

March 19, 1929.

L. B. HASBROUCK

1,705,763

INJECTOR NEEDLE

Original Filed April 8, 1926

Fig. 1.



Fig. 2.

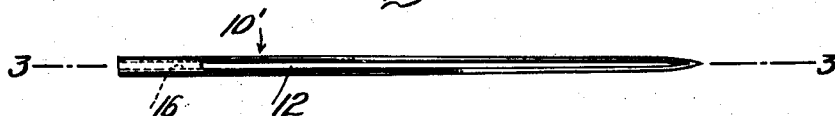
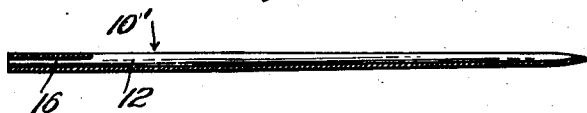


Fig. 3.



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INJECTOR NEEDLE.

Original application filed April 8, 1926, Serial No. 100,486. Divided and this application filed March 14, 1927, Serial No. 175,082. Renewed October 17, 1928.

This invention relates to injector needles, and aims to provide a needle adapted to control the amount of liquid injected through it.

Injector needles embodying the present invention are especially adapted for use with the dyeing machine shown in my co-pending application, Serial No. 100,486, filed April 8, 1926, of which this application is a division. They may also be used in the dyeing machines shown in U. S. Patents Nos. 1,577,884 and 1,606,196, issued to Henry E. Van Ness on March 23, 1926, and November 9, 1926, respectively, and for other purposes.

The needles used in the Van Ness dyeing machines shown in the patents referred to were provided with longitudinal grooves extending their entire length. When inserted in a chuck in a nozzle, such a needle provides for free passage for liquid which may enter through the rear end of its longitudinal groove. Such needles, therefore, do not materially retard the flow of liquid through them.

In accordance with the present invention, injector needles are provided with a longitudinal groove terminating at a point spaced from their rear ends. When such a needle is placed in a chuck in a projector nozzle, such, for example, as that shown in Van Ness Patent No. 1,577,884, the liquid forced into the rear end of the nozzle cannot enter directly into the groove of the needle. The liquid is, therefore, retarded so that, under given conditions of pressure and time interval, a smaller quantity of liquid is injected than would be injected with a Van Ness needle. A further feature of the invention consists in providing the portion of the needle behind the rear end of the groove with a bore extending from the rear end of the needle into the rear end of the groove. By making this bore of any desired size, any desired retardation of the liquid may be obtained.

Illustrative needles embodying the invention are shown in the accompanying drawings, in which:

Fig. 1 shows a needle with a solid rear end;

Fig. 2 shows a needle with a bored rear end; and

Fig. 3 is a longitudinal section of the needle shown in Fig. 2 taken on the line 3—3 of Fig. 2.

The needle 10 shown in Fig. 1 is of uniform diameter and has a pointed front end whose apex 11 is on the axis of the needle. The needle contains an open longitudinal groove 12 which extends from the point 13 spaced from the rear 14 of the needle as nearly as possible to the apex 11 of the needle. The rear portion 15 of the needle between the rear end of the groove and the rear end of the needle is solid.

The needle 10' shown in Figs. 2 and 3 is similar to the needle 10, except that it contains an axial bore 16 extending from its rear end to the rear end of its groove 12.

The needles illustrated are used by placing their rear ends in a chuck in a nozzle, such as those shown in the Van Ness patents hereinbefore referred to, and projecting the liquid through them into an absorbent mass. They may also be used for other purposes.

What I claim is:

1. An injector needle, comprising a shank of substantially uniform diameter and a pointed front end portion, and containing an open longitudinal groove extending rearwardly from its front end portion along its shank to a point spaced from the front and rear ends of its shank.

2. An injector needle, comprising a shank of substantially uniform diameter and a pointed front end portion, and containing an open longitudinal groove extending rearwardly from its front end portion along its shank, to a point spaced from the front and rear ends of its shank, and a bore extending from the rear end of the groove to the rear end of its shank.

In testimony whereof I have hereunto set my hand.

LOUIS B. HASBROUCK.