

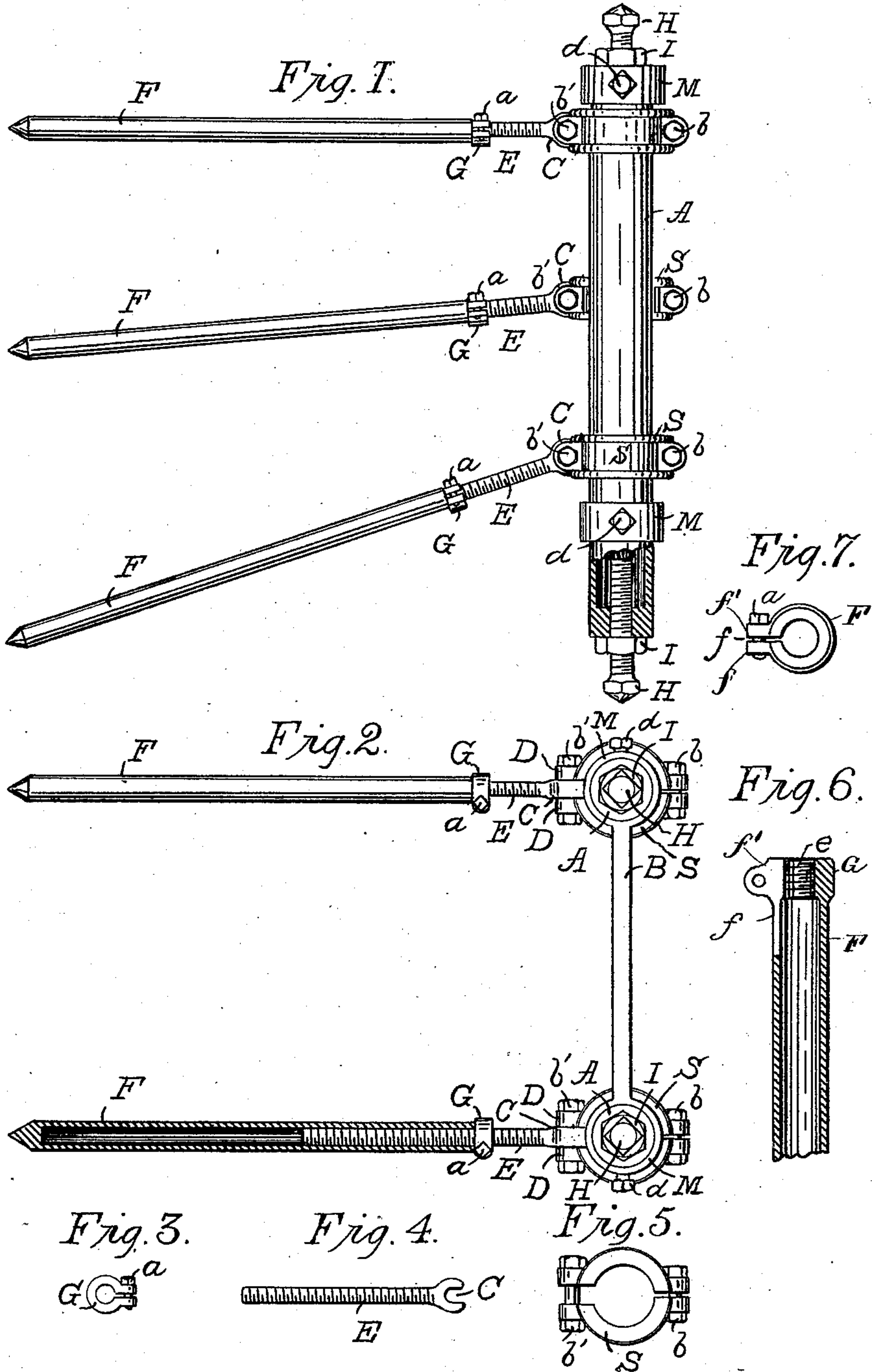
(No Model.)

A. BALL.

ADJUSTABLE ROCK DRILL FRAME.

No. 351,564.

Patented Oct. 26, 1886.



WITNESSES

Geo. H. Cooper Jr.
Jno. C. Schroeder.

INVENTOR
Albert Ball
PER Geo. W. Wager
ATTORNEY

UNITED STATES PATENT OFFICE.

ALBERT BALL, OF CLAREMONT, NEW HAMPSHIRE, ASSIGNOR TO THE SULLIVAN MACHINE COMPANY, OF SAME PLACE.

ADJUSTABLE ROCK-DRILL FRAME.

SPECIFICATION forming part of Letters Patent No. 351,564, dated October 26, 1886.

Application filed December 2, 1885. Serial No. 184,437. (No model.)

To all whom it may concern:

Be it known that I, ALBERT BALL, of Claremont, in the county of Sullivan and State of New Hampshire, have invented a new and Improved Adjustable Standard and Brace for Machine-Frames; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention relates particularly to braces and stiffeners for use with the frame of any machine working on standard-supports, and more especially to be used with the improved diamond-drilling machine, for which I am about to apply for Letters Patent simultaneously herewith.

My object is to make the standards on which the drill is fixed when at work very stiff and unyielding, and to accomplish this with very little expenditure of time and at slight expense. The drill in question is most generally used in mines and in confined spaces with walls of rock, and in practical use needs to be frequently moved.

