

(No Model.)

G. OTTO.
HYPODERMICAL SYRINGE.

No. 422,436.

Patented Mar. 4, 1890.

Fig. 1.

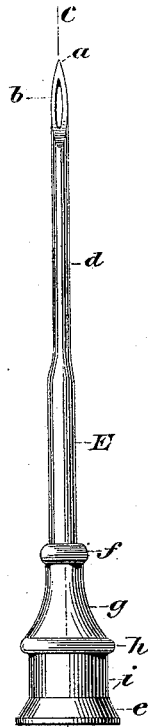


Fig. 2.

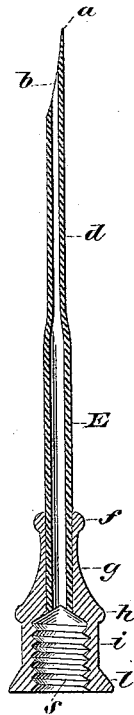


Fig. 3.

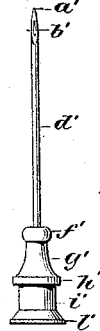


Fig. 4.



WITNESSES:

Gustave Dietrich
Chas. Dietrich

INVENTOR

Gustav Otto
BY
Briesen, Steele & Finnan
ATTORNEYS

UNITED STATES PATENT OFFICE.

GUSTAV OTTO, OF JERSEY CITY, NEW JERSEY.

HYPODERMICAL SYRINGE.

SPECIFICATION forming part of Letters Patent No. 422,436, dated March 4, 1890.

Application filed November 13, 1889. Serial No. 330,151. (No model.)

To all whom it may concern:

Be it known that I, GUSTAV OTTO, a citizen of the United States, residing at Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Hypodermical Syringes, of which the following is a specification, reference being had to the accompanying drawings, forming part of the same.

My invention relates to hypodermical syringes, and has for its object the providing of a point or needle of such syringes of improved construction.

My invention is illustrated in the accompanying drawings, in which similar parts in the several views are indicated by similar letters.

Figure 1 is a front view of my improved needle or point; Fig. 2 a cross-sectional view of the same through the line *c c*, Fig. 1. Figs. 3 and 4 represent two of the old forms of needles or points for hypodermical syringes.

In Figs. 3 and 4, *a'* and *a²* represent the points of the old needles; *d'* *d²*, the body, which is soldered in the cap at *f'* *f²*. The needle represented in Fig. 4 differs from that shown in Fig. 3 in that it has a re-enforcing sleeve *e'* at its lower end.

In Figs. 1 and 2 one form of my improved needle is shown. It consists of a tube *E*, drawn out to a smaller diameter *d* and furnished with a hollowed point *a*. The shank *E* of the tube is inserted in the nozzle *g* and soldered to it.

The needle or point now used in hypodermical syringes consists of a cylindrical tube of steel or other suitable metal, of a diameter sufficiently small for the purposes for which the syringe is to be used. At one end the tube is sharpened and partially hollowed, and the other end of the tube is inserted in and soldered to the cap or nozzle of the syringe. It is found that such points or needles are weak at the joint between the nozzle and tube and frequently break, thus rendering the syringe worthless. Various plans to avoid this breaking have been suggested, one of

which (represented in Fig. 4) consisted in re-enforcing the needle by adding a sleeve; but this has been found to simply transfer the weak point in the needle to another position, and does not avoid the breaking.

In my invention I take a tube of steel, gold, or other suitable metal, of a diameter to fit the nozzle of the syringe, and I draw it out toward the point to a taper, of a diameter small enough for the purposes to which the needle is to be adapted. The point at which I begin to draw out the tube is represented in the drawings as about one-half the distance between the two ends, and this has been found in use to be practicable; but the tube can be drawn out at any point, as occasion may require.

The advantages of my improved needle are many. It can be cheaply and easily made and is uniformly strong at all points. In my improved needle the greater diameter of the tube at the shank renders the needle as strong as if it had been re-enforced at that point by a sleeve. The tapering or drawing out decreases the diameter of the tube without impairing its strength, and hence the needle is uniformly strong at all points. The bore of the tube in my improved needle is larger at the shank than at the point, the two sizes of bore being united by a tapering bore, and for this reason the needle is less apt to clog and the fluid flows more evenly and continuously, as the greater bore at the shank serves as a reservoir.

Having fully described my invention, what I desire to secure and claim by Letters Patent is—

In a hypodermical or similar syringe, a needle consisting of a metallic hollow tube forming on the interior two bores—one the original bore of the tube, the other a smaller bore on which the point is formed—the bores meeting on tapering lines, substantially as described.

GUSTAV OTTO.

Witnesses:

HARRY M. TURK,
JOHN M. SPEER.