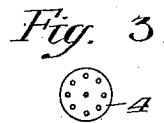
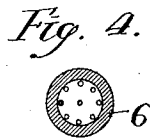
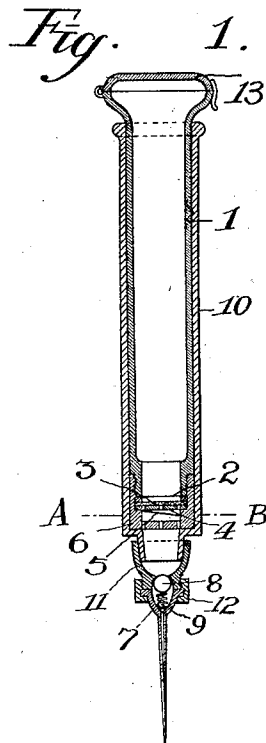


N. KITAOKA.
INJECTION SYRINGE.
APPLICATION FILED FEB. 11, 1920.

1,363,128.

Patented Dec. 21, 1920.



INVENTOR
Nobuchika Kitaka,
BY
B. Singer,
ATTORNEY

UNITED STATES PATENT OFFICE.

NOBUCHIKA KITAOKA, OF TOTTORI-KEN, JAPAN, ASSIGNOR TO SHIGEZO NISHITANI,
OF TOKYO, JAPAN.

INJECTION-SYRINGE.

1,363,128.

Specification of Letters Patent.

Patented Dec. 21, 1920.

Application filed February 11, 1920. Serial No. 357,924.

To all whom it may concern:

Be it known that I, NOBUCHIKA KITAOKA, a subject of the Emperor of Japan, and a resident of No. 59 Katashiba, Santoku-Mura, Tohaku-Gun, Tottori-Ken, Empire of Japan, have invented new and useful Improvements in Injection-Syringes, of which the following is a specification.

This invention relates to improvements in injection syringes and relates more particularly to the syringe adapted for introduction of medicated solution into the human body.

The primary object of the invention is the provision of a syringe of this character which shall be provided with means for eliminating any such foreign matter as will be likely found mixed with the fluid before the same is ejected through the nozzle, so as to guard against suppuration or any other detrimental effect, in such a manner as to enable the medicated solution injected to be received by the patient in an absolutely pure condition but giving no opportunity to have the qualities of the solution impaired.

A still further object of the invention is the provision of a syringe which shall be simple, durable and efficient, and which may be manufactured and sold at a comparatively low cost.

With the above and other objects in view, the invention consists in the novel construction, combination, and arrangement of parts hereinafter fully described and claimed, and illustrated in the accompanying drawing, wherein:—

Figure 1 is a sectional view taken on a plane extending centrally and longitudinally through the syringe constructed in accordance with my invention.

Fig. 2 is a plan of the bearing ring.

Fig. 3 is a plan of the perforated disk.

Fig. 4 is a cross sectional view taken on line A—B of Fig. 1.

Referring to the drawing by reference numerals, 10 designates the cylinder of my improved syringe into which fits a hollow piston 1, having at its upper end a hinged cover 13 adapted to be flung open so as to admit therethrough the necessary medicated solution into the bore of the piston 1.

The lower threaded end of the piston is, as shown, engaged by a suitable bearing ring 2, directly adjacent of which there are ar-

ranged in successive order and in close contact with each other, a filter cloth 3, preferably of silk, perforated disk 4, and a disk valve 5, respectively, all being held in position by means of a perforated socket 6 which engages the threaded end of the cylinder 1.

The lower end of the cylinder 10 is threadedly engaged by a socket 11, which, in turn, is threadedly engaged by a nut 12, thereby holding the usual needle-shaped nozzle 9 in position centrally of the syringe. 7 is a spring bearing upon a ball valve 8 which is placed within the space between the lower portion of the socket 11 and the upper end portion of the nozzle 9, so that when the piston is drawn up the ball valve 9 is forced to close the lower opening of the socket 11, thereby creating in the space between the piston and cylinder the vacuum for causing the contained fluid to be filtered through the filter cloth 3, and by pushing the piston back the disk valve 5 is closed and the ball valve 8 depressed to allow the contained fluid to pass out through the nozzle.

By this construction I am enabled to provide a syringe which is entirely safe and efficient, and may be admirably well employed for injecting fluid of such a nature as will decompose in a very short interval of time. The syringe made in accordance with my present invention is therefore sought by surgeons and others for not only the intravenous injection but also for intramuscular, intraspinal and subcutaneous injection.

What I claim, and desire to secure by Letters Patent is:—

An injection syringe comprising a hollow piston, a bearing ring, filter cloth, perforated disk and a valve, respectively, closely arranged and in successive relation to each other, all being held in position by means of a nut engaging the end portion of the piston, a second socket, a needle shaped nozzle, a second nut securing both the second socket and needle shaped nozzle in position, and a spring bearing ball valve occupying the space between the said second socket and nozzle, substantially as set forth.

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

NOBUCHIKA KITAOKA.

Witnesses:

TOGO OKUBO,
H. YASUMARA.