This invention relates to spray gun adaptors and more particularly to improved coupling means or transition pieces between the spray gun and the paint supply source, such as the conventional one quart can.

Hand-held, trigger actuated guns for spraying paints have been in common usage for some time now. In large scale, industrial applications, the supply of paint is remote from the gun, there being provided suitable conduits or ducts to deliver the paint to the gun under conditions of pressure. This apparatus is fairly standard. The gun may be supplied from one supply source to another as the need for different colors arises or, alternatively, a separate gun may be used for each color if the same colors are to be used over and over again.

However, where only small quantities of paint are to be sprayed at a time, or spraying is done infrequently, problems concerning adaptability and ease of use of the gun as well as wastage of paint arise. These are the conditions usually encountered by the average homeowner or "do-it-yourself" class of painter.

The present invention, by means of a thin sheet metal member, provides an economical, inexpensively manufactured and easily installed adaptor, which permits the direct coupling of a spray gun to the standard one quart spray can. The present invention further provides versatility so that several types of spray guns may be used with a standard one quart can of paint. A further advantage of the present invention is that when a standard spray gun is used, the suction tube is properly positioned for optimum utility in the lowermost peripheral area of the standard paint can. Thus, the full contents of the can may be used with little or no wastage.

In effect, the adaptor or transition piece of the present invention may be a temporary replacement for the regular cover of the paint can, and is used only during the actual spraying operation. The transition piece is installed and removed in the same manner and as easily as the original can cover. In one embodiment the periphery of the transition piece is provided with an annular lip portion that mates with the paint can body rim as did the original cover. In another embodiment the periphery of the transition piece is substantially flat there being provided toggle type or eccentric clamp means to securely, but releasably, join the paint can body to the transition piece. In either case the central portion of the transition piece is provided with means for coupling to standard type spray gun connectors. In order to insure that the siphon tube is properly positioned, one embodiment of the present invention provides coupling means which, when operated, will be recessed in the paint can body. Thus, the gun may be installed and be ready for use by a simple screw type connection.

By way of contrast, prior art devices of this general class were adaptable only to a specialized or particular brand of spray gun. This is exemplified by the United States patents issued to C. Cunningham and E. F. Wegener, Numbers 2,051,518 and 2,228,861, respectively. It will be seen that the spray guns disclosed therein are not the kind in most common usage today. The illustrated guns have outwardly extending arms adapted to engage pintles on either side of the adaptor. Further, the adaptors extend substantially above the top of the paint can. In the Cunningham patent the adaptor is comprised of a pair of heavy walled, machined or cast members. These cumbersome and unwieldy prior art devices add considerable weight to the paint can and are relatively costly to manufacture as compared to the simple stamping of the present invention. Consequently, commercial acceptance of the prior art has been quite limited.

Accordingly, it is an object of the present invention to provide a simple, low cost transition piece whereby a standard spray gun may be used with the standard one quart can of paint.

It is another object to provide a spray gun transition piece that may be attached to the peripheral lip portion of a standard paint can.

An additional object is to provide a transition piece having screw type means for threadable connection to a conventional spray gun.

A further object is to provide a lightweight, inexpensive sheet metal transition piece that may be fabricated by simple, standard manufacturing techniques.

Still another object is to provide a transition piece that provides for the positioning of the spray gun suction tube at the lowermost, peripheral point within the paint can.

These and other features, objects and advantages of the invention will, in part, be pointed out with particularity and in part, become obvious from the following more detailed description of the invention, taken in conjunction with the accompanying drawings, which form an integral part thereof.

In various figures of the drawings like reference characters designate like parts.

In the drawings:

FIG. 1 is a fragmentary, sectional elevation view of a spray gun/paint can transition piece fabricated in accordance with the teachings of the present invention;

FIG. 2 is an elevation view, partly in section, of an alternative embodiment having clamping means cooperating therewith;

FIG. 3 is an elevation view, partly in section, illustrating a transition member for an alternative spray gun; and

FIG. 4 is an elevation view, partly in section, illustrating still another transition member.

