

A. S. HILL.
Improvement in Safety Guard for Tubing of Artesian Wells
No. 124,742. Patented March 19, 1872.

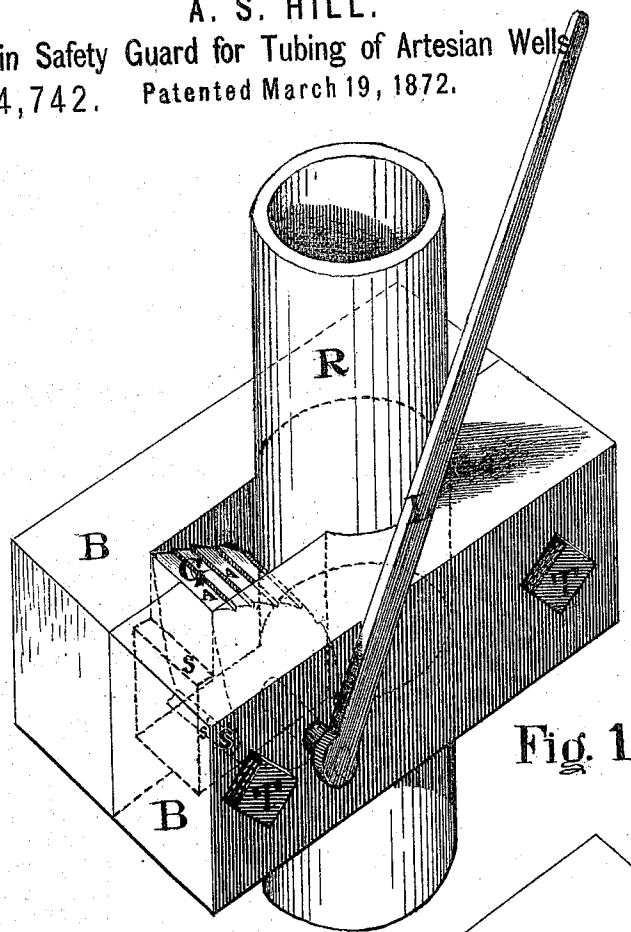


Fig. 1

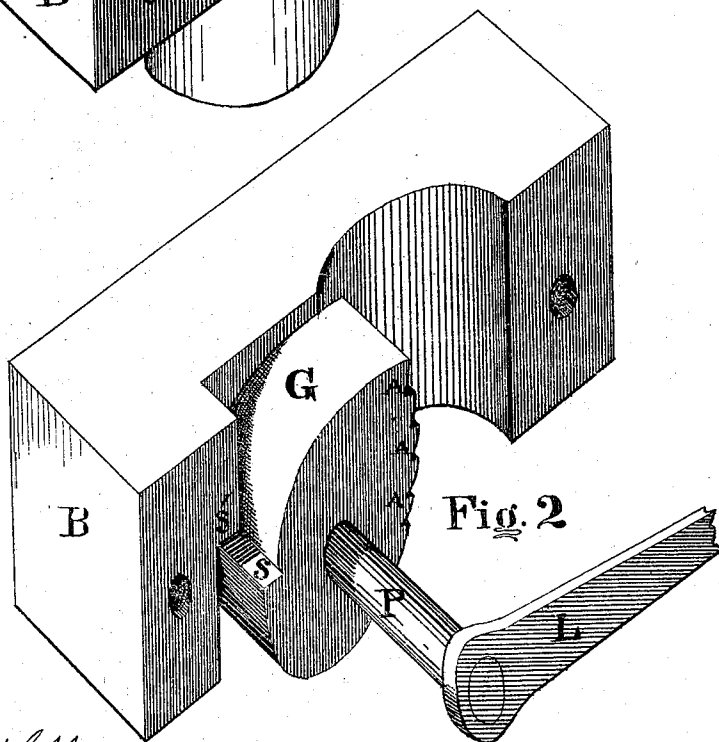


Fig. 2

Inventor

Alexander S. Hill

Witnesses

Henry E. Migley

Archie R. Gray

UNITED STATES PATENT OFFICE.

ALEXANDER S. HILL, OF PLEASANTVILLE, PENNSYLVANIA.

