)

To all whom it may concern:

Be it known that I, LEO EWALD, of the city of Minneapolis, county of Hennepin, State of Minnesota, have invented certain new and useful Improvements in Hot-Air Registers, of which the following is a specification.

My invention relates to hot air registers; and the object which I have in view is to provide a register which when closed will present, throughout, a substantially solid and close surface, flush with the floor, whereby the accumulation of dirt and dust in the register box is prevented, making it possible to sweep directly across the same without dust falling into the hot air pipe.

To this end my invention consists in the constructions and combinations all as herein-after described and particularly pointed out in the claims, and will be more readily understood by reference to the accompanying drawings forming a part of this specification, in which—

Figure 1 represents one side of the top of a register embodying my invention, the register being closed. Fig. 2 is a vertical cross section thereof on the line $x-x$ of Fig. 1. Fig. 3 is a similar cross section showing the register open to allow the free passage of warm air through the same. Fig. 4 is a sectional view on the line $y-y$ of Fig. 2. Fig. 5 is a section on the line $z-z$ of Fig. 3.

As shown in the drawings, 2 represents the ordinary register boxing or sleeve having the projecting top or floor face 3. The top is provided with a number of long slots or openings 4 separated by the cross parts or bars 5 of the top. The bars are strengthened by the depending integral ribs 6. For closing these openings or slots I provide a series of rocking valves. Each of these valves is made up of the cross piece 7, having upon one end the depending ear 8, and upon the other end a similar but preferably shorter ear, from which projects the round stud 9. The studs 9 of all are supported in the top of the side plate 28 bolted to the inside of the sleeve. Each ear 8 has a similar stud 10 adapted to revolve in the journal 11 arranged in the side of the casting or sleeve 2. The ear 8 is further provided with a downwardly projecting arm 12 in which is arranged an opening or slot 13. In the lower part of the

boxing, and at one side thereof, I arrange a connecting bar 14 having the upwardly extending lugs 15, in which are pins 16 projecting into the slots of the ears 8 respectively. It will be seen that upon the shifting of this connecting bar the parts 7 will be rolled down into the position shown in Fig. 3. It is obvious that it would not be desirable to leave the long slots entirely open, as small articles might in that case fall or roll into them. For partially closing the long slots, therefore, I construct a circular grating upon the side of each rocking valve opposite the solid part 7 thereof. This grating is made up of the small curved bars 17 extending from the upper or rear edge of the part 7 to a smaller cross piece 18, all parts being preferably cast together. For rocking all of the parts which are connected by the bar 14, and thereby open or close the register, I provide a serrated wheel or quadrant 20 preferably arranged on the end of the middle rocking valve and the top of the quadrant extending above the surface of the register in position to be operated by the foot. It will be noted when the register is closed that dust-tight joints are made between the solid parts of the valves and the register face by the engagement of the upper edges 21 of the parts 7 with the sides of the openings 4, and the engagement of the lower and flat edges 25 with the under sides or shoulders 27 provided beneath the opposite sides of the openings.

As an ornament to the register and to facilitate in sweeping, I corrugate both the top of the register frame and the tops of the solid parts 7, the corrugations being merged at the ends into the plain surface of the register to prevent lodging of dust in the ends. The tops of the valves are preferably curved upwardly, so that when closed they will be as nearly flush with the register surface as possible, while still being adapted to roll down without engagement with the forward edges or walls of the openings 4. It is obvious that other and more extensive ornamentation may be adopted for the surface of the register, but I prefer that shown as best adapted for practical use.

To prevent scraps of paper or other small articles from falling through the register into the box or pipe beneath, I arrange in the

lower part of the sleeve a screen 30 composed of quite closely woven wire and resting at one end upon the ledge 31, extending from the side of the casing and supported at the other end by a small button or other device 32. This screen is made possible, by dispensing with the shutter valves ordinarily employed and, as will be seen, lies entirely below the working parts of my register. By taking up the register the screen may be removed to clean the same after which it is very easily replaced.

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

1. The combination in a register, of a surface plate having a series of slots, with a series of moving valves adapted to enter said slots and lie substantially flush with said plate, and means for moving the same into or out of such position, substantially as described.

2. The combination in a register, of a surface plate having a series of slots, with a series of rocking valves having solid parts arranged to be rocked into or out of said slots, and means for so rocking said parts, substantially as described.

3. The combination with the register face provided with parallel slots and having its solid portions corrugated, with rocking valves arranged in said slots and having corrugated solid portions adapted to roll into said slots to close the same, and at such times to substantially fill the same and lie in the same plane with the register face, substantially as described.

4. The combination in a register, of a face plate and the sleeve thereof, said plate being provided with parallel slots, with parts 7 having depending ears, studs arranged on said ears, bearings within said sleeve for said studs, arms arranged upon the ears at one side of said sleeve, a connecting rod extending between the several arms, and a device project-

ing through the face of the register for operating said bar to rock said solid parts 7 into and out of said slots, substantially as and for the purpose specified.

5. The combination with the register face provided with parallel slots, of the rocking valves composed of solid parts 7, the depending ears on the ends of said parts, the circular grating, pivot studs on said ears, a common connection between said rocking valves, and means upon the outside of the register for operating all of said valves simultaneously, substantially as described.

6. The combination with the register face provided with slots 4 and having the sleeve 2, with the rocking valves composed of the solid portions 7, the circular grating the depending ears having studs 9 and 10, respectively, fixed bearings for the studs 10, the removable bearing bar or plate wherein the studs 9 are journaled, a connecting bar extending between all of the ears upon one side, a serrated wheel or quadrant connected with one of the rocking valves and projecting through the register face whereby all of said valves may be operated, substantially as described.

7. The combination, with the register face, provided with parallel slots and having its solid portions corrugated, with rocking valves arranged in said slots and having corrugated solid portions adapted to roll into said slots, to close the same, and at such times to substantially fill the same and lie in the same plane with the register face; and the screen arranged in the lower part of said boxing or casing, to prevent small articles from falling into the air pipe, substantially as described.

In testimony whereof I have hereunto set my hand this 27th day of February, 1893.

LEO EWALD.

In presence of—

C. G. HAWLEY,
FREDERICK S. LYON.