June 29, 1926. 1,590,245

H. A. KOENIG

VAPOR SADIRON

Filed July 12, 1922

Fig. 1.

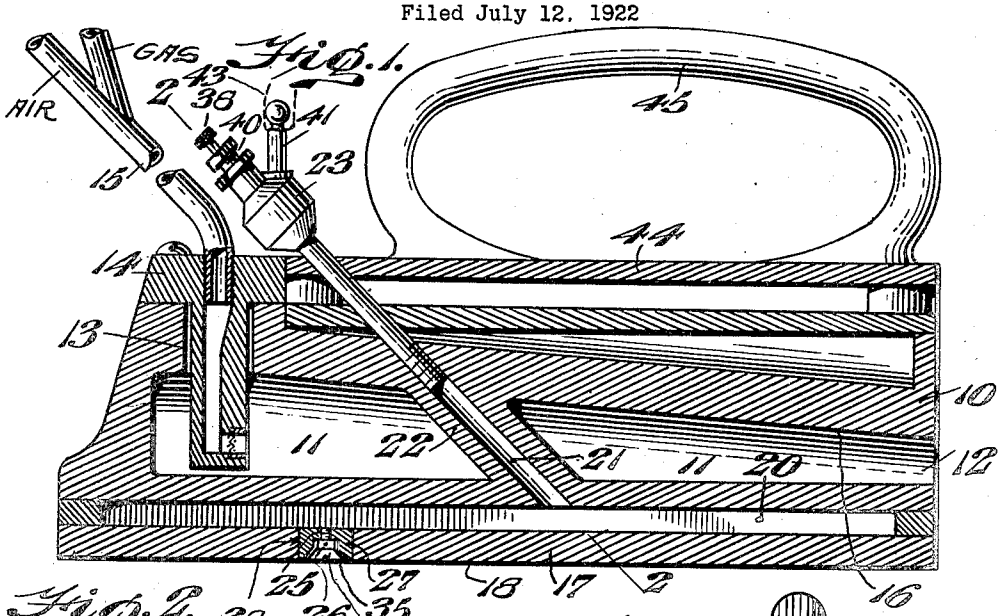


Fig. 2.

ON LINE 2-2, FIG. 1.

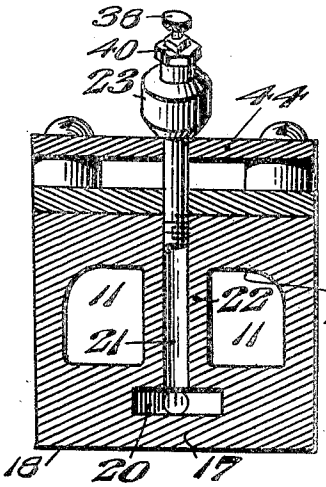


Fig. 3.

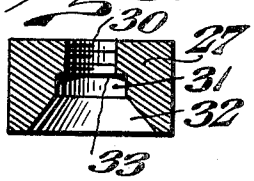


Fig. 4.

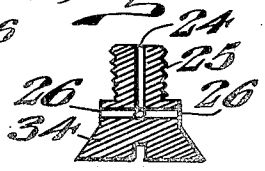


Fig. 7.

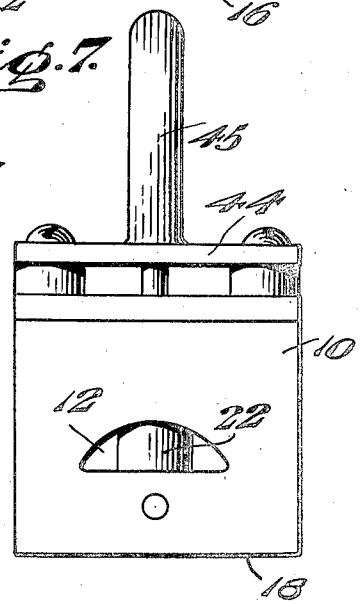


Fig. 5.

