

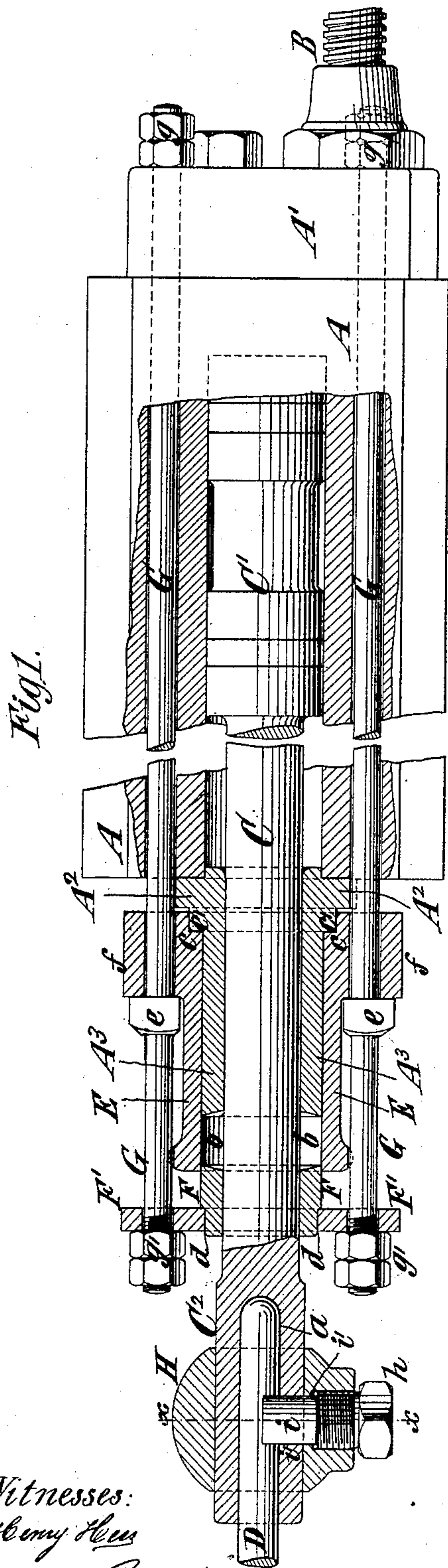
(No Model.)

G. R. CULLINGWORTH.

## ROCK DRILL.

No. 328,195.

Patented Oct. 13, 1885.



