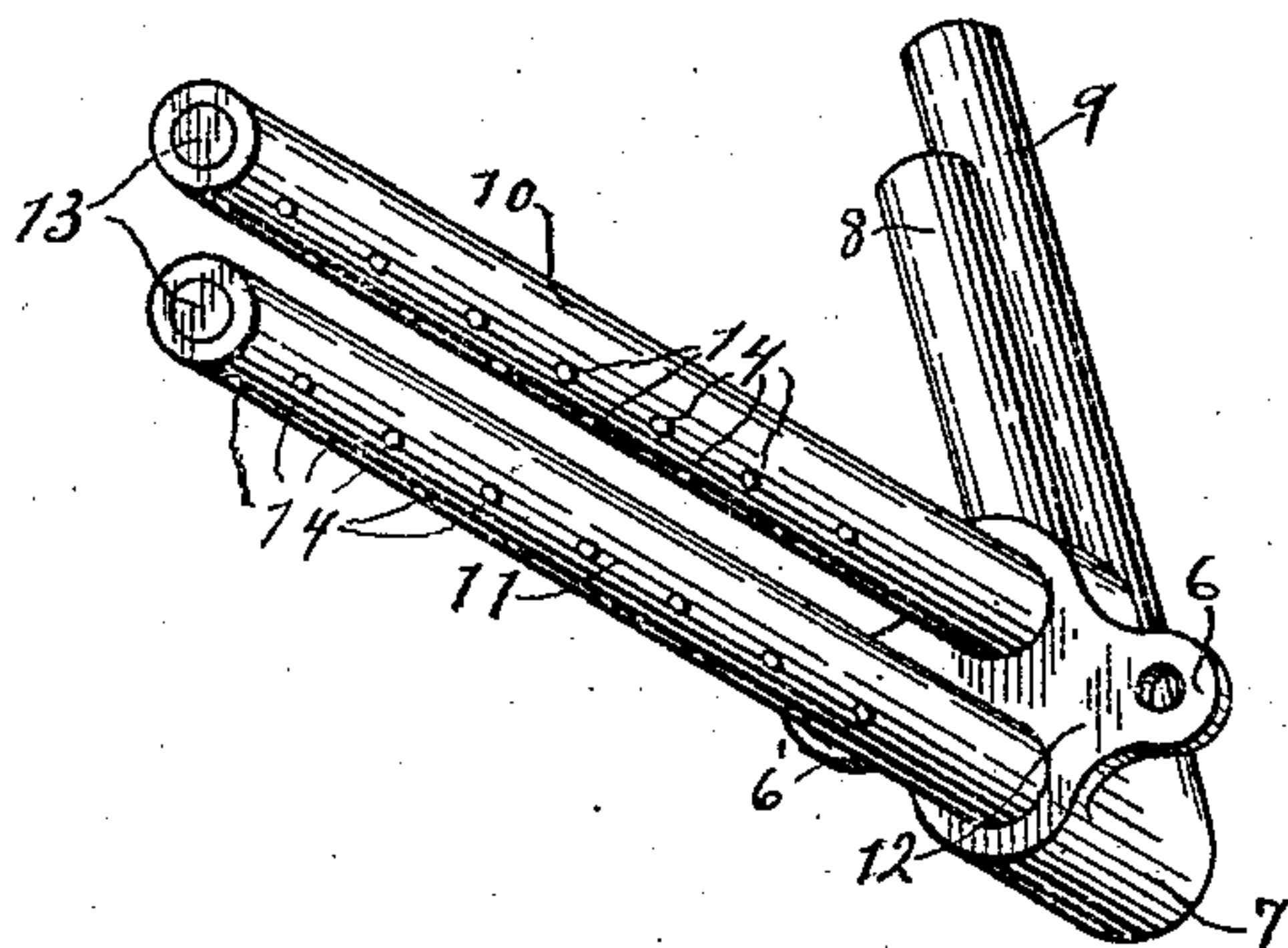
