

C. STICHLER.
SELF HEATING GAS IRON.
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1,179,971.

Patented Apr. 18, 1916.

Fig. 1.

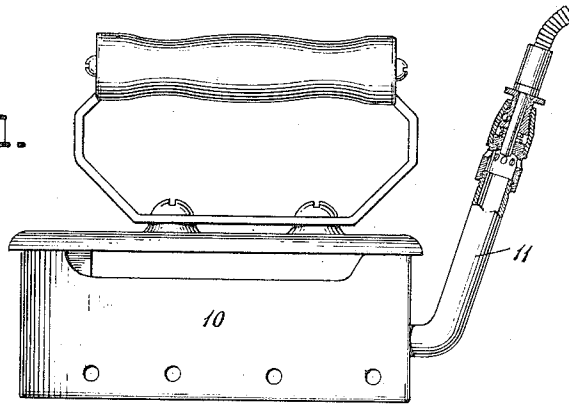


Fig. 2.

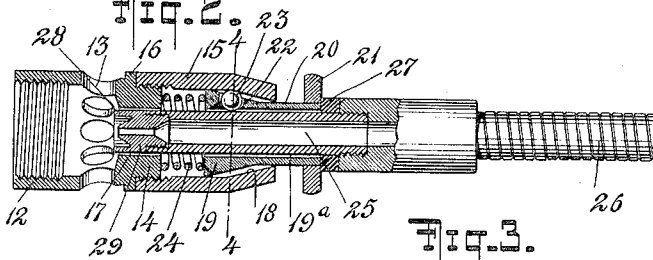


Fig. 4.

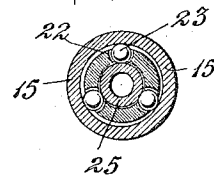


Fig. 3.

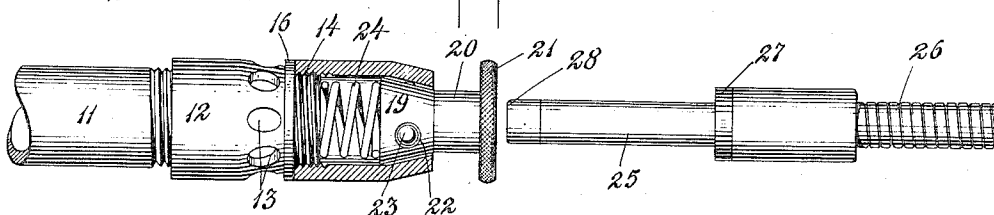


Fig. 5.

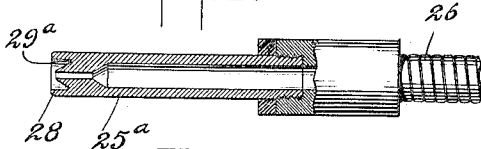


Fig. 6.

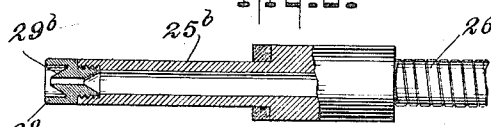


Fig. 7.

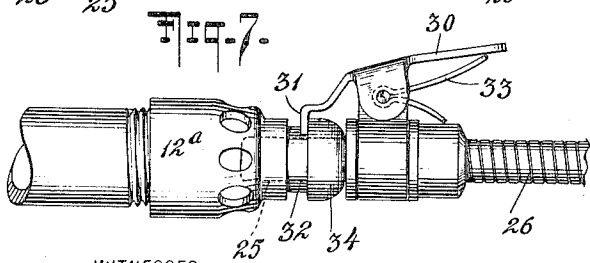
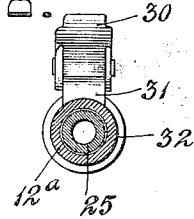


Fig. 8.



WITNESSES

George De Boy
John A. Klenck

INVENTOR

Charles Stichler
BY
Brieson & Knauth
ATTORNEYS

UNITED STATES PATENT OFFICE.

CHARLES STICHLER, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO STRAUSE GAS IRON CO., OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

SELF-HEATING GAS-IRON.

1,179,971.

Specification of Letters Patent.

Patented Apr. 18, 1916.

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To all whom it may concern:

Be it known that I, CHARLES STICHLER, a citizen of the United States, and a resident of the city of Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented a certain new and useful Improvement in Self-Heating Gas-Irons, of which the following is a specification.

My invention relates to self-heating gas irons and has for its object to improve the construction and increase the efficiency of the fuel nozzle of such irons, and to provide a simple and extremely effective means whereby the customary fuel conducting tube may be connected with the burner tube of the iron.

My invention will be fully described hereinafter and the features of novelty will be pointed out in the appended claims.

