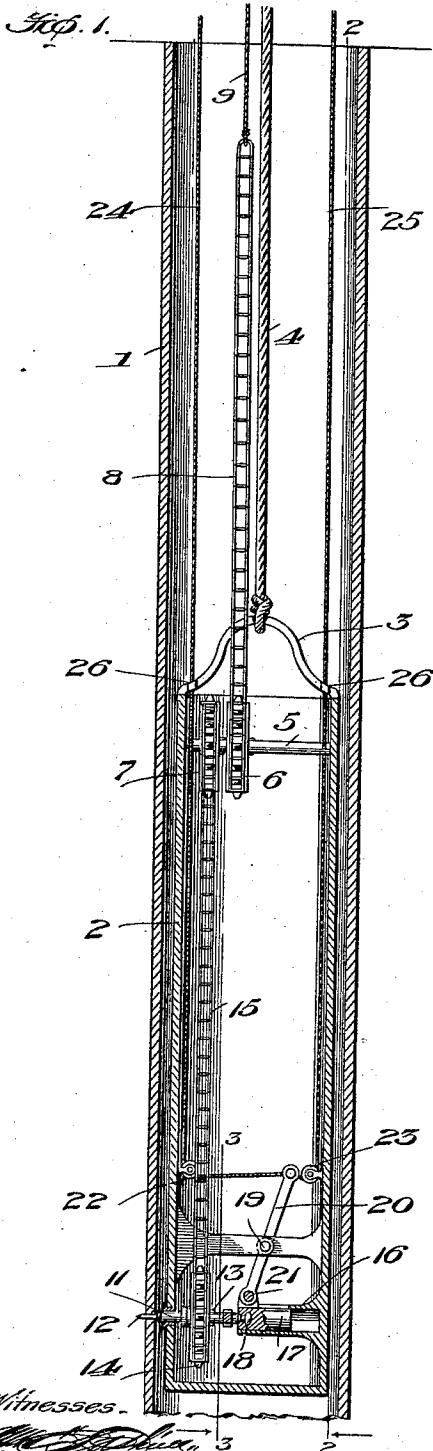


H. JAM.
 PERFORATOR FOR WELL CASINGS.
 APPLICATION FILED NOV. 25, 1910.

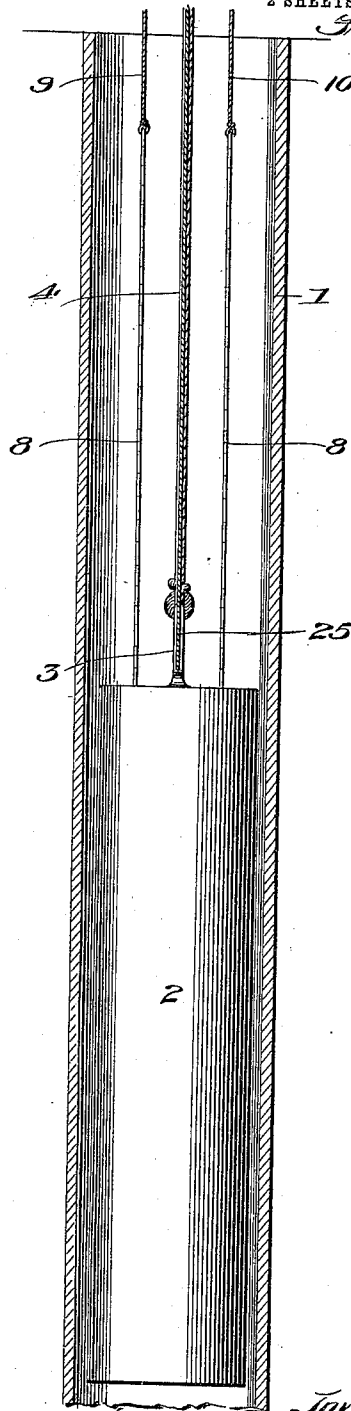
1,002,153.

Patented Aug. 29, 1911.

2 SHEETS-SHEET 1.



Witnesses.
[Signature]
 Helen M. Simmons

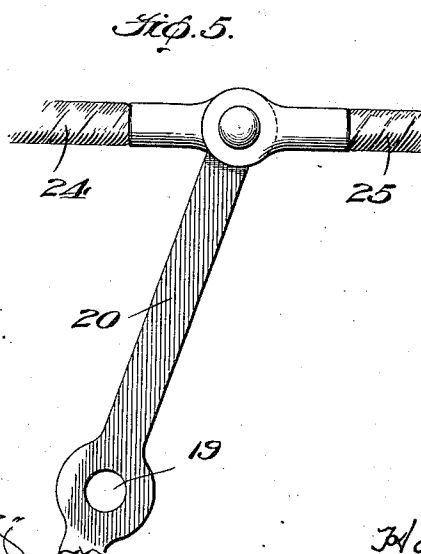
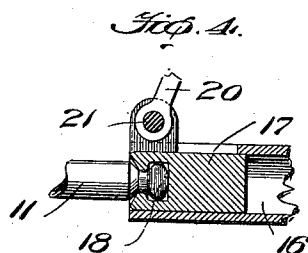
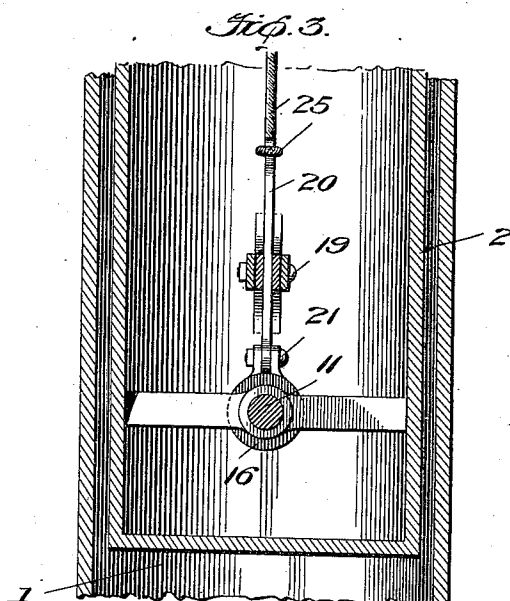


Inventor.
 Hoyl Jam.
 By William C. Deane
 his Attorney.