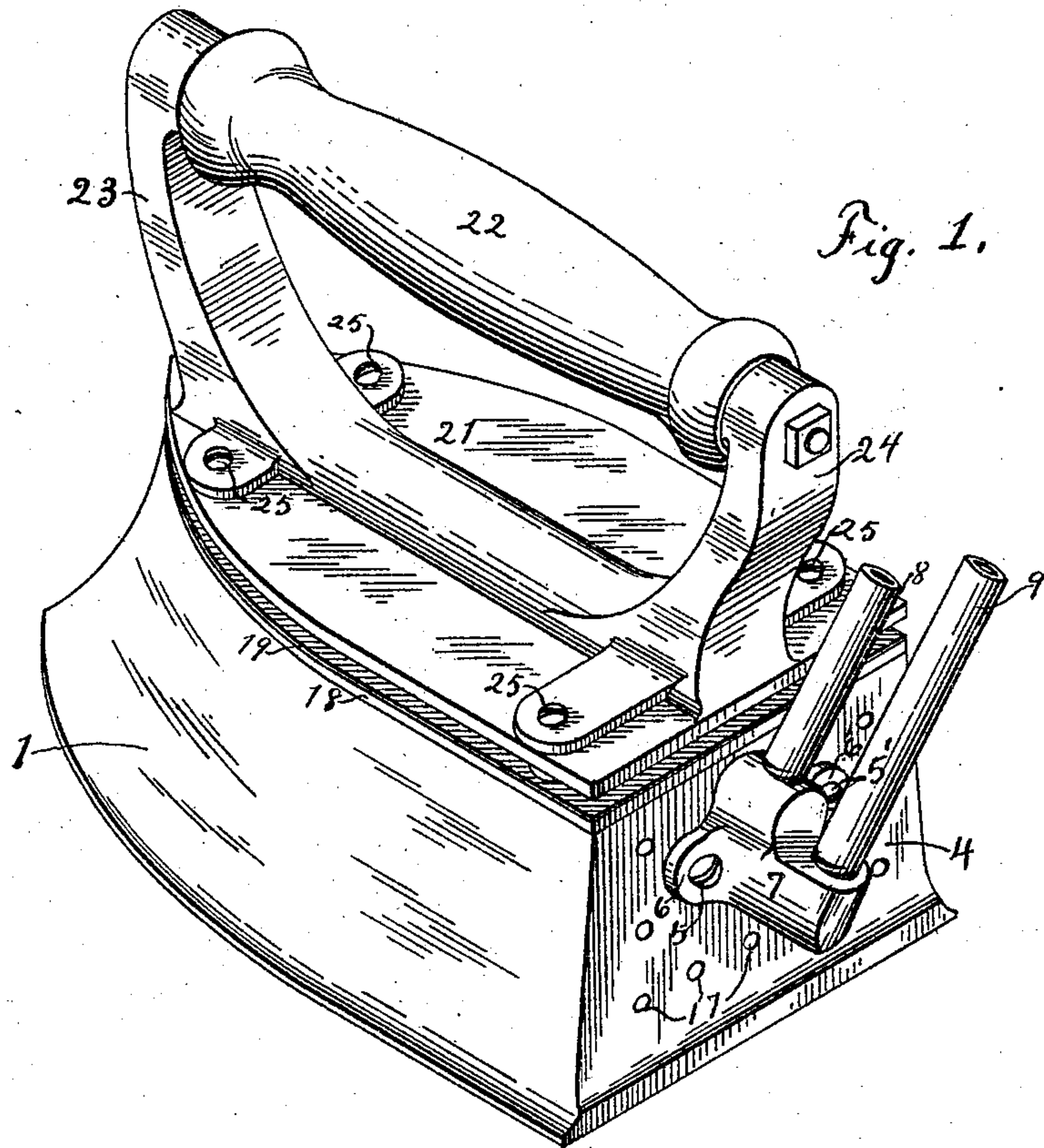


