C. STICHLER.

GAS BURNER ATTACHMENT.

APPLICATION FILED APR. 10, 1915.

1,242,490. Patented Oct. 9, 1917.

Fig. 1.

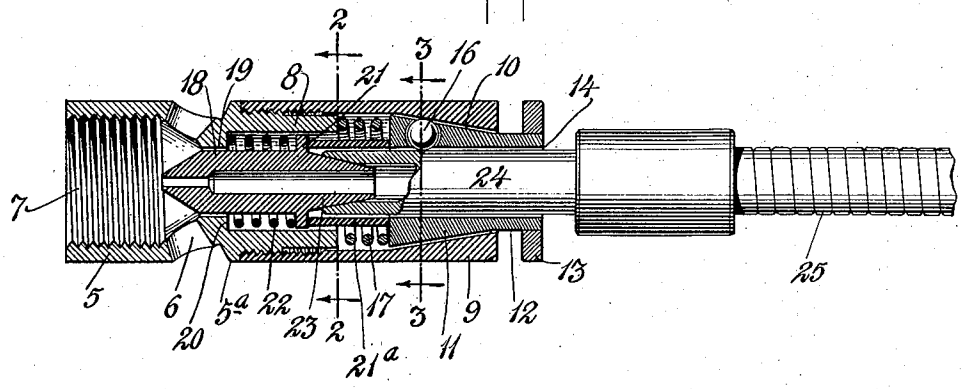


Fig. 2.

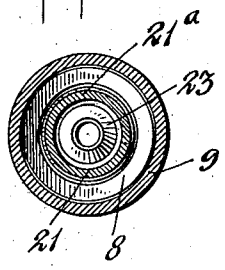


Fig. 3.

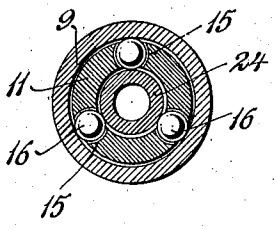
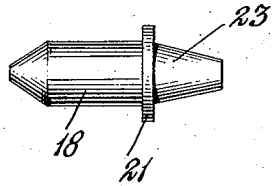


Fig. 4.



WITNESSES

George DeBoo

John A. Ellenstein.

INVENTOR

CHARLES STICHLER

BY

Briesen & Knauth

ATTORNEYS

UNITED STATES PATENT OFFICE.

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

GAS-BURNER ATTACHMENT.

1,242,490. Specification of Letters Patent. Patented Oct. 9, 1917.

Application filed April 10, 1915. Serial No. 20,404.

To all whom it may concern:

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

My invention relates to attachments for self-heating gas irons, gas stoves and the like and has for its object to provide an improved nozzle arrangement and an improved device for operatively connecting the fuel hose or tube with such irons, lamps, stoves and the like. My improvement particularly contemplates a construction in which the efficiency of the iron, lamp, stove or the like is always readily maintained at a maximum point after an initial adjustment has taken place. The following description will clearly set forth my improved construction and arrangement and the novelty thereof will be pointed out in the appended claims.

In the accompanying drawings which illustrate an example of my invention, Figure 1 is a longitudinal section partly in exterior; Figs. 2 and 3 are cross-sections taken respectively on the lines 2—2 and 3—3 of Fig. 1 and Fig. 4 is a detail exterior view of the nozzle.

