

No. 696,277.

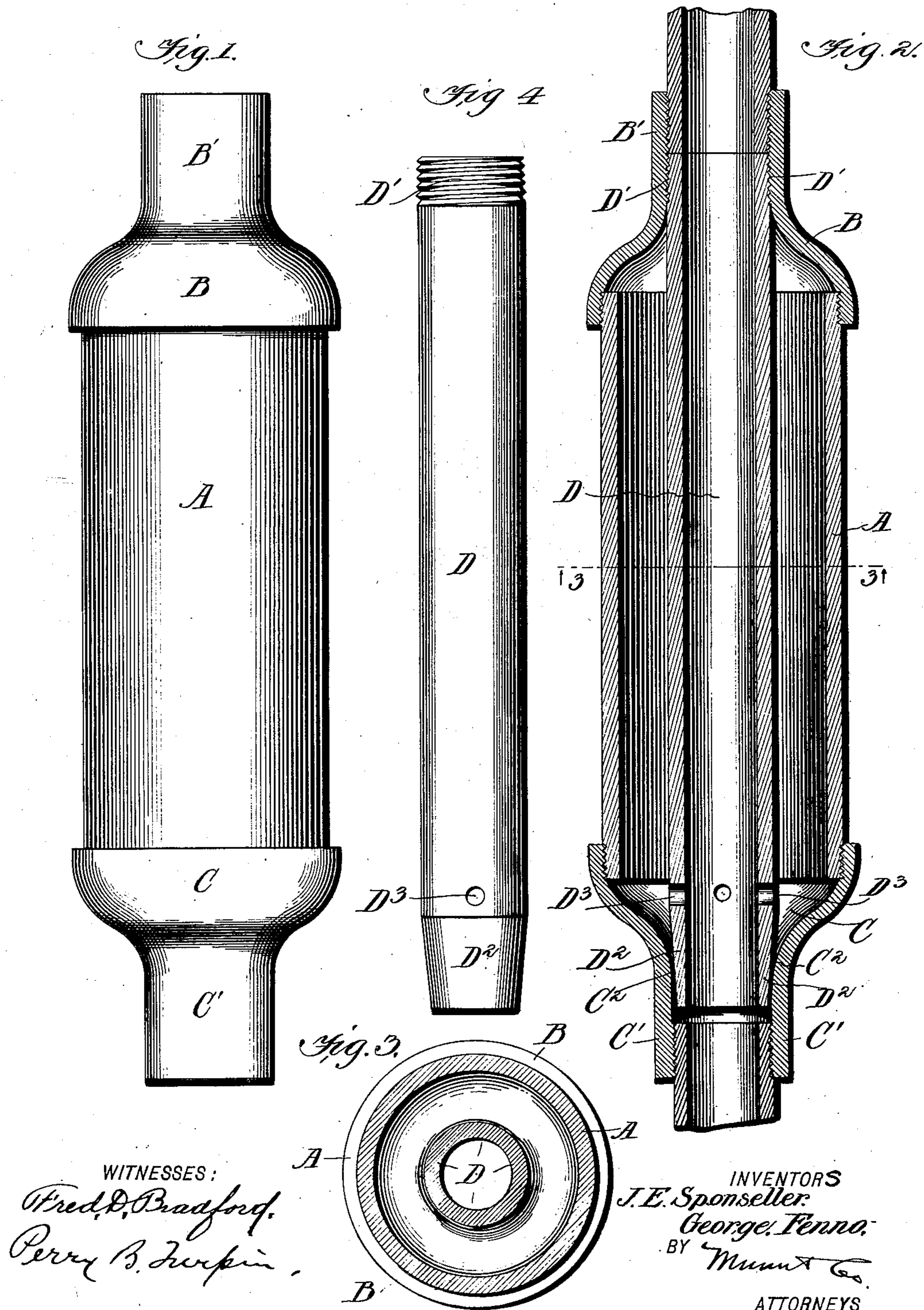
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J. E. SPONSELLER & G. FENNO.

AIR CHAMBER FOR PUMPS.

(Application filed June 19, 1901.)

(No Model.)



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN E. SPONSELLER AND GEORGE FENNO, OF HOISINGTON, KANSAS.

AIR-CHAMBER FOR PUMPS.

SPECIFICATION forming part of Letters Patent No. 696,277, dated March 25, 1902.

Application filed June 19, 1901. Serial No. 65,150. (No model.)

To all whom it may concern:

Be it known that we, JOHN E. SPONSELLER and GEORGE FENNO, citizens of the United States, residing at Hoisington, in the county of Barton and State of Kansas, have made certain new and useful Improvements in Air-Chambers for Pumps and Pipe-Lines, of which the following is a specification.

This invention is an improvement in air-chambers for pumps, having for an object, among others, to provide an improved air-chamber for pumps and pipe-lines, which can be conveniently arranged at any point of the pump-pipe above the cylinder, can be made of any desired length and diameter, will be simple and easily constructed and applied, will assure an even flow of water, and will obviate the recoil of the water in the pump-pipe at each stroke.

