

(No Model.)

J. J. VAUTIER.
ATTACHING SOCKET FOR TUBING.

No. 530,563.

Patented Dec. 11, 1894.

Fig. 1.

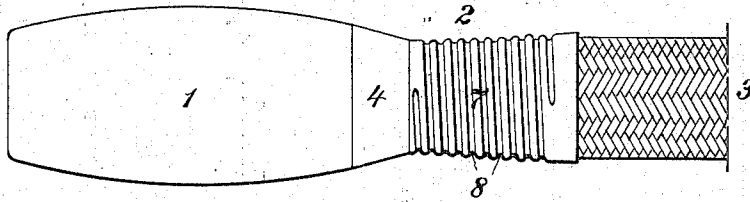


Fig. 2.

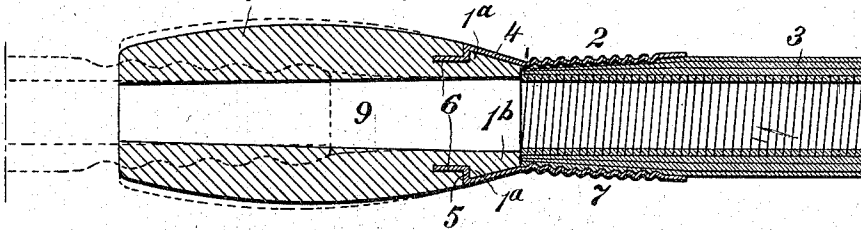


Fig. 3.

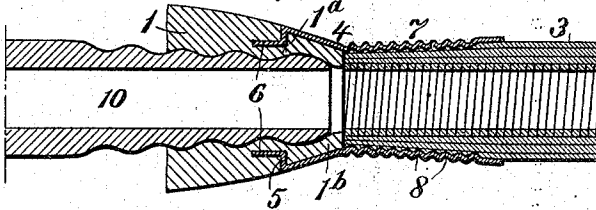


Fig. 6.

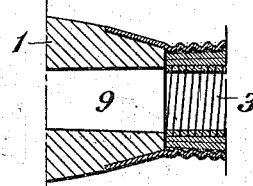


Fig. 4.

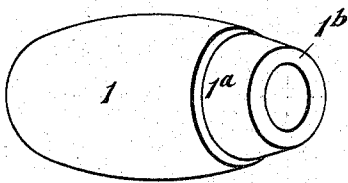


Fig. 5.

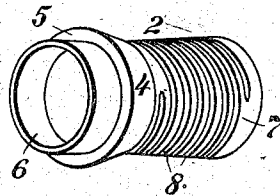
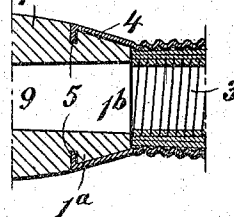


Fig. 7.



WITNESSES:

John G. Ladd

William A. Rowe

INVENTOR

John J. Vautier
BY *Alvin K. Goodwin*
ATTORNEY

UNITED STATES PATENT OFFICE.

JOHN JAMES VAUTIER, OF BROOKLYN, ASSIGNOR OF ONE-HALF TO JOHN GRIERSON LAW, OF NEW YORK, N. Y.

ATTACHING-SOCKET FOR TUBING.

SPECIFICATION forming part of Letters Patent No. 530,563, dated December 11, 1894.

Application filed February 13, 1894. Serial No. 500,050. (No model.)

To all whom it may concern:

Be it known that I, JOHN JAMES VAUTIER, a citizen of the United States, residing at the city of Brooklyn, Kings county, State of New York, have invented certain new and useful Improvements in Attaching-Sockets for Tubing, of which the following is a specification.

My invention relates to attaching sockets or end pieces for tubing, such for instance as the flexible tubing used for conducting gas from a nipple or burner on a fixture or pipe to an adjacent lamp or heater; or for analogous purposes.

The object of the invention is to simplify and improve the construction of attaching sockets in such manner as shall promote more economical manufacture and impart increased efficiency and durability as compared with other devices of this character.

The invention will first be described and then will be defined in claims hereinafter set forth.

Reference is to be had to the accompanying drawings, forming part of this specification, and in which similar numerals indicate like parts in the several views.

