

F. Peale,
Check Valve.
N^o 15,192. Patented June 24, 1856.

Fig. 1.
a

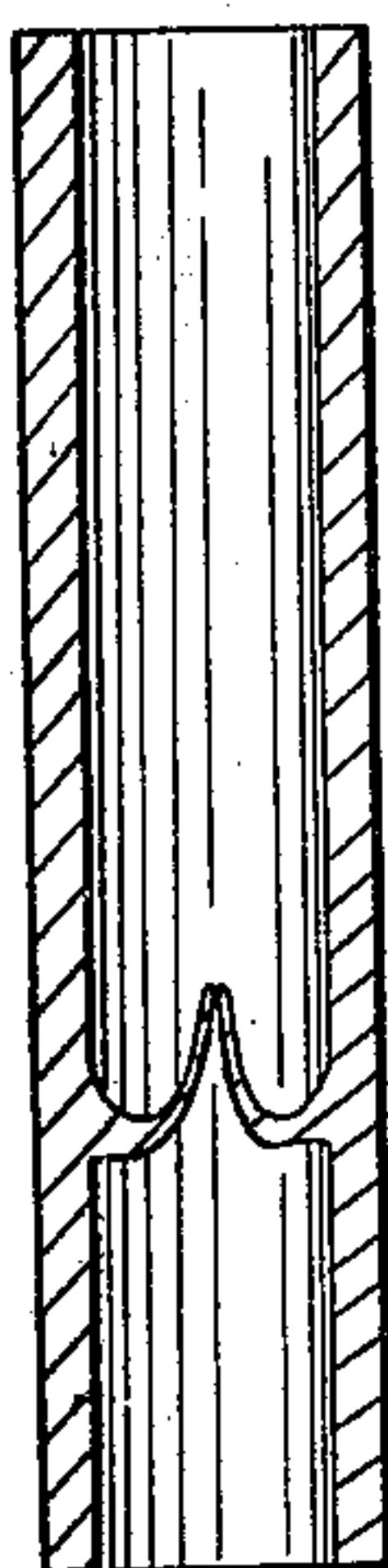


Fig. 2.
a

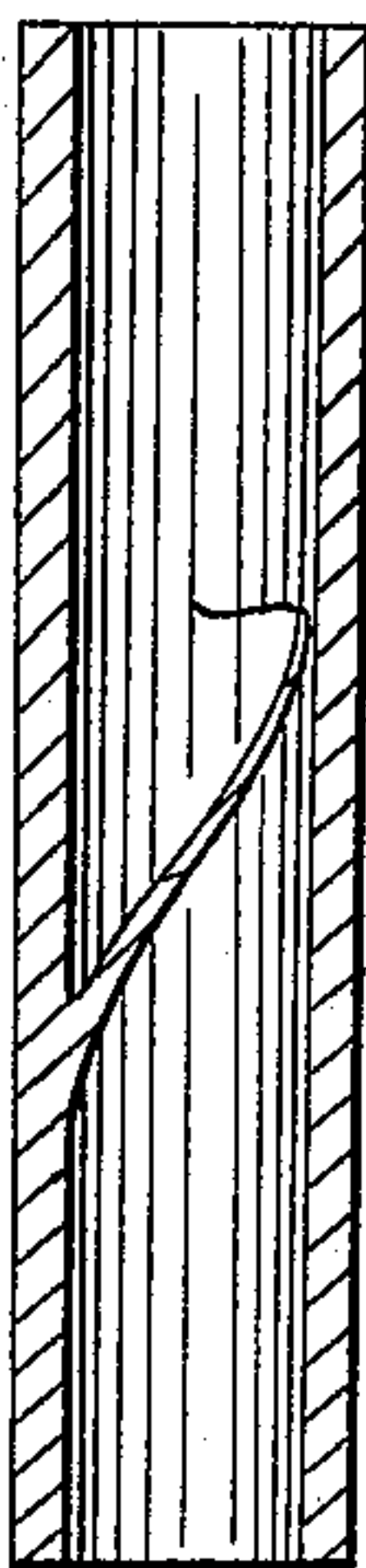


Fig. 3.
a

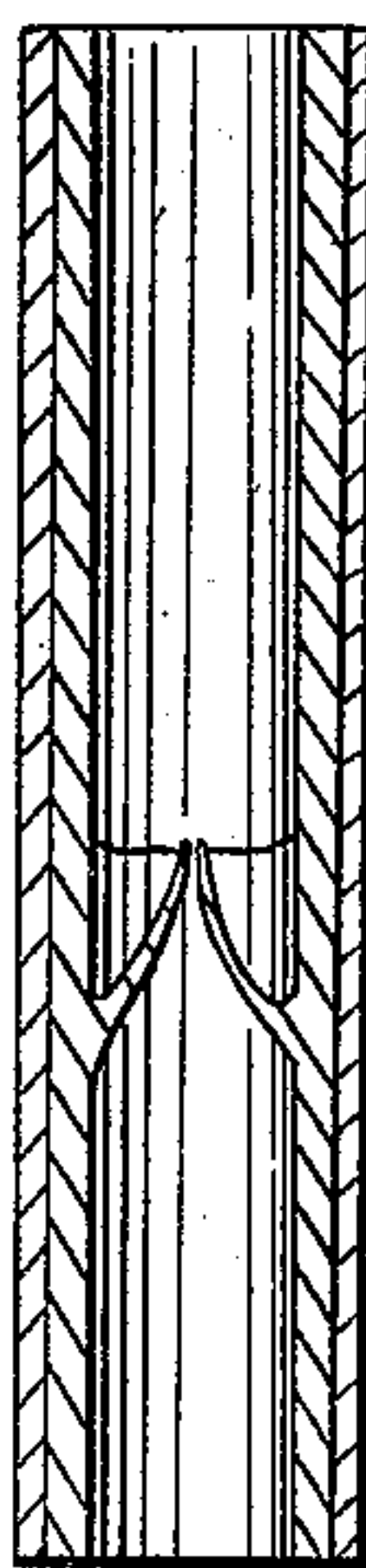
