

F. A. HOYA.
HYDROCARBON SAD IRON.
APPLICATION FILED MAR. 18, 1907.

937,070

Patented Oct. 19, 1909.
3 SHEETS—SHEET 1.

Fig. 1.

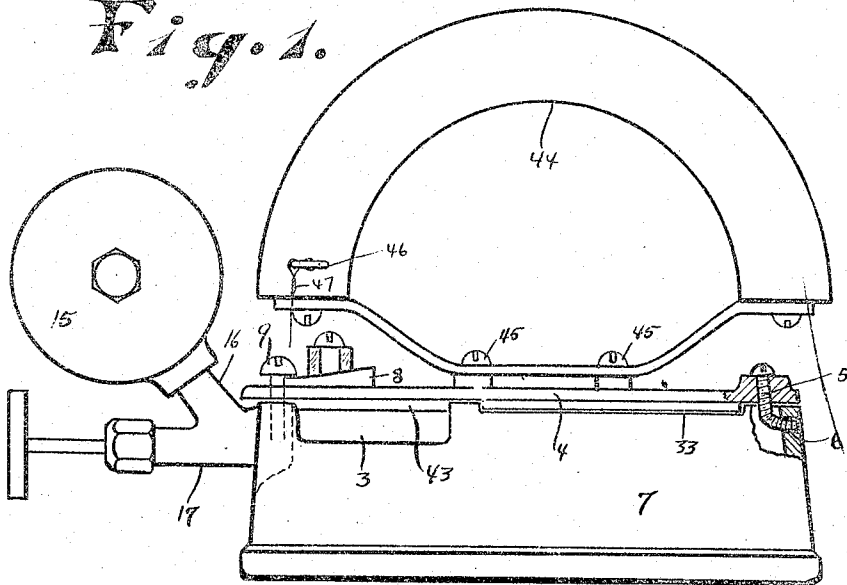
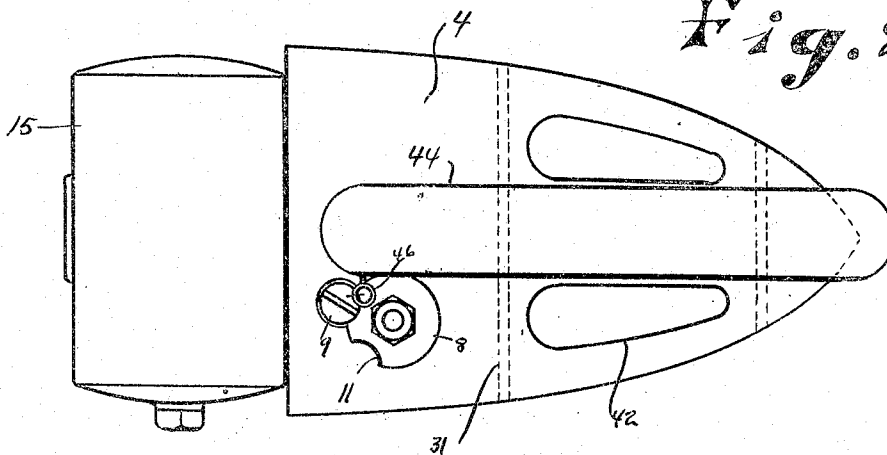


Fig. 2.



