J. A. Patterson,

Well Tubing.

No. 46,818. Patented Mar. 14, 1865.

Fig. 2.

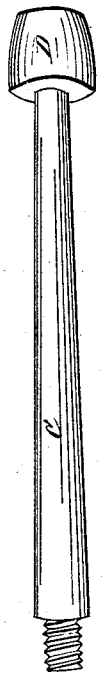


Fig. 3.

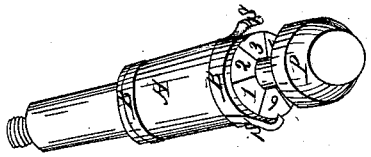
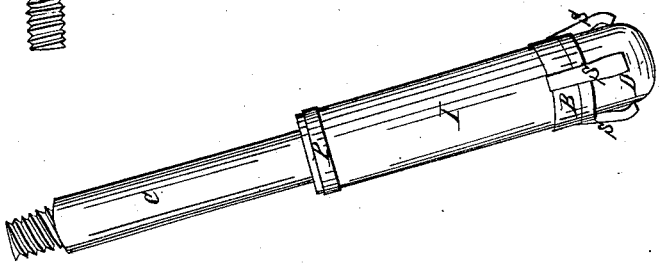


Fig. 1.



Witnesses.
J. J. Parker
Ezra Parker

Inventor.
John A. Patterson.

UNITED STATES PATENT OFFICE.

JOHN A. PATTERSON, OF SLATE LICK, PENNSYLVANIA.

IMPROVEMENT IN TUBES FOR CAVES IN OIL OR OTHER WELLS.

Specification forming part of Letters Patent No. **46,818**, dated March 14, 1865.

To all whom it may concern:

Be it known that I, JOHN A. PATTERSON, of Slate Lick, in the county of Armstrong and State of Pennsylvania, have invented a new and useful Self-Adjusting Tube for Caves or Slips in Oil or other Wells; and I do hereby declare that the following is a full and clear description of the same, reference being made to the annexed drawings, and to the letters of reference marked thereon.

Figure 1 is a perspective view of my self-adjusting tube. Fig. 2 is a section through the center on dotted lines *o o*, longitudinally showing follower and wedge-pin, &c. Fig. 3 is a transverse section showing staves, &c.

To enable persons skilled in such business to make my self-adjusting tube, I will proceed to describe it.

I take sheet-metal of any desired length, and form it into a tube of any size desired. For example, for a four-inch well I make the diameter on outside three and seven-eighths inches, so that it will slip down easily into the well. The metal is cut to lap over one and three-fourths inch, so that when spread or swelled out to five inches it still remains a whole tube, for purposes hereinafter mentioned. Around each end, on the outside of the tube close to the end, are steel bands, about two inches wide. One end of each is slightly turned up at the edges, so as to form a guide for the other end, which slips along over it. There are little openings or notches cut in the ends that have their edges thus turned up, and the other ends have little projections to correspond with said notches, so as to hold the band when spread out to any size desired. These bands are elastic, and incline to contract said tube, to which they are riveted. It will be seen that when the tube is swelled out to any size the bands aforesaid, by this arrangement will hold it firmly. When the tube is at its smallest dimensions, a follower is fitted into it extending the whole length. This follower has a tapered hole through the center lengthwise, into which a corresponding tapered pin is to fit. This pin is three feet longer than follower, and is tapered the whole length, and has a screw cut on the large or upper end to which to attach poles, &c. To lower end of said pin a block or collar is fastened. This collar is about one foot in length, and should nearly fit the well-hole. It is screwed on said tapered pin after it is put through aforesaid follower. Said follower is cut into four or more staves lengthwise, and has a small crease turned in each end, around which an elastic-rubber band is put, hereinafter more fully explained. Attached to lower end of said tube are three stout springs at equal distances from each other, and standing out two inches from and even with lower end of tube. These springs are thin, and will lie close to the tube when pressed in for letting into the well, and will spring out, catch, and hold it when they come to the opening to receive the tube.

A represents the tube; B B, elastic bands. C, tapered pin; D, the block or collar, tapered at upper end on outside, so as to draw out of well. 1 2 3 4 5 are staves or followers cut into staves. *s s s* are springs attached to lower end on outside of tube.

The operation of my self-adjusting tube is as follows: The parts are put together as described. The springs *s s s* are closed up to tube and placed in well, poles attached to pin C, the tube and all are let carefully down. When said springs *s s s* come to slip, which has been prepared for tube, they spring out and catch on the bottom of it and hold the tube firmly to its place. When the tapered pin C moves on through follower, spreading it out in to the slip, the bands B B hold it out to whatever it may spread. It may be a little in from the edges of the well, so that the tools will not strike it. When the tube is thus set, the pin C is drawn back, the elastic-rubber bands on the follower drawing it back to its former size as the pin moves out, until the collar D strikes the follower staves, and brings them all out together. It will be seen that this block or collar D acted as a guide in setting the tube, as it nearly filled the hole of the well, pressing the follower out equally on all sides, thus enabling any one skilled in

the business to always set the tubing effectually and without difficulty or a possibility of failure.

Having thus described my self-adjusting tube, what I claim as new, and desire to secure by Letters Patent, is—

1. The adjustable tube A and elastic bands B B, in combination with the springs *s s s*, in the manner and for the purpose set forth.

2. The follower or staves 1 2 3 4, in combination with the tapered pin and collar, in the manner and for the purpose set forth.

This specifiation signed and witnessed this 4th day of June, 1864.

JOHN A. PATTERSON.

Witnesses:
J. J. PARKER,
EZRA PARKER.