

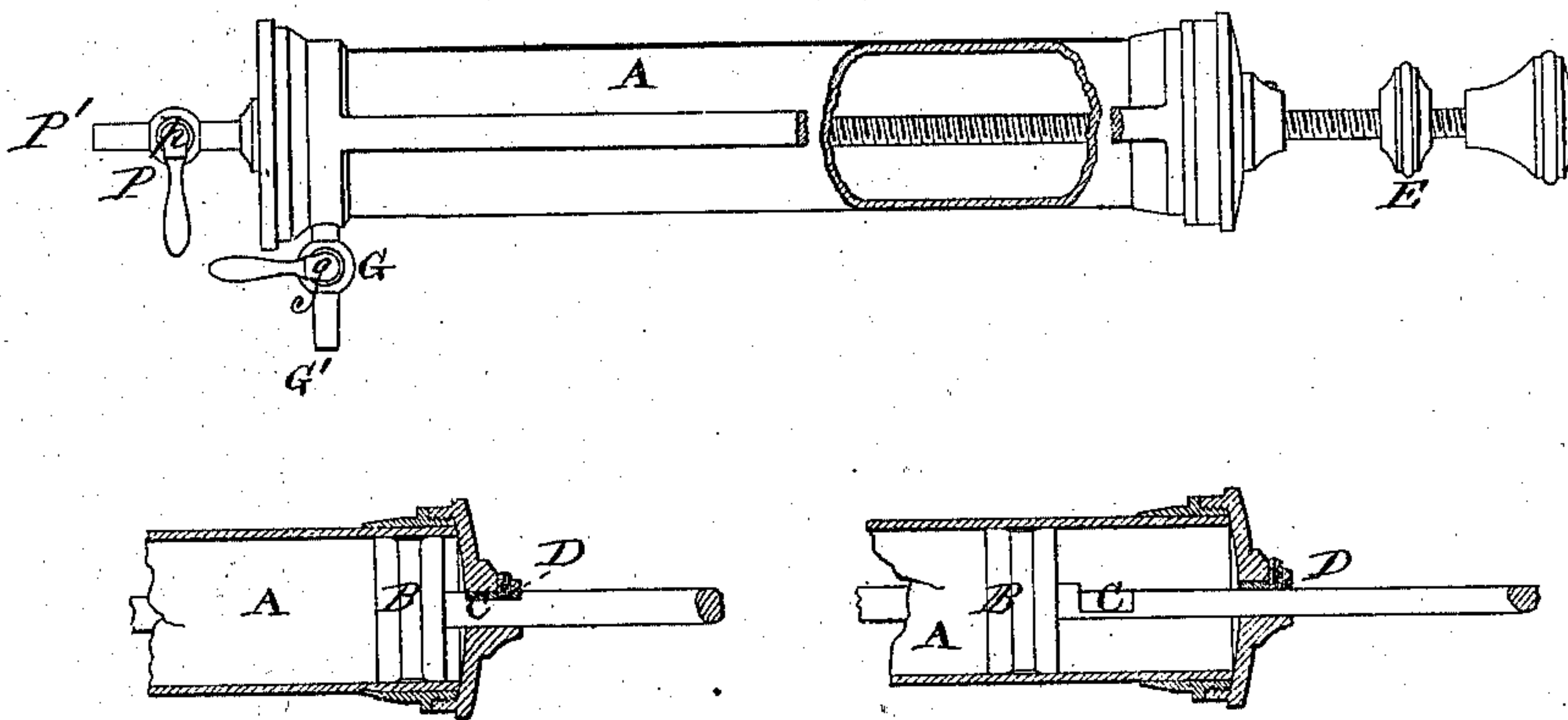
*G. Dieulafoy,*

*Syringe.*

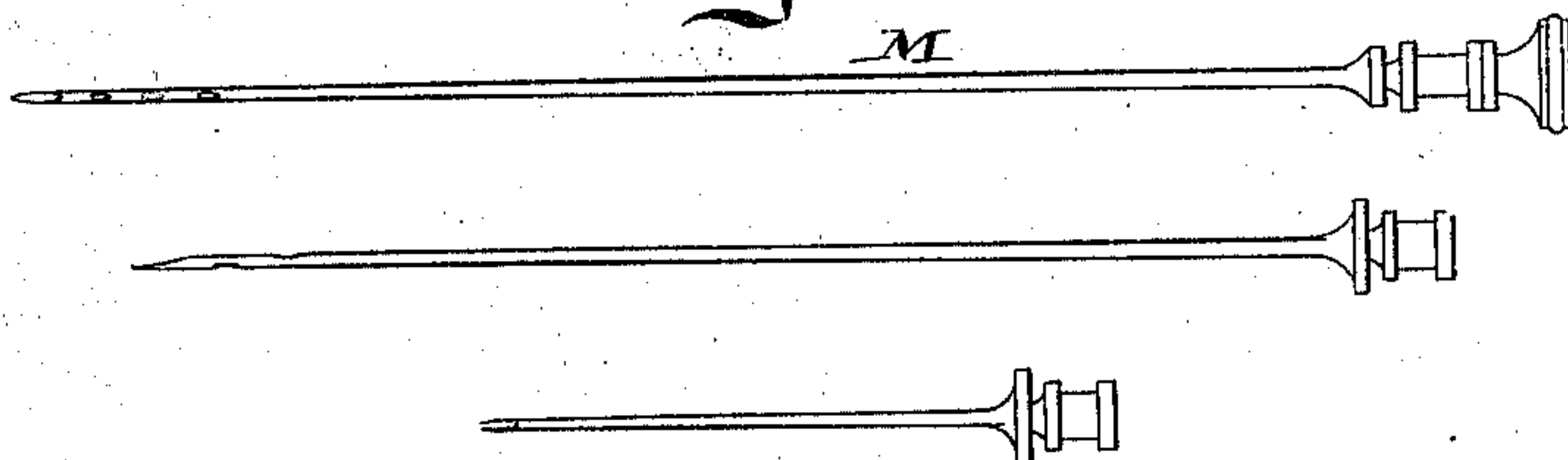
*No. 103027.*

*Patented May 17. 1870.*

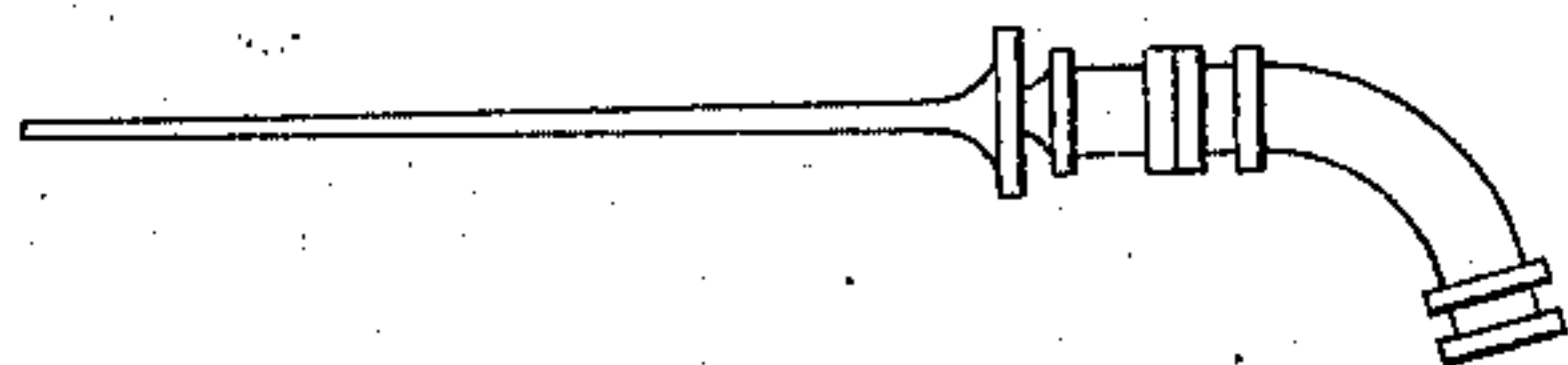
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



**Witnesses,**

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**Inventor,**

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# United States Patent Office.

GEORGES DIEULAFOY, OF PARIS, FRANCE.

Letters Patent No. 103,027, dated May 17, 1870.

## IMPROVEMENT IN SUB-CUTANEOUS EXHAUSTER.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, GEORGES DIEULAFOY, of Paris, in the Empire of France, have invented a Pneumatic Sub-cutaneous Exhauster; and do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed sheet of drawing making part of the same, in which—

Figure 1 is the instrument which has been found to be a very important and valuable assistant in the practice of medical science in all sub-cutaneous operations.

