

(No Model.)

2 Sheets—Sheet 1.

D. MORRISON.

STRAW BURNING HEATING AND COOKING STOVE.

No. 414,563.

Patented Nov. 5, 1889.

Fig. 1.

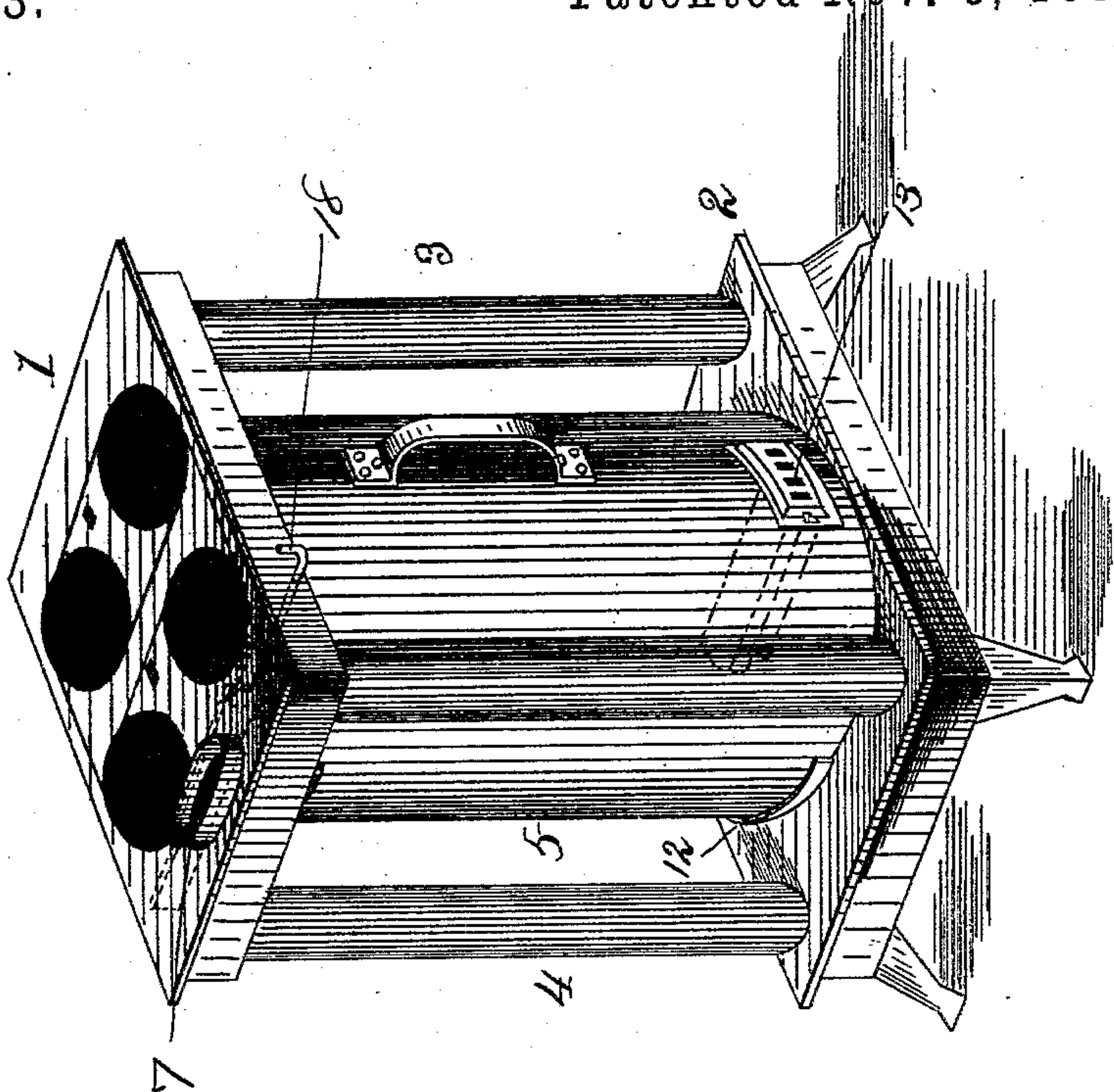
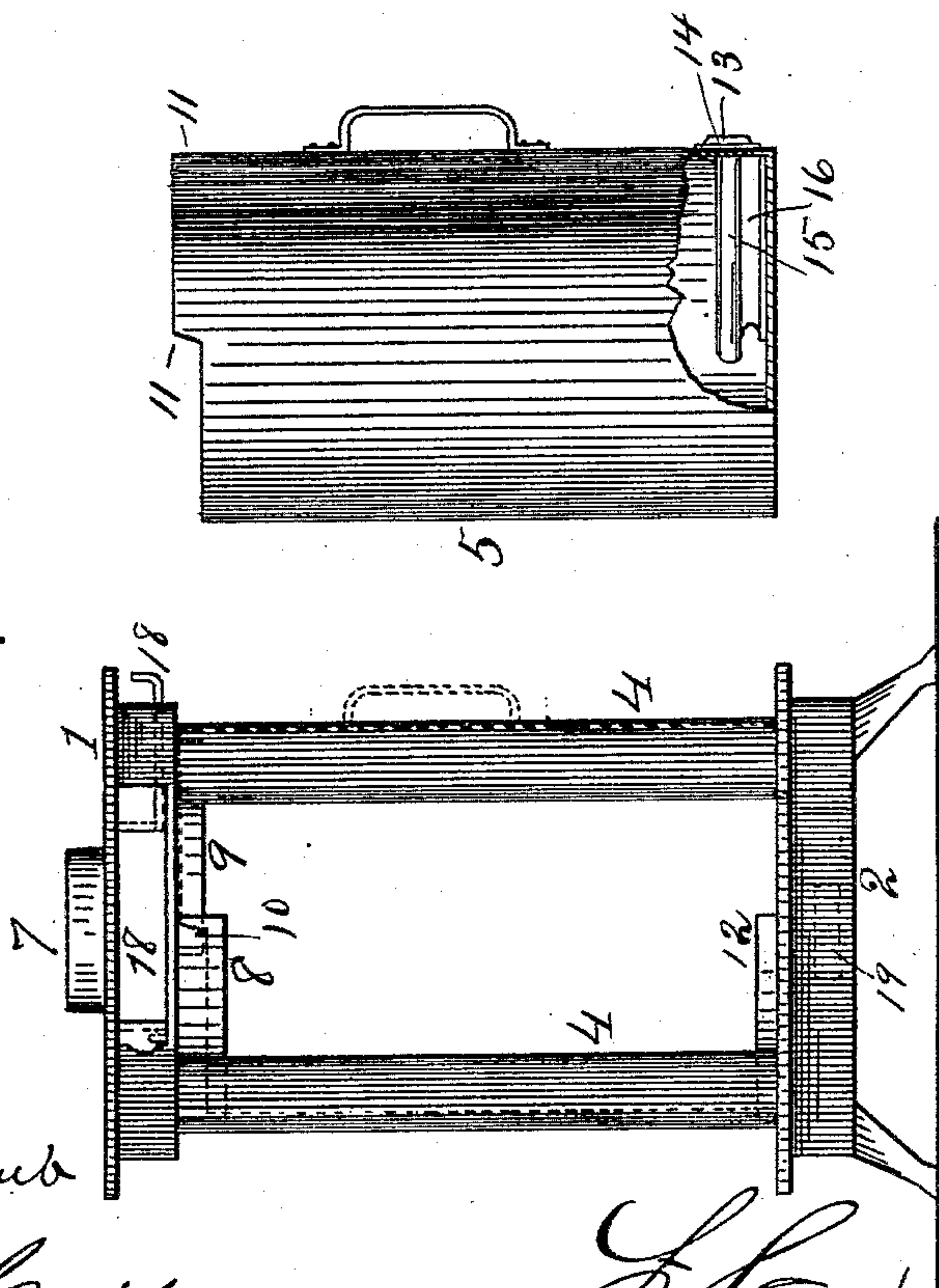


