

No. 686,451.

Patented Nov. 12, 1901.

W. M. HAYNES.
HYPODERMIC INJECTOR.

(Application filed May 11, 1900.)

(No Model.)

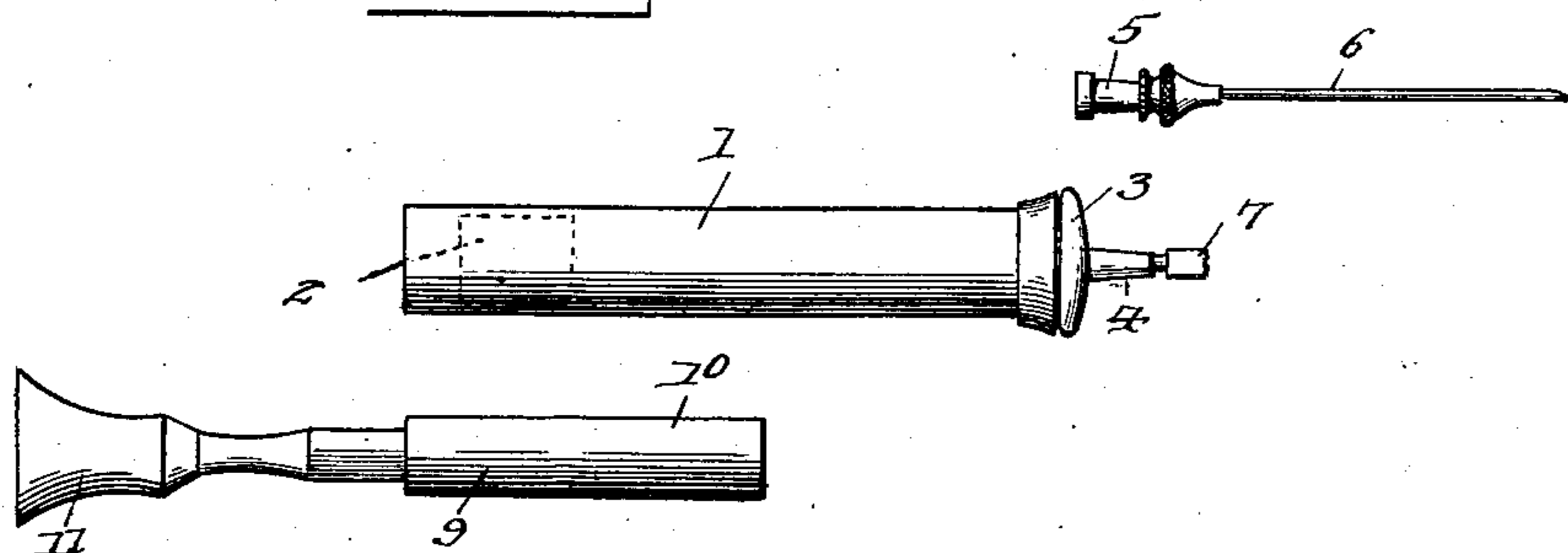


Fig. 2.

