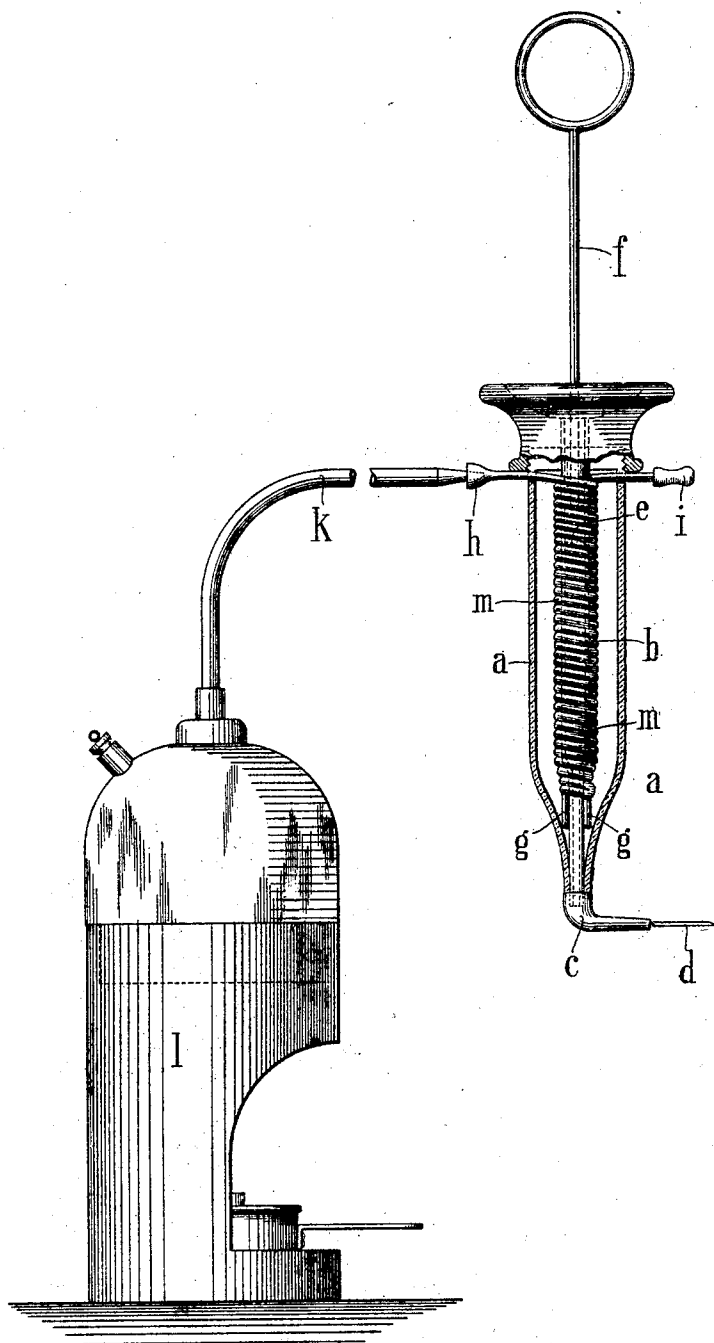


No. 795,056.

PATENTED JULY 18, 1906.

S. NOAH.
INJECTOR FOR MEDICAL OR LIKE PURPOSES.
APPLICATION FILED JAN. 25, 1905.



WITNESSES:

Henry J. Suhrker
Wm. H. Schaefer

INVENTOR,

Selly Noah
BY *Lothrop Niles*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

SELY NOAH, OF NUREMBERG, GERMANY.

INJECTOR FOR MEDICAL OR LIKE PURPOSES.

SPECIFICATION forming part of Letters Patent No. 795,056, dated July 18, 1905.

Application filed January 25, 1905. Serial No. 242,695.

To all whom it may concern:

Be it known that I, SELLY NOAH, practical dentist, a subject of the King of Bavaria, and a resident of Königstrasse 33, Nuremberg, Germany, have invented a certain new and useful Improvement in Injectors for Medical or Like Purposes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawing, and to letters of reference marked thereon, which forms a part of this specification.

