

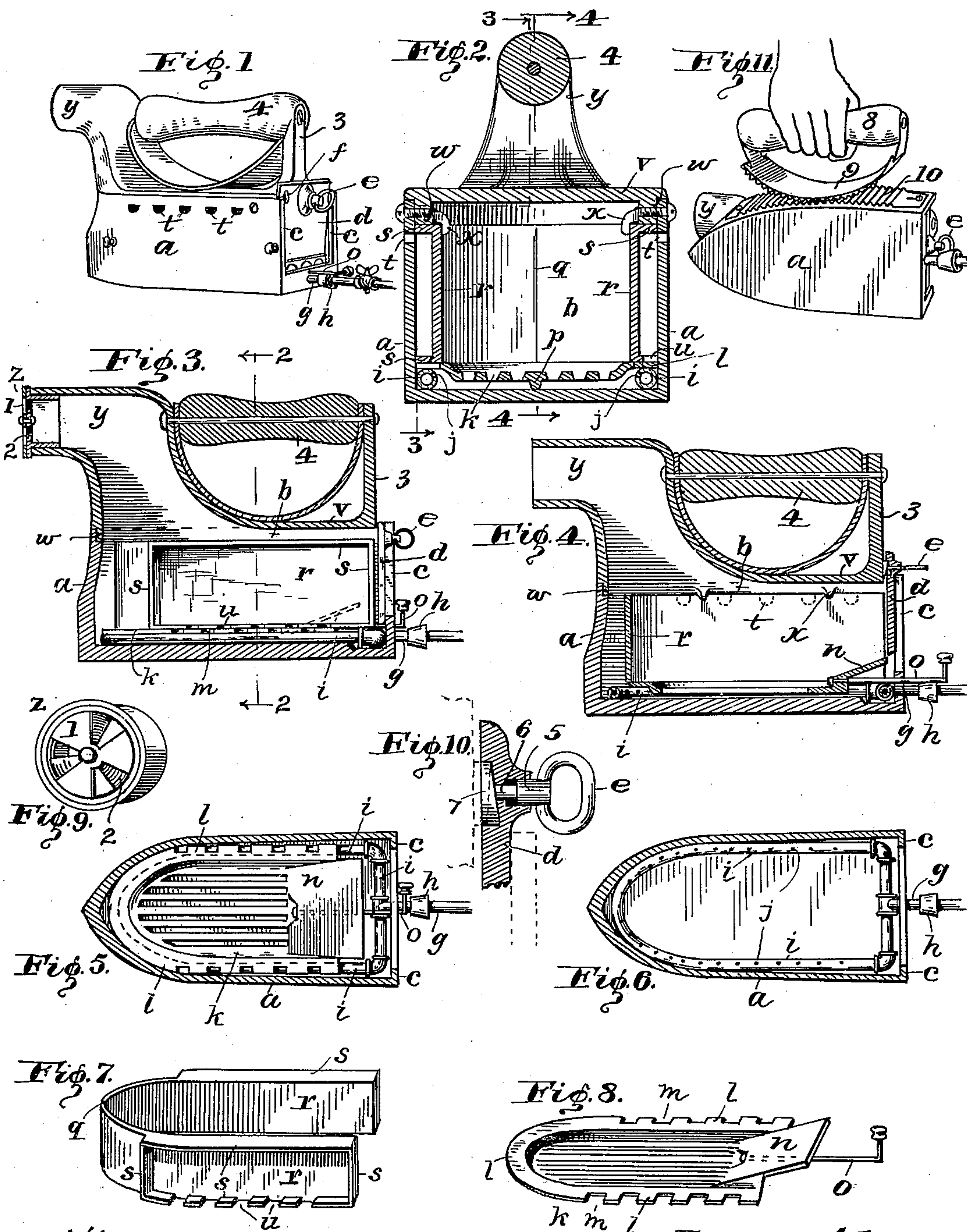
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J. A. MINTURN.  
SAD IRON.

(Application filed Apr. 5, 1899.)

(No Model.)



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# UNITED STATES PATENT OFFICE.

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## SAD-IRON.

SPECIFICATION forming part of Letters Patent No. 636,346, dated November 7, 1899.

Application filed April 5, 1899. Serial No. 711,881. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH A. MINTURN, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Sad-Irons, of which the following is a specification.

The object of this invention is to provide a sad-iron which will embody within itself a chamber which will diffuse the heat properly to the iron, whereby the latter will remain heated for a long time, and to provide means whereby a solid fuel, such as charcoal, can be burned in the iron to produce the heat, or a gas can be burned instead of the solid fuel, or in which both the solid and the gaseous fuels can be burned simultaneously.

Another object of my invention is to provide a grate-bar which can be shaken to remove the ashes from the solid fuel down into a position under the grate-bars, where they can be blown out of the hollow iron.

