M. A. BYRON & H. W. ENGLISH.

WELL DRILLING BIT.

APPLICATION FILED MAR. 19, 1912.

1,052,567. Patented Feb. 11, 1913.

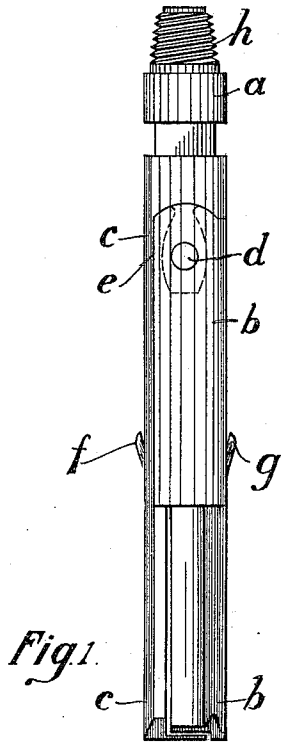

Fig. 1.

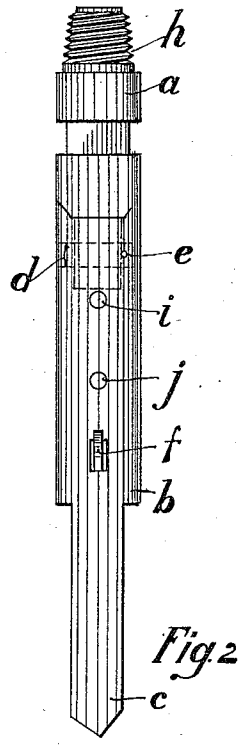

Fig. 2.

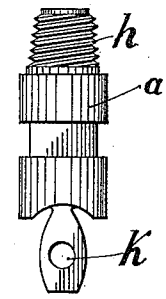

Fig. 3.

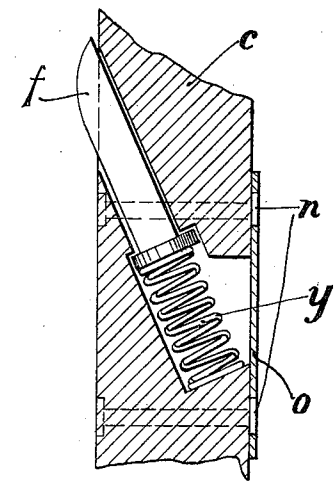

Fig. 6.

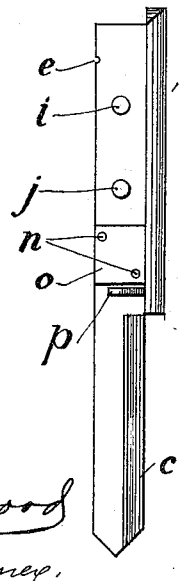

Fig. 4.

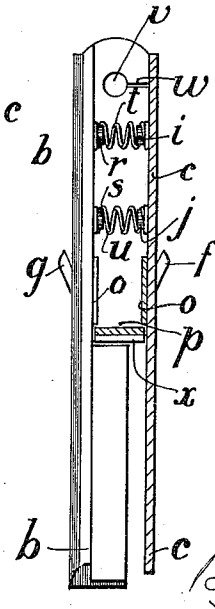

Fig. 5.

Witnesses:-

J. N. Sherwood

A. C. Blakeney.

Inventors

Harry W. English

Marcus A. Byron

By Francis H. Hoyt

Attorney.

UNITED STATES PATENT OFFICE.

MARCUS A. BYRON AND HARRY WHITE ENGLISH, OF FORT WORTH, TEXAS.

WELL-DRILLING BIT.

1,052,567. Specification of Letters Patent. **Patented Feb. 11, 1913.**

Application filed March 19, 1912. Serial No. 684,858.

To all whom it may concern:

Be it known that we, MARCUS A. BYRON and HARRY WHITE ENGLISH, citizens of the United States, residing at Fort Worth, in the county of Tarrant and State of Texas, have invented certain new and useful Improvements in Well-Drilling Bits; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as 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 and figures of reference marked thereon, which form a part of this specification.

This invention relates to new and useful improvements in well drilling bits through which the bit is adapted to open and close and allowing easy passage of the bit through the opening after passing through the plate to working position, thereby drilling a hole large enough to insert same sized casing as that through which the bit has passed.

Heretofore, it has been the practice, when it has been desired to lower the casing down within the hole that has been drilled, to drill the hole the size of the inside casing, by use of an under reamer to ream out the hole to the size of the outside casing but with our improved apparatus, forming the subject matter of our present application, the marginal hole is drilled the size of the inside casing, after which the casing may be lowered without the use of an under reamer.

Our invention is illustrated in the accompanying drawings, in which:—

Figure 1 is a side elevation of our improved bit. Fig. 2 is an edge view. Fig. 3 is a view in elevation of the upper part of the bit. Fig. 4 is a perspective view of one section of the bit. Fig. 5 is a view partially in section and in elevation showing the interior mechanism, and Fig. 6 is a detail view in section, illustrating in elevation one of the spring-pressed gibs.