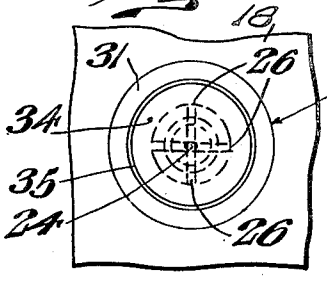
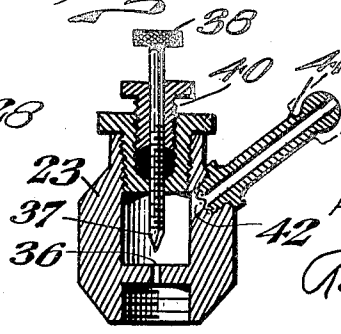


Fig. 6.



INVENTOR

Harry A. Koenig.

BY

Robert Mann Bau.

ATTORNEY

Patented June 29, 1926. 1,590,245

UNITED STATES PATENT OFFICE.

HARRY A. KOENIG, OF PHILADELPHIA, PENNSYLVANIA.

VAPOR SADIRON.

Application filed July 12, 1922. Serial No. 574,373.

Some of the objects of the present invention are to provide a pressing iron embodying a moistening means for more effectively carrying out the pressing operation; to provide a means for generating a saturated vapor in a gas iron for pressing purposes; to provide means for introducing a vapor beneath the working face of a sad iron; to provide means for supplying water in predetermined proportioned quantities to a hot blast sad iron and transforming the water into a vapor in accordance with working conditions; and to provide other improvements as will hereinafter appear.

In the accompanying drawings, Fig. 1 represents a sectional elevation of a vapor-gas sad iron embodying one form of the present invention; Fig. 2 represents a section on line 2—2 of Fig. 1; Fig. 3 represents a sectional detail of one part of the vapor discharge nozzle; Fig. 4 represents a sectional detail of the cooperating nozzle part; Fig. 5 represents a bottom plan of the nozzle; Fig. 6 represents a detail in sectional elevation of the water control valve; and Fig. 7 represents a rear elevation of the sad iron.

Referring to the drawings, one form of the present invention comprises a sad iron body 10, of suitable size and shape for the purpose intended, having an axially arranged chamber 11 formed therein extending substantially the length of the body 10, and communicating at the rear of the body with an outlet 12 which forms an escape for waste products of combustion. At the toe or front portion of the body 10, the chamber 11 is in communication with an inlet opening 13 which is arranged to receive a burner 14 of the blast type supplied with a suitable air and gas mixture under pressure through a pipe 15 from a source of supply.

In order to deflect and concentrate the heating flame upon the floor of the chamber 11, the upper wall 16 thereof is formed as an inclined surface converging towards the outlet 12. The chamber 11, therefore, gradually decreases in volume from the inlet end to the outlet end with the result that a maximum uniform heating of the bottom 17 of the body takes place.

For the purpose of supplying moisture, in the form of a water vapor, to the working face 18 of the body 10, a passage 20 is formed in the bottom 17, longitudinally of the body 10 and closed at each end. This passage 20 is in communication with an inlet channel 21 formed in an angularly disposed pipe member 22, which is preferably cast integral with the body 10 and extends across the chamber 11 to the top portion of the body 10 where its channel 21 is threaded to receive a valve casing 23 through which the supply of water is arranged to pass and be controlled. The passage 20 is also in communication with a port 24 which is axially bored for a portion of the length of a spreader screw 25 to communicate with a plurality of openings 26 radially disposed about the screw 25. The screw 25 forms one part of a nozzle of which a bushing 27 is the other part, this latter being secured in a hole 28 with a driving fit. This bushing 27 has a threaded opening 30 to receive the threaded end of the screw 25, a bore 31 slightly larger in diameter than the threaded portion of the screw 25, and an outwardly flaring cone-like counter-bore 32 terminating flush with the working face 18 of the iron. An annular seat 33 is provided in the bore 31 to receive an annular shoulder upon the screw 25 to properly locate the parts in operative position. The head of the screw 25 is shaped in cone-like form 34 corresponding to the contour of the counter-bore 32 but the dimensions are such that in assembled condition there is an annular space provided between the bushing 27 and the head of the screw 25 which forms an annular discharge slot 35 directly in the working face 18 of the body 10. Preferably the nozzle parts are located in the toe portion of the iron so that the water supplied to the iron receives a maximum heating effect before leaving the passage 20.

