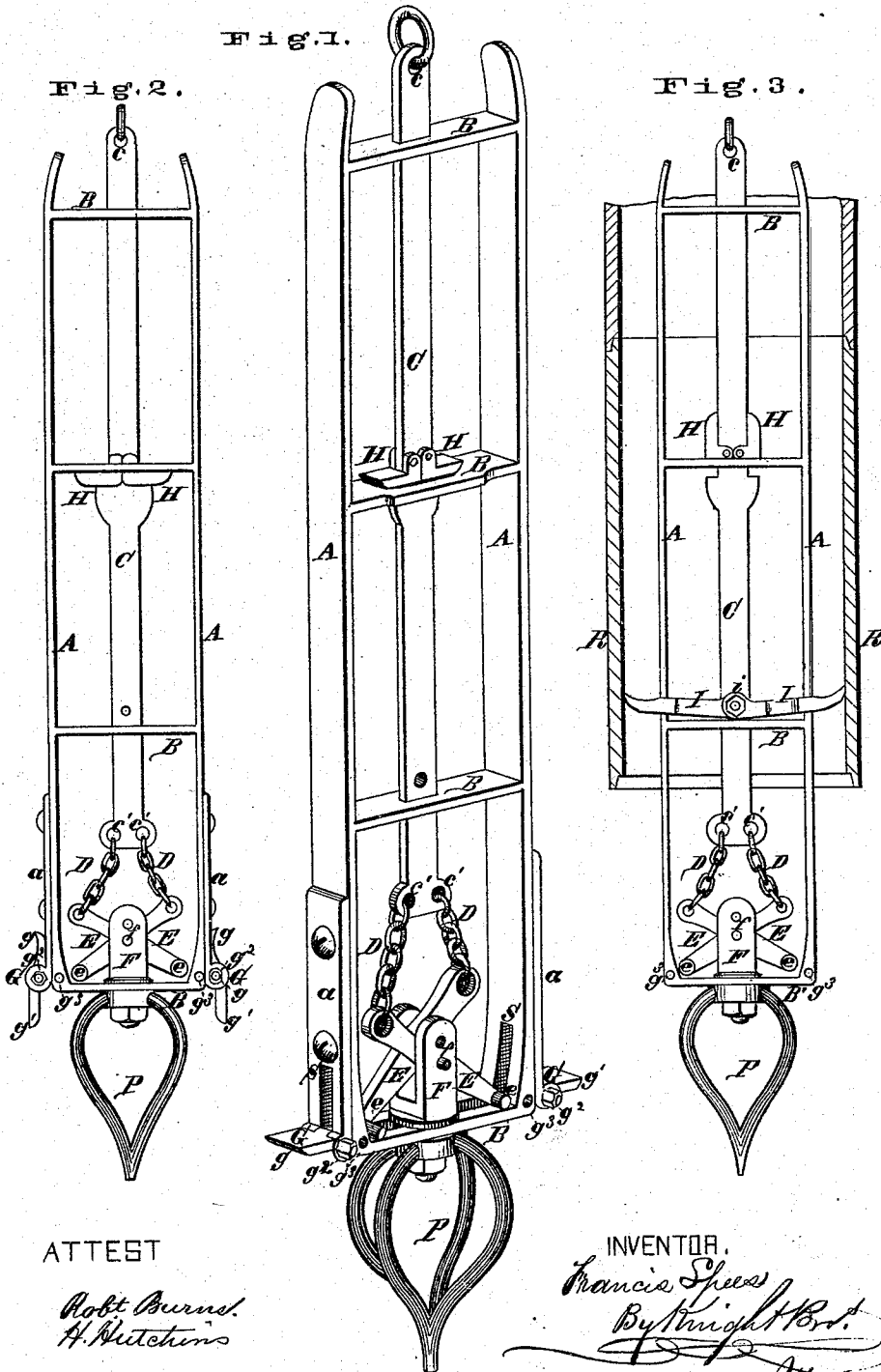


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APPARATUS FOR INSERTING AND EXTRACTING WELL-PIPING.

No. 172,192.

Patented Jan. 11, 1876.



ATTEST

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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN APPARATUS FOR INSERTING AND EXTRACTING WELL-PIPING.

Specification forming part of Letters Patent No. **172,192**, dated January 11, 1876; application filed November 6, 1875.

To all whom it may concern:

Be it known that I, FRANCIS SPEES, of Red Lake, Beltrami county, and State of Minnesota, have invented a new and useful Apparatus for Inserting and Extracting Well-Piping, which improvement is fully set forth in the following specification, reference being had to the accompanying drawings.

