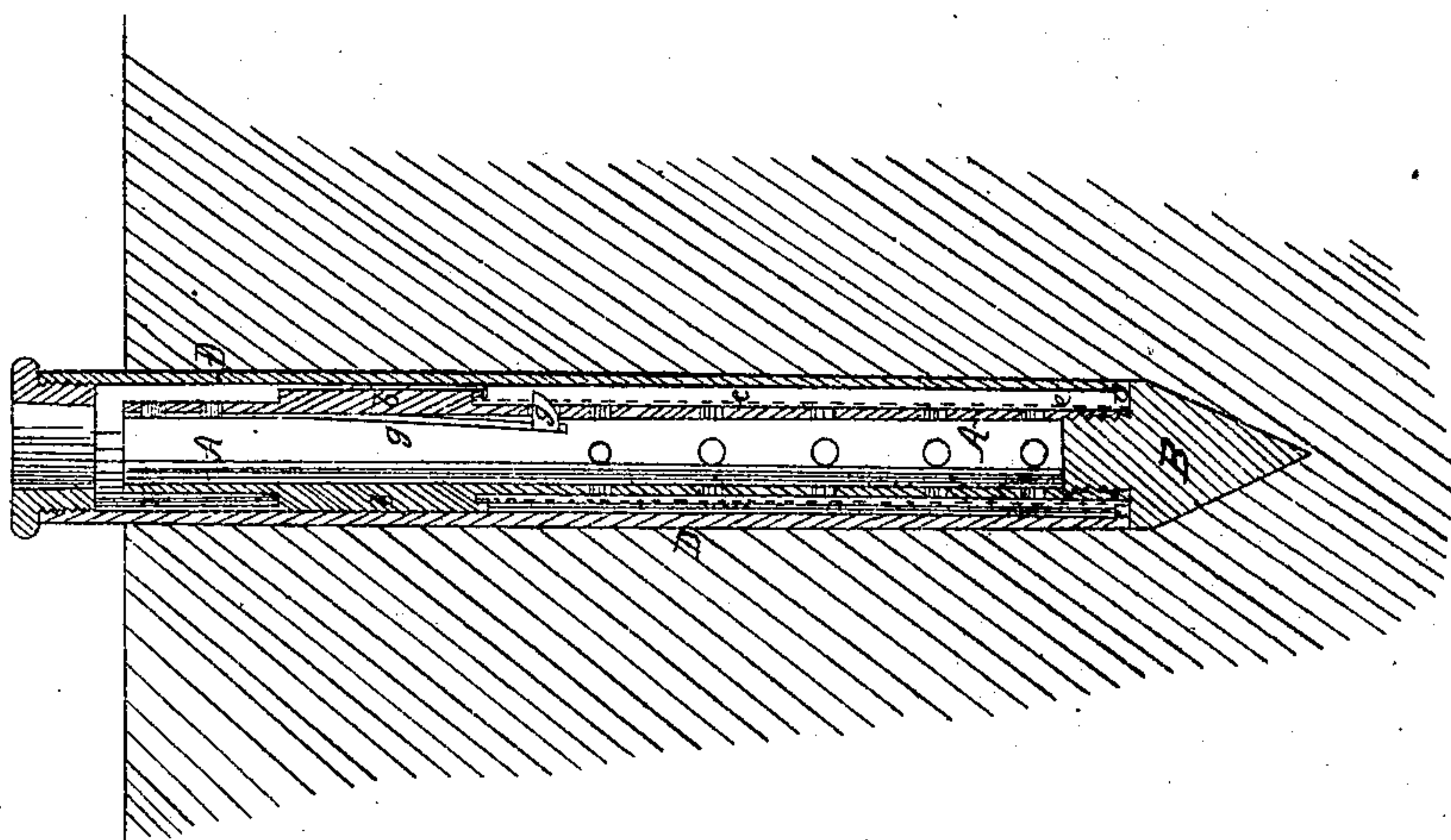