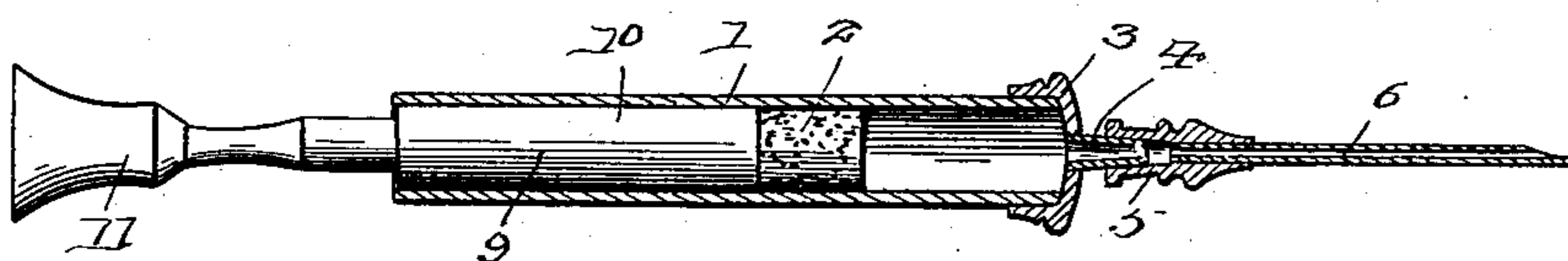
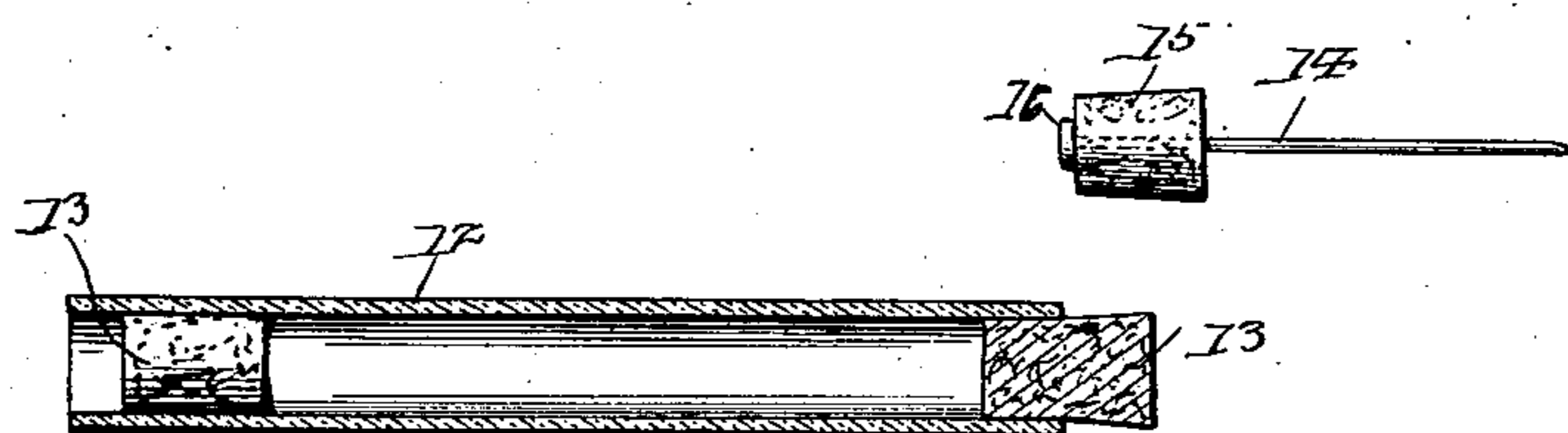


Fig. 3.



Witnesses
F. E. Alden.

Chas. S. Hoyer

W. M. Haynes. Inventor

By His Attorneys,

Chas. Snow & Co.

UNITED STATES PATENT OFFICE.

WILLIAM M. HAYNES, OF SHERMAN, NEW YORK.

HYPODERMIC INJECTOR.

SPECIFICATION forming part of Letters Patent No. 686,451, dated November 12, 1901.

Application filed May 11, 1900. Serial No. 16,363. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM M. HAYNES, a citizen of the United States, residing at Sherman, in the county of Chautauqua and State of New York, have invented a new and useful Hypodermic Injector, of which the following is a specification.

This invention relates to hypodermic injectors, and more especially contemplates the provision of a body or barrel of equal diameter from end to end for the removable attachment of closing plugs, caps, or needles; and the object in view is to construct a plurality of such bodies or barrels of cheap material—such as metal, glass, or other material impervious to the attack of alkaloids or other chemicals—and to dispose in said bodies or barrels a sufficient quantity of the material to be injected, and thus have a large number ready for use with a single plunger and needle carried with or forming a part of a kit or nest, thereby producing means for using a syringe of the character set forth at the scene of serious accidents where many persons may be injured and suffering from pain and requiring the quick injection of an alleviating medicament without the delay incident to continuously recharging a single injector.

The invention consists in the construction and arrangement of the several parts, which will be more fully hereinafter described and claimed.

In the drawings, Figure 1 shows elevations of parts of the improved injector and illustrating one form of body or barrel. Fig. 2 is a longitudinal sectional view of the parts shown by Fig. 1 united for use. Fig. 3 represents views in section and elevation, respectively, of a different form of or kind of body or barrel and needle and support.

Similar numerals of reference are employed to indicate corresponding parts in the several views.