My improvement relates to an apparatus for lowering cement or other piping into bored wells, and for extracting the piping therefrom, if required; and my invention consists in a frame suspended by a vertically-sliding rod, which has at its lower end toggle-levers that are held by the weight of the frame in such position as to engage the inner ends of the bars which are pivoted independently to the said frame, and are secured in their horizontal or projected position by means of the suspension-rod, acting through the medium of the toggle, and on the outer end of which bars the piping is supported so as to sustain the piping. When the frame reaches and rests on the bottom of the well the rod descends and releases the toggle, so that the inner ends of the bars supporting the piping are allowed to kick up and the outer ends drop and release the piping. As the rod descends, drop-catches on its side open out, and, as the rod is drawn upward, the frame is raised by the catches, so as to prevent the rod being raised in the frame sufficiently to act on the toggle-levers at bottom, and interfere with the free movement of the catch-bars at the lower end of the frame.

In the drawings, Figure 1 is a perspective view of the apparatus in position for lowering the piping. Fig. 2 is a side view, showing the position of parts after the piping has been discharged and the frame is in position for being drawn from the well, leaving the piping in position in the well. Fig. 3 is a side view, showing the apparatus drawing piping from the well.

A are side bars of the frame, with cross-bars B. The cross-bars are mortised at the middle for the passage of the vertical suspension-rod C, which slides freely in the mortises in bars B. The rod C has at the upper end an eye, *c*, for attachment of the derrick-chain, and at the lower end the rod has eyes *c'* *c'* for attachment of the toggle-chains D D. Each of these

chains is attached to the upper end of a pivoted toggle-bar, E or E, pivoted at *f* in a vertical bracket, F, attached to the upper side of the lower cross-bar B'. The lower ends of the pivoted bars E have cross-bars *e*, which, in their lower position, as shown in Fig. 1, rest upon the inner ends *g g* of the trip-bars G G, and prevent the descent of the outer ends *g*¹ *g*¹, so as to sustain the piping, whose lower edge rests on said outer ends. The trip-bars are pivoted at *g*². To the lower end of the frame is attached a removable spider-point, P, which acts as a guide to carry the frame, and with it, the piping, to the proper place in the well. H H are drop-catches, which are pivoted to the suspension-rod C in such position that when the frame is arrested in its downward movement (by arriving at the bottom of the well or the top of the piping already inserted,) and the suspension-rod descends in the frame, the drop-catches pass downward through one of the cross-bars B, and, spreading out beneath it, prevent the ascent of the rod. The inner ends *g g* of the trip-bars play in slots S of the frame. These trip-bars, as in Figs. 1 and 2, are shown as supported on brackets *a a*, but when the piping is of smaller size these brackets are removed, and the fulcrum-pins *g*² *g*² are placed in holes *g*³ *g*³ of the frame. In this case the pivot *f* is raised to the holes, so as to put the toggle-bars E E into the right position. The upper ends of side bars A are turned inward to form guides. I I are claw-arms, for the extraction of piping from a well. The arms are connected to the bar C by a pivot pin or bolt, *i*, so that, as the frame is lowered down inside the piping R, the free ends of the arms will slip downward easily, but when the frame is raised the ends will spread so as to brace freely against the pipe, and it will be drawn outward with the frame.

The operation is as follows: First is attached a guide point or spider, P, of the proper size to fit easily the inside of the piping, then the parts are put in position shown in Fig. 1, and one, two, or more sections of pipe are placed over the frame, with the lower edge of the lower section of pipe resting on the outer ends *g*¹ of the trip-bars G G. The frame is then lowered into the well, and when the point P reaches the bottom the frame is supported

upon the point and the rod C descends. This loosens the chains D D, and allows the lower ends of the toggle-bars to move upward from the pressure beneath them of the ends *g g* of the trip-bars, and the outer ends *g¹ g¹* descend and allow the piping to slip off. The frame is then drawn up, and a fresh supply of piping is placed upon it, the parts being in position as shown in Fig. 1, as before described. In descending, the point P enters the upper end of the pipe before inserted, and the lower sides of the toes *g¹ g¹* descend upon the upper edge of said pipe and are held between that and the lower edge of the pipe above them, and the frame is thus supported until the descent of the rod C carries the catches H H down through the mortise in the cross-bar B, when the said catches drop down on their pivots, and the descent of the rod also frees the trip-bars from the toggle-bars, so that when the rod is again raised the frame is raised by the catches H H without the toggle-bars E E being acted on, and the toes *g¹ g¹* are drawn from between the sections of piping by the upward movement of the frame.

The operation of the apparatus for removing the pipes has been before described.

I claim as my invention—

1. The combination of the frame A B and the trip-bars G G, pivoted independently to the said frame, and secured in their horizontal or projected position by means of the suspension-rod C, acting through the medium of the toggle D D E E, in the manner set forth.

2. The combination, with frame A B, rod C, toggle D D E E, and trip-bars G G, of the drop catch or catches H, substantially as set forth.

3. The combination of the frame A B, adjustable trip-rods G G, and removable guide-point P, substantially set forth.

Witness my hand this 4th day of September, A. D. 1875.

FRANCIS SPEES.

Witnesses:

C. P. ALLEN,
ADELIA A. ALLEN.