No. 753,900. PATENTED MAR. 8, 1904.

H. A. MILLER.

DOMESTIC BOILER.

APPLICATION FILED SEPT. 8, 1903.

NO MODEL.

Fig. 1.

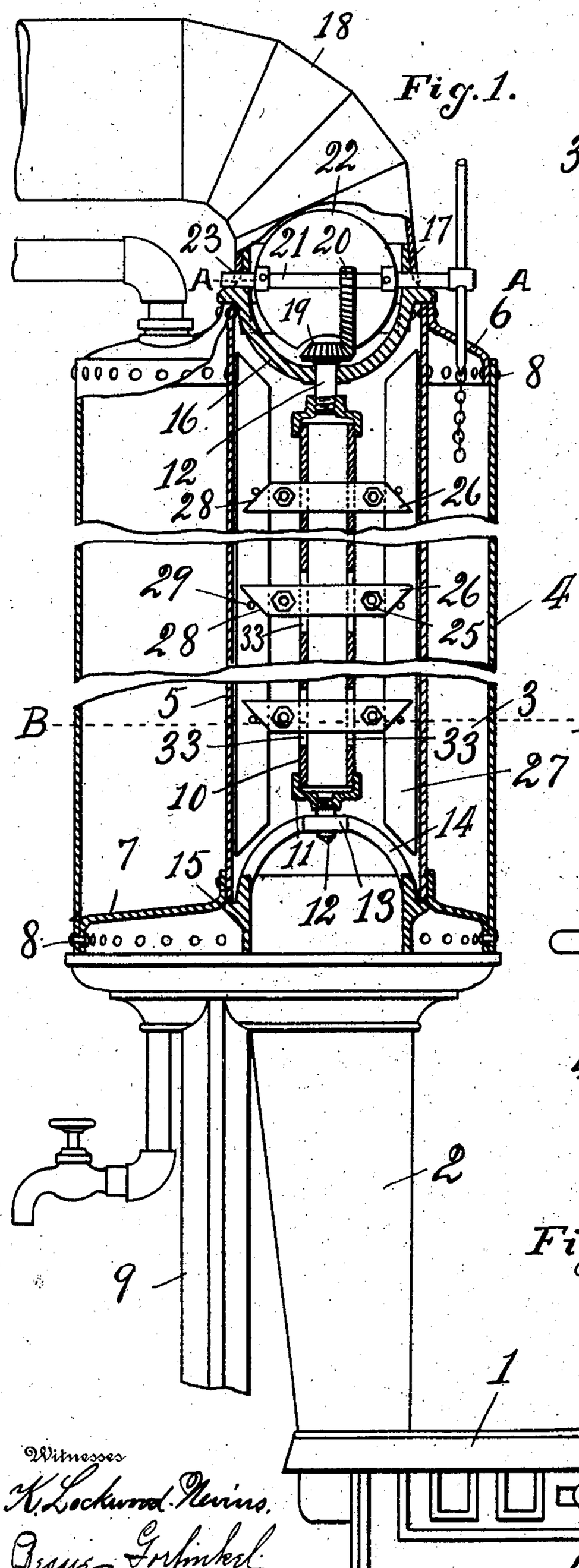


Fig. 2.