*Fig. 1.*

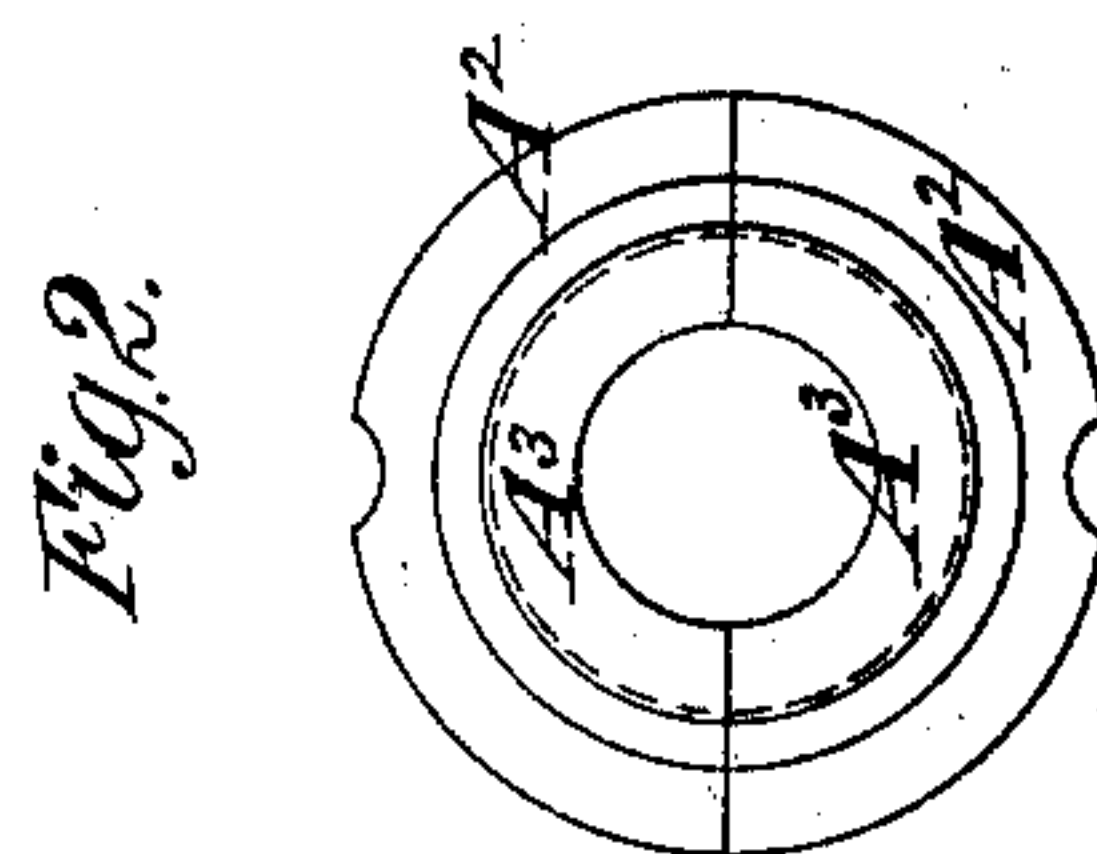


Fig. 2.