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SAD IRON.  
APPLICATION FILED FEB. 8, 1909.

929,545.

Patented July 27, 1909.  
2 SHEETS—SHEET 1.



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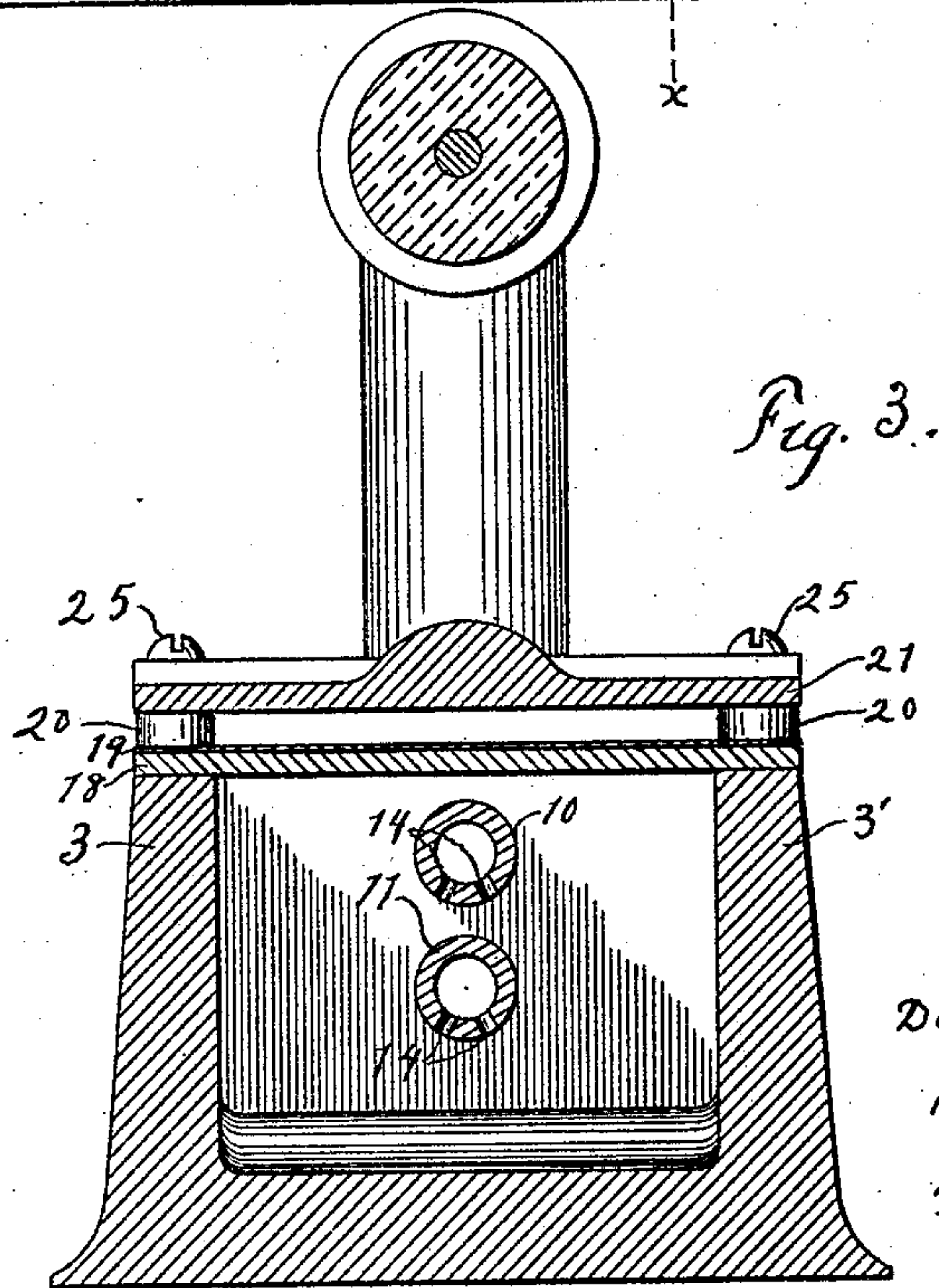
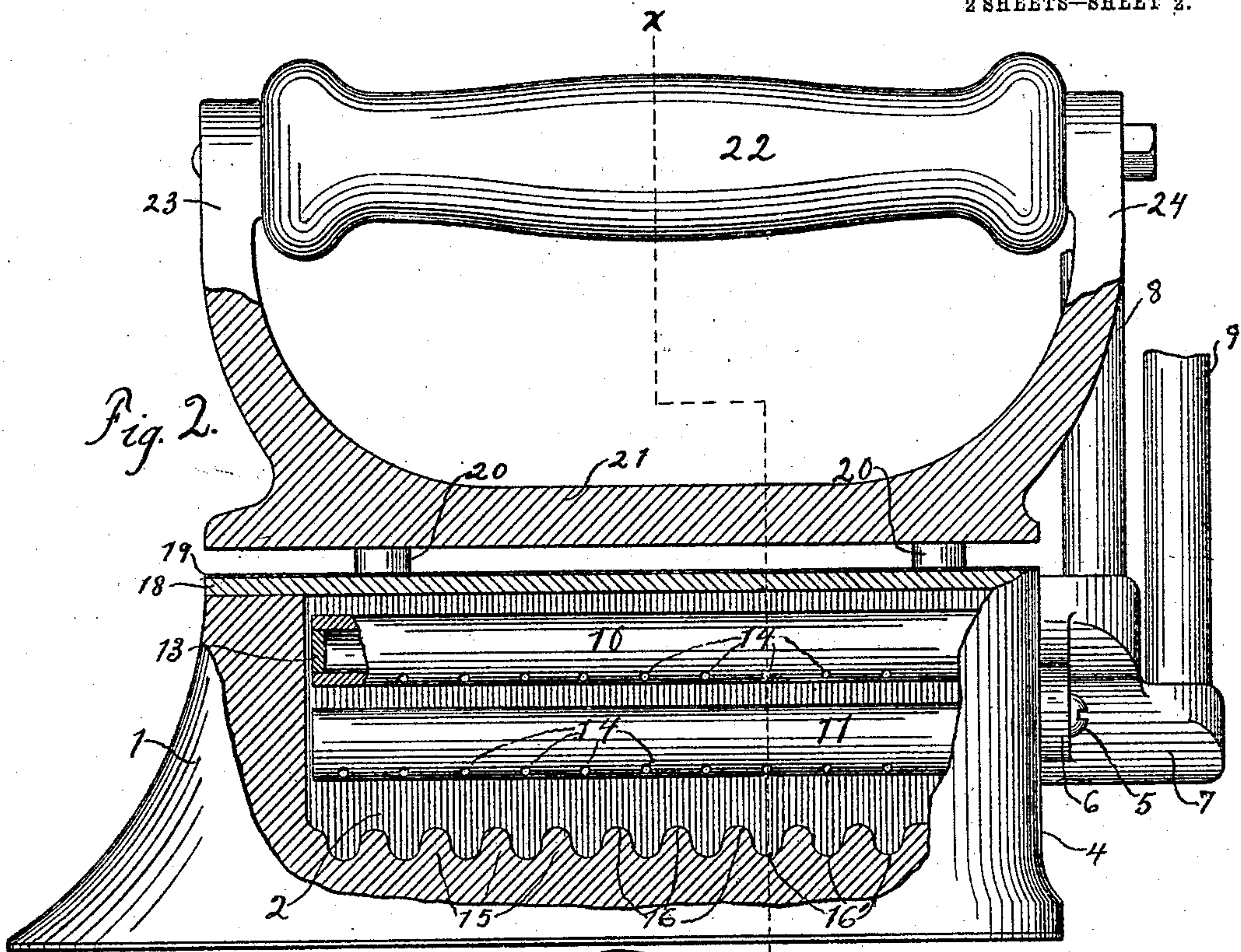
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# UNITED STATES PATENT OFFICE.