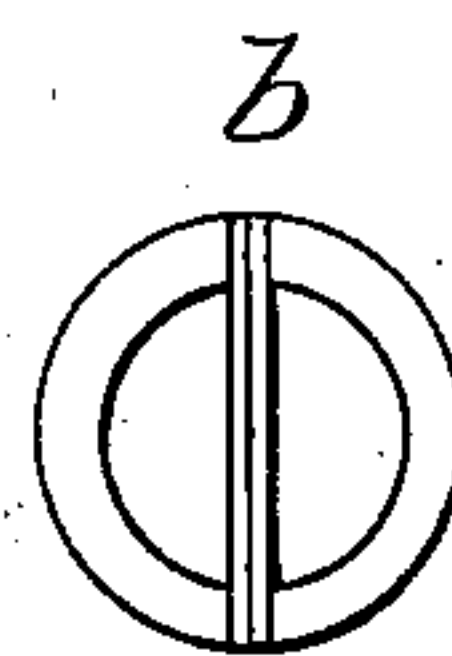
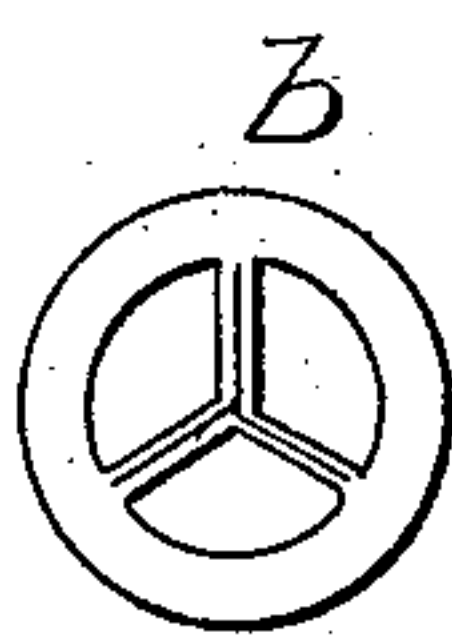
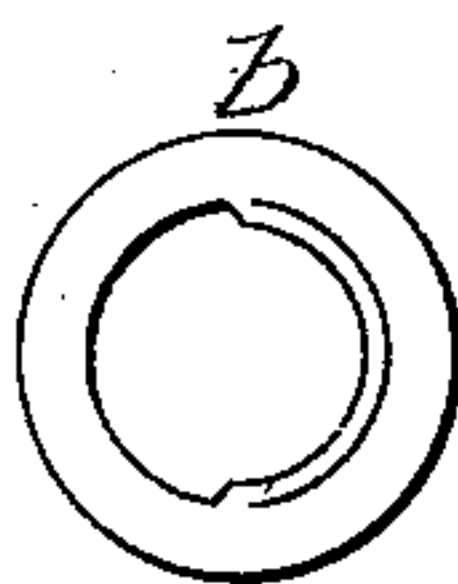
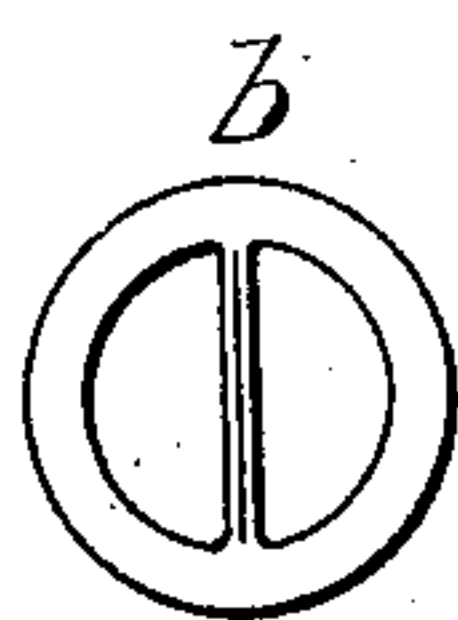
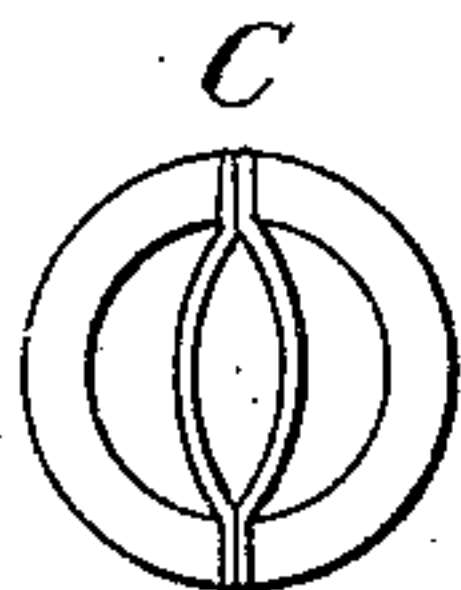


