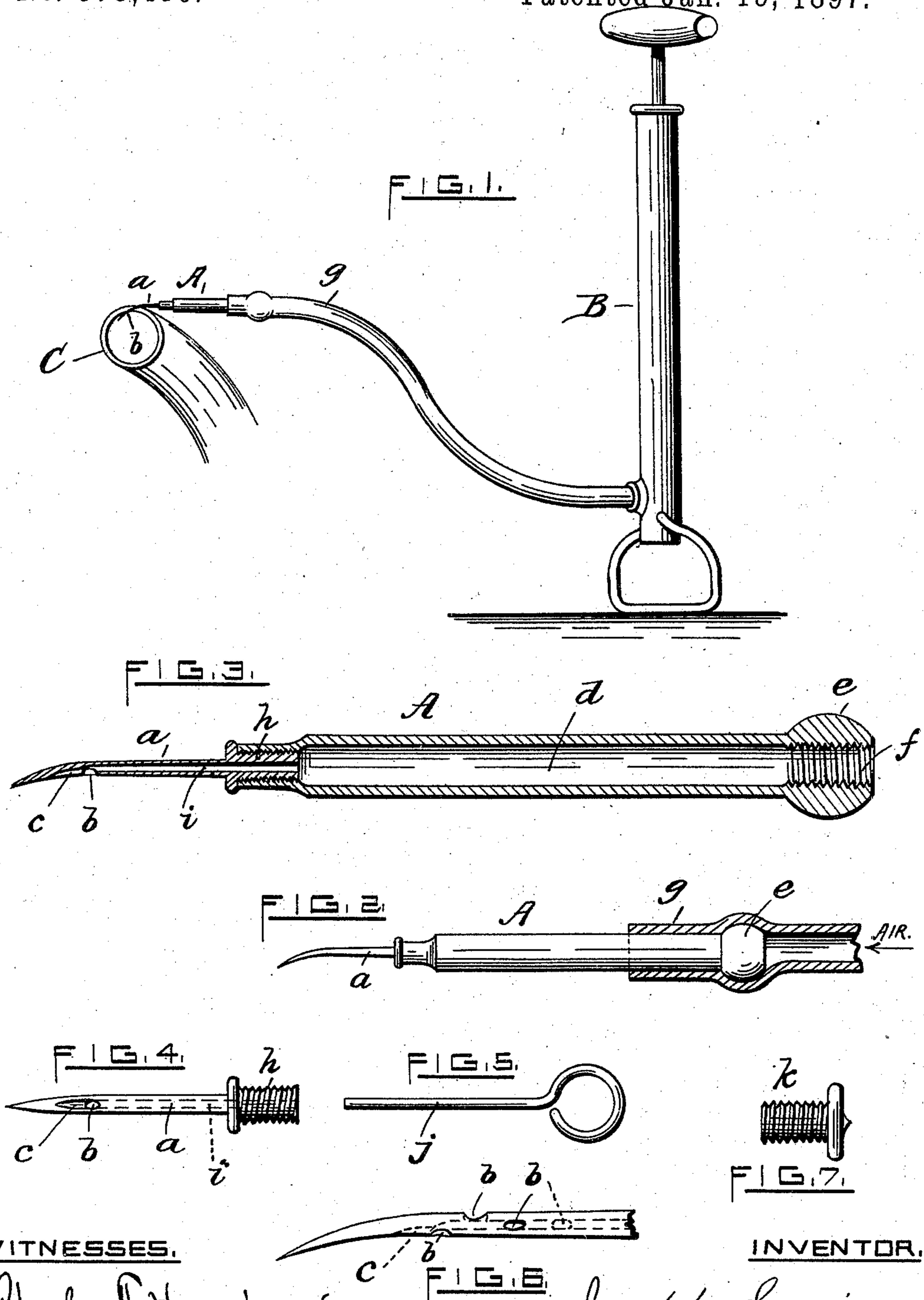


(No Model.)

J. SAVOIE.
PNEUMATIC TIRE INFLATOR.

No. 575,430.

Patented Jan. 19, 1897.



WITNESSES.

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JOSEPH SAVOIE, OF CENTRAL FALLS, RHODE ISLAND.

PNEUMATIC-TIRE INFLATER.

SPECIFICATION forming part of Letters Patent No. 575,430, dated January 19, 1897.

Application filed October 28, 1895. Serial No. 567,215. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH SAVOIE, a citizen of the United States, residing at Central Falls, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Pneumatic-Tire Inflaters; and I do 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 drawings, and to the letters of reference marked thereon, which form a part of this specification.