As a means for regulating and controlling the supply of water, the valve casing 23 is provided with an inlet opening 36 controlled by a needle valve 37, arranged to be adjusted in the usual manner by an exterior wheel 38. The stem of the valve 37 is packed to prevent leakage by any suitable type of stuffing box 40. A hose connecting piece 41 is secured to the valve casing 23 and is provided with a filter screen 42 to prevent dust and the like from entering the casing 23 to clog the valve. A hose 43 leads to a suitable source of water under pressure.

The body 10 is provided with a top plate 44 having a handle 45 for manipulating the iron. This plate 44 serves to assist in insulating the hands of the user from the heat

of the combustion chamber, and in the present construction carries the valve casing 23 at the proper location, though this is only a detail of construction for convenience in the present arrangement.

In the operation of the iron the burner 14 discharges its blast into and lengthwise of the combustion chamber 11 so that the flame while striking the floor of the chamber is also deflected downward by the wall 16 to concentrate and give the maximum heat where necessary to heat the ironing surface. As the passage 20 is located in the bottom 17 it is subject to the full heating effect and is maintained at a relatively high temperature. The water supply valve 37 is opened to permit the entrance of a definite small quantity of water, generally a drop by drop supply rather than a continuous flow, and this supply can be regulated in accordance with working conditions. The entering water traverses the channel 21, and as the pipe member 22 is located in the path of the hot blast, the water is initially heated and enters the passage 20 bordering upon steam. In the passage 20 it is subjected to a still further heating and becomes transformed into a saturated vapor which can escape only by way of the small port 24. The area of this port 24, together with the lateral openings 26, serves to retard and break up the discharging vapor so that the supply to the working face of the iron is uniform and carries just enough moisture to promote efficient pressing operations.

From the foregoing it will be apparent that a complete unitary vapor supplied gas iron has been provided wherein the required amount of moisture can be brought to the surface of the iron for pressing operations. Furthermore the amount can be varied and proportioned to meet different operating conditions so that efficient and satisfactory results are always possible. It will further be noted after the entering water has been converted into steam or changed to a substantially steam condition that the vapor so formed is thereafter not brought into contact with any metal of other surfaces of a lower temperature which would produce condensation at any places within the iron body. As a result the moisture laden vapor reaches the outlet nozzle 35 in its predetermined proportioned saturated condition and the working surface of the iron receives substantially the exact amount of moisture for best working conditions.

In connection with the water conveying member 22, it should be noted that its position transverse of the chamber 11 causes the heating flame to be divided with the result that instead of being concentrated at substantially one point of the bottom of the iron it is diffused and distributed in such a manner as to produce a uniform heating of the bottom.

While only a single form is shown in which this invention may be embodied, it is to be understood that the invention is not limited to any specific construction, but might be applied in various forms without departing from the spirit of the invention or the scope of the appended claims.

Having thus described my invention, I claim:

1. In a vapor sad iron, a body provided with a heating chamber having a rearwardly inclined top wall and a passage below said chamber, a burner located at the front end of said heating chamber and arranged to project a flame longitudinally of said chamber and rearwardly against said top wall, a water conveying member extending transversely of said chamber in the path of said flame and communicating with said passage, means for regulating a supply of water to said member, and a discharge nozzle in the working face of said body at the toe end and communicating with said passage.

2. In a vapor sad iron, a body provided with a heating chamber having a rearwardly inclined top wall and a passage below said chamber, a burner arranged to project a flame into said chamber and rearwardly against said top wall, a water conveying member extending transversely of said chamber in the path of said flame and communicating with said passage, means for regulating a supply of water to said member, and a discharge nozzle in the working face of said body at the toe end and communicating with said passage, said nozzle comprising means for retarding the discharge of vapor from said passage.

Signed at Philadelphia, in the county of Philadelphia, State of Pennsylvania, this 7th day of July, 1922.

HARRY A. KOENIG.