Figure 1, is a side elevation of my improved attaching socket and a piece of flexible tubing to which it is connected. Fig. 2, is a longitudinal central sectional view thereof, with a gas nipple shown in dotted lines within the elastic tip of the socket. Fig. 3, is a sectional side view illustrating the prolonged usefulness of the socket should the outer part of its elastic tip be broken off. Fig. 4, is a perspective view of the elastic tip of the socket, as seen from its inner end. Fig. 5, is a perspective view of the metallic ferrule of the socket, as seen from its outer end; and Figs. 6 and 7, are modifications, hereinafter referred to.

It is desirable and quite necessary that attaching sockets of the class to which my invention belongs, should be strong and light, and so formed that they, with the tubing, may be easily handled and adjusted without injury to furniture or household articles with which the socket may come in contact.

I make my attaching socket or end piece with an outer tubular elastic tip portion 1, preferably of rubber, and an inner ferrule portion 2, to which the end of the flexible tub-

ing 3, is connected. This tubing may be of any suitable construction, that shown having the usual coiled wire foundation incased in or by gelatinous material covered by a braided fabric.

In a preferred construction, the ferrule 2, has an outer flange portion 4, which flares outwardly or tapers rearwardly. From the outer end of the flange 4, the sheet metal of the ferrule is pressed or tooled inward to form a shoulder 5, from the inner edge of which projects outwardly a longitudinal flange or lip 6.

It will be noticed that the outer part of the flange 4, where the shoulder 5, joins it, is about flush with or within the outer face or margin of the elastic tip 1, and that this tip at its intermediate or central portion, is still larger in diameter. Hence the tip forms an efficient guard against injurious contact of the metal ferrule flange 4, with furniture, glass or other articles. It will also be seen that the inbending of the sheet metal of the ferrule to form the shoulder 5, gives chance for lodgment of a considerable body or thickness of the elastic material of the tip 1, behind said shoulder, as seen at 1^a, in Figs. 2, 3, and 7, of the drawings, in order to form by said material, 1^a, a secure lock to prevent pulling of the tip 1, from the ferrule 2. I also extend the elastic material of the tip clear back to (or it may be beyond) the inner end of the part 4, of the ferrule, as shown at 1^b, in Figs. 2, 3, and 7 of the drawings, and much farther than would be necessary to alone form the lock above named behind the ferrule shoulder 5, and for the express purpose of giving ample rearward longitudinal prolongation of the elastic material of the tip within the ferrule and behind said shoulder 5, to make a sufficiently long bearing surface to receive and securely hold the end of a gas burner or nipple, should the outer part of the tip 1, be broken off. The increased thickness of the elastic material of the tip 1, behind the ferrule shoulder 5, at 1^a, gives corresponding increased lateral expansibility to the inner end of the tip within the ferrule to assure full entrance of the gas nipple to the position shown in Fig. 3, of the drawings. It will also be seen that the ferrule flange 6,

lies about midway of the elastic walls of the tip and forms a tongue and groove joint therewith.

From the inner end of the flange 4, the ferrule extends rearwardly to form a hollow stem or shank portion 7, which at its interior is preferably provided with screw threads 8, which engage the extremity of the tubing 3, onto which the socket is screwed.

Any suitable glue or cement is or may be used to make a permanently secure and gas tight connection of the ferrule and tubing.

I prefer to produce the screw threads on or in the ferrule stem by pressing or tooling the light thin metal inward on lines corresponding with the pitch of the screw threads, as clearly shown in the drawings. By thus forming the screw threads I am not only able to use a desirable light metal for the ferrule, but I give increased strength to the ferrule; and the exterior parallel inclined depressions forming the interior threads give a distinctive and pleasing appearance or finish to the socket which is especially effective when applied to the tubing. See Fig. 1 of the drawings.

I prefer to taper the ferrule stem 7, from its back end to the flange portion 4, to cause compression of the extremity of the tubing 3, as the socket is screwed onto it, and the taper of the stem also provides for reception of tubing of slightly varying diameters. Thus, in every case a secure and tight joint of the tubing and socket is assured.

I prefer to join the tip 1, to the ferrule 2 by vulcanization in the mold within which the tip is formed. To do this I place the finished ferrule in the mold and place therein also a mandrel adapted to form the bore or gas-way 9, of the tip. Rubber or its compounds, in plastic condition, is then flowed or forced into the mold, which then is placed into any suitable chamber wherein vulcanization is effected to a sufficient degree to firmly secure the ferrule to the tip at all joint surfaces. After removal of the connected parts 1, 2, from the mold, the surface of the tip is finished in any suitable manner, and the socket is ready for attachment to the tubing.