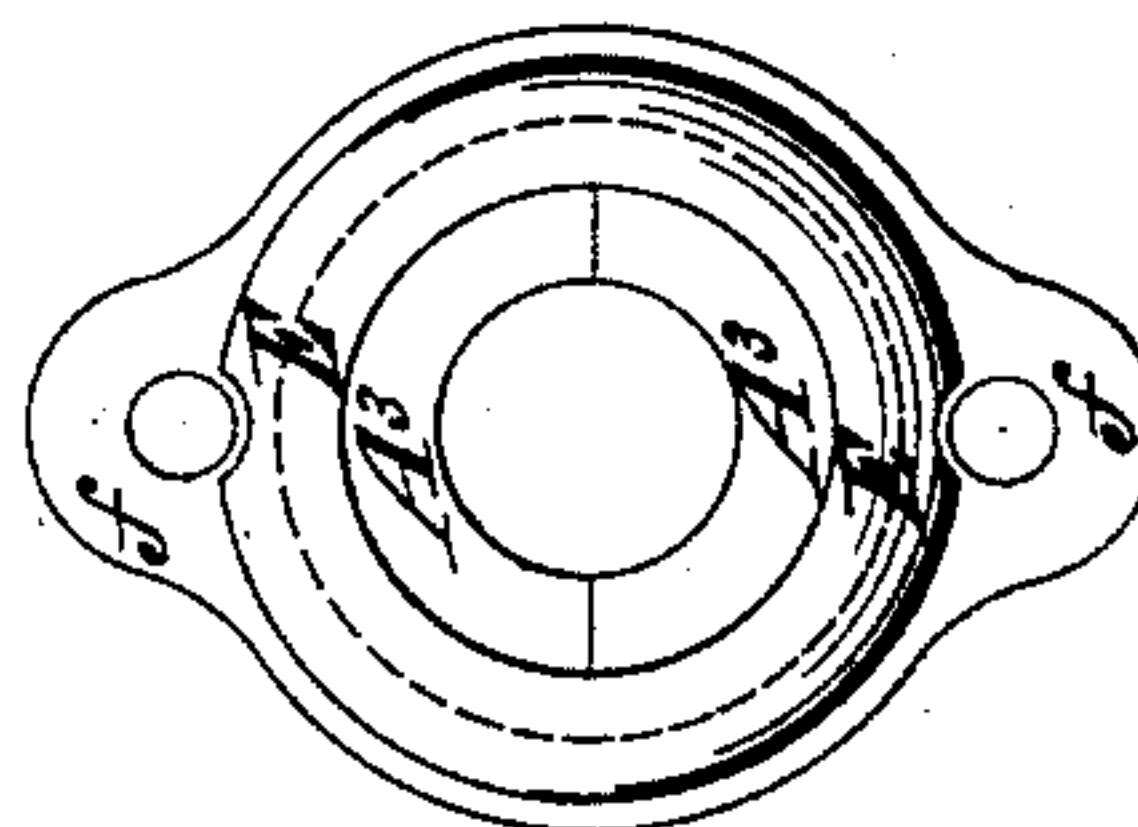
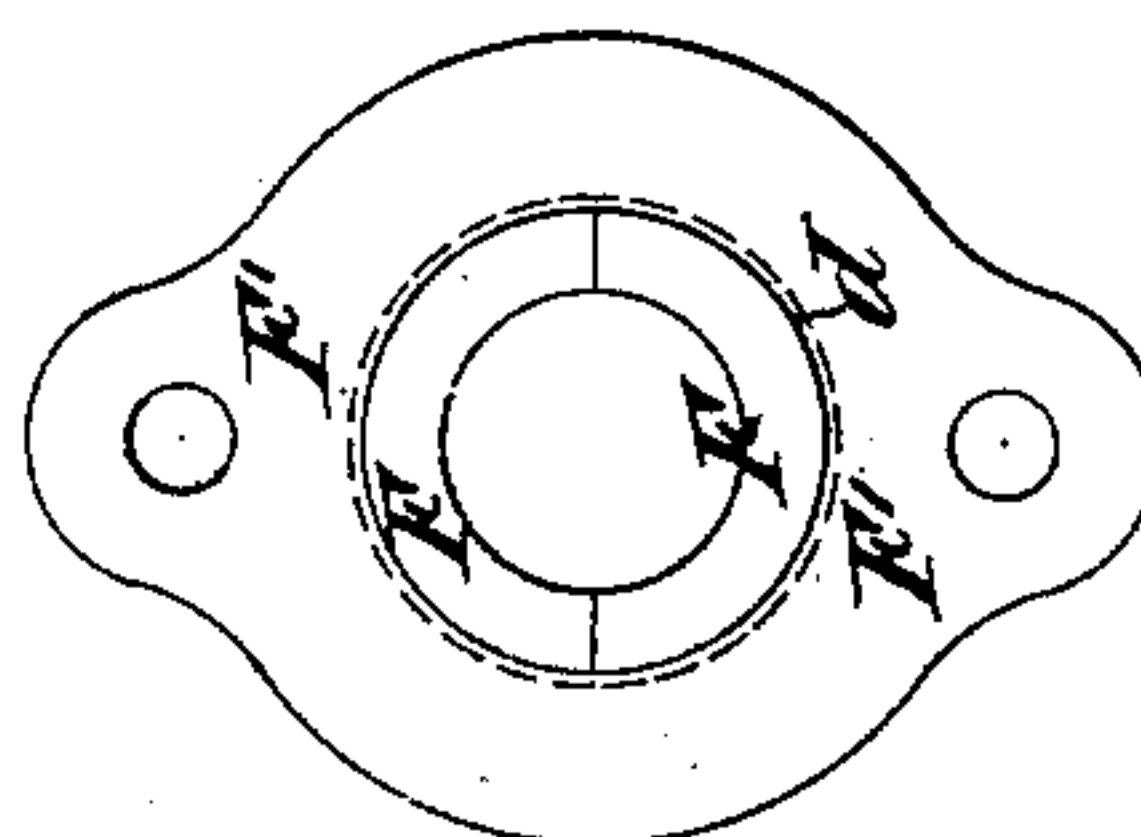


Fig. 3.