DAVID BRIGHTBILL, OF LEBANON, PENNSYLVANIA.

## SAD-IRON.

No. 929,545.

Specification of Letters Patent.

Patented July 27, 1909.

Application filed February 8, 1909. Serial No. 476,603.

*To all whom it may concern:*

Be it known that I, DAVID BRIGHTBILL, a citizen of the United States, residing in the city of Lebanon, county of Lebanon and State of Pennsylvania, have invented certain new and useful Improvements in Sad-Irons, of which the following is a specification.

My invention relates to sad-irons and especially to that class of sad-irons in which means are provided for maintaining an iron body in a continuously heated condition by the application of an inflammable gas thereto; and the object of my invention is to provide a device of this class wherein gas and air supply pipes are longitudinally mounted, one above the other, within the combustion chamber, both of said pipes being provided with a plurality of small perforations or vents formed in corresponding pairs therein, whereby the gas and air may be mixed in comparatively small quantities and a plurality of small flames thus directed obliquely downward upon a plurality of corrugations formed on the upper face of the bottom of the iron-body, the purpose of the arrangement being to effect economy in the use of the heating medium, both by increasing the area of the surface whereto the flames are applied, and by distributing the flames as widely as possible over the same.

Another object of my invention is to provide a detachable double-elbowed fitting whereto the gas and air supply pipes are adapted to be rigidly connected and whereby the same may be securely held in their proper coöperative relationship within the body of the iron, and to provide means for readily removing said fitting and pipes from the iron for the purpose of cleaning, repairing, etc., without disturbing the relative positions of said parts.

With the above and other objects in view, the invention consists in the novel construction, combination, and arrangement of parts, as hereinafter fully described, illustrated and claimed.

Figure 1 is a perspective view of a sad-iron embodying my invention. Fig. 2 is a part longitudinal section and part side elevational view of the iron. Fig. 3 is a cross-sectional view thereof on the line  $x-x$  of Fig. 2; and Fig. 4 is a perspective view of the detachable pipe fitting with the pipes connected thereto.

Similar letters and numerals refer to similar parts throughout the several views.

In the embodiment of my invention as shown in the drawings 1 indicates an iron-body having a combustion chamber 2 therein, said chamber being formed by converging side walls 3 3' and a rear end wall 4, which rise at right angles from the bottom of said iron-body. Adapted to be detachably secured to the outer face of the rear end wall 4 by means of screws 5 5' passing through perforated ears 6 6' and engaging with suitable screw-threaded openings (not shown) provided in said wall, is the double-elbowed pipe fitting 7 whereto are rigidly secured an air supply pipe 10 and a gas supply pipe 11, as well as the conduit pipes 8 and 9 communicating with said supply pipes through suitable angular passages formed in said fitting in a manner commonly practiced and well understood. Said air and gas supply pipes 10 and 11 are co-extensive with each other throughout, and are mounted at right angles to the inner face 12 of the fitting 7 and are hence parallel with each other, and through suitable central openings (not shown) in the rear end wall 4 said pipes are adapted to be introduced into the iron-body and by attachment thereto of the fitting 7, made to occupy the central portion of the combustion chamber and to assume a position therein substantially longitudinal of the iron-body, the air supply pipe being directly above the gas supply pipe and in vertical alinement therewith. Said air and gas supply pipes are, moreover, closed at their forward ends by plugs 13, and are provided in the lower portions thereof with a plurality of radially positioned vents 14, said vents being arranged in corresponding pairs, transversely of said pipes, the members of said pairs being located on opposite sides of the vertical median plane common to the axes of said pipes, and the vents in the air supply pipe being in vertical alinement with the vents in the gas supply pipe. Thus it will be seen that the currents of air and gas expelled from said pipes through said vents are forced obliquely downward and caused to impinge against the bottom of the combustion chamber on either side thereof.

In order to enlarge the heat-conducting surface of the iron and thus enhance its heat-absorbing capacity, I form the upper face of the bottom of the iron-body which



constitutes the bottom of the combustion chamber with a plurality of corrugations 15, the ridges 16 and the troughs 16' of which extend transversely of the iron-body, and for the purpose of increasing the area of flame contact I arrange the troughs of said corrugations in vertical alinement with the vents in said air and gas supply pipes.

Owing to the method employed in my iron for mixing the elements of combustion, I find it possible to maintain the flames within the combustion chamber without the aid of openings in the side walls thereof which are ordinarily considered indispensable to irons of this class. Such side wall openings are in most instances objectionable; and mainly so, because the heat thrown out thereby ascends to the hand of the operator, making it very difficult, if not altogether impossible to retain a continuous grip on the handle, without the protection of an intervening shield; and although the shields used in devices of this kind vary widely in form and construction, yet all have the effect of adding structural complications, and rendering the irons in which they occur more or less clumsy and unwieldy. In my improved iron I entirely avoid such side openings, inasmuch as I find it entirely adequate for the purposes of ventilation, to provide a number of comparatively small openings in the rear end wall of the combustion chamber, such as are indicated by 17. These openings also serve to admit a flame to the combustion chamber when it is desired to ignite the combustible elements therein.