This invention comprises important improvements in instruments for detecting the character of collections of matter under the skin, and thereby assisting the surgeon to determine as to the usefulness of a more important operation, and for the practice of local anasthesis more readily than by the instruments heretofore employed.

The first improvement consists in providing the cylinder of the exhauster with an extra stop-cock and nozzle, to which a pipe may be applied for expelling the matter drawn into the cylinder, whereby the latter is rendered capable of being alternately filled and emptied without the necessity of withdrawing the trocar pipe from the wound, and consequently without pain to the patient, whereas, heretofore it has been necessary to introduce and withdraw the trocar pipe at each stroke of the piston, thereby causing, in some operations, several repetitions of intense and increasing pain.

The second part of my invention consists in providing for keeping up the vacuum in the cylinder for any length of time, when, as is frequently the case, the matter collected under the skin is so thick that its flow is very slow. To effect this, a notch is made in the piston-rod, and a block adapted to engage the notch is fitted into the head of the cylinder, whereby, when the piston is drawn back, it can be locked at the end of its stroke, thus continuing the vacuum as long as may be necessary or desirable.

Referring to the drawings—

A is a pump-barrel, of glass, to which are fitted at P and G, two short pipes, each provided with a stop-cock designated *p* and *g*, and terminated by a nozzle designated P' and G', which allows of fixing thereto either a trocar pipe, or any ordinary one.

In the case above alluded to, of sub-cutaneous explorations, I fit to the end of pipe P a trocar pipe, M, fig. 2, of requisite length, (it will be observed that the pipe end is perforated with many holes, so as to avoid obstruction,) and after the same is inserted in the part to be explored, it will be only requisite next to make a vacuum, or partial vacuum, within the

syringe by drawing out the piston B, by its rod *b*, so as to draw the matter sought for, and examine it.

In case a continuous operation becomes desirable, I attach to the pipe end or nozzle G', another ordinary pipe end, and when the syringe-barrel is filled up with the matter to expel, I shut the cock *p* on pipe P; and opening that on pipe G, and moving the piston B backward, the liquid is ejected, and thus prepared to have the circle *g* on pipe G closed, and the circle *p* on pipe P opened again, ready to inspire or draw out a second charge of the purulent or other matter, by further operation.

When the instrument is to be used for local anasthesis, I fit on the pipe P a common pipe, care being had that the end thereof shall be pierced with one hole as small as possible. The syringe is filled with ether, and the piston B is moved to expel the same upon the part to be operated upon.

The indispensable time necessary for emptying the syringe out on the parts to be treated shall be sufficient to produce complete anasthesis.

The piston-rod of the exhauster may be graduated with marks and figures, as will be obvious. It may also be prepared by means of a thread and nut, E, so as to determine its stroke, and thus serve to establish more positively a dosing or measure, either for ejecting or injecting purposes.

The vacuum obtained by the mere traction or pulling of the piston rod, must in some cases be kept up for a long period, to allow the thick matter time to flow in slowly to fill it. To this end I provide in the lower part of the rod a notch, C, and in the lid or socket part of the pump-barrel, I fit a block, D. On the piston reaching the end of its stroke, it suffices to impart a slight rotary motion thereto for the said block D coming to fit into the notch C, and thus constitute a stop.

Exhaustion is then produced under the mere influence of atmospheric pressure, whether the object may be the introduction into the pump-barrel of any sub-cutaneous liquid, or the injection of a medicamental one.

This instrument may be used alone, in some cases, for discharging the entire collection of matter, without a further operation.

These various operations may take place without it being necessary to withdraw the trocar pipe from the wound, and consequently without any pain to the patient, which result is immense when we consider that such withdrawing was to be effected heretofore at each operation or part of the operation.

The form and dimensions of the constituent parts of my instrument may be varied without departing



from the nature of my invention, therefore I do not confine myself to the precise details herein shown and described, but

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

1. A glass cylinder, A, closed at the ends, and provided with a plunger, B, and with nozzles G' P', and cocks G P, said nozzles being adapted to have applied to them trocar and other pipes, substantially as and for the purposes described.

2. The notch C in the piston-rod, and the block D in the end of the cylinder, so adapted to each other as to retain the piston at the end of its stroke, whereby the vacuum in the cylinder is kept up, substantially as and for the purpose set forth.

DOCTEUR G. DIEULAFOY, [L. S.]

Witnesses:

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