*Fig. 4.*

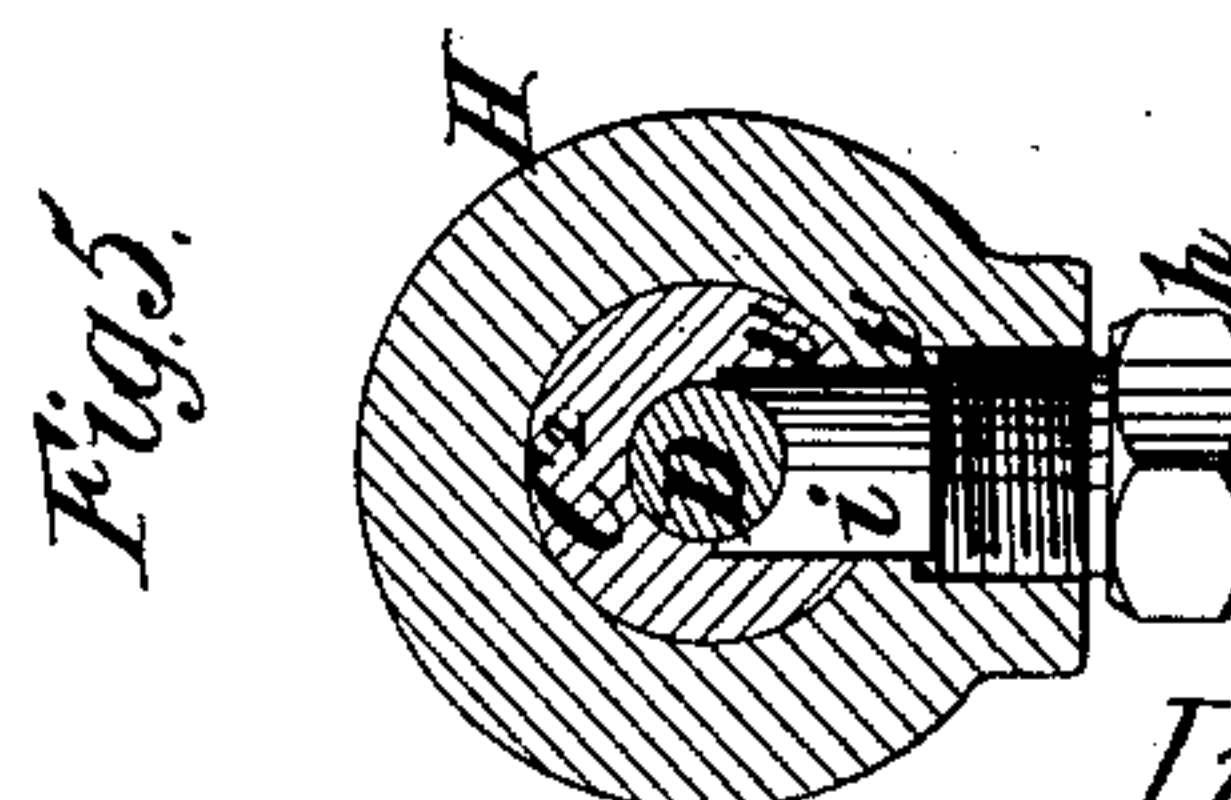


Fig. 5.

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# UNITED STATES PATENT OFFICE.

GEORGE R. CULLINGWORTH, OF NEW YORK, N. Y.

## ROCK-DRILL.

SPECIFICATION forming part of Letters Patent No. 328,195, dated October 13, 1885.

Application filed January 26, 1885. Serial No. 153,952. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE R. CULLINGWORTH, of the city and county of New York and State of New York, have invented a new and useful Improvement in Rock-Drills, of which the following is a specification.

My invention is applicable to drills in which the piston-rod has at one end a piston formed integral with it, and at the other end a portion of enlarged diameter, wherein is formed the socket for the drill or bit, and in which the lower head and gland are divided axially to enable them to be placed on the rod.

The invention consists in novel combinations of parts hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation and partial longitudinal section of a part of a machine embodying my invention. Fig. 2 is an end view of the divided head and neck. Fig. 3 is an end view of the said head and neck with the sleeve thereon. Fig. 4 is an end view of the divided gland and the undivided gland-collar, and Fig. 5 is a transverse section on the dotted line *xx*, Fig. 1.

Similar letters of reference designate corresponding parts in all the figures.