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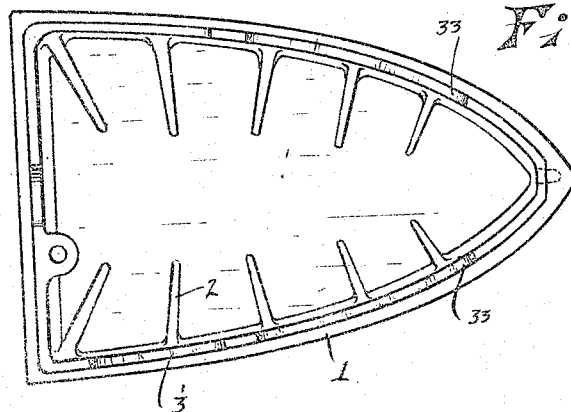
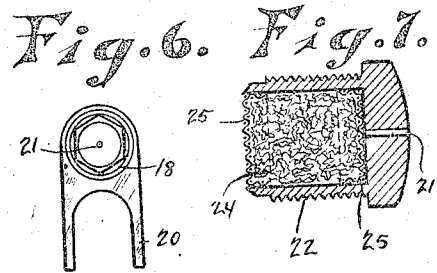
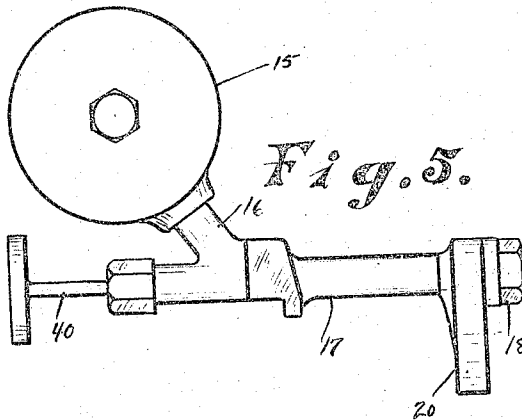
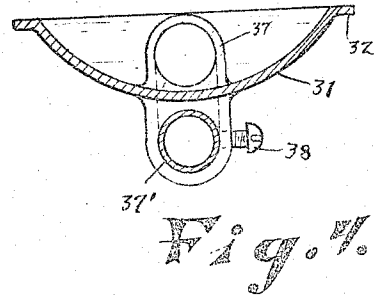
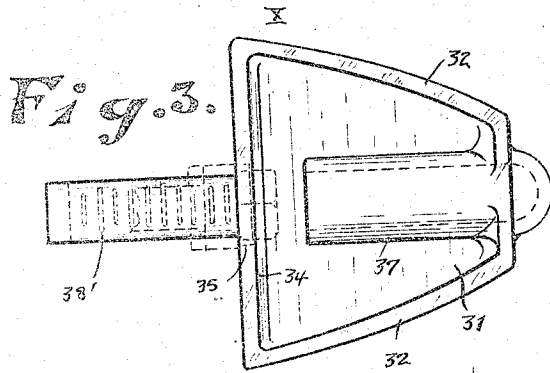
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HYDROCARBON SOD IRON.
APPLICATION FILED MAR. 18, 1907.

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3 SHEETS—SHEET 2.

937,070.



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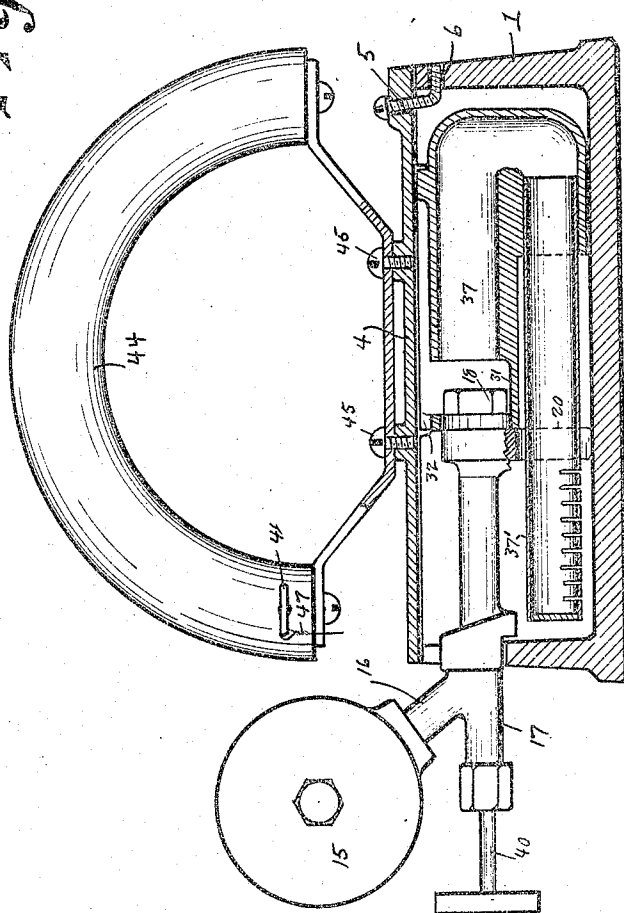
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3 SHEETS—SHEET 3.

Fig. 9.



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UNITED STATES PATENT OFFICE.

FERDINAND A. HOYA, OF MILWAUKEE, WISCONSIN, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO MODERN SPECIALTY COMPANY, OF MILWAUKEE, WISCONSIN, A CORPORATION OF WISCONSIN.

HYDROCARBON SAD-IRON.

937,070.

Specification of Letters Patent.

Patented Oct. 19, 1909.

