

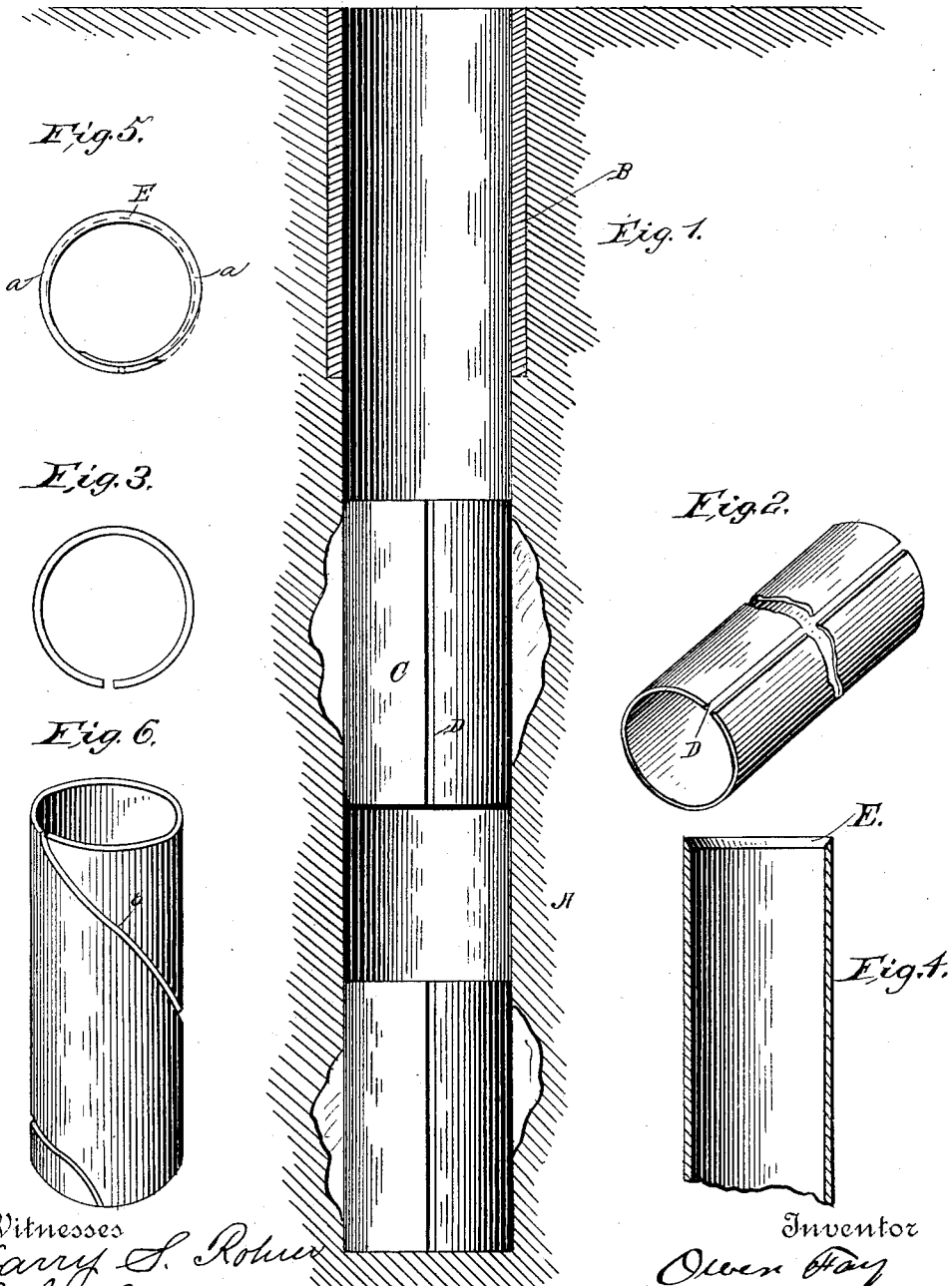
(No Model.)

O. FAY.

AUTOMATIC EXPANSIBLE TUBE FOR WELLS.