The invention consists in certain novel constructions and combination of parts, as will be hereinafter described and claimed.

In the drawings, Figure 1 is a side view, and Fig. 2 a longitudinal section, of the invention as in use. Fig. 3 is a cross-sectional view on about line 3 3 of Fig. 2, and Fig. 4 is a side elevation of the pump-pipe section used in the air-chamber.

In carrying out our invention we seek to provide a simple, economical, and easily-constructed air-chamber, that is so compact that it can be put down in a well of small diameter to any desired depth and will not interfere with the free flow of the water through the pump-pipe, but will afford an open unobstructed passage for the water in line with the pump-pipe on opposite sides of the said chamber.

In the specific construction shown the invention includes a casing A of the air-chamber, which casing may be of any desired length and diameter and is in the form of a cylinder, having its ends threaded for connection with the couplings B and C, which connect with its upper and lower ends. These couplings B and C are in the form of reducers, having their larger ends connected with the casing of the air-chamber and their smaller ends B' and C' brought to a proper size for connection with the pump-pipe above and below the air-chamber. The reduced portion B' of the coupling B is provided internally with threads at both ends, and is thus formed

to receive the pump-pipe above the air-chamber, as well as the central pipe-section of the air-chamber, as shown. The lower reducer C has its reduced end C' threaded internally at its outer end, while the inner end of the said reduced portion is formed at C² by drilling, reaming, or otherwise to closely but slidably fit over the lower end of the central pipe-section of the air-chamber, as shown. The pipe-section D of the air-chamber has a bore of equal diameter with that of the pump-pipe section above and below the air-chamber, and when applied to the air-chamber, as shown in Fig. 2, it opens a passage for the water between the pump-section above and below the air-chamber of the same diameter, so the air-chamber affords no obstruction whatever to the free passage of water through the pump-pipe, as is manifestly desirable in the operation of the apparatus. As shown, the pipe-section D is threaded at its upper end at D', and is formed at its lower end at D², preferably by tapering, as shown, to closely fit within the reducer C at the upper portion of the said reducer at C², as shown in Fig. 2 of the drawings. This pipe D is provided with perforations D³ near its lower end for the passage of water to the space between the pipe-section D and the casing of the air-chamber.

From the foregoing it is manifest the device may be readily applied to the pump-pipe or pipe-line at any point, and in the operation of pumping the water will enter the air-chamber through the openings D³ and will operate to compress the air in the said chamber so it will react upon the water, and thus serve to give an even flow from the pump spout or nozzle. Thus we are able to obviate the recoil of the water in the pump at each stroke, and so relieve the strain on the pumping machinery caused by the sudden starting of the entire column of water in the pump at each stroke.

It will be noticed that an important feature of our invention is the construction and arrangement of the central pipe of the air-chamber in alinement with the pump-pipe sections above and below such chamber, as well as the special construction whereby the reducer-couplings enable the application of the air-chamber at any suitable point in the

pump-pipe and constitute a portion of the air-chamber and by their novel formation shown and described facilitate supporting the central pipe-section of the air-chamber, as above
5 described.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In an apparatus substantially as described, an air-chamber composed of the casing, the reducer threaded on the upper end of the casing and having its reduced portion provided with threads to receive the upper
10 pump-pipe section and also to receive the upper end of the central pipe-section of the air-chamber, the central pipe-section threaded at its upper end in the upper reducer, provided
15 near its lower end with openings for the passage of the water and air and having such lower end tapered externally, and the lower
20 reducer threaded on the lower end of the casing and having its reduced portion provided with threads for the connection of the lower pump-pipe section and having said reduced
25 portion formed interiorly at its inner end to provide a seat for the tapered outer side of the lower end of the central pipe-section, all substantially as and for the purpose set forth.

30 2. An air-chamber for pumps or pipe-lines, comprising the casing, the upper reducer threaded on the casing, the central pipe-section secured at its upper end to the upper reducer, and arranged at its lower end to seat
35 against the lower reducer and having near such end openings for the passage of the wa-

ter to the space between such pipe-section and the casing, and the lower reducer threaded on the lower end of the casing and provided on its inner side at its inner end with
40 a seat for the lower end of the central pipe-section whereby to closely but slidably fit over such end of the central pipe-section, substantially as set forth.

3. An air-chamber for pumps, comprising
45 the casing, the coupling at the upper end of the casing, the coupling at the lower end of the casing, and the central pipe-section within said casing, secured at its upper end to the upper coupling, seating at its lower end
50 closely but slidably against the lower coupling and perforated near its lower end for the passage of water, substantially as set forth.

4. The combination in an air-chamber for
55 pumps of the casing, means at the upper end thereof for connection with the pump-pipe, the central pipe-section rigidly supported at its upper end and extending longitudinally within the casing, and having its lower end
60 tapered exteriorly and perforated near such end for the passage of water, and the lower reducer threaded on the lower end of the casing and formed at its inner end to closely but
65 slidably fit upon the tapered lower end of the central pipe-section, substantially as set forth.

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