Fig. 2.



Witnesses.

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Fig. 3.

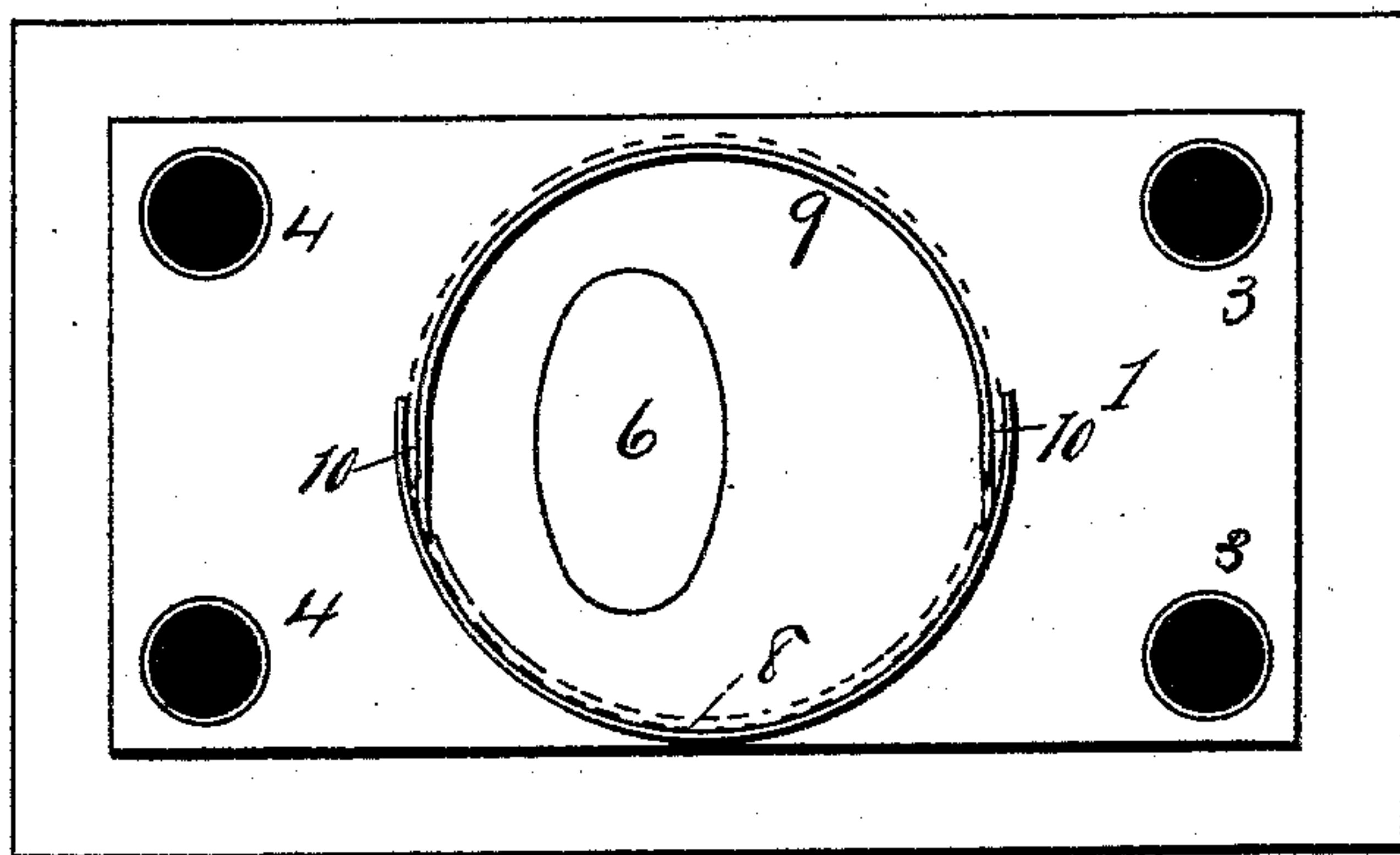
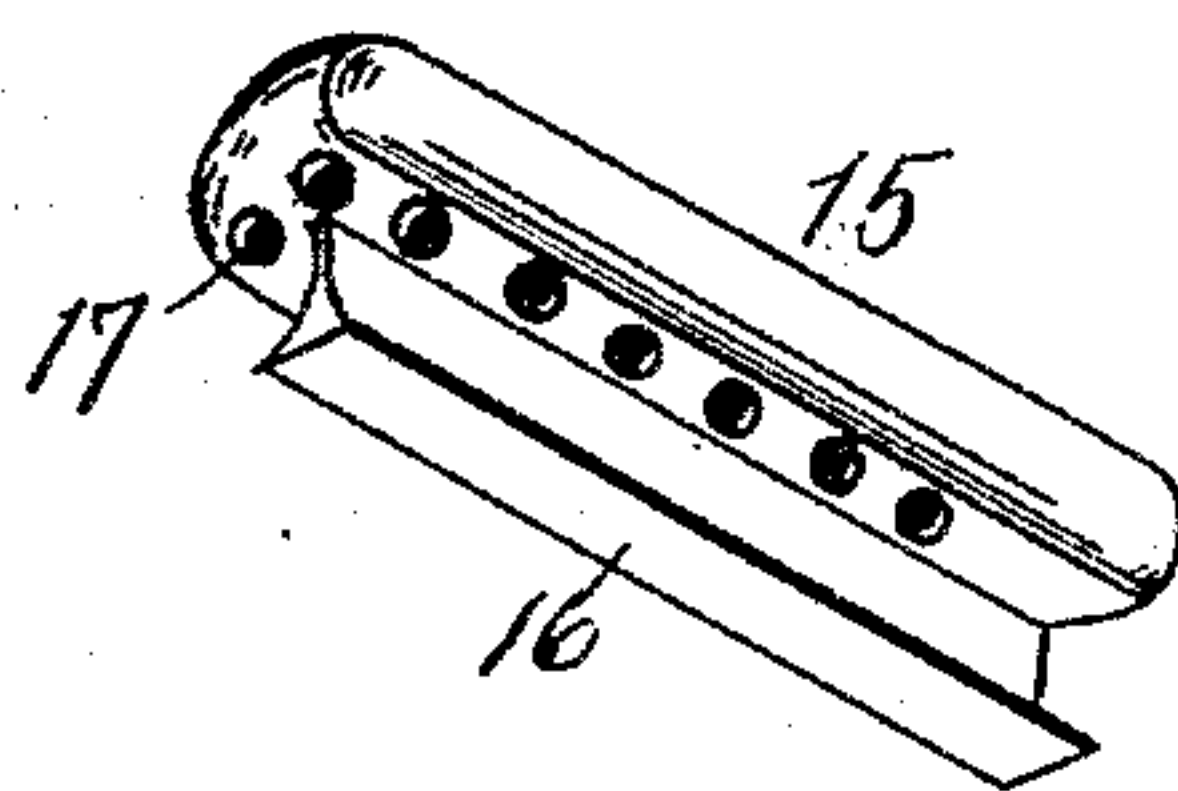