Another object of my invention is to provide a sad-iron which will be thoroughly efficient and practical and which can be produced at a moderate cost.

To attain the desired objects, the invention consists of a sad-iron embodying novel features of construction and combination of parts, substantially as disclosed herein.

Figure 1 represents a perspective view of my sad-iron; Fig. 2, a vertical section on the dotted line 2 2 of Fig. 3; Fig. 3, a longitudinal section on the dotted line 3 3 of Fig. 2, showing the near side of the iron removed to disclose the interior construction of the iron; Fig. 4, a longitudinal section on the dotted line 4 4 of Fig. 2; Fig. 5, a horizontal section of the iron with the lining of the fire-pot removed to show the grate-bar plate; Fig. 6, a like section with the grate-bar plate removed to show the underlying gas-burner; Fig. 7, a perspective view of the fire-pot lining; Fig. 8, a perspective view of the grate-bar plate; Fig. 9, a perspective view of the damper shown in section in the snout of the iron in Fig. 3; Fig. 10, a detail in vertical section of the door or end gate of the iron, showing the cam fastening or lock; and Fig. 11, a perspective view of the fluting devices in opera-

tive positions to clearly show the manner of using for fluting.

Referring to the drawings, *a* designates the body of the iron, which is of usual shape or form and is made hollow to form a chamber *b*, having at one end the guides formed by a single outer flange *c* at each side, against which is fitted and slides the end gate or door *d*, having the handle *e* and air-supply openings *f* near the upper edge thereof. Leading into the chamber under the door *d* is the gas-supply pipe *g*, having the mixer *h*, of usual form and construction, for adding the requisite quantity of air to the gas for complete combustion. The outer end of the pipe *g* will be connected with any suitable gas-supply, preferably through a flexible tube next to the iron. (Not shown, but of usual and well-known construction.) The pipe *g* inside of the chamber *b* connects with a pipe *i*, which passes around the chamber, lying on its bottom against the side walls thereof, as clearly shown in Fig. 6. This pipe has openings *j* at an approximate upward inside angle of forty-five degrees with the horizontal plane passing through the center of the pipe. This constitutes the gas-burner, the gas being lighted as it issues from the pipe through the openings *j*. To deflect the gas-flame and throw it and the heat down against the bottom of the iron and also to shield the openings from ashes when charcoal or other hard fuel is burned in the chamber and also to provide a grate-bar or series of them to support the coal-fire, I provide the grate-bar plate *k*. The bottom is slotted longitudinally to form the grate-bars, and above these bars, but connected with them by walls of suitable curvature to deflect the gas-flame, is the flange *l*, which rests upon the pipe *i*, and thereby supports the grate-bar plate. This flange has the notches *m*. The flat horizontal and slotted bottom of the plate *k* extends only a little more than half of the length of the plate from the front, and the remaining rear portion is inclined upwardly to form the base-flue *n* for the supply of air at the base when the door *d* is raised. The length of the grate-bar plate *k* over all is less than the length of the chamber, to permit of a reciprocating



longitudinal movement or "shaking" of the plate to jostle the ashes down. This shaking is imparted to the plate through a handle *o*, which is swiveled to the plate *k* and has its outer end cranked and provided with a suitable knob. The maximum inward and outward adjustments of the grate-bar plate will be held by dropping the cranked end of the handle over onto the pipe *g* against the inner or outer end of the mixer, respectively, for the two positions of the plate, the handle being straight up when in position for shifting the grate. The grate will have the longitudinal central underside rib *p*, which rests upon the bottom of the chamber and supports the middle of the grate-bar to keep it from warping and also provides a partition to permit the ashes under the grate to be blown out of one side at a time.

Resting on the flange *l* is the fire-pot lining *r*, preferably separated at *q* into two parts for convenience of manufacture. The two opposite outer sides are provided with the laterally-projected flange *S*, forming a rectangular wall for inclosed compartments between the lining and the sides of the iron when the lining is in position. Leading through the sides of the iron into the chambers thus formed are the openings *t*, and the lower flange of the inclosure, the one resting on the flange *l* of the grate-bar plate, is provided with the notches *u*, which register at certain positions of the adjustable grate-bar plate *k* with the notches *m* in said flange *l*, thereby providing air-supply openings to the iron along the sides of same. These side openings for the supply of air are desirable when hard fuel, like charcoal, is being burned; but when gas is used they are not wanted. By moving the grate-bar plate in the maximum distance the air-openings at the sides will be closed, as shown in Fig. 3, and by moving the plate out the air-passages will be opened.

