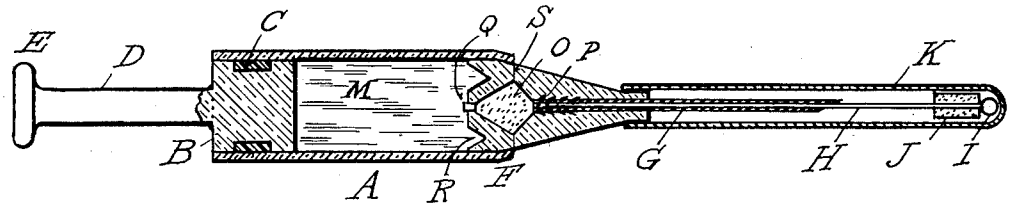
J. H. WEDIG.

HYPODERMIC SYRINGE.

APPLICATION FILED MAY 25, 1912.

1,100,798. Patented June 23, 1914.



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HYPODERMIC SYRINGE.

1,100,798. Specification of Letters Patent. Patented June 23, 1914.

Application filed May 25, 1912. Serial No. 699,772.

To all whom it may concern:

Be it known that I, JOHN HARRISON WEDIG, citizen of the United States, residing at Granite City, in the county of Madison and State of Illinois, have invented certain new and useful Improvements in Hypodermic Syringes, of which the following is a specification.

My invention relates to certain new and useful improvements in hypodermic syringes, the peculiarities of which will be hereinafter described and claimed.

It is the principal object of my invention to provide a hypodermic syringe adapted to contain separately a medicating drug or medicine and its dissolvent, and to combine the two within the syringe just prior to the use of the syringe in giving the injection.

In the accompanying drawing on which reference letters indicate parts mentioned herein, the figure represents a longitudinal central section of a syringe embodying my invention.

The letter A designates a cylindrical barrel forming the body of a syringe, of glass or other suitable material, having a plunger B at one end, provided with packing C and a stem D with a thumb piece E. The other end is closed by a head F, in which is mounted the burred end of a suitable hypodermic needle G, in which is normally located a stylet H, having a head I and carrying a stop J of cork or rubber located a suitable distance from the point of the needle to limit its inward movement and protect the point. A suitable covering K of glass or other suitable material, preserves the aseptic condition of the needle and stylet after they have been sterilized, and fits over the projecting ends of the same.

In the chamber M between the plunger and the head is located a hydro-alcoholic or other solution, that acts as a dissolvent for the drug or other medicament to be given hypodermically. This drug or medicament is preferably located in a double conical chamber O formed in the head of the syringe, and communicating with the said needle. The inner end of the needle is normally closed by the said stylet, or may be sealed by paraffin P. A plug Q, or other separating means, normally seals the drug chamber from entrance of the dissolvent solution, and is located in an opening from the chamber O to the chamber M, and in line with the said stylet, so that an inward movement of the stylet will tap the chamber M and allow the dissolvent to act upon the drug or other medicament. The plug when dislodged, will fall to the side wall of the barrel, and a triangular annular recess R in the head prevents its interfering with the full forward stroke of the plunger.

The head is divided at the joint S for convenience in manufacture and filling, and then cemented; but it may be otherwise formed. The double conical drug chamber allows the ready passage of the dissolvent through the opened needle, but may be otherwise formed and located within the syringe without departing from the spirit of my invention. The stylet is a convenient means for establishing communication between the two chambers but other means may be employed to effect this communication, and the resulting combination of the drug and its dissolvent at the proper time. Any means for separating the drug from its dissolvent till just prior to the use of the syringe may be employed.

When the injection is to be given, the stylet is pushed inward through the sealed drug chamber and is then withdrawn together with the protecting cover if the latter be of flexible material; if the cover be of glass or like material, the cover is first removed before pushing in the stylet. The dissolvent follows up the withdrawn stylet, combining with the balance of the drug that was not forced into the dissolvent chamber, and pressure being brought to bear on the solution by means of the plunger, or otherwise, the dose is discharged through the opened needle.

I do not confine myself to the exact construction shown as embodying my invention.

In hypodermic injections the quantity of the charging solution as well as the predetermined strength is important. The size of the dissolvent chamber is therefore made of sufficient capacity to provide for a definite quantity of ejected solution. The drug chamber is preferably of a size corresponding to the predetermined strength of the charging solution.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. An improved hypodermic syringe comprising a needle and a body provided with two chambers normally separating the drug

and its dissolvent respectively contained therein, and means to effect their combination.

2. An improved hypodermic syringe comprising a needle and a body provided with one chamber for the drug and another for its dissolvent, a seal normally separating said chambers, and means to open the seal and establish communication between said chambers, for the purpose set forth, and substantially as described.

3. An improved hypodermic syringe comprising two chambers containing a drug and its dissolvent respectively, a seal between said chambers, and a stylet adapted to open the seal and allow the combination of the drug and dissolvent.

4. An improved hypodermic syringe comprising separate chambers for the drug and its dissolvent respectively, and having a communicating opening, a plug for said opening, and a stylet adapted to dislodge said plug and establish communication between said chambers substantially as described.

5. An improved hypodermic syringe comprising a body having a head at one end provided with a chamber for a drug or medicament, a needle mounted in said head adapted to communicate with said drug chamber, a stylet located in said needle, a plunger at the other end of said body forming a chamber between the head and plunger for the dissolvent, and a seal normally closing the drug chamber to the dissolvent, till opened by stylet, substantially as described.

6. An improved hypodermic syringe comprising a body provided with a head having a sealed chamber formed therein, and a needle communicating with said chamber,—the said head being divided through said chamber substantially as described.

7. An improved hypodermic syringe comprising a needle, a body provided with a chamber for a drug communicating with said needle, a second rearward chamber of definite corresponding size to provide the required quantity of a dissolvent solution, a seal located between said chambers, means to displace said seal and allow the mixture of the drug and its dissolvent thereby providing a predetermined quantity of charging solution of definite strength, and a piston head plunger forming the rear wall of the dissolvent chamber adapted to force the charging solution through the drug chamber to its needle outlet.

In testimony whereof I have affixed my signature in presence of two witnesses.

JOHN HARRISON WEDIG.

Witnesses:
H. M. PLAISTED,
J. C. STEELE.