A designates the cylinder which may be of any ordinary construction, and which is closed at one or the upper end by a head, A'. This cylinder may be arranged to move in a frame in the usual way, and B designates a portion of the ordinary feed-screw.

C designates the piston-rod, having at one end the piston C', which is fitted to the bore of the cylinder, and having at the other end a portion, C<sup>2</sup>, of slightly-enlarged diameter, in which is formed a socket, *a*, for the drill or bit D.

The lower head of the cylinder is made in two semicircular sections, A<sup>2</sup> A<sup>2</sup>, as shown in Fig. 2, or, in other words, is divided axially. It has a hub or projection entering the end of the cylinder, and from its outer side projects a long neck, A<sup>3</sup>, which is also axially divided and is formed integral with the head.

E designates a sleeve or circular piece which is fitted to the exterior of the neck A<sup>3</sup>, and projects sufficiently beyond the end thereof to form a stuffing-box, *b*. The sleeve E is undivided, and at its inner end is here shown

an annular rabbet or recess, *c*, which is fitted to and receives a shoulder or fillet, *c'*, on the head A<sup>2</sup>. It will therefore be seen that when the sleeve E is slipped into place on the neck the sections of the neck and head A<sup>2</sup> are held closely together and in place around the rod.

To the stuffing-box *b* is fitted a gland made in two semicircular sections, F F', as shown in Fig. 4, or, in other words, divided axially and having a smooth exterior fitting the stuffing-box. The outer end of this gland is shouldered at *d*, and thereon is fitted an undivided collar or plate, F', the shape of which is shown in Fig. 4. The sections of the gland are held together by entering the undivided sleeve E, and by the collar or plate F' which encircles them. The internal diameter of the sleeve E and collar F' is such that they may be slipped over the enlarged part C<sup>2</sup> of the rod C after the divided head and gland have been applied laterally thereto.

G designates bolts which extend the full length of the cylinder, and are prolonged to serve as the bolts for the gland and collar F F'. These bolts have upon them fixed collars or shoulders *e* and pass through ears or lugs *f* projecting from opposite sides of the sleeve E. The bolts have at their farther ends nuts *g*, and by tightening these nuts the sleeve E is clamped tightly against the divided head A<sup>2</sup> to hold it in place, and the head A' is also confined in place. The opposite ends of the bolts G pass through holes in the gland collar or plate F', and are screw-threaded and provided with nuts *g'*, whereby the gland may be set up to compress the packing in the stuffing-box *b*.

To the end portion, C<sup>2</sup>, of the piston-rod C is fitted a sleeve or collar, H, which is fitted with a set-screw, *h*, and *i* designates a saddle-piece or plug interposed between the end of the set-screw and the bit or drill D. This saddle or plug is fitted to a bore or seat, *i'*, formed partly in the rod C and partly in the collar H, and by tightening up the screw *h* the saddle or plug *i* is forced strongly against the drill or bit, and the latter is secured in its socket *a* in the rod C. The saddle or plug, as it projects outward beyond the periphery of the rod and into the collar H, also serves to keep said collar in place and prevents its slipping off the rod.

The head A<sup>2</sup> with its neck A<sup>3</sup> and the gland

F might be made in more than two sections, but two are all that it is necessary to provide for placing them laterally on the rod.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, with the drill-cylinder A and its axially-divided head and neck  $A^2 A^3$ , of an undivided sleeve, E, fitting the exterior of the neck and projecting beyond the same to form a stuffing-box, a divided gland, F, having a smooth exterior fitting the stuffing-box, and having a shoulder,  $d$ , near the outer end, and an undivided collar,  $F'$ , bearing against the shoulder on the gland, and bolts passing through the collar and serving to secure the gland in place, substantially as herein described.

2. The combination, with the cylinder A and its divided head, neck, and gland  $A^2 A^3 F$ , of the undivided sleeve E, and the undivided gland-collar  $F'$ , bearing against a shoulder on the gland, and the bolts G, having fixed collars or shoulders  $e$ , bearing against the sleeve E and serving to secure it and the gland in place, and prolonged to pass through the collar  $F'$  and form gland-bolts, substantially as herein described.

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Witnesses:

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