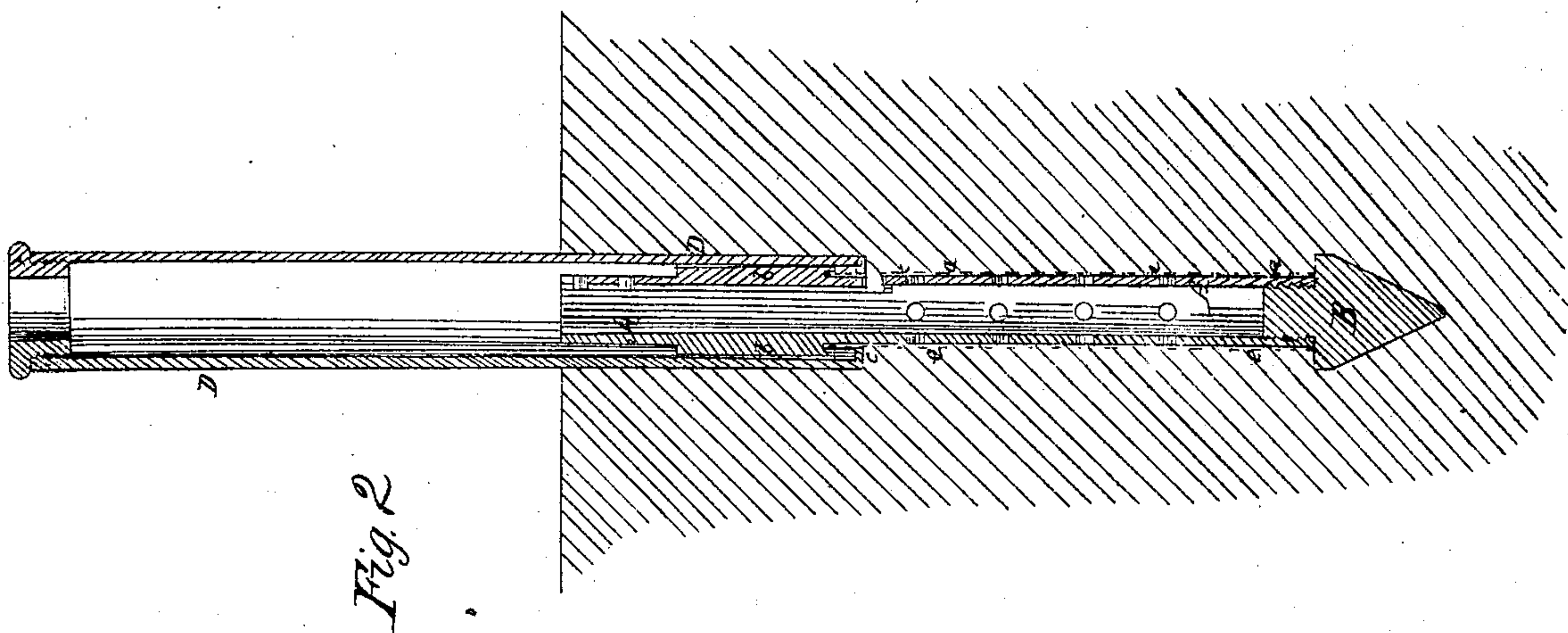