As shown in the drawings my improvement comprises an air-hood 5 having the customary air inlets 6 and internally screw-threaded at 7 for detachable connection with the burner tube of a gas iron, gas lamp, gas stove or the like. The said air hood 5 is further formed with an externally screw-threaded neck 8 adapted to receive a sleeve 9 and in addition is provided with an annular flange 5^a against which said sleeve 9 is arranged to be screwed. The inner surface of the sleeve 9 in the illustrated example, is inclined at least throughout a part of its extent so as to converge toward its outer end as indicated at 10, a preferably, though not necessarily cone shaped coupling member 11 being slidably arranged within said sleeve. The said coupling member 11 is formed with a reduced continuing collar 12 which extends from its smaller end exteriorly of the sleeve and terminates in an operating head 13 as shown in Fig. 1, an axial passage 14 extending through said collar 12 and coupling member 11 for the purpose to be more fully described hereinafter. The portion 10 of the sleeve 9 and the outer surface of the coupling member 11 if cone shaped are preferably inclined at the same angle and said coupling member 11 is formed with a plurality of apertures 15 in which balls 16 are located. The apertures 15 are so shaped that the balls 16 are freely movable within certain limits in an outward radial direction against the inner surface 10 of the sleeve 9 and are also adapted to project inwardly into the passage 14 without however, being permitted to drop entirely through said apertures 15 in an inward direction. A coil spring 17 is located within the sleeve 9 between the opposed ends of the neck 8 and the coupling member 11 and exerts a pressure tending at all times to move the cone shaped or other coupling member 11 toward the converging portion 10 of the sleeve 9. With this arrangement the action of the surface 10 always tends to force the balls 16 inwardly toward the axis of the coupling member 11 as will be readily apparent. In the construction as illustrated a nozzle 18 is movably located in the neck 8 and projects through an opening 19 into the air hood 5, the said opening 19 being in axial alinement with the passage 14 and formed in a transverse partition 20 located interiorly between the said air hood 5 and the externally screw threaded neck 8 as shown in Fig. 1. The nozzle 18 is provided with an annular flange 21 arranged to slidably fit within said externally screw threaded neck 8 to properly maintain the nozzle 18 in position therein during its movements in an axial direction. In order to provide a solid connection between the nozzle 18 and the coupling member 11 a bushing 21^a is located between the flange 21 and coupling member 11 as shown in Fig. 1. The said flange 21 is also adapted to form an abutment for one end of a coil spring 22 the other end of which engages the partition 20 whereby said nozzle is under a pressure tending to force it against the bushing 21^a and toward the coupling member 11 when the parts are operatively connected as in Fig. 1. Beyond the flange 21 the nozzle is formed with a tapering end portion 23 extending into the bushing 21^a and adapted, in the assembled condition of the parts, to fit within the interiorly beveled end of a tube 24 forming

part of or connected with the usual fuel conducting hose 25 which communicates with a source of fuel supply. The tube 24 extends through the passage 14 and is held against removal therefrom by the pressure of the balls 16 which exert a gripping action thereon owing to the fact that the spring 17 exerts a pressure on said coupling member 11 toward the surface 10 which latter owing to its inclination forces said balls 16 into gripping engagement with said tube 24. An attempt to withdraw the tube 24 from the passage 14 will cause said balls 16 to move along the surface 10 which owing to the fact that it converges toward the free end of the sleeve 9 will force said balls more firmly into contact with the tube 24 and thus prevent withdrawal thereof in this manner. At the same time the spring 22 will maintain the tapered end 23 of the nozzle 18 in firm engagement with the tube 24, it being understood that the bushing 21ª is of a length to permit this, so that a fuel tight connection between those parts is in this manner secured at all times when the parts are in the position shown in Fig. 1. When it is desired to disconnect the fuel hose from the iron, lamp, stove or the like, it is simply necessary to move the coupling member 11 inward against the tension of the spring 17 by exerting a pressure on the operating head 13 toward the sleeve 9. This operation will cause the balls 16 to move in the reverse direction along the surface 10 which diverges in this direction so that the grip of the balls 16 on the tube 24 will be released whereby the latter is free to be withdrawn from the passage 14 and from engagement with the tapered end 23 of the nozzle 18. It will be seen that the inward pressure on the head 13 is exerted in a natural manner by the person desiring to disconnect the fuel hose and that an awkward, unnatural movement of said head, for instance in an outward direction, is not required to attain the desired result. When the fuel hose has been disconnected the nozzle 18 remains in the neck 8 or, in other words, in the air hood structure and is maintained in proper axial alinement therein or against tilting and jamming by the action of the flange 21 and the opening 19 and the operation of the bushing 21ª, as will be readily apparent. The bushing 21ª in cooperation with said flange 21 and coupling member 11 also serves as a stop for preventing the nozzle from leaving the neck 8 when the fuel hose is not in operative connection with the iron, stove or the like, it being understood that in some cases another suitable form of stop may be provided if desired.