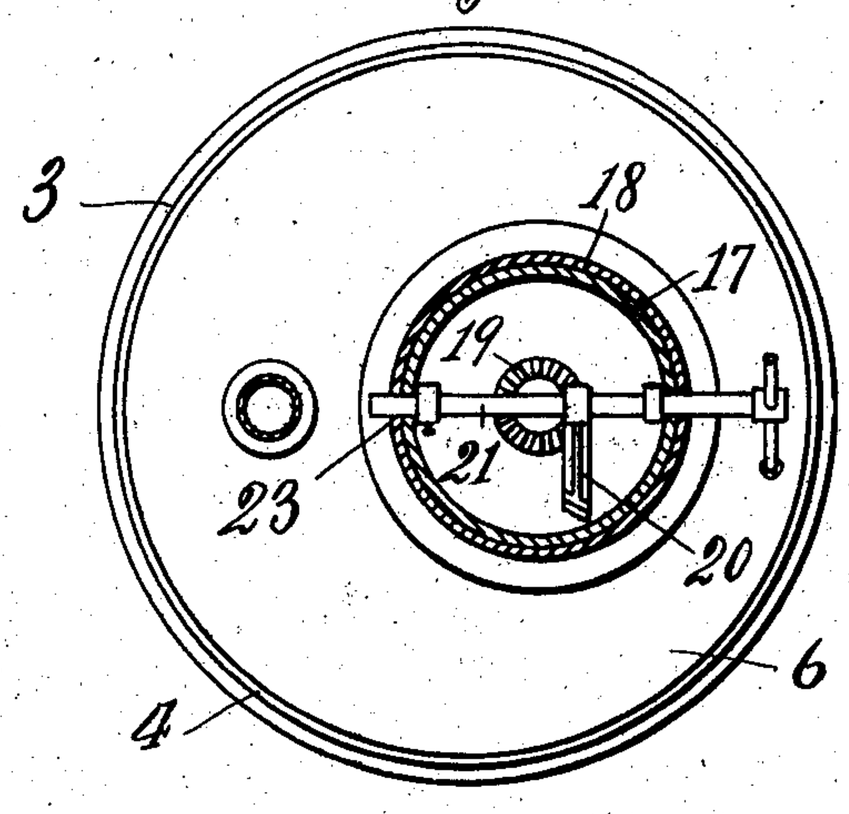


Fig. 3.

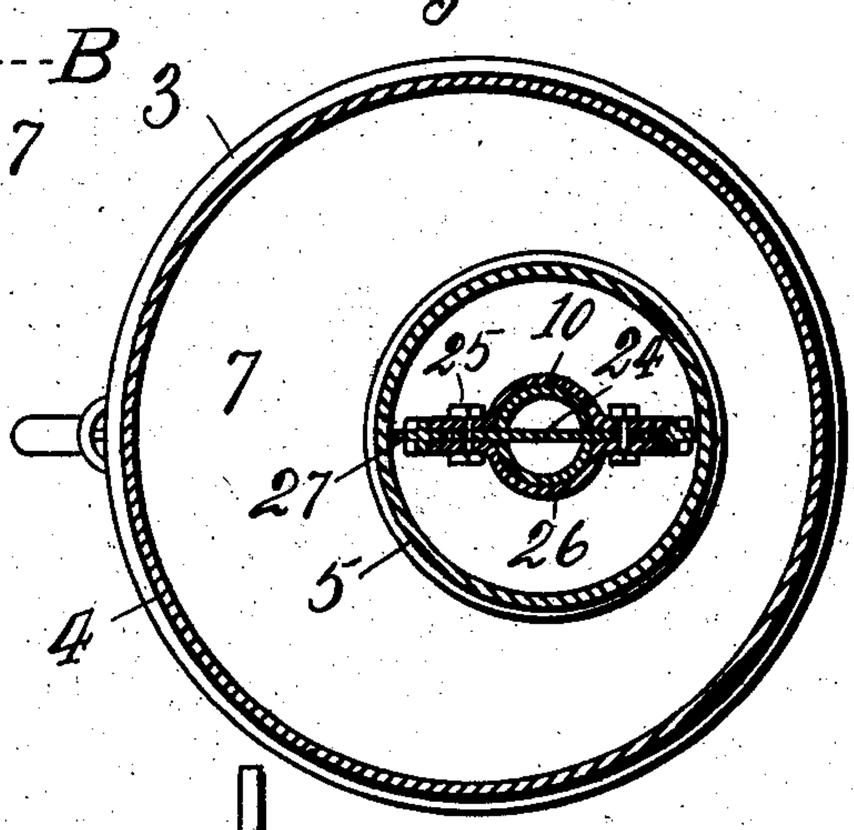
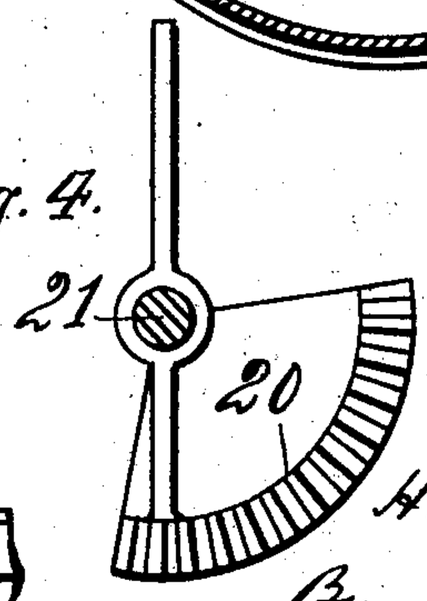