The cover *v* of the iron has the under side flange *w*, which extends down inside of the side walls, as shown in Fig. 2, and prevents the withdrawal of the fire-box lining. The flange is bolted to the sides of the iron, as shown in Fig. 2. Hooked lugs *x*, integral with the flange *w* and extending onto the lining, may be used to more securely retain the lining. The snout *y* of the iron is of usual construction and is formed integral with the cover, and as the draft obtained through an opening suitable for hard fuel is too great for burning gas I will provide the detachable damper *z*, consisting of the two radially-slotted wheels 1 and 2, rotarily mounted on a common axis and adapted to be turned to cause the solid portions of one wheel to close the openings in the other, as desired, this device having a sleeve to fit into the end of the snout. The cover *v* also has the rear end post 3, between which and the snout the handle 4 is fixed.

Referring now to the door *d*, the handle *e*,

previously mentioned, has an integral sleeve portion 5, into the bore of which the stem 6 of a disk 7 is fastened. This disk has a sloping inner side made by a thickening of one edge of the disk, and it is seated in a depression or socket in the door, which also has a correspondingly-sloping bottom, whereby in one position the outer face of the disk will be flush with the inside face of the door; but when the disk is turned a half-revolution, bringing the thick side of the disk over the shallow side of the socket, the disk will be forced out, thereby providing a means, when the door is elevated to a position shown in Figs. 1 and 4, with the disk 7 against the post 3, of impinging the door between the disk and the flanges *c*, thereby locking it in place.

I provide in connection with my iron fluting devices which consist of the separate handle 8, to which is connected the curved fluting-plate 9, which operates in connection with the fluting-plate 10, which plate 10 is secured to the side of the iron.

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

1. In a sad-iron, a hollow body, a tubular gas-burner on the bottom of the body adjacent to its side walls inside, a grate-bar plate sliding on the tubular burner and having a depressed middle portion to deflect the gas-flame, said plate over the tubular burner having notched openings at intervals, means for reciprocating the grate-bar plate and for holding it in in or out position, a fire-box lining resting on the grate-bar plate over the tubular burner and having openings to register at one adjustment of the grate-bar plate with the openings in the latter, air-chambers between the fire-box lining and the side walls of the iron, said walls having openings to the outside, and the hollow top of the iron for carrying off the products of combustion, substantially as described.

2. In a sad-iron, a hollow body having side and end openings for the admission of air, a vertically-sliding door to open and close the end opening, a side lining separated by flanges from the sides of the iron to form air-chambers, the bottom flanges of the lining having air-openings through them, a plate having reciprocating movement under the lining, said plate being elevated above the bottom of the chamber in the hollow body and having slots between the side lining of the iron to form grate-bars, the said plate having openings to register at certain positions of the reciprocating grate-bar plate with the openings of the flanges of the side lining of the iron, and means for reciprocating the grate-bar plate and locking it, substantially as described.

3. In a sad-iron, a hollow body having side and end openings for the admission of air and a top opening or flue for the discharge of waste products of combustion, a vertically-sliding door to open and close the end opening, said



iron-body having flanges at the end opening forming runs for the sliding door and a post on the opposite side of the door from the flanges, said door having a socket with a bottom oblique to its sides, a cam seated in said socket and a spindle extending through the door to the opposite side of the latter, said cam being adapted by rotating the spindle to be brought into contact with the post to force the door against the flanges on its opposite side and lock it, substantially as described and specified.

4. In a sad-iron, a hollow body having side and end openings for the admission of air, the side openings being near the top of the iron, a vertically-sliding door to open and close the end opening, conduits inside of the iron leading from the side air-openings and discharging near the bottom of the iron, a tubular gas-burner on the bottom of the iron, inside, having discharge-openings protected from filling with ashes by an overhanging part, substantially as described and specified.

5. In a sad-iron, a perforated tubular gas-conductor, a hollow body within which the tubular gas-conductor is located, a gas-mixer located outside of the hollow body, a flanged plate with a depressed slotted bottom to form

grate-bars and an upwardly-inclined end, said plate resting and sliding on the gas-conductor and having air-openings through the portions above the gas-conductor, a fire-box lining inside of the hollow body having lateral outside flanges which form rectangular chambers between the walls of the iron and the fire-box lining, the walls of the iron having openings to the outside atmosphere and the bottom flanges of the fire-box lining having openings to register with the openings in the sliding grate-bar plate at certain adjustments of the latter, a handle swiveled to the grate-bar plate having a cranked outer end to be turned down against the gas-mixer to lock the grate-bar plate, a door to close the rear end of the iron having a cam-lock as described, and a hollow top to the iron for carrying off the products of combustion, substantially as specified and shown.

In witness whereof I have hereunto set my hand and seal, at Indianapolis, Indiana, this 17th day of March, A. D. 1899.

JOSEPH A. MINTURN. [L. S.]

Witnesses:

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FRANK W. WOERNER.