Application filed March 18, 1907. Serial No. 362,887.

To all whom it may concern:

Be it known that I, FERDINAND A. HOYA, a citizen of the United States, residing at Milwaukee, county of Milwaukee, and State of Wisconsin, have invented new and useful Improvements in Hydrocarbon Sad-Irons, of which the following is a specification.

My invention relates to improvements in self-heating hydro-carbon sad irons.

The object of my invention is to provide a form of construction which will be adapted for use either with alcohol, gasoline, or any other hydro-carbon oil adapted for similar purposes, and in which the parts are separable at points which will permit their removal for an initial heating, for cleaning the iron, etc., and will also permit them to be reassembled without difficulty by inexperienced persons.

My invention also has for an object the construction of such a sad iron with a minimum amount of machine work and of inexpensive parts.

A still further object is the utilization of the incoming air currents to carry off the heat which would otherwise radiate to the vicinity of the handle.

In the following description reference is had to the accompanying drawings in which,—

Figure 1 is a general side view of a sad iron embodying my invention. Fig. 2 is a general top view of the same. Fig. 3 is a detail top view of the mixer. Fig. 4 is a cross sectional view of the same. Fig. 5 is a side view of the nozzle. Fig. 6 is a detail front view of the nozzle fork. Fig. 7 is an enlarged sectional view of the nozzle tip. Fig. 8 is a detail top view of the base. Fig. 9 is a longitudinal sectional view of the sad iron.

Like parts are identified by the same reference characters throughout the several views.

A hollow base 1 preferably of triangular form is provided with interior heat absorbing ribs 2, and a notch 3 at one side for the admission of air. A cap plate 4 is adapted to rest upon and cover the base. It is provided with a hook 5 which engages in an aperture 6 in the front wall of the base at the apex, and near one rear corner, a cam 8, rotatably mounted on the cap plate, is adapted to engage a headed post 9 connected

with the base and preferably comprising a screw, threaded into a socket in the base and adjustable therein. The cam 8 is provided with a notch 11, adapted to permit the screw head to pass through it when the cap plate is removed or replaced and the upper face of the cam is wedge-shaped in cross section so that when the cap plate is in position the cam may be rotated to move it with a wedging action under the screw head and thus cooperate with the hook 5 in holding the cap plate in position.

A storage tank 15 is provided with an inclined tubular arm 16 connecting with a nozzle tube 17, which nozzle tube is adapted to rest in a notch formed in the rear wall of the base with the front end of the nozzle tube projecting within the base and provided with a nozzle tip. The nozzle tube 17 is provided with fork arms 20 near the nozzle tip, which fork arms are adapted to straddle the burner tube as hereinafter explained. The nozzle tip comprises a tubular cap piece having a central delivery aperture 21, the side walls of the tubular portion being screw threaded at 22 and adapted for threaded engagement with the interior surface of the tube 17. A filling of asbestos, wool or similar material 24 is inserted in the tubular cavity of the nozzle tip and held in position by a pair of gauze screens 25.

A shallow forwardly tapering dish 31 is provided with flanges 32 on its side margins which rest in notches 33 in the wall of the base near its front end portion directly underneath the cap plate. This dish is provided with a rear wall 34 having an aperture 35 adapted to receive the nozzle tip, as indicated in dotted lines in Fig. 3, and immediately in front of this tip an open ended mixer tube 37 is located which extends forwardly along the bottom of the dish 31 and through the front end wall where it turns downwardly and doubles upon itself underneath the dish 31 and is provided with an open end adapted to receive the burner tube 37', this tube being secured in position by a set screw 38 so as to project rearwardly along the central portion of the sad iron base. This burner tube is provided with a series of slits 38' on its under side adapted to permit the escape of gas in the ordinary manner.

It will be understood that a jet of hydro-

carbon vapor discharged through the nozzle aperture 21 will be delivered into the mixing tube 37 and mixed with air entering said tube from the dish 31 during its passage to the burner tube. The dish covers only the forward portion of the burner tube leaving the nozzle tube 17 exposed to the heat of the burner flame, whereby hydrocarbon oil from the tank or reservoir 15 will be vaporized before reaching the nozzle aperture 21.

40 is an ordinary valve stem provided with a needle valve controlling the delivery of the combustible fluid.