Fig. 4.



Witnesses.

Wm. M. Carson

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UNITED STATES PATENT OFFICE.

DOW MORRISON, OF ST. PAUL, MINNESOTA.

STRAW-BURNING HEATING AND COOKING STOVE.

SPECIFICATION forming part of Letters Patent No. 414,563, dated November 5, 1889.

Application filed July 6, 1889. Serial No. 316,726. (No model.)

To all whom it may concern:

Be it known that I, DOW MORRISON, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented certain new and useful Improvements in Straw-Burning Heating and Cooking Stoves; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

This invention relates to improvements in straw-burning heating and cooking stoves; and the improvements consist, generally, in the connection between the removable magazine and the top of the stove, whereby close communication is formed between the magazine and the upper heating-chamber by the simple insertion of the magazine without the necessity of further adjustment or the use of a cover, and in features of detail hereinafter more fully set forth.

The invention is illustrated in the accompanying drawings, in which Figure 1 is a perspective view of my improved straw-burner; Fig. 2, a side view showing the magazine removed, a portion of the latter being cut away to show the construction and arrangement of the draft-flue, the normal position of the magazine being represented by dotted lines; Fig. 3, a plan view of the under side of the heating-chamber forming the top of the stove, and Fig. 4 a detail view of the draft-flue.

Similar characters designate corresponding parts in all of the figures.

The frame or casing of the stove consists of an upper and lower heating-chamber 1 and 2, respectively, the latter supported upon legs and the former supported thereupon by means of conducting-tubes 3 and 4, affording communication between the interiors of the respective chambers. The fuel-magazine 5 rests upon the lower chamber, and is in communication with the upper chamber through its open top and an opening 6, formed in the base of said chamber over the mouth of the magazine.

A flue-opening 7 furnishes communication

with the chimney to carry off the products of combustion.

In order to form a close connection between the top of the magazine and the upper heating-chamber 1, to prevent the escape of smoke, &c., a broad flange 8 is formed upon or secured to the under side of the base of said chamber of a form to correspond with the upper part of the rear of the magazine and of a length to embrace a little more than one-half the periphery of the latter, thus forming a seat against which the magazine rests when in position, with its open mouth registering with the opening 6 into the chamber 1. To complete the guard around the remainder of the periphery of the magazine, a second flange 9, of somewhat less depth than the flange 8, for purposes hereinafter stated, is united to the latter a little back from the ends of the same, as shown at 10, on opposite sides, the flange 9 being of a form to correspond with and form a seat for the inner surface of the upper part of the magazine opposite to the part embraced by the flange 8.