The object of my invention is to provide an apparatus by which a pneumatic tire or other hollow rubber body may be inflated to any degree of pressure required without the use of a valve or other permanent opening in the rubber envelop itself, and I accomplish this object by the device shown in the accompanying drawings, in which—

Figure 1 shows the apparatus complete and its application to a bicycle-tire; Figs. 2, 3, 4, 5, 6, and 7, details of my invention, to be described hereinafter.

The same parts are represented by the same letters throughout.

In Fig. 1, B is an ordinary air-pump; *g*, a rubber tube; C, a bicycle-tire, and A, *a*, and *b* details shown more clearly in the other figures.

In Fig. 3, A is a hollow metallic tube connected at one end with a hollow needle *a* by the thread *h* and terminating at the other end in the bulb E, threaded interiorly at *f* for the insertion of the plug *k*, Fig. 7.

Fig. 2 shows an exterior view of the tube A, the needle *a*, and the rubber tube *g*, leading from the air-pump.

Figs. 4 and 6 show the needle more in detail. I prefer to make the needle with a curved point, as seen in Fig. 6, although this form is not indispensable to its successful operation.

The needle *a* has a number of lateral openings *b b b*, connecting with its interior and set "staggering" or not in direct opposition to each other. The hole nearest the point of the needle has extending from its edge toward

the point of the needle a channel *c*. (Shown in Figs. 3, 4, and 6.)

In Fig. 5, *j* is a cleaning-pin for insertion in the needle *a*. The tube A, intermediary between the pump and the needle, is a cement-holder for use as shown hereinafter, the plug K serving to keep it free from dirt when not in use.

My invention works as follows: The tube A, carrying the needle *a*, is detached from the rubber tube *g*, and the cavity *d* is filled with rubber cement. The point of the needle *a* is then inserted into the tire or other body to be inflated in such a manner that the needle forms very nearly a tangent with the surface of the tire or other inflated body, as shown in Fig. 1. It is not necessary that the needle should go in far enough for the first lateral opening *b* to enter the interior, as the channel *c* will permit air to enter when the first hole *b* is nearly but not quite through the rubber envelop of the body to be inflated. The needle being inserted properly, the pump is then connected with A and the plunger operated. The pressure of the air forces the cement through the needle *a* and then into the interior of the body to be inflated by means of the lateral openings *b b b* and the channel *c*. The viscous nature of the cement causes it to adhere in a considerable mass about the point of the needle upon the interior of the tire, but does not at all interfere with the entrance of the air from the pump, and when there is a sufficient pressure in the tire or other body to be inflated the needle is withdrawn, and the cement completely covers the slight aperture left by the needle, and the india-rubber envelop is left whole and air-proof.

A very slight quantity of cement is sufficient to do the required work, as the manner of inserting the needle causes the aperture to very nearly close in an air-tight manner after the needle is withdrawn, even without the application of cement, but the cement insures a permanent closing of the hole.

The advantages of my invention over existing devices are very manifest. A valve, of whatever construction, is not and cannot be made entirely air-tight, and in a bicycle-

tire it is an acknowledged source of weakness and trouble. The tire is almost certain to wear out at the neck of the valve, and where the tire is not secured to the rim by means of
 5 cement the tire is apt to "creep" on the rim, thus cutting off the valve-stem and ruining the tire. Again, the use of a valve in a bicycle-tire necessitates a hole in the wooden or metallic rim, thus weakening it at that
 10 point.

The use of my invention does away with these evils, and as there is no outlet for the air the necessity of frequent refilling of the tire is obviated.

15 Another advantage of my invention is the hardening effect upon the cement produced by the passage of air through it in the process of inflation. It is well known in practice that cement introduced into the interior of a closed
 20 tire, or other closed rubber vessel, will not harden or set, but will continue for a long period of time in an unchanged or semiliquid condition, in which state it is useless for the purpose for which it is made, and that a pas-
 25 sage of air over or through it is necessary before its adhesive properties are available. The process of inflation hereinbefore described by means of my invention thus ac-

complishes the additional object of causing the cement to harden or "set" upon the interior of the tire.

Having now described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a pneumatic-tire inflater, an air-pump, and a cement-holder, combined with a hollow needle having a series of openings *b*, out of line with each other, and a channel *c*, extending beyond the openings toward the point of the needle, substantially as shown.

2. In a pneumatic-tire inflater, the combination of an air-pump, a hollow needle having lateral perforations, and a cement-holder intermediary between said pump and said needle, as set forth.

3. In a pneumatic-tire inflater, the combination of a hollow needle with a cement-holder adapted to connect with said needle and also with an air-pump, substantially as shown.

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

JOSEPH ^{his} × SAVOIE.
 mark

Witnesses:

JOSEPH E. JENCHER,
 FRED J. BANCROFT.