

Dec 23, 1924.

1,520,508

F. L. PLATT ET AL

COUPLING

Filed May 27, 1922

Fig. 1.

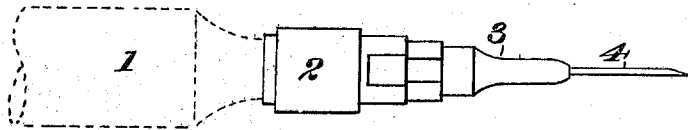


Fig. 2.

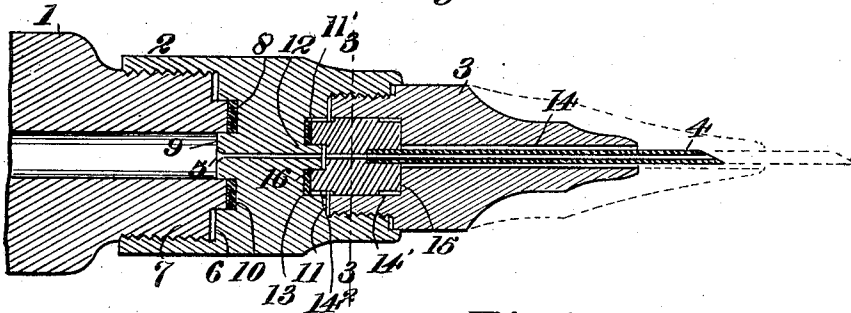


Fig. 3.

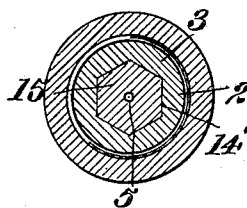
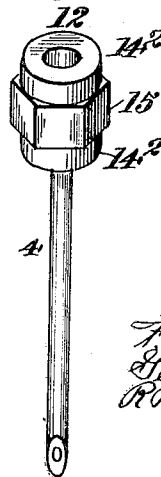


Fig. 4.



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UNITED STATES PATENT OFFICE.

FRANK L. PLATT, GEORGE N. HEIN, AND ROBERT R. IMPEY, OF SAN FRANCISCO, CALIFORNIA.

COUPLING.

Application filed May 27, 1922. Serial No. 564,122.

To all whom it may concern:

Be it known that we, FRANK L. PLATT, GEORGE N. HEIN, and ROBERT R. IMPEY, citizens of the United States, residing at the city and county of San Francisco and State of California, have invented certain new and useful Improvements in Couplings, of which the following is a specification.

This invention relates to a coupling joint designed particularly for use in hypodermic syringes of the type set forth in our patent of the United States No. 1,318,586, dated October 14th, 1919.

In the patented construction it has been found necessary to use a tool or implement in applying the tip to its support, that is to provide a fluid tight joint at the base of the needle base. We have discovered that by providing a wiping contact between the base of the needle base and the metallic washer that but little pressure is required to be applied to the two co-operating members united by a relatively rotary movement, and in accomplishing this result the needle base is of a peculiar shape adapted to rotate with the tip and thus engage the metallic washer with a wiping contact.

To more fully comprehend the invention, reference is directed to the accompanying drawings, wherein:—

Figure 1 is a view in side elevation of a portion of a hypodermic syringe barrel illustrating the preferred embodiment of our invention applied thereto.

Figure 2 is a longitudinal central sectional view of our invention illustrating the preferred joint connection.

Figure 3 is a transverse sectional view on line 3—3 of Figure 2.

Figure 4 is a view in perspective of our improved needle and base.

Referring more particularly to the drawings, wherein like characters of reference designate corresponding parts, 1 indicates a syringe barrel to the threaded discharge end of which is detachably secured the coupling or applicator 2, to which is, in turn, detachably secured the needle tip 3 within which is removably positioned the needle 4, although it will be readily apparent that the end of the syringe might, in some cases, be fashioned to receive the needle and tip, thus dispensing with the applicator in certain cases. The applicator is formed at one end

of the tubular channel 5 extending centrally therethrough with a threaded cup or depression 6 for the reception of the outer threaded end 7 of the syringe barrel 1. The base of the depression 6 is provided at a point slightly removed from the side wall of said base with an annular packing receiving groove 8 surrounding the inlet end of the channel 5 and providing an outstanding portion 9 surrounding the inlet end of said channel 5.

Within the groove 8 is positioned the metallic packing 10, preferably of tin, and the outer surface thereof lies preferably below the outer end of the outstanding portion 9. With this packing is adapted to contact the terminal discharge end of the syringe barrel when the applicator is attached thereto.