The front part of the magazine is formed a little higher than the rear part, or has an upward extension 11, adapted to fit closely against the inner flange 9, and the higher part or extension extends far enough around upon each side of the magazine so that when the opposite sides of the latter rest against the flanges the ends of the extension or the shoulders formed thereby enter the space between the inner flange and the overlapping extremities of the outer flange 8. The rear part of the magazine is of sufficient height to just clear the inner flange and to be overlapped by the outer. The magazine is introduced from the front, and its upper edge being of less height in the rear than in front clears the flange 9 and allows it to be pushed back until it meets the flange 8, and at the same time the higher front edge of the magazine or extension 11 thereupon is met by the flange 9. The extremities of the extension 11 enter the space between the overlapping ends of the flanges and are closely held thereby. The mouth of the magazine is thus completely guarded upon all sides, and the only means of escape for the products of combustion is through the opening 6 into the upper cham-

ber. The distance to which the magazine may be inserted may also be controlled by a guard 12, projecting upwardly from the top of the lower chamber and corresponding in vertical position with the flange 8, before described.

Near the base of the magazine is located the draft-flue, which is of novel construction, and which forms an important feature of this invention. A draft-opening 13, controlled by a damper 14, is formed in the front side of the magazine near its bottom and affords air communication with the interior through the draft-flue 15. The draft-flue is mounted upon a foot or standard 16, or in any convenient manner, just above the bottom of the magazine, and generally extends about half-way across the same. The flue is of oblong form in cross-section, its greater dimension lying horizontally, and projects beyond the standard upon each side and at the inner end. In the under side thereof are formed a series of perforations 17, affording communication between the interior of the flue and the interior of the magazine through the under side of the former. The object of this construction is to provide for an open space around the holes to afford protection against clogging by the contents of the magazine, and the air is distributed in all directions from the flue, thus securing more perfect combustion. At the same time the holes being in the under side of the flue, the latter is not liable to become clogged by ashes, &c., in the bottom of the magazine.

In operation the magazine, being filled with straw or similar fuel, is introduced into the seat formed by the several flanges before mentioned, and the fuel being ignited the products of combustion spread through the upper chamber and thence through the flue-opening 7 into the chimney. A damper 18 controls the communication between the opening 6 and the flue, and when it is desired to more thoroughly distribute the heat by radiation this damper is raised, thus forcing the products of combustion to descend through the tubes 3 3, pass through the lower chamber, and thence up through the tubes 4 4 to the flue. It will be readily seen that by this means a large extent of radiating-surface is secured, thus adapting the stove more especially for heating purposes, and in addition thereto distributing the heat more equally over all parts of the top of the stove. When an intense heat is desired, the damper 18 is opened, thus permitting a direct draft and concentrating the heat at the points in the immediate vicinity of the opening 6 over the mouth of the magazine. An opening 19 in the lower heating-chamber at a point oppo-

site the entrance to the flue may be employed for the purpose of increasing the draft, for assisting in ventilation by the removal of cold air from the lower part of the room, and to afford access to the chamber for removing soot, &c.

From the foregoing description, in connection with the accompanying drawings, the operation and advantages of my invention will be readily apparent. By the construction shown it will be seen that when the magazine is inserted in place a close connection is formed between it and the upper heating-chamber without the necessity of other adjustment or the use of a cover; that by the use of the lower and upper heating-chambers and the conducting-tubes not only is a large area of radiating-surface obtained and the heat brought to the lower part of the room, but such control is obtained for cooking purposes that the heat may be either concentrated at one point or evenly distributed over the whole upper surface of the stove, and by the construction of the draft-flue the same is prevented from becoming clogged, thus insuring free draft.

I claim as my invention—

1. In a straw-burner, the combination, with a heating-chamber having an opening in its base and a removable magazine supported beneath the same and registering with said opening, of the flanges 8 and 9 in the rear and front of said opening, respectively, and adapted, respectively, to fit the outside and inside of the magazine, the outer flange slightly overlapping the inner, and an upward extension upon the front of the upper edge of the magazine adapted to fit against the said inner flange, and the ends of said extension to enter the space under the overlapping ends of said outer flange, substantially as and for the purpose herein specified.

2. The combination, with a heating-chamber having an opening in its base and a removable cylindrical magazine supported beneath the same and registering therewith, of a downwardly-extending semicircular flange in the rear of said opening adapted to fit the periphery of said magazine, a similar flange of less depth in front of said opening adapted to fit the interior of said magazine, and an upwardly-extending semicircular lip at the front of the magazine adapted to fit against said inner flange, substantially as and for the purpose herein specified.

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

DOW MORRISON.

Witnesses:

A. H. SIMON,
JAMES KING.