

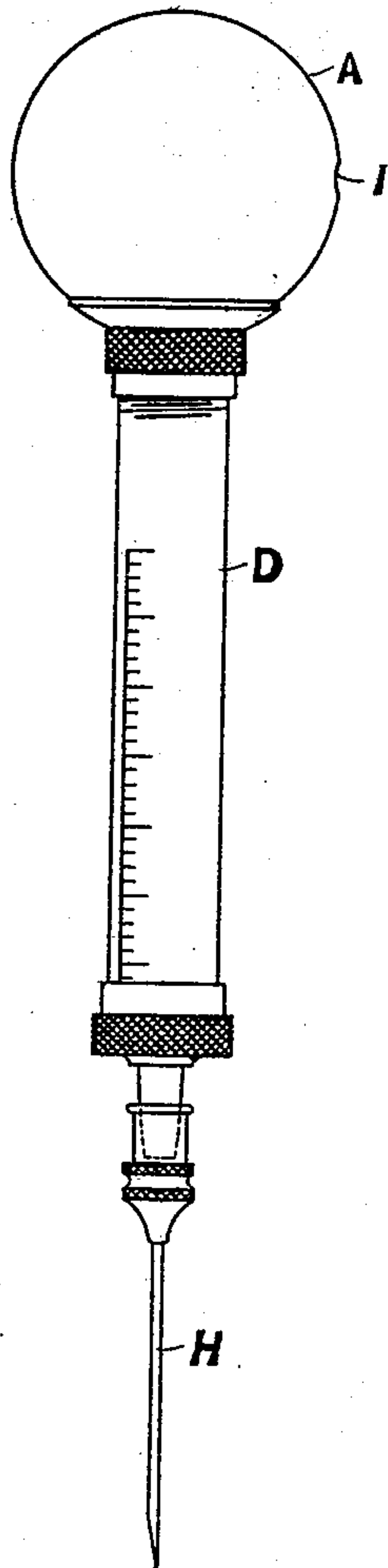
No. 713,980.

Patented Nov. 18, 1902.

H. J. GILL.
HYPODERMIC SYRINGE.
(Application filed June 13, 1902.)

(No Model.)

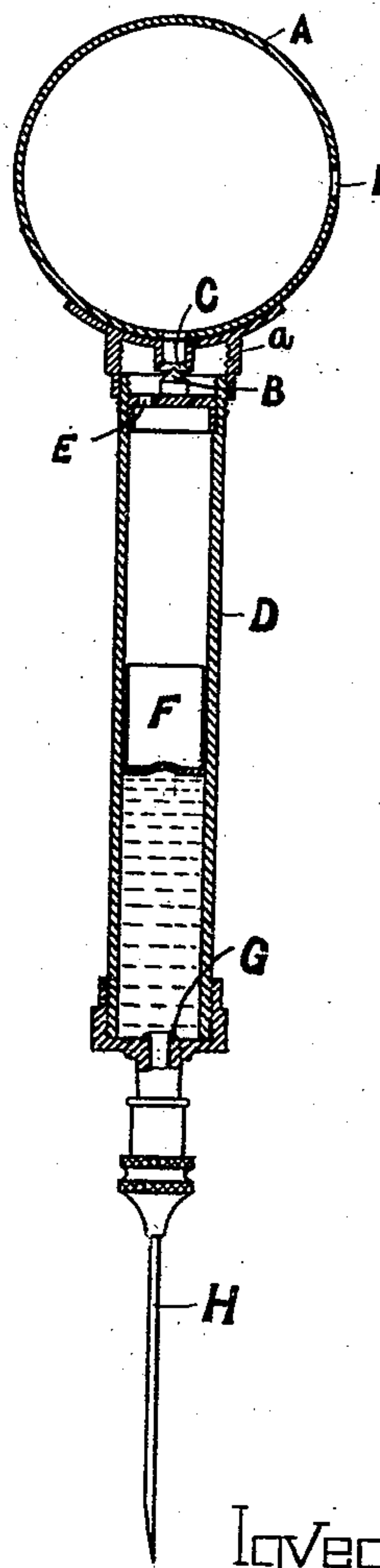
FIG. 1.



Witnesses

A. B. Williams
L. S. Hamer

FIG. 2.



Inventor

Henry Joseph Gill
By
Thos. Inwick Lawrence
his Attorney.

UNITED STATES PATENT OFFICE.