Welch & Miller.

Tube-Well.

N^o 73414

Patented Jan. 14, 1868.



Witnesses
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ROLLIN C. WELCH AND JOSEPH B. MILLER, OF BUFFALO, NEW YORK.

Letters Patent No. 73,414, dated January 14, 1868.

IMPROVEMENT IN TUBE-WELLS.

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

TO ALL WHOM IT MAY CONCERN:

Be it known that we, ROLLIN C. WELCH and JOSEPH B. MILLER, of Buffalo, in the county of Erie, and State of New York, have invented a new and improved Tube-Well; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a diametrical section of the tubes in position for penetrating the earth.

Figure 2 is a similar view of the same parts, showing the outer casing drawn up and latched as it would appear when the well is finished.

Similar letters of reference indicate corresponding parts in the two figures.

This invention relates to certain novel improvements on what are denominated tube-wells, wherein pipes, which are pointed on one end, are driven into the earth the required depth to obtain water, which pipes are usually perforated near their lower or pointed ends, and sometimes provided with strainers or wire-cloth cylinders, covering the perforations or passages into the pipes, so as to prevent the entrance of earth, sand, or foreign substances of any kind. One great objection to these wells, as hitherto constructed, is that the perforations which are made for the entrance soon fill up on account of the want of a sufficiently enlarged chamber between the lower portion of the tube and the wall of earth surrounding it. Another serious objection to this mode of obtaining water, as hitherto adopted, is that there is not a sufficiently large reservoir of water left at the foot of the well-tube to keep the pump supplied.

The object of our invention is to obviate said objections by having an external and movable casing upon the well-tube, which casing shall enclose the lower part of said tube during its entrance into the ground, and then, by being partially withdrawn, it shall expose so much of said tube as is perforated for allowing of the entrance of water into it, at the same time it shall leave a chamber between the perforated portion of the tube and the wall of earth surrounding it, as will be hereinafter described.

To enable others skilled in the art to understand our invention, we will describe its construction and operation.

In the accompanying drawings, A represents a tube or pipe, which may be made of any required diameter or length, according to the requirements of the case. This pipe A has a solid conical point, B, formed on or secured to its lower end, the diameter of the base of the cone being considerably greater than that of the pipe to which it is secured, as shown in figs. 1 and 2. For some distance above the cone B the pipe A is perforated for the entrance of water into it from a chamber or reservoir, *a*, of water, which surrounds said perforated portion. At a suitable point or points upon the pipe A, above its perforated portion, cylindrical enlargement *b* is formed, the object of which is to serve, in conjunction with a shoulder at *c*, upon an external casing, D, as a guide for this casing, so as to prevent any lateral play thereof while upon the pipe A. The interior diameter of the annular shoulder-guide *c*, which is upon the lower end of the casing D, is slightly greater than the external diameter of the pipe A, so that this latter may receive upon its perforated portion a cylinder, *e*, made of woven wire or some other reticulated substance. The casing D is made so that it shall have a free longitudinal play upon the pipe A, and so that its lower shouldered end can rest upon the enlarged end or head of the cone B during the operation of driving the pipes into the ground, as shown in fig. 1. When pipe A, with its casing, is driven into the ground as far as desirable, the casing D is then drawn up sufficiently far to expose that portion of the pipe A which is perforated and covered with a strainer, as shown in fig. 2, when it is caught by a spring-latch, *g*, and prevented from sinking again. The latch *g* has its under face bevelled, and this latch is secured on the end of a spring, *g'*, inside of pipe A, so as to project through a hole, which is made through this pipe, as shown. When casing D is drawn up to the point mentioned, it will leave below it a chamber, *a*, which surrounds the perforated portion of the pipe A and forms a reservoir for supplying the pump with water. This chamber also leaves the passages in pipe A, free from obstruction, so that the supply of water will not be interrupted. The formation of shoulder-guides upon the pipe A and casing D admits of making this casing, and consequently the chamber *a*, of any required capacity, irrespective of the diameter of the pipe A.

By our invention we secure protection to the strainer on the inner tube while putting down the well. We secure by the shoulder-joint an open tube throughout the whole length, enabling us to learn at pleasure, by

sounding, when water has been reached, and also to insert an instrument to force the inner tube out of the casing or shield and hold it down when we wish to raise the shield. We secure, by fastening the solid point to the tube by a rivet or screw, the advantage of removing the shield or casing from said tube at pleasure when the parts are out of the ground. By means of the spring-latch the casing is prevented from slipping back when drawn up to expose the strainer, and by the shoulder-joint, in connection with a wide cylindrical enlargement, as described, a firm connection of the parts is made, and the casing properly held in place. The shoulder on the lower end of the casing also prevents the entrance of earth or sand into the pipe or casing.

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

The imperforated external tube D, connected with the perforated internal tube A by means of the inner collar *c* and the outer collar *b*, so that the tube D comes in contact with an external shoulder of a conical plug, B, of the tube A, during the operation of forming the enlarged water-chamber *a*, and rests upon a spring-catch when the tube-well is adjusted for operation substantially in the manner and for the purpose described.

ROLLIN C. WELCH,
JOSEPH B. MILLER.

Witnesses:

HORACE B. MILLER,
CHAS. J. CHRETIEN.