My invention relates to an improved device by means of which injections of readily solidifiable material in a liquid state are facilitated for medical and like purposes. In order to obtain the desired result, it is necessary to warm the mass to be injected, so as to render it fluid and maintain it in that condition. Such devices as at present constructed are to some extent inefficient, inasmuch as they do not permit of the mass being warmed to the desired extent, and they are also dangerous to manipulate and too expensive. Among such injectors are those heated with warm water, wherein the warming is very imperfect, or by means of an electric current, which is unsuitable on account of the necessary current not always being available, while there is also the risk of short-circuiting and the difficulty of heating the injector throughout its entire length.

In the accompanying drawing is shown, partly in section, an injector of improved construction in which the above objections are obviated.

In a convenient form the injector comprises an outer casing *a*, inclosing the injecting-cylinder *b*, the lower end of which carries the nozzle *c* and the injecting-needle *d*. Within the cylinder is located the usual piston or plunger *e*, which is operated by means of the handle *f*. The cylinder *b* is surrounded by a helical tube *m*, preferably so arranged that the coils lie close together and completely inclose the cylinder *b*. The spiral *m* is continued down to the junction with the nozzle, at which point the coil may, as shown, be provided with hollow extensions *g*, projecting into the

restricted end portion of the casing *a* toward the nozzle *c* to a greater or less extent to that shown in the drawing as desired for the purpose of keeping the mass in the nozzle and needle liquid. The coiled tube *m* is provided at its two ends, respectively, with an inlet *h* and an outlet *i*, both projecting through the wall of the casing adjacent the rear end of the injecting-cylinder, the inlet *h* being connected with a feed-pipe *k*, whereby the heating agent—such as steam, hot air, or the like—is admitted to the coil *m*. The outlet *i* discharges the heating agent to the atmosphere or otherwise, as desired.

The operation of the apparatus is as follows: The heating agent, which in the case of steam may, as shown, be generated in a small boiler *l*, is admitted into the spiral coil *m* through the feed-pipe *k*. By this means the coil *m* is heated, and consequently the cylinder *b* and its contents. As soon as the material to be injected appears in the form of drops at the orifice of the injecting-needle the desired degree of fluidity of the mass is attained and this condition is reliably maintained throughout the operation, provision being made, if necessary, for insulating the spiral, so as to prevent loss of heat by radiation.

Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent of the United States of America, is—

1. An injector for medical purposes, comprising an injecting-cylinder, and a coiled tube surrounding said cylinder and having an inlet and outlet adjacent one end thereof.

2. An injector for medical purposes, comprising an injecting-cylinder, and a coiled tube surrounding the same and having an inlet and outlet adjacent the rear end thereof.

3. An injector for medical purposes, comprising a casing, an injecting-cylinder extending therethrough, and a coiled tube surrounding said cylinder and having its inlet end extending through the wall of said casing.

4. An injector for medical purposes, comprising an outer casing, an interior injecting-cylinder, and a coiled tube surrounding said cylinder and having its outlet end extending through the wall of said casing.

5. An injector for medical purposes, comprising an outer casing, an interior injecting-cylinder extending therethrough, and a coiled tube surrounding said cylinder and having
5 inlet and outlet ends extending through the wall of said casing.

6. An injector for medical purposes, comprising an outer casing, an interior injecting-cylinder extending therethrough, and a coiled
10 tube surrounding said cylinder and having the inlet and outlet ends thereof extending through the wall of said casing adjacent the rear end of said cylinder.

7. An injector for medical purposes, comprising a casing restricted at one end, an injecting-cylinder extending through the same
15 and having its outlet adjacent said restricted end portion, and a heating-coil surrounding

said cylinder and having extensions projecting into said restricted end portion. 20

8. An injector for medical purposes, comprising an injecting-cylinder inclosed within an outer casing and carrying a nozzle and injecting-needle, a tubular coil surrounding the
25 cylinder, for the circulation of the heating agent, such coil having an inlet and outlet, and extensions at the lower part of the coil projecting toward the nozzle.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses. 30

SEELY NOAH.

Witnesses:

OSCAR BOCK,
OTTO RAUH.