When it is desired to connect the fuel hose with the air hood 5, the tube 24 is inserted into the passage 14 and pressed toward said air hood. This will cause the coupling member 11 to be moved inwardly in the sleeve 9 and the opposing effect of the balls 16 to be relieved until the tube 24 is fully in position with its end over the tapered portion 23 of the nozzle 18, whereupon if pressure is removed from said tube 24 or the air hood as the case may be, the spring 17 will immediately move the coupling member 11 toward the free end of the sleeve 9. This action will cause the balls 16 to again firmly grip said tube 24 as before described and thus firmly secure said tube and the fuel hose in operative connection with said air hood as shown in Fig. 1.

With the arrangement described, it will be seen that the fuel hose and the nozzle are two separate elements the latter of which always remains in operative combination with the air hood in such a way that the fuel tube may be operatively and securely combined therewith by a simple linear movement in an axial direction. In structures to which the present invention relates and particularly in a self-heating gas iron it is important to have the exit opening of the nozzle properly adjusted with respect to the type of fuel being used and the pressure at which it is furnished, in order to secure maximum efficiency for instance in the iron. When the iron is originally delivered it may be found necessary by the expert sent to properly adjust the same to either enlarge or diminish the exit opening of the nozzle which accompanies the arrangement, in order to provide for a proper operation a fact which can best be determined accurately by a test under the direction of said expert. If the nozzle forms a part of the fuel hose and it becomes necessary to replace the latter it very often happens that in purchasing a new hose a nozzle having a different size exit opening will be procured thus resulting in an inefficient operation with the new hose or necessitating a complete re-adjustment by an expert. With the present arrangement this is entirely avoided as the original nozzle always remains in combination with the iron ready to be connected with any subsequent fuel hose which may of necessity or otherwise be provided. By interposing the bushing 21ª between the flange 21 and the coupling member 11 a solid connection between these elements is secured so that the device may be caused to rest upon the head 13 during the operation of adjusting the exit opening of the nozzle 18 which is usually done by placing a suitable implement over or in said opening and then striking said implement with a hammer whereby said opening is either reduced or increased in diameter as the case may require. With this arrangement it is thus unnecessary to disassemble the whole structure when such adjustment of the nozzle opening becomes

necessary or desirable. At the same time the means for securing the fuel hose in operative connection with the iron or the like effectively prevents the same from becoming disarranged or unintentionally disconnected from any cause. With the illustrated arrangement for connecting the fuel hose with the air hood, the air hood and its connected parts and the fuel hose and its connected tube are at all times capable of rotation relatively to each other so that said air hood may be attached to its coöperating burner tube or adjusted relatively thereto while the tube 24 is in position in the passage 14 and the fuel hose is connected with the source of fuel supply. At the same time the described arrangement also prevents twisting of or other injury to the fuel hose from this cause or from any other manipulation of the iron, lamp, stove or the like. In addition to this the tube 24 rests only on the balls 16 when in operative position and is spaced from the inner surfaces of the passage 14 so that conduction of heat along said tube to the fuel hose is reduced to a minimum and an air space is formed about said tube whereby the same is insulated from the effects of heat radiation.

