(No Model.)

W. SCHEERER.

SYRINGE.

No. 562,425. Patented June 23, 1896.

Fig. 1.

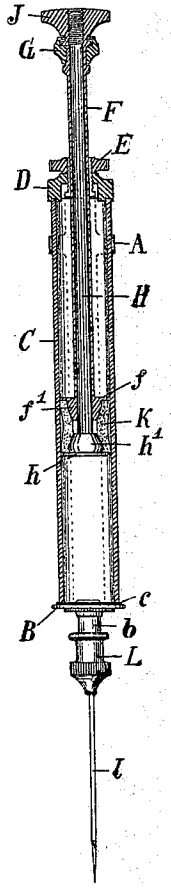


Fig. 2.

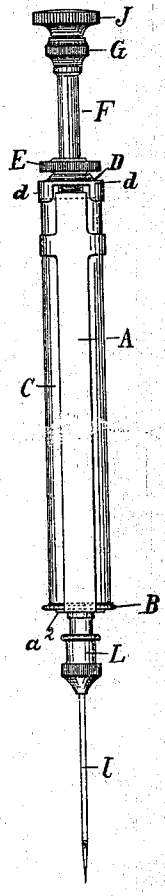


Fig. 3.

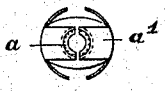


Fig. 4.



Fig. 7.

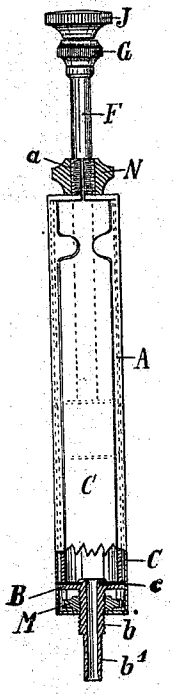


Fig. 8.

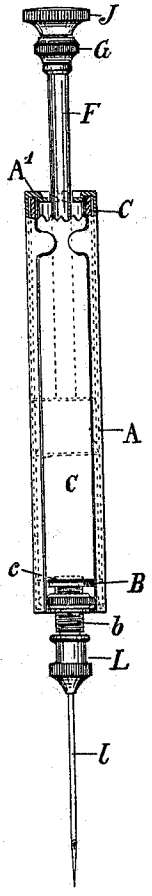


Fig. 11.

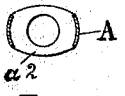


Fig. 10.

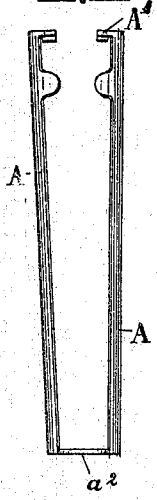


Fig. 9.



Fig. 5.

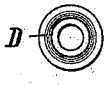


Fig. 6.

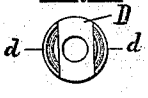
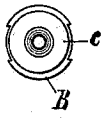


Fig. 12.



Witnesses:
M. C. Massie.
A. J. Birney

Inventor:
Wilhelm Scheerer
by Max Jaeger
his attorney.

UNITED STATES PATENT OFFICE.

WILHELM SCHEERER, OF TUTTLINGEN, GERMANY.

SYRINGE.

SPECIFICATION forming part of Letters Patent No. 562,425, dated June 23, 1896.

Application filed June 29, 1895. Serial No. 554,458. (No model.)

To all whom it may concern:

Be it known that I, WILHELM SCHEERER, manufacturer, of Tuttlingen, Würtemberg, Germany, have invented a new and useful Improvement in Surgical Syringes, of which the following is a specification.

The object of the present invention is a syringe which may be readily taken apart and divided into sections, and whose cylinder or body is hermetically sealed by axial, instead of radial, pressure hitherto employed, bearing upon the packing-ring. By this arrangement, the danger of fracturing the syringe-cylinder, generally formed of glass, is avoided and the sections of the syringe, after taking the same apart, may be cleansed and sterilized conveniently and completely.

In the drawings the syringe is represented in Figures 1, 2, 7, and 8, and several sections of the same are illustrated in Figs. 3, 4, 5, and 6, and Figs. 9 to 12.