With reference now to the drawings, there is shown a hand-held spray gun generally designated by the reference character 10. Trigger member 12 is adapted to actuate valve 14, whereby the flow of air from the compressor source (not shown) is regulated. The spray gun is also provided with a plunger 16, which acts to vary the aperture size of nozzle 18 in accordance with the requirements of the particular application. Suction tube 20 which is integral with the spray gun and which is in communication with both the supply of compressed air and the nozzle, passes through downwardly depending, tubular boss 22. Preferably, the lowermost end portion of the suction tube should be positioned within the paint can proximate the periphery of the base portion thereof when the gun is in use. Nut 26 is captured on the threaded lower end of boss 22 of the spray gun.

The standard paint can is comprised of a base portion 28 and a circular body portion 30 which is provided at its upper, open end with an annular grooved lip 32 of somewhat smaller diameter than the can body. As supplied by the paint manufacturer, the can is closed by a cover provided with a peripheral portion adapted to mate with annular groove 32. The aforementioned components of the gun and the can represent the environment of, and the elements cooperating with the present invention.

In one form of the present invention, as illustrated in FIG. 1, transition piece 40 is a thin, sheet metal member and is provided with a peripheral lip portion 42 adapted to mate with the annular, cover retaining groove 32 of the paint can body. The fit between lip 42 and groove 32 is substantially the same as that between the original
can cover and body so that a seal is provided, as well as a gripping action to hold the gun to the can. The transition piece is also provided with an upstanding threaded stud 44 having a central opening 46. When the transition piece is in place, the suction tube passes through opening 46 and nut 26 is advanced into engagement with stud 44. Suitable packings may be included in nut 26 to prevent leakage through the threads. It should be noted that the transition piece and the stud are dimensioned such that the end of the suction tube, which is normally of a standard length, is positioned at the juncture of a one quart can body base member and side wall.

The embodiment of the hereinbefore described invention is illustrated in FIG. 2. As shown therein, transition piece 50 has a substantially flat peripheral margin, the diameter of which is approximately equal to the paint can body. Hollow, threaded stud 52 is secured to the upper surface of the transition piece, as by welding. As will be noted in the drawings, a split circumferential clamp 54 captures both the peripheral edge of the transition piece and bead 56 at the topmost edge of the paint can body. A pivotal, eccentric latch mechanism 58 locks the assembly in a camming action. To insure that all the paint is delivered to the spray gun, the central portion of the transition piece which stud 52 is mounted is recessed below the level of the can, approximately one inch. Thus, the spray gun will have its standard length suction tube positioned at the juncture of the can body and base member. Transition piece 50 is adapted for use with a spray gun 10' having a large diameter nut 26'. This type gun is more commonly used with a wide mouthed jar, generally shorter, but wider than a one quart can. Because of the novel transition piece of the present invention, it may be coupled directly to a standard one quart paint can. This prevents the need to transfer paint from the can to the jar in order to spray paint. Gasket 59, fabricated from a suitable material for providing sealing, is positioned between the transition piece 50 and the top of the paint can body. As before, the end of the suction tube is adapted to be positioned at the juncture of the paint can body base member and side wall.

Still another embodiment is shown in FIG. 3. Transition piece 69 has a peripheral lip portion 62 much the same as that illustrated in FIG. 1. The lip portion is adapted to mate with the annular groove 32 of the paint can body to provide sealing therebetween and a gripping action to hold the gun to the can. The transition piece is further provided with a threaded portion 64 which may be engaged by nut 26 after the suction tube 20' is inserted into the can. As may be seen in FIG. 3, there is annular space between lip portion 62 and threaded portion 64 to accommodate the wall thickness of the nut in order to permit tightening thereof.

It may also be seen in FIG. 3 that the central portion of transition piece 69, on which threaded portion 64 is positioned, is recessed below the top of the can approximately one inch. This will assure that the end of the suction tube is positioned at the juncture of the paint can body base member and side wall. Since one quart paint cans are generally of a standard size, and since the size of neckless cans made by various makers are all approximately the same length, this construction permits the use of the spray gun directly with the original can in which the paint was purchased.