The numeral 1, Figs. 1 and 2, designates a barrel or body which is formed of some cheap or comparatively valueless metal of a nature which will withstand the attack of the medicaments usually employed for injecting purposes or which will not in the least deleteriously affect such medicaments by a long confinement within said barrel or body. This barrel or body is of equal diameter from end

to end, and the bore is smooth and unbroken by screw-threads or shoulders. After the medicament has been deposited therein the one end is sealed by a cork 2 and the other end by a cap 3, which is slipped thereover and holds with sufficient friction to overcome any tendency to accidental displacement and to resist the pressure thereagainst of the liquid while under the influence of the plunger. This construction of barrel or body also facilitates thorough sterilization and is entirely free from all danger of infection and injury to life. Hypodermic syringes or injectors as heretofore constructed were objectionable in so far as they embodied screw-threads, seams, crevices, washers, leather-headed plungers, and metals which from frequent use and contact with medicinal liquids become saturated with various medicaments and form chemical compounds which are transmitted by use thereafter to other persons with serious consequences. These well-known objections and conditions, as well as the nature of the material of which they are wholly or in part composed, make it practically impossible to thoroughly and completely sterilize the ordinary forms of syringes. In addition to the quick use for which the improved injector or syringe is designed, sterilization thereof is rendered easy, and the several parts of each form of injector can be readily prepared for continuous or repeated use, and a loss of any one of the barrels or bodies will not entail serious loss in view of their cheap nature.

The cap 3 has a nipple 4 projecting therefrom and is adapted to frictionally or otherwise receive the coupling-head 5 of a needle 6 when the device is arranged for use, and when the several parts are stored in bulk or nested in a kit or case the nipples of the barrels or bodies will have plugs or caps 7 fitted thereto in a movable manner, and sterilized compressed corks 2 will be snugly and tightly inserted in the opposite extremities, as shown by Fig. 1. When one of the barrels or bodies is prepared for injecting purposes, the plug 7 is withdrawn or disconnected, and the cork 2 is permitted to remain in the barrel, and the plunger 9 is then applied against the said cork, and the latter is shoved through the barrel as a head to the plunger and serves to drive or force the contents of the barrel

outwardly through the needle. This plunger 9 comprises a smooth body 10, which easily fits in the barrel and from which a stem projects provided with a pressure-receiving head 11. The plunger is without crevices and is also easily sterilized, and it is proposed to use one plunger and needle with a series of barrels or bodies successively, so that as one barrel is emptied and its contents made to serve their purpose another barrel may be quickly brought into use without the delay incident to the recharging of the ordinary syringe.

In Fig. 3 a simpler form of the improved device is shown and embodies a glass barrel or body 12 of equal diameter from end to end, and after receiving its intended contents is plugged at both ends by corks 13 to provide an air-tight closure. With this form a needle 14 is employed, comprising a stopper or cork head 15, with the needle extending centrally therethrough, and constructed with a stop-collar 16 at its inner end, which is caused to bear against the inner end of said stopper or cork, as shown. In preparing this form of the device for use the one cork 13 is withdrawn and replaced by the cork-head 15 of the needle 14, and the opposite cork 13 is allowed to remain in the barrel to serve as a head for the plunger 9, which is also used in this instance. The most important advantage of this improved arrangement is the convenience of having a plurality of barrels or bodies filled with different medicaments all primarily hermetically sealed until used and thoroughly antiseptic or sterilized. The utility of these barrels containing each a different alkaloid or medicinal agent cannot be overestimated for use in railroad-wrecks, on battle-fields, or other places where a large number of persons have become injured and who may require in some instances a heart stimulant and in others an antihemorrhage injection, and one kit or case may contain bar-

rels separately filled with morphine, ergotin, strychnine, atropin, digitalis, apomorphine, &c., in regular injecting quantity and in condition for immediate use. Where the barrels or bodies are formed of metal, it is preferred that aluminium be used, though in some instances it may be found preferable to employ paper or paper compounds for their manufacture in addition to the cheap glass construction.

The form, size, and proportions of the various parts may be changed, as well as the minor details of construction, without departing from the principle of the invention.

Having thus described the invention, what is claimed as new is—

A device of the class set forth, comprising a cylindrical body of the same diameter from end to end both inside and outside, and having a bore therethrough smooth and unbroken by projections, a closable device for one extremity of the body slidable through the latter to the opposite extremity and normally disposed inwardly from the terminal of the extremity from which its sliding movement is started, the said closing device being continually retained in the body, an injecting-needle removably applied to the end of the body toward which the closing device is moved and adapted to be alternately applied to opposite ends of the body, and a plunger completely independent of the closing device and freely removable from and insertible in either end of the body, the body being adapted to receive a quantity of injecting liquid which is held between the movable closing device and the needle.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

WILLIAM M. HAYNES.

Witnesses:

O. J. OTTAWAY,
F. E. MILLER.