It will be noticed that I make the walls of the tubular elastic tip 1, thicker at the central or intermediate portion between its ends. This causes the tip always to bend in a gradual curve and to avoid kinking at the central or intermediate part thereby preventing undue contraction or closure of the gas-way 9. The convexed contour of the exterior side walls of the tip or its gradual taper toward both ends, also imparts a more pleasing appearance than the ordinary cylindrical elastic tips heretofore in use and less rubber or other suitable elastic material is required to make the tip, which allows a better quality of rubber to be used while producing a lighter, more elastic and more serviceable tip for the same first cost than is possible with tips of

this character having ordinary cylindrical or other exterior form.

When the finished socket is applied to or upon a gas nipple or burner, 10, the latter will enter about half-way, as indicated by the dotted lines in Fig. 2, of the drawings. Should the outer portion of the elastic tip 1, be accidentally broken or burned off, the socket is yet useful or serviceable by reason of the adaptability of the inner part of the elastic tip to form a tight joint with the end of the gas nipple and as illustrated in Fig. 3, of the drawings. The socket would be useful were its tip broken off close to the flange 6, or to the forward end of the flange 4, of the ferrule. This is an important feature, as it permits safe and prolonged use of the socket after its outer part is broken off, and which is not possible with other sockets of this class having an interior tubular metal stem entering the bore of the elastic tip and the tubing, as this metal stem prevents insertion of the gas nipple, should the tip be broken off. Furthermore, it will be seen that I dispense with this last named tubular metal stem used in other sockets, and that I make the socket in or with but two parts, viz: the elastic tip and the ferrule, thereby lessening the expense of manufacture.

In so far as concerns some features of my invention it is immaterial whether or no the shoulder and flange portions 5, 6, of the ferrule be used, as shown by Fig. 6, of the drawings; or the flange portion 6, may alone be dispensed with and the shoulder 5, be retained, as illustrated in Fig. 7, of the drawings. The construction embodying these parts 5, 6, is preferred because it gives larger joint surface for vulcanization of the ferrule to the tip and together with the surface afforded by the outer walls of the inner extremity 1^b, of the tip, assures a most secure and satisfactory connection of the tip and ferrule.

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

1. An attaching socket of the character described, having a tubular elastic tip made with side walls thicker at its central or intermediate portion.
2. An attaching socket of the character described, comprising a tubular elastic tip made larger transversely at its central or intermediate portion, and a ferrule connected to one end of the tip.
3. The combination, in an attaching socket of the character described, of an elastic tip portion adapted for yielding at its outer part when applied to a gas nipple or connection, and a ferrule attached to the rear end of said tip and adapted for connection thereto of flexible tubing, said ferrule at its forward end having an interlocking flange or part entering the tip, said tip extending rearward within the ferrule behind said interlocking flange or part, substantially as set forth.
4. An attaching socket of the character de-

scribed, comprising a tubular elastic tip made larger in transverse section at its central or intermediate portion, and a connected ferrule having a rearwardly projecting tubular stem provided with interior screw threads adapted to engage the tubing, substantially as set forth.

5. An attaching socket of the character described, comprising a tubular elastic tip made larger in transverse section at its central or intermediate portion, and a connected ferrule having a rearwardly projecting tubular stem provided with interior screw threads impressed from its outer face and adapted to engage the tubing, substantially as set forth.

6. The combination, in an attaching socket of the character described, of a tubular elastic tip, and a connected ferrule having end parts 4, 7; the part 4 having an inturned flange or shoulder 5, behind which the material of the tip interlocks and extends longitudinally within the ferrule, substantially as set forth.

7. The combination, in an attaching socket of the character described, of a tubular elastic tip, and a connected ferrule having end parts 4, 7, the part 4 having an inturned flange or shoulder 5, and a supplemental flange 6 entering and interlocking with the material of the tip, substantially as set forth.

8. The combination, in an attaching socket of the character described, of a tubular elastic tip having larger transverse section at its central or intermediate portion, and a connected ferrule having end parts 4, 7, the part 4 having an inturned flange or shoulder interlocked with the material of the tip, and the part 7 having an interior screwthread 8 impressed inward and adapted to engage the tubing, substantially as set forth.

JOHN JAMES VAUTIER.

Witnesses:

JOHN G. LAW,
WILLIAM A. ROWE.