In the embodiment of FIG. 4 transition member 79 is provided with a captured nut 72 and a hollow siphon tube 74 in combination thereof. A portion of the transition piece may be formed according to either of the embodiments hereinbefore described. For illustrative purposes however, a downwardly depending lip 76 is shown. It is to be understood that the peripheral lip of the transition piece is adapted to mate with the annular groove in the paint can body.

Various methods may be employed for assembling the nut and the siphon tube. There is shown, for illustrative purposes, a nut having an inwardly turned rim 78 adapted to loosely engage groove 80 in the transition member. The siphon tube may be secured to the transition member by such means as brazing at 82.

The embodiment of FIG. 4 has utility in that it is adaptable to a great variety of spray guns. It is obvious that captured nut 72 may be selected to mate with the threads of various guns. It is envisioned that the nut and siphon tube provided with the gun will be discarded, to be replaced by the embodiment of FIG. 4. By this means it can be assured that the siphon tube will be positioned at the juncture of the paint can body and the base member as hereinbefore described.

The various embodiments described hereinabove have, as common features, simplicity of construction and ease of use. The machinery and assembly techniques required for fabrication are of the lowest order of complexity, thus making for an inexpensive product, well within the means of the average homeowner. The cost is sufficiently low, as to permit the transition piece to be given away with the can of paint. In keeping with the simplicity of manufacture is the extreme ease of application. The transition pieces are merely pressed onto the can, in the same manner as the original cover and a nut is hand-tightened. When the alternative structure, having a flat periphery, is desired, an inexpensive yet effective clamp is used in combination therewith to provide simple means to retain the gun and paint can. Because of the annular seal provided between the paint can and transition piece lips, or with the use of a flat annular gasket, the gun may be left in position for quite some time without fear of deterioration of the paint.

In the foregoing description, reference to one quart paint cans, circumferential clamps and metal transition pieces is primarily for purposes of illustration. By proper dimensioning, the transition piece can be designed for one pint cans for example. Other types of clamping arrangements may be employed and the transition piece may be fabricated from a suitable plastic.

There has been disclosed heretofore the best embodiments of the invention presently contemplated and it is to be understood that various changes and modifications may be made by those skilled in the art without departing from the spirit of the invention.

What is claimed is:

1. A transition piece for securing a handheld, trigger operated spray gun, having a downwardly depending suction tube and a captured nut concentric thereabout to a neckless paint can having an annular, cover retaining groove, comprising the steps of:

(a) providing a nut adapted to be seated directly on the paint can annular groove, said nut having an inwardly turned rim adapted to loosely engage the annular groove of the paint can, the central apertures being adapted to receive the spray gun suction tube in the assembled condition;

(b) retaining means positioned proximate the peripheral lip of said closure member, said retaining means adapted to secure said closure member to said paint can; and

(c) a hollow, externally threaded, vertically standing stud integral with said closure member and coaxially disposed about the central aperture of said closure member said stud being positioned below the top surface of the paint can body, said stud being adaptable for engagement with the spray gun nut when said closure member is secured to the paint can by said retaining means, whereby the spray gun suction tube is positioned at the lowermost juncture of the paint can base member and side wall.

2. A transition piece for securing a handheld, trigger operated spray gun having an externally threaded, downwardly depending boss to a neckless paint can having an
annular, cover retaining groove and a peripheral bead at its upper end comprising:
(a) a closure member adapted to be seated directly on the paint can annular groove, said closure member being provided with an aperture therethrough;
(b) retaining means positioned proximate the periphery of said closure member, said retaining means comprising an annular, downwardly depending peripheral lip adapted to mate with the annular cover retaining groove of the paint can body;
(c) an internally threaded, hollow coupling member captured in a depression on the upper surface of said closure member concentrically with said aperture, said coupling member being positioned below the top surface of said closure member, said coupling member adapted to threadably engage the externally threaded spray gun boss; and

(d) a downwardly depending, hollow suction tube secured to said closure member, said tube being in communication with said aperture and said coupling member whereby said tube is positioned at the lowermost juncture of the paint can base member and side wall.