

No. 672,475.

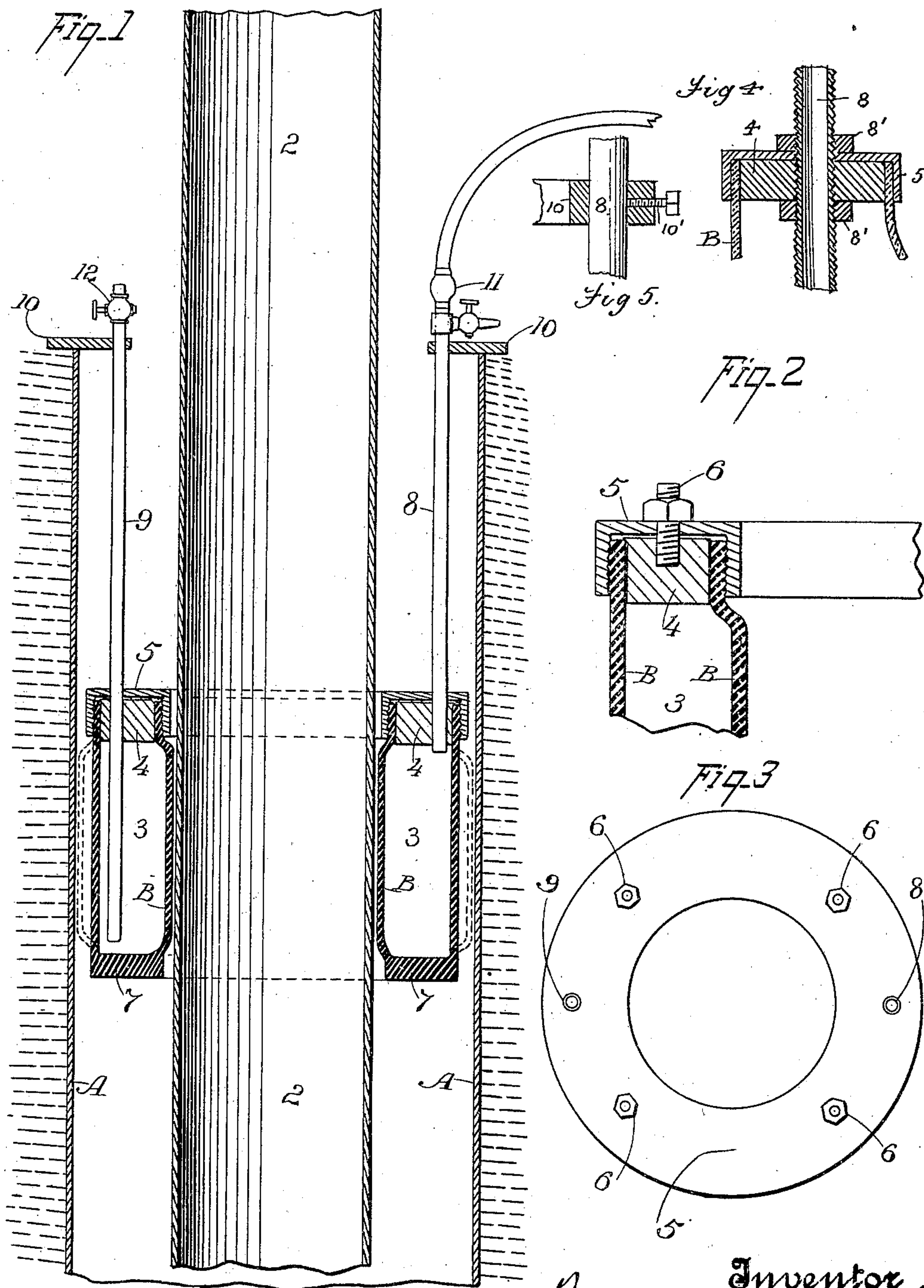
Patented Apr. 23, 1901.

F. CAVALLARO.

EXPANSIBLE PACKING ATTACHMENT FOR ARTESIAN WELLS.

(Application filed Dec. 19, 1900.)

(No Model.)



Witnesses,
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UNITED STATES PATENT OFFICE

FRANCISCO CAVALLARO, OF SAN JOSE, CALIFORNIA.

EXPANSIBLE PACKING ATTACHMENT FOR ARTESIAN WELLS.

SPECIFICATION forming part of Letters Patent No. 672,475, dated April 23, 1901.

Application filed December 19, 1900. Serial No. 40,381. (No model.)