HENRY JOSEPH GILL, OF CLONSKEAGH, IRELAND.

HYPODERMIC SYRINGE.

SPECIFICATION forming part of Letters Patent No. 713,980, dated November 18, 1902.

Application filed June 13, 1902. Serial No. 111,580. (No model.)

To all whom it may concern:

Be it known that I, HENRY JOSEPH GILL, M. A., J. P., publisher, a subject of the King of Great Britain, residing at Clonskeagh, in the county of Dublin, Ireland, (whose full postal address is Roebuck House, Clonskeagh, aforesaid,) have invented certain new and useful Improvements in Hypodermic Syringes, (for which application has been made in Great Britain, No. 24,335, dated the 29th day of November, 1901,) of which the following is a specification.

This invention has for its object a form of hypodermic syringe which shall be much more convenient and accurate than the present arrangement of a piston-syringe.

The invention consists, essentially, in the combination of a pneumatic bulb or bellows with the injection-tube and a valve between, which can be operated by the hand using the syringe without taking off the pressure from the syringe; lastly, in a valve which automatically closes the moment the liquid in the syringe falls below its seat. Thus injection of air is entirely avoided.

The invention will be understood from the following description, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of my syringe; Fig. 2, a vertical section.

Referring to the figures, A is a pneumatic bulb, B a valve, and C the valve-seat. The neck of the pneumatic valve is provided with a screw, which is screwed onto the end of the injector-tube D. The air when the bulb is compressed goes through the valve-hole and through the hole E into the injector-tube. When enough liquid has been absorbed, a slight rotation of the ball A will cause the valve-seat C to close down onto the valve-plug B, thus shutting off the ball. The valve is in the top of the injection-tube D and is preferably of conical shape, with conical plug B, and E is a port opening from the valve-chamber into the injector-tube. Consequently by simply turning the pneumatic bulb so as to bring the seat C down onto the valve-plug B or raise it up therefrom connection between the bulb and the injecting-tube is opened or closed, as required. This operation of opening and closing the valve can be accomplished by the hand using

the syringe without taking off the pressure from the syringe.

Inside the injecting-tube D, I place a small floating valve F, of hollow glass, wood, &c., faced with a layer of rubber sheeting—in fact, any material or combination of materials, preferably slightly elastic, which will not be acted upon by the material to be syringed and sufficiently hard to keep its shape and which is almost the same diameter as the interior of the tube of syringe. The other termination of the injector-tube has a small hole G with a raised edge.

H is the hypodermic needle. The liquid is injected through the needle by compressing the ball A. When all the liquid has been delivered, the valve F closes the hole G, thus preventing any air whatever from being ejected. The tube of the syringe is graduated, as shown.

I do not confine myself to the exact type of valve B, my idea being to enable the connection being opened or closed by the hand using the syringe without taking the pressure from the bulb.

I declare that what I claim is—

1. In a hypodermic syringe, the combination of an interior tube, a valve mounted in the upper end thereof, a compressible bulb mounted at the upper end of said tube and having a valve-seat at its lower end in alignment with the valve in the tube, a follower in said tube provided on its under surface with a depression, adapted to engage and act as a seat for an annular projection on the interior bottom wall of the tube, substantially as set forth.

2. In a hypodermic syringe, the combination of an injector-tube, a pneumatic compressible bulb rotatably mounted at one end of said tube and having communication therewith, and a valve so arranged between said bulb and tube that the supply of air from said bulb is regulated by the rotation of the bulb relative to the tube, substantially as set forth.

3. In a hypodermic syringe, the combination with an injector-tube, of a compressible bulb provided with a neck or extension adapted to receive said tube, a valve-seat formed intermediate the walls of the neck of the bulb, a valve carried by said injector-

tube the construction being such that the supply of air from the bulb is controlled through the rotation of the bulb relative to the tube, substantially as set forth.

- 5 4. In a hypodermic syringe, the combination of an injector-tube, of a compressible bulb carried thereby with an outlet at its lower end, a raised flange or annular projection formed on the inner bottom wall of said
10 tube around the outlet, a follower in said

tube having a depression in its lower end adapted to engage and seat the raised projections, substantially as set forth.

In witness whereof I have hereunto signed my name, this 31st day of May, 1902, in the presence of two subscribing witnesses.

HENRY JOSEPH GILL.

Witnesses:

HENRY CONNELL,

ROBERT HENRY BEAUCHAMP.