IMPROVEMENT IN SAFETY-GUARDS FOR TUBING OF ARTESIAN WELLS.

Specification forming part of Letters Patent No. 124,742, dated March 19, 1872.

I, ALEXANDER S. HILL, of Pleasantville, Venango county, and State of Pennsylvania, have invented an Improved Safety-Guard for Handling Tubing in Artesian-Wells, of which the following is a description and specification, reference being had to the accompanying drawing.

My invention relates to clamps or safety-attachments used in taking out and replacing the tubing of oil and similar wells; and the invention consists in a frame which incloses the tube, with an eccentric arranged therein in such a manner as not to interfere with the drawing up of the tubing, but to automatically clamp and hold the same in case any part of the hoisting apparatus gives way and permits the tubing to fall, as hereinafter more fully explained.

Figure 1 is a perspective view of the apparatus as applied in use. Fig. 2 is a similar view, with the front portion of the frame removed.

In constructing my apparatus I provide a frame, which consists of two metallic blocks, B, each having a semicircular recess cut in its inner face, of such size that, when the two parts are united, these recesses form a hole of sufficient size to let the tube R pass loosely through it, as represented in the drawing. At one side of this hole I form an elongated rectangular opening or recess, in which I pivot an eccentric gripping-jaw, G, the face of which I provide with a series of transverse serrations, forming teeth A, as represented in Fig. 2. This jaw G is secured rigidly upon a shaft, P, which passes through the blocks B, in which it turns loosely, and upon one end I secure a lever or handle, L, which is so arranged that its weight will tend to press the serrated face of the jaw G against the tube R, as represented in Fig. 1. On the back side of this jaw I form a shoulder, S, and in the frame over it I form a corresponding shoulder, S', as shown in Fig. 2. The object of these shoulders is to lock the jaw when it has turned a certain distance, and thus prevent it from turning entirely over, as it would otherwise do in case the tube R

should be crushed or indented by the jaw, in consequence of the excessive weight of the tube and its contents when being drawn up. The two parts B of the frame are united by bolts T, which pass transversely through them, as shown in Fig. 1.

The manner of using the device is as follows: The clamp being applied around the tube, with the face of the jaw resting loosely against the tube, and the lever L standing in an inclined position, as represented in Fig. 1, by which the jaw is pressed lightly against the tube, the hoisting apparatus is attached to the tube and the latter drawn up. As the tube rises the jaw yields and lets it pass with no other obstruction than the friction due to the weight of the lever L; but if the hoisting-tackle breaks or by any means becomes loosened in its hold on the tube, as is often the case, and the tube starts to descend, the eccentric jaw G instantly tightens its hold upon the tube and holds it firmly in place until the hoisting-tackle is rearranged. It sometimes happens, especially in very deep wells, where the weight of the tube is very great, that the downward pressure is sufficient to cause the jaw to crush in the side of the tube; and when this occurs the shoulder S locks the jaw and prevents it from turning entirely over and releasing its hold on the tube. In replacing a tube that has been drawn out the lever L is held by the hand in such a position as to keep the jaw close to but clear from or resting very lightly against the tube, so that, while it does not prevent the descent of the tube as gradually lowered, it can be instantly made to seize the tube and arrest its descent in case any accident occurs.

As the velocity of any falling body increases as the square of the time through which it continues to fall, it is necessary that any device of this sort, in order to operate successfully, should act at the earliest possible moment; and this my apparatus does in the most effectual manner. The clamping-jaw, resting against the tube as it is drawn up, is in a position where, the moment the tube begins to

fall, it is clamped by the jaw, and thus its motion is arrested before it has had time to acquire any considerable velocity, and thus the danger of crushing the tube or injuring the apparatus is reduced to the minimum.

Having thus fully described my invention and its mode of operation, what I claim, is—

The safety-guard or clamp, consisting of the frame B provided with the shoulder S',

and the eccentric jaw G provided with the shoulder S, all constructed and arranged to operate substantially as and for the purpose set forth.

ALEXANDER S. HILL.

Witnesses:

HENRY E. MIGLEY,
ARCHIE R. GRAY.