To all whom it may concern:

Be it known that I, FRANCISCO CAVALLARO, a citizen of the United States, residing at San Jose, county of Santa Clara, State of California, have invented an Improvement in Expansible Packing Attachments for Artesian Wells; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to improvements in expansible packing devices for Artesian wells; and it consists of the parts and the constructions and combinations of parts hereinafter described and claimed.

Figure 1 is a vertical section through the well. Fig. 2 is a detail section through the upper part of the packing. Fig. 3 is a plan view of the same. Fig. 4 is a sectional detail showing the manner of securing the pipes to the ring of the bag. Fig. 5 is a sectional detail showing means for adjustably holding the pipes.

The object of my invention is to provide a light efficient means for closing the passage about the suction-pipe or other pipes entering the well that is readily adjustable at any desired point in the well and is quickly and easily operated. It has been found in actual experience that by forming a sealed chamber thus in the lower part of the well, as in wells of the class that do not flow to the surface, a partial vacuum is caused as the water is pumped out or as the air in the chamber is withdrawn. By reason of the pressure of the air in the strata surrounding the well-casing the percolating water is forced or drawn into the well in greater quantity than it would be were the well open to the outer air. The lifting power of a pump is increased no less than twenty-five per cent. by the insertion of such a seal in a well. In the case of oil-wells, for instance, the packing may be used to shut out seeping water in the casing from coming in contact with the oil, or in the case of "flowing" Artesian wells their discharge may be stopped at any time.

Having reference to the drawings, A represents the usual casing of such a well as referred to. Extending into the well is a suction-pipe 2. Surrounding this pipe is the expansible packing B, which consists of an annular bag 3, of rubber or other resilient impervious material,

having its walls normally out of contact with the casing and pipe and its top closed by a ring 4, over which fits a double-flanged cover 5, which firmly binds the edges of the bag against the ring and forms an air and water tight joint. This cover is secured to the ring by means of studs 6. The bottom 7 of the bag is reinforced, so that no expansion shall take place in that direction when the bag is inflated. 8 and 9 are respectively the admission and emission pipes. These pipes enter into the bag through the ring 4, the last-named pipe extending nearly to the bottom of the bag. The pipes are held to the bag by means of nuts 8' engaging a threaded portion of the pipes, as shown in Fig. 4. These pipes are adjustably held in brackets or guides 10, as by a set-screw 10', as shown in Fig. 5. The pipe 8 is provided with a check-valve 11 and the pipe 9 with a stop-cock 12. The bag may be inflated either with air or water. In the first case the pipe 8 is connected with an air-compressor—as, for instance, a bicycle foot-pump, which is a sufficient means for all ordinary purposes. In case water is used the extension of the pipe 9 within the bag allows the water to be expelled again therefrom by coupling up the pipe 8 with the air-compressor. The inflation of the bag distends its walls and forms a perfect seal against the sides of the pipe and the casing.

To place this packing at any height in the well, it is simply necessary to raise or lower the admission and emission pipes in the "guides" 10. In case it is desired to lower it far into the well it is only necessary to add on additional lengths of pipe.

Whenever it should be desired to admit into the well the accumulated water above the packing, it is only necessary to deflate the bag, whereupon this water flows readily through the annular spaces between the bag and the casing and the pipe.

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

1. The combination with the casing of a well, and a suction-pipe therein, of an annular open-center bag encircling the pipe and having a reinforced bottom, and expansible sides, pipes entering the bag and adjustably suspending the latter, said pipes adapted to

transmit a fluid-pressure to the bag to distend the sides thereof to form a tight seal between the suction-pipe and wall of the casing.

2. An expansible packing attachment for
5 wells consisting of a flexible impervious annular bag reinforced at the bottom and having flexible side walls, said bag having a central opening to receive the suction-pipe, a rigid ring let into the top of the bag and against
10 which the edges of the latter seat, means for clamping the edges of the bag against said ring to form a tight joint, and pipes passing through the ring and entering the bag-chamber, for suspending the bag and admitting
15 fluid-pressure thereto.

3. The combination with the casing of an Artesian well and a suction-pipe therein, of

an impervious annular bag surrounding the pipe, said bag having distensible sides, a pipe entering the bag through which the bag may
20 be inflated, a second pipe entering and extending near to the bottom of the bag, guides upon the casing through which these two pipes are movable, and by means of these guides and
25 pipes the position of the bag in the well is regulated, and means by which the bag may be distended to have its sides form a tight seal between the casing and suction-pipe.

In witness whereof I have hereunto set my hand.

FRANCISCO CAVALLARO.

Witnesses:

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