Reference now being had to the details of the drawings by letter, *a* designates the top section of the device which is threaded as at *h* for engagement with a box, not shown, in the usual manner.

The legs of the drill, designated by letters *b* and *c* are pivotally connected to the top through the medium of the pin *d* passing through an aperture *k* in a contracted projection of said top, also through aperture *v*, one of which is shown in Fig. 5 of the drawings, while the bottoms of the legs are free to swing, said pin being held in place by a pin *w*, which latter is passed through an aperture *e* formed in one edge of the plate *c*. Each leg is provided with a diagonally disposed opening in which gibs *f* and *g* are mounted, each having a head adapted to contact with the wall of said opening to limit its outer throw, and each held to its outer limit yieldingly through the medium of a coiled spring *y* which is seated in a chambered portion of the leg, as shown clearly in Fig. 6 of the drawings. A plate *o* closes the opening through which a gib is passed and is held by means of bolts *n*. The free end of each gib projects through the opening, as shown clearly in the drawings, and is adapted to contact with the end wall of the casing at points diametrically opposite as the bit is lowered through the casing. Projecting from the end wall of the leg *c* are the studs *i* and *j* and similar studs *r* and *s* project from the inner surface of the leg *b*, and coiled springs *u* and *t* engage over said lugs and tend to throw the two legs apart after the bit has passed through the lower end of the casing. Projections *p* and *x*, the former upon the leg *c* and the latter upon the leg *b*, serve as means for closing the space intermediate the legs.

In operation, the parts being adjusted as shown in Fig. 1 and, when the bit is passed through the casing, the gibs coming in contact with the sides of the casing will hold the legs together, as shown in Fig. 1 and, after the bit has passed through the casing, the legs will be thrown in opposite directions by means of the coiled springs *t* and *u*, thus making it possible to drill under the casing a hole as large as the outside diameter of the couplings of the casing through which the bit is passed. When the bit is drawn out, the gibs *f* and *g* coming in contact with the casing will be forced within the openings in the legs.

What we claim to be new is:—

1. An under drilling bit comprising two legs, coiled springs mounted between the same and normally holding the same spaced apart, a top to which said legs are pivoted, and spring-pressed gibs mounted within openings, one in each of said legs with their outer ends projecting beyond the circumferences of the legs, as set forth.

2. An under drilling bit comprising two legs, which are pivoted together, a top to

which the legs are pivoted, each leg having a chambered portion with a diagonally disposed opening leading therefrom through the leg, a gib passing through said passageway with its free end extending beyond the end of said opening and adapted to contact with the inner surface of the casing, springs for holding said gibs at their farthest outerthrow, and springs bearing between the legs to separate the same when free from the casing, as set forth.

3. An under drilling bit comprising two legs, which are pivoted together, a top to which the legs are pivoted, each leg having a chambered portion with a diagonally disposed opening leading therefrom through the leg, a gib passing through said passageway with its free end extending beyond the end of said opening and adapted to contact with the inner surface of the casing, the inner end of each gib having a head adapted to contact with a shoulder in the chambered portion of the leg, a coiled spring bearing intermediate the wall of the chamber and said head, tending to normally hold the gib with its free end projecting through the opening in the leg, and a spring for normally holding the legs separate, as set forth.

4. An under drilling bit comprising two legs, which are pivoted together, a top to which the legs are pivoted, each leg having a chambered portion with a diagonally disposed opening leading therefrom through the leg, a gib passing through said passageway with its free end extending beyond the end of said opening and adapted to contact with the inner surface of the casing, the inner end of each gib having a head adapted to contact with a shoulder in the chambered portion of the leg, a coiled spring bearing intermediate the wall of the chamber and said head, tending to normally hold the gib with its free end projecting through the opening in the leg, lugs projecting from the end surface of each leg, and coiled springs fitted over said lugs and adapted to hold the legs separated, as set forth.

5. An under drilling bit comprising two legs, which are pivoted together, a top to which the legs are pivoted, each leg having a chambered portion with a diagonally disposed opening leading therefrom through the leg, a gib passing through said passageway with its free end extending beyond the end of said opening and adapted to contact with the inner surface of the casing, the inner end of each gib having a head adapted to contact with a shoulder in the chambered portion of the leg, a coiled spring bearing intermediate the wall of the chamber and said head, tending to normally hold the gib with its free end projecting through the opening in the leg a spring for normally holding the legs separate, and projections one upon each leg and adapted to close the space between the legs, as set forth.

In testimony whereof we hereunto affix our signatures in the presence of two witnesses.

MARCUS A. BYRON.
HARRY WHITE ENGLISH.

Witnesses for M. A. Byron:
P. E. ASHWORTH,
LULU E. MCLAUGHLIN.

Witnesses for Harry White English:
C. H. WALTON,
J. A. PHINNEY.