No. 341,327.

Patented May 4, 1886.



Witnesses  
*Harry S. Rohrer*  
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By

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# UNITED STATES PATENT OFFICE.

OWEN FAY, OF WARREN, PENNSYLVANIA.

## AUTOMATIC EXPANSIBLE TUBE FOR WELLS.

SPECIFICATION forming part of Letters Patent No. 341,327, dated May 4, 1886.

Application filed February 20, 1886. Serial No. 192,615. (No model.)

*To all whom it may concern:*

Be it known that I, OWEN FAY, of Warren, in the county of Warren and State of Pennsylvania, have invented certain new and useful Improvements in Automatic Expansible Tubes for Wells; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

My invention has relation to that class known as "tubes and packing for wells;" and it consists in a new and useful device to relieve wells of "caving" and of breaks in their walls.

Heretofore great difficulty has been experienced in digging and boring wells, particularly where the earth is of a sandy or unfixed nature, the difficulty being that after a certain distance is bored the sides of the well give way and cave in, which chokes it up and greatly interferes with the working of the tools. Tubing and casings have been used to obviate this difficulty; but they are very expensive, and very frequently the proper size cannot readily be found, and even when at hand cannot be inserted, for the reason that the break in the wall of the well is inaccessible by the old method, and from this cause wells of a very great depth have to be abandoned. With my improved adjustable expansion-tube, which is capable of variable adjustments to different bores of wells, the walls of the well, when and wherever broken, can be stayed by the insertion of this tube. Should the well be already stayed with the regular casing, my tube can be lapped—that is to say, one edge will lap the other in a folded form which will lessen its circumference and diameter—and in this contracted condition it can be inserted and passed through the casing until it reaches the break in the wall below, when it will automatically expand itself, and thus close up the cavity caused by the break in the wall of the well. The expansion-tubes may be of variable length to suit conveniences, and also of varying diameters, and of a suitable material—

steel preferred. The tubes can be cut from the well-known sheet metal, and they may be of suitable length and then rolled, like that of boiler-iron, to the proper curvature. When the tube is to be inserted to a great depth, I prefer to make the back thicker and taper toward the edges. This gives the tube two functions—viz., it stiffens it when one section is driven on top of another, and also gives it a greater degree of elasticity and spring. The ends of these tubes should be beveled from their inner circumference to the outer edge, whereby the tools in their up-and-down travel will be clear and free from contact with said ends. Should it be found essential, the tube may have a spiral slit or opening instead of a straight one, the object being to have a yielding automatically-expanding tube-section that will effectually close up a break or cave in the well, wherever it may occur.

In the drawings hereto attached, Figure 1 is an illustration of a vertical cross-section of a well, showing breaks in the walls thereof and my tube in position. Fig. 2 is a perspective view of a section of the tube, showing the opening or slit. Fig. 3 is an end view of the tube. Fig. 4 is a view showing the end of the tube beveled. Fig. 5 is a view of the end of the tube in a lapped or folded position, the dotted lines indicating its normal condition in the well. Fig. 6 is an illustration of the tube provided with spiral slits or openings.

A is the well; B, the casing, and C the split or expansible tube, having opening D; E, the bevel of the tube; F, the increased thickness of the back. (See Fig. 5.) *aa* are the tapering sides from the back of the tube to its edges. *b* is the spiral slit in the tube. (See Fig. 6.)

The nature and objects of all these features have been above explained.

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

1. A well-packing consisting of an expansible metallic tube slitted on one of its sides its entire length, as and for the purpose set forth.
2. A tube for automatically stopping breaks

or caves in the walls of wells, provided with slits or openings its entire length, and having its edges beveled, as shown.

3. A slitted tube for wells, for stiffening  
5 breaks or caves in the walls thereof, the said tube being of increased thickness in one of its sides opposite the slit, each half tapering toward said slit, substantially as described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two 10 witnesses.

OWEN FAY.

Witnesses:

OWEN E. DUFFY,  
HARRY ROHRER.