It will of course, be understood that in some cases means different from that shown and described may be utilized to maintain the tube 24 in connection with the nozzle 18. The exit end of said nozzle 18 is preferably made tapering so that the nozzle will readily find the opening 19 in case it leaves same from any cause, thus providing for a proper and ready connection between the tapering end 23 and the tube 24 and a proper positioning of the nozzle under all conditions. It will, of course, be understood that the exit end of said nozzle may be other than tapering if desired, this being particularly true if the bushing 21[a] or other stop is used to engage the flange 21 for limiting the outward movement of said nozzle. In some cases the spring 17 may be omitted and the spring 22 alone relied on to properly operate the coupling member 11. When the spring 17 is included it provides for a more speedy operation of the gripping device when inward pressure on the tube 24 ceases and furthermore permits the spring 22 to be kept under compression whereby an absolutely tight connection between the portion 23 of the nozzle 18 and the tube 24 is always assured.

My improvement is simple in construction and effective in operation and assures a maximum of efficiency in the iron, lamp, stove or other structure with which it is combined.

Various changes in the specific forms shown and described 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, an independent nozzle carried by said air hood and slidably mounted therein, a fuel tube detachably engaging said nozzle and communicating therewith, and means whereby said nozzle and tube are detachably maintained in engagement with each other at the opposed ends.

2. The combination of an air hood, a nozzle carried by said air hood and independently slidable therein, a fuel tube independent of said nozzle and having an end in detachable engagement with the opposed end of said nozzle and communicating therewith, and means for maintaining the ends of said fuel tube and nozzle in detachable engagement with each other.

3. The combination of an air hood, a coupling member connected therewith, a fuel tube detachably held by said coupling member, a nozzle carried by and movable in said air hood independently of said fuel tube, said nozzle being connected and in frictional engagement with said fuel tube and means for maintaining said nozzle in frictional connection with said fuel tube.

4. The combination of an air hood, an independent nozzle loosely mounted in said air hood and resiliently movable in an axial direction, and an independent fuel tube detachably engaging said nozzle and arranged to place same under an axial compression whereby said nozzle and fuel tube are maintained in connection with each other.

5. The combination of an air hood, a nozzle slidably mounted therein and having a tapering inlet end, a fuel tube adapted to fit over said tapering end whereby said tube and nozzle are connected together, a spring for maintaining said tapering end in said fuel tube, and means for maintaining said fuel tube in its operative position.

6. The combination of an air hood, a sleeve connected therewith and having an interior surface converging toward its outer end, a tubular member movable in said sleeve and provided with radial apertures, a fuel tube arranged to extend into said tubular member, balls in said radial apertures adapted to be forced inwardly by said converging surface whereby said tube is gripped, an independent nozzle carried by said air hood and adapted to extend into said fuel tube and communicate therewith and a spring for pressing said nozzle toward said fuel tube, whereby said nozzle and fuel tube are maintained in connection with each other.

7. The combination of an air hood, a nozzle carried by said air hood and independently slidable therein, a fuel tube arranged to engage said nozzle and communicate therewith, means for maintaining said fuel tube and nozzle in connection with each

other and means whereby the sliding movement of said nozzle in one direction is limited.

8. The combination of an air hood, a coupling device connected therewith, a nozzle slidably mounted in said air hood, a flange on said nozzle, a bushing extending between said flange and said coupling device, a fuel tube adapted to be held by said coupling device and to connect with said nozzle, and a spring engaging said flange for maintaining said nozzle and fuel tube in connection with each other.

9. The combination of an air hood, a nozzle movably carried thereby, a fuel tube detachably and frictionally connected with said nozzle and coöperating surfaces at the opposed ends of said nozzle and tube respectively whereby said nozzle and tube are centered with respect to each other.

10. The combination of an air hood having an axial opening, a recessed neck forming a continuation of said air hood, an independent nozzle slidably mounted in said neck and extending through said opening into said air hood, an annular flange on said nozzle slidably fitting within said recessed neck, a coupling means carried by said neck, a fuel tube detachably secured in said coupling device and connected with said nozzle and means for pressing said nozzle toward said fuel tube.

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

CHARLES STICHLER.

Witnesses:
E. LAURENCE WEBSTER,
IRVIN A. SOUDER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."