Fig. 4.
a



Witnesses
M Baird
R Shaw.



Inventor
Franklin Peale

UNITED STATES PATENT OFFICE.

FRANKLIN PEALE, OF PHILADELPHIA, PENNSYLVANIA.

TUBULAR ELASTIC VALVE.

Specification forming part of Letters Patent No. 15,192, dated June 24, 1856; Reissued September 5, 1859, No. 682.

To all whom it may concern:

Be it known that I, FRANKLIN PEALE, of the consolidated city and county of Philadelphia, in the State of Pennsylvania, have
5 invented new and improved valves for syringes, pumps, and other instruments of flexible materials, including gum-elastic and its combinations.

The construction of these valves, and their
10 operation is intended to imitate as nearly as may be, the valves of the arterial, and other portions, of the human organization, being the simplest and best adapted to the objects in view. They are constructed of
15 the same material as the tubes or pipes in which they are placed, either in the original fabrication, or in parts, by adhesive cements of the same base or component parts, as may be found most convenient or
20 practicable.

Figure 1, letter *a*, of the drawing represents a longitudinal section of what may be called the vein valve, and letter *b* a cross section of the same, the first exhibits a side
25 view of the valve, closed, and is intended to be made by a duplication of the flexible material, reduced in thickness, so as to yield readily to the upward passage of fluids operated upon, and to close as readily, and
30 prevent their passage downward, or in a reversed direction; or in other words, the drawing represents a pocket, double, one on each side of the walls of the passage, whose thin flexible edges lie together, but permit-
35 ting the passage of fluid in one direction, and arresting the flow in the other. Letter *b* of the same figure exhibits the position of the valve as if closed, and seen from above. Fig. 2, letter *a*, represents a longitudinal
40 section of a single arterial valve, with one flexible pocket constructed of the same materials as the walls of the tube in its original construction, or cemented in, and like the preceding is a duplication of the flexible
45 material, opening freely to the passage of fluids, in one direction and closing as freely in opposite.

Letter *b* of Fig. 2, is a representation of the valve closed, by a cross section seen from
50 above.

Fig. 3 represents a triplicate, or three-fold construction, of the same general form and operating in the same manner as the preceding, letter *b* of that figure, represent-
55 ing the manner in which the thin flexible edges lie in contact and operate in permit-

ting or arresting the flow, according to its direction.

Fig. 4, represents what may be called a splice valve, constructed upon the same gen- 60 eral principles, by dividing the walls of the tube, in a sloping direction, to the middle from each side, and inserting plates of the flexible, or elastic material, and cementing them to the walls of the tube, leaving their
65 upper edges in contact, but at liberty to expand, when requisite for the flow of fluids in one direction, and arresting it in the opposite direction. The horizontal sections *b* and *c* of the same figure exhibit the ap- 70 pearance of the valves from above the first closed, the last open.

The valves in each of the above cases, can either be constructed of the lining material, or interior of the tube, or they can be con- 75 structed of any flexible material and inserted into the tube; the feature of my improvement being the employment of valves composed of flexible materials, arranged so as to open in one direction by the elastic or 80 flexible quality of the material composing the valve, and to close again by reason of the same property. Heretofore in pumps, syringes, and other instruments constructed of flexible materials, it has been customary 85 to make valves of metal and insert them in the course of the flexible tube, but this is attended with some expense, and such valves are liable to become deranged readily, and lose their shape by any pressure brought 90 upon the outside of the tube, or valve seat. My improved valve being made by a duplication of the flexible lining or interior of the tube, or of similar material inserted therein, are not liable to derangement; they 95 yield to pressure and immediately resume their proper form and position; they act equally well, no matter in what position they may be placed; they can be manufactured at a very trifling cost, compared to 100 metallic valves; and they are very effective.

Having thus described my improved valve, what I claim as my invention and desire to secure by Letters Patent is—

I claim the aforescribed method of 105 adapting flexible valves, to flexible tubes, and inserting them therein, in the manner set forth and shown.

FRANKLIN PEALE.

Witnesses:

JOHN Y. CLARK,
ALEX G. GAW.