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UNITED STATES PATENT OFFICE.

HOYL JAM, OF BAKERSFIELD, CALIFORNIA.

PERFORATOR FOR WELL-CASINGS.

1,002,153.

Specification of Letters Patent. Patented Aug. 29, 1911.

Application filed November 25, 1910. Serial No. 594,165.

To all whom it may concern:

Be it known that I, HOYL JAM, subject of the Emperor of China, residing at Bakersfield, in the county of Kern and State of California, have invented certain new and useful Improvements in Perforators for Well-Casings, of which the following is a specification.

This invention relates to perforators for well casings.

The object of the present invention is the provision of a perforator for well casings of strong, durable, efficient and novel construction, wherein the perforator will be so constructed and arranged that it may be retracted prior to entry in the casing and projected and operated regardless of the depth which the device has reached in the well casing, and to this end, the invention embodies a supporting tube or frame adapted to be lowered into the casing, and a retractible and projectable rotary perforator carried thereby, novel means for rotating said perforator regardless of the position of the device in the well casing, and novel means for projecting and retracting said perforator, wherever disposed in the well casing.

The invention is fully set forth hereinafter and the novel features are recited in the appended claims.

In the accompanying drawings: Figure 1 is a longitudinal vertical sectional view of my improved perforator in position in a well casing; Fig. 2, a similar view taken on the line 2—2 of Fig. 1; Fig. 3, an enlarged detail sectional view on the line 3—3 of Fig. 1; and Figs. 4 and 5, detail views.

The well casing is shown at 1 and the frame of the perforator at 2, the latter being preferably tubular for purposes of strength and to inclose the operative parts of the device. The frame or tube 2 has a bail 3 to which the cable 4, used for lowering the device into the well, is attached in any suitable manner.

Journaled in the frame 2 is a shaft 5 carrying sprocket wheels 6 and 7. Around the sprocket wheel 6 is a sprocket chain 8 of suitable length, to the free ends of which are connected cables 9 and 10 running to a drum or other suitable operating means at the mouth of the well, whereby the shaft 5 may be turned.

Journaled in bearings in a part of frame 2, near the lower end thereof, is a spindle

11 which is also slidable in said bearings in a lateral direction, and it is provided with a chuck having a perforating drill point 12 of any preferred form. Splined loosely to the spindle 11 at 13 is a sprocket wheel 14 which is suitably confined against lateral play and through which the spindle 11 is adapted to slide, but which turns with said spindle to cause rotation of the drill point 12. The sprocket wheels 7 and 14 are connected by an endless sprocket chain 15 so that upon the necessary movement of the sprocket chain 8, a suitably rapid rotation of the spindle 11 and drill point 12 will be had to accomplish perforation of the casing 1 at the point desired.

Slidable in a tubular guide 16 is a head 17 which has a swivel connection 18 with the spindle 11. Pivoted at 19 to the frame 1 is a lever 20 which is likewise loosely pivoted at 21 to ears carried by the head 17. Over pulleys 22 and 23 run the cables 24 and 25 which are both connected to the upper end of the lever 20 and extend upwardly, being preferably guided at 26, to suitable operating means at the mouth of the well. By pulling on the cable 24, the spindle 11 and drill point 12 may be retracted and by pulling on cable 25, they may be projected.

In using the perforator the cable 24 is operated to retract the drill point 12 and the entire device is then lowered into the well casing to the desired point where perforation is needed by paying out the cable 4. When the point has been reached where perforation is required, the device is suspended and the cable 25 is operated to throw the drill point 12 against the casing 1 and the cables 9 and 10 are then operated to cause revolution of the sprocket 14 and spindle 11. The tension on cable 25 is continued as the perforation or drilling progresses to keep the drill point in contact with the casing through which it finally passes to make the perforation. After one perforation has been made, the spindle and drill point can be retracted and other perforations made as may be desired.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. A perforator comprising a hollow carrying member, a perforator journaled therein, means for rotating the perforator,

and manually operable means for projecting or retracting the perforator axially while rotating or at rest.

2. In a perforator for well casings, the
5 combination with a carrying frame or the like, of a rotary perforator carried thereby adapted for projection or retraction, means for projecting and retracting said rotary
10 perforator embodying a lever having a swiveled connection thereto, cables connected to and operating in opposite directions on said lever and leading to the mouth

of the well, a countershaft carried by the frame, a wheel splined to the rotary perforator, an endless connection between said 15 wheel and the countershaft, and a flexible connection for operating the countershaft from the mouth of the well.

In testimony whereof I affix my signature in presence of two witnesses.

HOYL JAM.

Witnesses:

M. C. SHARP,
T. F. ALLEN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."