The syringe-cylinder C is embraced by a frame A, made in one piece and stamped out of sheet metal or other suitable material, and subsequently bent over in an appropriate manner. (See Figs. 4 and 10.) When the syringe is adapted to be packed from above by a nut, the upper open side of the frame A is provided at each end with one-half of a hollow threaded half-stem *a*. The casing A is flattened at the top, at *a'*, and at this point is seated a disk D, embracing the flattened portion *a'* of the casing A, with the projections *d*, Fig. 6. The disk D is provided with a groove, and the lower surfaces of the projections *d* rest upon the cylinder C, as shown, the said disk D being pressed against the cylinder C by the nut or interiorly-threaded collar E, which engages the two threaded half-stems *a*. The bottom of the cylinder rests upon a soft packing-ring *c*, inserted into the casing, and the said ring *c* on a disk B, provided with a rim or flange. If desired, the disk B may be ground at the top, and, in that case, the cylinder would rest directly upon the disk B. The latter is provided, at its under side, with a small tube *b*, which passes through the bottom a^2 of the frame A, and which is adapted to receive the pointed needles or nozzles L.

Instead of effecting the packing from above by means of disk D and the nut or interiorly-threaded sleeve E, the same may be carried out also by providing the small tube *b*, on the disk B, with an exterior thread, which is engaged by a nut M, resting upon the base a^2 of the casing A. By tightening the said nut M, the disk B, or the packing-ring *c*, arranged above the same, is pressed against the cylinder C, thus closing the same off air and liquid tight. Under this arrangement the cylinder C, at its upper portion, bears against the part *a'* of the casing, and the two threaded half-stems *a* are here again held together by a nut or interiorly-threaded collar N. (See Fig. 7.)

Instead of securing the casing A by means of the threaded half-stems *a*, the same may be held in place with respect to the cylinder C, at the top, in the manner illustrated in Fig. 8, where the free bent-over ends A' of the said frame or casing A are stamped or pressed so as to form welt-shaped depressions corresponding to the diameter of the cylinder, these welts serving to grasp or embrace the walls of the cylinder and thus hold the same fast.

To pack the piston K, the piston-rod F is made hollow and provided at its lower end with a disk *f* and a cone *f'*. Within the hollow piston-rod F is arranged a second rod H, adapted to slide therein and likewise furnished at its lower end with a disk *h* and a cone *h'*. Between the two disks *f* and *h* is arranged the soft piston-packing ring K, which, as shown in Fig. 1, has a periphery concave in cross-section. The inner piston-rod H is provided at its upper end with threads and may be axially or longitudinally adjusted or shifted with respect to the hollow threaded piston-rod F by means of a nut J, engaging the screw-thread on the rod H, and rotatably mounted or swiveled on the head G of the rod F. By this longitudinal shifting the two cones *f'* and *h'* may be caused to approach or recede from each other to the desired extent, whereby the elastic packing-ring K is compressed more or less.

The cylinder may be provided with a double graduation in order to be enabled to accurately control and determine at all times the amount of the liquid to be injected or drained.

It is manifest that various other construc

tions for securing the cylinder within the casing may be devised without, however, affecting the essence of the invention as covered in the claims.

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

1. In a surgical syringe, the combination, with a casing having two sides provided at their free ends with half-stems together forming a complete stem, of a cylinder within the casing and a collar secured on the said half-stems, substantially as set forth.

2. In a surgical syringe, the combination, with a casing having two sides provided at their free ends with half-stems, said half-stems together forming a complete stem, of a cylinder within the casing, and a collar threaded onto the said half-stems, substantially as set forth.

3. In a surgical syringe, the combination, with a casing formed of one piece of sheet metal and having two sides and a bottom, the free ends of the sides being provided with half-stems which together form a complete stem, of a cylinder located within the casing, a piston within the cylinder, a piston-rod attached to the piston and passing out through the said stem, and a collar surrounding the said stem, substantially as set forth.

4. In a surgical syringe, the combination, with a casing formed of one piece of sheet metal and having two sides and a bottom, the free ends of the sides being provided with half-stems which together form a complete stem, of a cylinder located within the casing, a packing-ring between the said cylinder and the bottom of the casing, and a collar threaded onto the stem, substantially as set forth.

5. In a surgical syringe, the combination, with a cylinder, and a hollow piston-rod provided with a plate at its lower end and an inverted cone below the plate, of an adjusting-rod passing through the hollow piston-rod and its cone, said adjusting-rod carrying a plate and a cone above the plate, and an elastic hollow packing-ring held between the plates and surrounding the cones, substantially as set forth.

6. In a surgical syringe the combination, with a cylinder, and a hollow piston-rod provided with a plate at its lower end and an inverted cone below the plate, of an adjusting-rod passing through the hollow piston-rod and its cone, said adjusting-rod carrying a plate and a cone above the plate, and an elastic hollow packing-ring held between the plates and surrounding the cones, said packing-ring having a periphery concave in cross-section, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

WILHELM SCHEERER.

Witnesses:
AUGUST B. DRUTZ.
WM. HAHN.