Reference is to be had to the accompanying drawings which illustrate examples of my invention and in which—

Figure 1 is an elevation partly in section of a gas iron including my improvements; Fig. 2 is an enlarged detail sectional view of the means for connecting the fuel tube with the burner tube of the iron; Fig. 3 is a similar view showing parts disconnected; Fig. 4 is a cross-section on the line 4—4 of Fig. 2; Figs. 5 and 6 are detail sections of different forms of nozzle construction and Figs. 7 and 8 are detail views in elevation and cross-section respectively of another form of my improvement.

In the drawings 10 represents a self-heating gas iron of any type and which is provided with an exteriorly located tube 11 communicating with the burner located in the interior of the body of said iron. An air hood 12 provided with air inlets 13 is attached to the outer end of the tube, preferably so as to be detachable therefrom and serves in the usual manner as a chamber in which the mixing of air and fuel takes place. The said air hood 12 as illustrated is formed with a screw-threaded neck 14 adapted to receive a sleeve 15 and further has an annular flange 16 against which said sleeve 15 is arranged to be screwed, said neck 14 being constructed with an axial passage 17 communicating with the interior of the hood 12, as shown in Fig. 2. The inner surface of the sleeve 15 is inclined at least throughout a part of its extent so as to converge

toward the outer end as indicated at 18, a preferably though not necessarily cone-shaped member 19 being slidably arranged within said sleeve 15 and having a reduced neck 20 extending from its smaller end exteriorly of the sleeve 15 and terminating in an operating head 21. The portion 18 of the sleeve 15 and the outer surface of the cone-shaped member 19 are preferably inclined at the same angle and the said member 19 is formed with a plurality of apertures 22 in which balls 23 are located, the said apertures 22 being so shaped that the balls 23 are freely movable in an outward radial direction against the inner surface of the sleeve 15 but are prevented from dropping entirely through in an inward direction into a passage 19^a extending axially through the member 19 and neck 20. A coil spring 24 is located within the sleeve 15 between the opposed inner ends of the neck 14 and the member 19 and exerts a pressure tending at all times to move the cone-shaped or other member 19 toward the converging portion 18 of the sleeve 15. In this manner the action of the surface 18 always tends to force the balls 23 inwardly toward the axis of the member 19.

As illustrated in the drawings the means for conducting the fuel to the air-hood comprises a nozzle tube 25 adapted to extend through the axial passage 19^a and into the passage 17 of the air hood 12, said tube 25 being located at one end of the usual flexible or other fuel conducting hose 26, the opposite end of which is arranged for connection with a source of fuel supply in any convenient manner. A washer or ring 27 of any suitable material which is a poor conductor of heat such a fiber, asbestos and the like preferably surrounds the tube 25 adjacent to the end of the fuel hose 26 for the purpose to be more clearly brought out hereinafter.

When the parts are connected as shown in Figs. 1 and 2, the pressure exerted by the spring 24 and the action of the surface 18 will cause the balls 23 to project inwardly through the apertures 22 and securely grip the tube 25 and thus firmly secure the same in operative connection with the iron. An attempt to withdraw the tube 25 will cause said balls 23 to move along the surface 18 which owing to the fact that it converges

toward the free end of the sleeve will as a result force said balls more firmly into contact with the tube 25 and prevent withdrawal of the tube 25 in this manner.

When it is desired to disconnect the fuel hose from the iron, it is simply necessary to move the member 19 inward against the tension of the spring 24 by exerting a pressure on the operating head 21 toward the sleeve 15. The balls 23 will in this manner be moved in the reverse direction along the surface 18 which diverges in this direction so that the grip of said balls 23 on said tube 25 will be released and the same thus easily removed or disconnected. It will be seen that the movement of the member 19 is brought about by an inward pressure on the operating head 21 exerted in a natural manner by the person using the iron and that an awkward, unnatural movement of said head 21 for instance, in an outward direction away from the sleeve 15 is not required for this purpose.

When it is desired to connect the hose 26 with the air hood 12 it is simply necessary to insert the nozzle tube 25 into the axial passage 19^a and then exert a pressure to cause the hose 26 and the sleeve 15 to approach each other. This operation will cause the member 19 to be moved inwardly in the sleeve 15 and the opposing effect of the balls 23 to be relieved until the nozzle tube 25 is fully in position with its end in the passage 17, whereupon, if pressure is removed from the hose or the air hood as the case may be, the spring 24 will immediately move the member 19 toward the free end of the sleeve 15 and thus cause the balls 23 to firmly grip said tube 25 and secure it in operative connection with said air hood as shown.

With the present arrangement so far described, the air hood and its connected parts are at all times freely rotatable relatively to the tube 25 so that said air hood may if desired be connected with the burner tube 11 of the iron or adjusted relatively thereto while the tube 25 is in position in the sleeve 15 and member 19 and the hose 26 is connected with the source of fuel supply. The above arrangement prevents twisting of or injury to the hose 26 from this cause or from any other manipulation of the iron or parts thereof. In addition to this the tube 25 rests only on the balls 23 and is spaced from the inner surfaces of the passages 19^a and 17 so that conduction of heat along said tube to the hose 26 is reduced to a minimum and an air space is formed about said tube 25 whereby the same is insulated from the effects of heat radiation. The hose 26 is further protected from the effects of any heat which may be conducted along the sleeve 15, member 19, neck 20 and operating head 21 by the washer 27 of insulating ma-

terial which in the connected condition of the parts is located between the end of the hose 26 and the head 21.