Fig. 4.



Witnesses

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No. 753,900. Patented March 8, 1904.

UNITED STATES PATENT OFFICE.

HANS A. MILLER, OF SELBY, CALIFORNIA.

DOMESTIC BOILER.

SPECIFICATION forming part of Letters Patent No. 753,900, dated March 8, 1904.

Application filed September 8, 1903. Serial No. 172,373. (No model.)

To all whom it may concern:

Be it known that I, HANS A. MILLER, a citizen of the United States, residing at Selby, in the county of Contra Costa and State of California, have invented certain new and useful Improvements in Domestic Boilers, of which the following is a specification.

My invention relates to improvements in domestic boilers, and especially on a boiler for which United States Letters Patent were granted to me July 14, 1903, No. 733,730.

The object of my present invention is to provide means for maintaining the flue of said boiler free from the deposition of soot.

My invention therefore resides in the novel construction, combination, and arrangement of parts for the above ends hereinafter fully specified, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical section of my improved boiler, a part of a stove with which it is used being shown in side elevation. Fig. 2 is a cross-section on the line A A of Fig. 1. Fig. 3 is a cross-section on the line B B of Fig. 1. Fig. 4 is a detail of the segment-gear.

Referring to the drawings, 1 represents a domestic stove, and 2 the flue leading therefrom.

3 represents the boiler, which comprises an external cylindrical casing 4, an internal cylindrical casing or wall 5, and upper and lower heads 6 and 7, riveted to said casings, as shown at 8. The internal casing 5 is placed eccentrically to the external casing 4 and forms a continuation of the flue of the stove. The boiler is supported upon a forked stand 9.

10 is a spreader-tube within the internal wall, its ends being closed by caps 11. Said caps have secured thereto the pivot-pins 12, the lower one of which rotates in a socket 13 in an arch 14, formed on the ring 15, which rests upon the top of the flue, while the upper pin has its bearing in an inverted arch 16, formed on the upper collar 17, connecting the upper end of the boiler with the stovepipe 18. Upon the upper end of said upper pin 12 is carried a pinion 19, which meshes with a segment-gear 20, formed on a shaft 21, which also carries the damper 22. Said shaft 21 rocks in bearings formed by sockets or recesses 23 in the collar 17. The damper 22 is cut away at its lower side to avoid the pinion 19. Thus every time the damper is moved through a quarter of a revolution between its limiting positions the pinion, which has a radius one-half that of the segment-gear, is moved through half of a revolution. It thereby imparts a corresponding movement to the spreader-tube. Said spreader-tube has vertical slots 33 diametrically opposite to each other, and through said slots extend bars or plates 24. The topmost slot is of substantially the same length as the width of the bar, so that said bar has no vertical movement therein; but the lower slots are longer than the width of the bars therein, permitting vertical movement of said bars in said slots. To the ends of said bars are bolted, as shown at 25, spreader-plates 26, which are curved in the center to extend snugly around the spreader-tube, are then bolted to the end of said bars 24, and are then continued along the sides of vertical scraper-plates 27. The ends of said spreader-plates are beveled, as shown at 28, those of the upper plates being sloped downwardly outward, while those of the lower plates are sloped upwardly outward. Through said scraper-plates are secured pins 29, the upper pairs of which rest upon the beveled ends of the upper spreader-plates 26, while the lower pairs support the beveled ends of the lower spreader-plates. The engagement of these pins with the beveled ends serve to continually push the scraper-plates outward at the top, and the weight of the lower spreader-plates serves to push the scraper-plates outward below the top. Thus in all cases the outer edges of said scraper-plates are firmly pressed against the inner wall 5. At the same time the necessary freedom is allowed to the parts to expand or contract with changes of temperature. It will now be seen that the movement of the damper will scrape off soot which may have been deposited upon the inner wall 5, thus keeping the inner wall of the boiler constantly free from soot, so that there is no loss in conduction of heat from the flue to the boiler through said inner wall. The soot thus scraped off falls into the flue and thence to