18 designates a sheet of asbestos or other non-heat-conducting material, forming a cover for the iron-body and inclosing the combustion chamber. 19 is a thin plate of comparatively rigid material imposed thereon as a reinforcement, and superimposed on said plate and spaced therefrom by washers 20 is the base plate 21 carrying the handle 22 between the uprights 23 and 24. Said base plate is adapted to be attached to the iron-body by means of screws 25, which pass through marginal openings therein, as well as through the washers 20 and through corresponding openings in the reinforcing plate 19 and the asbestos sheet 18, and engage with screw-threaded openings provided in the upper face of the side walls thus securely clamping and connecting all of said parts to each other and to the iron-body.

In operation, gas and air under pressure are admitted to their respective supply pipes within the combustion chamber through the conduit pipes 8 and 9 and through the passages in the double-elbowed fitting 7, and the flow of said elements is controlled by means of the usual cocks which may be either directly attached to said conduit pipes or interposed at any point found most suitable

and convenient in the line of piping and flexible tubing connecting said pipes with the main sources of supply. Through the vents 14 the air and gas are then driven obliquely downward into the troughs of the corrugations on the bottom of the combustion chamber and thus caused to commingle in comparatively small and separate currents in the proportions most suitable for combustion. When the mixture begins to escape from the combustion chamber through the ventilation openings 17, a small flame, such for example as the flame of a burning match is touched to said openings and brought in contact therewith, when all of said small currents within the combustion chamber will become individually ignited and a series of small flames corresponding with the co-operating vents in said gas and air supply pipes will be shot obliquely downward and caused to impinge against the bottoms and sides of the troughs of the transverse corrugations whereby the flames are spread over a large heating surface and the iron thus quickly and thoroughly heated.

Having thus described the invention, what I claim as new is—

1. In a sad-iron, the combination with an iron-body having a combustion chamber therein, of a plurality of corrugations formed transversely of said iron-body on the upper face of the bottom thereof, and a gas supply pipe and an air supply pipe mounted longitudinally of said iron-body within said combustion chamber, said pipes being provided with a plurality of vents arranged in corresponding coöperative pairs, whereby a plurality of flames may be directed obliquely downward into the troughs of said corrugations.

2. In a sad-iron, the combination with an iron-body, a combustion chamber therein having a plurality of corrugations formed on the bottom thereof, of co-extensive gas and air supply pipes longitudinally arranged within said combustion chamber, the air supply pipe being above the gas supply pipe and the same being parallel and in vertical alinement therewith, and said pipes being provided with a plurality of corresponding coöperative radial vents arranged transversely thereof in pairs, the component members of said pairs being on opposite sides of the median plane common to the axes of said pipes, and the vents in the air supply pipe being in vertical alinement with the vents in the gas supply pipe, substantially as described.

3. A sad-iron comprising an iron-body, a combustion chamber therein, a gas supply pipe and an air supply pipe mounted longitudinally of said iron-body within said combustion chamber, said air supply pipe being located above said gas supply pipe and the same being parallel and co-extensive there-



with, a plurality of radial vents formed in the lower portions of said pipes and arranged in pairs transversely thereof, the vents in said air supply pipe being in vertical alinement with the vents in said gas supply pipes, a plurality of corrugations formed transversely of said iron-body on the upper face of the bottom thereof, the troughs of said corrugations corresponding to the vents in said pipes and being in vertical alinement therewith, means detachably connected with the iron-body for rigidly mounting said pipes within the combustion chamber, a plurality of ventilation openings formed in the rear end wall of said combustion chamber, a non-heat-conducting cover on said iron-body inclosing said combustion chamber, a base plate on said cover and spaced therefrom, and a handle on said base plate, substantially as described.

4. In a sad-iron, the combination with the

iron body, the combustion chamber therein provided with rear-wall ventilation openings, the corrugations formed on the upper face of the bottom thereof within the combustion chamber, the cover thereon inclosing said combustion chamber and the handle thereto attached, of gas and air supply pipes arranged longitudinally of said iron-body one above the other within the combustion chamber, and a double-elbowed fitting detachably secured to said iron-body whereto said pipes are rigidly connected and whereby the same may be unitarily removed from said iron-body, substantially as described.

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

DAVID BRIGHTBILL.

Witnesses:

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S. H. BENTZ,

R. J. BOYLE.