The opposite or outer end of the applicator is also provided with a depression 11, the wall of which is threaded for a portion of its depth and within the base of said depression is the centrally disposed outwardly extending nipple 12, forming the discharge end of the channel 5 and surrounding the base of which is the metallic packing 13 preferably of tin, seated in an annular groove 11' formed in the base of the depression 11, the surface of said packing lying below the outer end of said nipple and the base of said depression 11.

Receivable within the depression 11 and having threaded connection with the wall surface thereof, is the inner threaded end of the tip 3, said tip being preferably tapered toward its outer end and provided with a needle receiving bore 14 extending longitudinally through the center thereof. The inner end of the bore 14 is provided with a polygonal recess 14' for the reception of a polygonal base 15 which mounts the needle 4, said base having a circular end 14² and being of a length to project slightly beyond the inner end of the tip so that its inner circular end 14² will project into the groove 11' and rest on the metallic packing 13 with the end of the nipple 12 extending into the enlarged seat 16 in the base 15, during such time as the tip is mounted in the applicator.

It will be observed that the polygonal connection between the tip 3 and needle base causes the rotation of the needle base with the two parts which are threaded by a relatively rotary movement, and that the circu-

lar end of the base is received within the depression 11' with its end in contact with the packing or washer 13.

This construction enables the assembling or disassembling of the parts 2 and 3 without the aid of a wrench or other tool, and thereby particularly adapts this construction for universal use wherein needles of different length are often required. It also enables the parts to be quickly assembled and disassembled for sterilizing without the aid of tools, and renders the same practical for use by doctors and dentists who operate without the aid of assistants.

Having thus described our invention, what we claim and desire to protect by Letters Patent of the United States is:—

1. A hypodermic syringe including a tubular needle tip threaded on its inner end and provided with a needle receiving bore extending therethrough, a hypodermic needle for reception in said bore and provided with a centrally chambered base adapted to project beyond the inner end of the tip, a channeled member provided with a threaded flange for engaging the threaded end of the needle tip on the uniting of said parts by a relatively rotary movement, a metallic packing with which said needle base is adapted to contact with a wiping action on the uniting of said tip and member and the clamping of the needle base between the same, and means for holding the said needle and base to rotate with said tip on the assembling of the parts.

2. In combination with a pair of co-operating parts adapted for threaded connection by a relative rotary movement and each provided with a bore disposed in alignment, said members at their co-operating ends being provided with registering depressions, a metallic washer in the base of one of said depressions, a tubular member receivable within said depressions to provide a fluid tight joint between said parts and adapted to rotate with one of said parts on their relative movement whereby the end thereof is forced into engagement with said washer with a wiping contact.

3. In a hypodermic syringe, a tubular needle tip provided with a needle receiving bore extending therethrough, said tip provided in its base with a needle base receiving recess surrounding the inner end of said

needle receiving bore, a hypodermic needle for reception within said bore and provided with a centrally channeled base for reception within said receiving recess, said base being of a length to project beyond the inner end of said tip, a channeled member provided with a recess for receiving the inner end of said tip and needle base and to which said tip is detachably secured by a threaded connection, means for carrying said needle base to rotate with said tip, and a metallic packing within said recess and into contact with which said needle base is forced by a wiping action to provide a fluid tight joint between the member and needle base on the assembling of the parts.

4. In combination with a hypodermic syringe including a tubular tip provided at one end with a polygonal recess, a hypodermic needle for removable reception therein, a tubular base mounting said needle and provided with a polygonal periphery, said polygonal base adapted for reception within said polygonal recess to rotate with said tip during its uniting with said syringe, and means for uniting said syringe and tip.

5. A hypodermic syringe needle construction adapted to be held between two cooperating parts, including a tubular needle, a tubular base mounting the same and from one end of which the same extends, the peripheral wall of said base at its opposite end being circular in cross section and a portion of said base inwardly removed from said end portion being of a different shape to cause the rotation of the base with one of the cooperating parts.

6. In combination with a hypodermic syringe including a tubular tip provided at one end with a recess, a hypodermic needle for removable reception therein, a tubular base mounting said needle and provided with a periphery corresponding in contour with the contour of the tubular tip recess, said base adapted for reception within said tip recess to rotate with said tip during its uniting with said syringe, and means for uniting said syringe and tip.

In testimony whereof we have signed our names to this specification.

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