the stove, where it may be easily collected and removed in the usual manner.

I claim—

1. A domestic boiler comprising inner and outer walls, the inner wall forming a flue for the products of combustion from the stove, a radially-movable scraper for said inner wall supported on said boiler, and means for operating the same from the outside of the boiler, substantially as described.

2. A domestic boiler comprising inner and outer walls, the inner wall forming a flue for the products of combustion from the stove, a radially-movable scraper rotating about the axis of said inner wall, and means for operating the same from the outside of the stove, substantially as described.

3. A domestic boiler comprising inner and outer walls, the inner wall forming a flue for the products of combustion from the stove, a longitudinal scraper arranged in contact with said inner wall, a central spreader upon which said scraper is supported to turn therewith but radially movable relative thereto, and means for turning said spreader about its axis, substantially as described.

4. A domestic boiler comprising inner and outer walls, the inner wall forming a flue for the products of combustion from the stove, a central spreader having slots, bars extending horizontally through said slots, spreader-plates supported by said bars and having beveled ends, scraper-plates having pins engaging the beveled ends of the bars and in contact with the inner wall of the boiler, and means for turning said spreader-tube about its axis, substantially as described.

5. A domestic boiler comprising inner and outer walls, the inner wall forming a flue for the products of combustion from the stove, a spreader on the axis of the inner wall, a vertical series of spreader-plates carried by said spreader-tube, the lower plates of the series being vertically movable, said spreader-plates having beveled ends, scraper-plates having pins engaged by said beveled ends and having edges in contact with the inner wall, and means for turning said spreader-tube about its axis, substantially as described.

6. A domestic boiler comprising inner and outer walls, the inner wall forming a flue for the products of combustion from the stove, a longitudinal scraper arranged in contact with said inner wall, a central spreader upon which said scraper is supported, a damper and an operative connection between said damper and said spreader-tube whereby the turning of the damper turns said tube, substantially as described.

7. A domestic boiler comprising inner and outer walls, the inner wall forming a flue for the products of combustion from the stove, a central spreader, spreader-plates carried thereby, scraper-plates supported by said spreader-plates against the inner wall of the boiler, a damper and an operative connection between said damper and said spreader-tube whereby the turning of the damper turns said tube, substantially as described.

8. A domestic boiler comprising inner and outer walls, the inner wall forming a flue for the products of combustion from the stove, a central spreader having slots, bars extending horizontally through said slots, spreader-plates supported by said bars and having beveled ends, scraper-plates having pins engaging the beveled ends of the bars and in contact with the inner wall of the boiler, a damper and an operative connection between said damper and said spreader-tube whereby the turning of the damper turns said tube, substantially as described.

9. A domestic boiler comprising inner and outer walls, the inner wall forming a flue for the products of combustion from the stove, a spreader on the axis of the inner wall, a vertical series of spreader-plates carried by said spreader-tube, the lower plates of the series being vertically movable, said spreader-plates having beveled ends, scraper-plates having pins engaged by said beveled ends and having edges in contact with the inner wall, a damper and an operative connection between said damper and said spreader-tube whereby the turning of the damper turns said tube, substantially as described.

In witness whereof I have hereunto set my hand in the presence of two subscribing witnesses.

HANS A. MILLER.

Witnesses:
A. A. PAUL,
W. R. BURRESS.