With the present construction in which the nozzle tube 25 is carried by the fuel hose 26 there exists the possibility that when disconnected the free end of the tube 25 may be forcibly impacted against an object and the nozzle or the exit aperture thereof partly or entirely closed by the force of the impact. To prevent this I provide an annular flange 28 which extends beyond and completely surrounds the exit aperture of the nozzle 29 which in the present instance is shown as conical. This flange 28 thus completely protects said nozzle 29 and prevents damage thereto and at the same time owing to the fact that it projects beyond the exit aperture of said nozzle 29, prevents it from coming into contact with any surface and the nozzle aperture from picking up any dirt or other foreign matter from said surface and becoming clogged.

The nozzle tube 25 acts as a reservoir for the fuel issuing from the hose 26 and at all times insures a reliable and constant supply through the nozzle 29. With different kinds of fuel and varying fuel pressures, it is sometimes necessary to have the tube of different dimensions in order to secure the best results, while at other times it is necessary to provide a nozzle having an opening of a predetermined size to secure maximum efficiency. In order to provide for the ready substitution of the particular tube or nozzle which is most satisfactory in each case, the tube 25 may be detachably secured to the hose 26 and the nozzle detachably secured to the tube 25 as shown in Fig. 2. With this arrangement, the nozzle alone or the tube alone may be changed or the nozzle and tube may be disconnected from the hose 26 as a unit thus permitting the proper and most advantageous combination to be secured in each instance in a simple manner necessitating the manipulation of only those parts which are actually involved in the change.

As shown in Fig. 5 the nozzle 29^a and tube 25^a are made integral with each other, the tube 25 being detachably connected with the hose 26 in the same manner as indicated in Fig. 2. In the form illustrated in Fig. 6, the tube 25^b is rigidly secured to or forms part of the hose 26, while the nozzle 29^b is detachably connected with said tube 25^b as in Fig. 2.

In Figs. 7 and 8 the hose 26 is provided with a pivoted pawl 30 having a projection 31 adapted to enter an annular recess 32 formed on the air hood 12^a and whereby the said air hood and the hose 26 are operatively connected together against separation in an axial direction. A spring 33 is provided for maintaining said projection 31 in the recess 32 when the parts are operatively combined,

it being understood that a disconnection thereof may be brought about by simply pressing the pawl 30 against the tension of said spring 33 to remove the projection 31 from the recess 32. The air hood and hose are readily connected together by simply inserting the nozzle tube 25 into said air hood and then pressing the hose and air hood together in an axial direction, an inclined annular surface 34 being provided on the air hood for guiding the projection 31 to the recess 32 as will be readily apparent.

It will be seen that with these constructions the widest range of variation is possible so that the device is capable of use with a maximum of efficiency under all conditions of fuel and fuel pressure. At the same time my improvement provides a simple means for connecting the fuel hose with the iron in a manner to prevent accidental disconnection and to prevent injury to said hose.

While my improvements are particularly adapted for gas irons, it will be obvious that the same may be used in connection with air hoods forming part of other structures.

Various changes in the specific form may be made within the scope of the claims without departing from the spirit of my invention.

I claim:

1. The combination of an air-hood having a reduced axial passage, a sleeve connected with said air-hood and having an interior surface converging toward its outer end, a tubular member having an axial bore in axial alinement with and of substantially the same diameter as said air hood passage, said tubular member being provided with radial apertures, balls in said apertures movable inwardly by said converging surface, a nozzle tube having a substantially constant outer diameter throughout arranged

to extend through the axial bore of said tubular member into said axial passage of the air-hood and adapted to be gripped by said balls, and a fuel conducting hose carrying said nozzle tube and forming a shoulder adapted to engage the outer end of said tubular member to arrest the movement of said nozzle tube into said tubular member.

2. The combination of an air-hood having a reduced axial passage, a sleeve connected with said air-hood and having an interior surface converging toward its outer end, a tubular member having an axial bore in axial alinement with and of substantially the same diameter as said air hood passage, said tubular member being provided with radial apertures, balls in said apertures movable inwardly by said converging surface, a nozzle tube having a substantially constant outer diameter throughout arranged to extend through the axial bore of said tubular member into said axial passage of the air-hood, a fuel conducting hose carrying said nozzle tube and forming a shoulder adapted to engage the outer end of said tubular member to arrest the movement of said nozzle tube into said tubular member and a spring for forcing said tubular member outwardly relatively to said sleeve whereby said balls are forced by said converging surface into engagement with said nozzle tube to lock same against removal, said balls being releasable by an inward movement of said member in said sleeve.

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

CHARLES STICHLER.

Witnesses:

E. LAWRENCE WEBSTER.
IRVIN A. SOUDER.