Referring to Fig. 2 it will be observed that the cap plate is provided with apertures 42 adapted to admit air to the dish 31. The passage of this air through the cap plate and dish keeps the plate and the forward end of the handle continuously cool, the under surface of the rear portion of the cap plate being provided with a protecting shield 43 composed of non-heat conducting material, whereby the rear portion of the plate is prevented from receiving an objectionable amount of heat from the burner.

44 is an ordinary handle rigidly secured to the cap plate by screws 45.

46 is an ordinary screw eye provided with a nozzle cleaning tool 47 of fine wire adapted to enter the nozzle aperture 21. By means of the screw eye this wire is normally attached to the handle of the sad iron so that it will always be present and ready for use in case the nozzle aperture should become clogged.

It will be observed that by releasing the cam 8 from the headed post 9 and removing the cap plate, it is then possible to remove the tank and burner tube and to separately remove the dish 31, mixer tube and burner, these parts being freely movable as soon as the cap plate is released. This feature is of great importance in facilitating keeping the parts clean and in good condition. Especially the feature of having the nozzle tube and mixer tube readily separable and of having both these parts removable from the base without the necessity of releasing any attachments except those connected with the cap plate. This feature of having the parts readily separable also facilitates heating the burner, nozzle tube and the reservoir preparatory to lighting the burner, since by removing the several parts a pad saturated with hydrocarbon oil may be placed in the base and the nozzle tube and reservoir will be loosely over it and covered by the cap plate so that by igniting the pad sufficient heat will be absorbed by the reservoir and nozzle tube to vaporize or partially vaporize the liquid after which the pad can be removed and the parts assembled while hot and the burner ignited, while the fluid is still vaporized in the nozzle.

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

1. In a sad iron of the described class the combination of a hollow base, a removable cap plate therefor, a reservoir provided with a nozzle tube and nozzle projecting loosely through one wall of the base, a dished plate interposed between the forward portion of the cap plate and the base and loosely engaging the nozzle, a mixing tube on the dished plate having an open end adapted to receive vapor discharged from said nozzle,—said mixing tube being doubled backwardly below the plate,—and a burner tube in communication with the lower end of the mixing tube; said dished plate and nozzle tube being held in position by the cap.

2. In a sad iron of the described class the combination of a hollow base, a removable cap plate therefor, a reservoir provided with a nozzle tube and nozzle projecting loosely through one wall of the base, a dished plate interposed between the forward portion of the cap plate and the base and loosely engaging the nozzle, a mixing tube on the dished plate having an open end adapted to receive vapor discharged from said nozzle,—said mixing tube being doubled backwardly below the plate,—and a burner tube in communication with the lower end of the mixing tube; said dished plate and nozzle tube being held in position by the cap, and said nozzle tube having forked arms straddling the burner tube.

3. In a sad iron of the described class, the combination of a hollow base, a removable cap plate therefor apertured in its front portion, an air receiving dished plate underneath the apertured portion of the cap plate and provided with flanges resting upon the side walls of the base and held in position by the cap plate, a mixing tube on the dished plate having one end extended rearwardly along the underside thereof, a burner connected with the rearwardly extending portion of the mixer tube, a nozzle arranged to discharge into an opening at the upper end of said tube, and a reservoir connected with said nozzle.

4. In a sad iron of the described class, the combination of a base provided with raised walls and a hollow interior, a member having an air receiving cavity in its upper surface and lateral projections engaging in recesses in the base walls, a mixing tube extending forwardly in said cavity, and rearwardly along the under surface of said member, a nozzle entering said cavity at a distance from the mixing tube and arranged to discharge vapor through an opening therein, a burner connected to the lower end portion of the mixer, a cap covering said base and means for admitting air to said cavity.

5. In a sad iron of the described class, a

chambered base having a notch in its rear
wall adapted to receive a nozzle tube, an
air directing member loosely covering the
forward end of said base and having a cav-
ity in its upper surface, a mixing tube and
burner rigidly connected with said member,
a nozzle tube extending through the notch
in the rear wall of the base and provided
with forked arms straddling the burner, a
nozzle tip at the end of said nozzle tube en-
tering the cavity in the air directing mem-
ber and adapted to discharge into an open-
ing in the mixing tube, a cap covering the

base and provided with apertures for the
admission of air to said cavity, and a fasten- 15
ing adapted to lock the cap and base to-
gether, said cap being also adapted, when
locked, to hold the nozzle and the mixing
tube rigidly in position within the base.

In testimony whereof I affix my signature 20
in the presence of two witnesses.

FERDINAND A. HOYA.

Witnesses:

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