Drills have been mounted on standards (usually two in number and parallel) with adjustable pointed ends, for very many years, these standards being connected with "stretchers" or connecting-braces; and the novelty of my invention consists in a brace which can be readily adjusted, and at the same time be unyielding and hold the drill perfectly firm, and in the means for attaching the stretchers to the standards, all as will be more fully hereinafter described and claimed. For a better understanding of the same in detail, attention is invited to the accompanying drawings, wherein—

Figure 1 is a side view of the standards on which the drill is mounted, with several of my screw-braces attached; Fig. 2, a top view of the same, showing one of the stretchers connecting the standards. Fig. 3 is a top view of the clamp-nut for the brace; Fig. 4, a detail of that part of the brace which is threaded and provided with a forked end; Fig. 5, an end view of the clamp which clasps the standard and holds the forked end of the brace; Fig. 6, a sectional view of the shell part of the brace, wherein the clamp-nut or clamp-screw is made a part of the shell, and not separate, as shown in Fig. 3; and

Fig. 7, an end-view of the shell and clamp shown in Fig. 6.

In the several drawings the same letters indicate the same parts.

A A, Fig. 2, and A, Fig. 1, represent the standards, which are preferably made out of wrought-iron tubing, with fixed screw-threads on the inside at the ends, and H H, Figs. 1 and 2, are pointed adjusting-screws working therein, and having set-nuts I I, which, when firmly set down against the ends of standards, prevent the said screws from moving or loosening.

B, Fig. 2, represents one of two or more stretchers or connecting-braces between the two standards, and which serve to keep them parallel to each other, beside stiffening them.

M M, Figs. 1 and 2, represent the ring ends of the stretchers, made so as to move freely on the standards, except when they are held by the set-screws d d.

F F F, Figs. 1 and 2, represent the outward ends of the braces, and in Fig. 2 is shown also a sectional view of the same. It is preferably made hollow of wrought-iron tubing.

G G G, Figs. 1 and 2, represent the clamp-nuts, which hold the outward parts of the braces to the inner and screw ends of the same, which latter are indicated by E E E, Figs. 1, 2, and 4, and Fig. 3, (G) shows a top view of the same nut.

a a a, Figs. 1, 2, and 3, indicate the screw to the clamp-nut G, whereby the nut may be held securely at any point on the screw E.

c, Figs. 1, 2, and 4, shows the fork end of the screw part of the brace, which is held when in use against the bolt b' of the clamping-collar S, Fig. 5. These clamping-collars are placed upon the standards, (see Figs. 1 and 2,) and by unscrewing the bolts b b' slightly they (the collars) may be freely moved to any desired position on the standards. As shown, these clamping-collars are made in two parts, but they can, if preferred, be made of a single piece.

Instead of F and G being in separate pieces, the clamping-nut may be a part of the outward end of the brace, as shown in Figs. 6 and 7, wherein F indicates the brace with a slotted end, f, with ears f', which are brought together, as desired, by the screw a. The screw-thread of the clamping end G is indicated by the letter e, Fig. 6.

In practical use my improved frame is utilized

as follows: The standards being brought to the desired place, one of them is securely fastened to the rock (or other material) at the extremities by the screw-points H H, then by loosening the set-screws of the stretchers the other standard can be also secured in its place, without straining the stretchers or any other bearings, in a very quick way. Then the set-screws *d d* are firmly tightened, and the standards are equidistant at all points, and the drill can be moved freely up and down upon them. The braces are then attached preferably in a direction opposite to the proposed line of boring, so as to make a firm resistance and prevent any springing. This is very quickly done by bringing the clamping-collars to the desired position on the standards, then inserting the fork end *c* of the brace. By tightening the screw-nut *b'* it is prevented from dropping away. The clamp-screw *a* then being loose, the hollow end F of the brace is moved freely against the wall or intended obstacle. The clamp-screw *a* is tightened sufficiently to cause the threaded clamp to grasp the screw E when the clamp and the end F can be turned by a wrench, thus lengthening the brace and making it sufficiently stiff. Then the nut *a* is tightened, so as to prevent any accidental loosening of the brace.

It is obvious that the braces can be set at any angle and be made of any desired length, and, if desired, the tubular ends F can be made of two or more sections.

The stretchers B can be made with one end fastened to one of the standards, and with only one end provided with a loose ring or collar and set-screw; but I prefer to have both ends so made, and instead of a set-screw a clamping or other equivalent device can be used. More than two standards could also be used.

Instead of the inner end of the brace being provided with a forked end, *c*, it is obvious that it might be provided with a flattened end, with a hole through it to receive the bolt *b*; but I prefer the method shown, enabling, as it does,

much more rapid handling of the braces and avoiding the removal of the screw-bolt from the clamp.

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

1. In a drill-frame, the combination of the similar parallel standards, the links or braces of equal length connecting said standards and adjustable up and down upon the same, the collars adjustable up and down upon the standards, and the brace-rods having bifurcated ends to rest against the screws that bind the collars on the standards, substantially as described.

2. In a drill-frame, the combination of the similar parallel standards, the link-rods or braces of equal length connecting said standards and adjustable up and down thereon, the collars adjustable up and down on the standards, the screw *b'* to bind the said collars at any desired point on the standards, and the extensible braces having forked or bifurcated ends to rest upon the screw *b'*, substantially as described.

3. In a rock-drill frame, the combination of the similar parallel standards A, the end screws H, the nuts I, and connecting-braces B, provided with the end rings, M, and set-screws *d*, to bind the rings on the standards, substantially as described.

4. In a drill-frame, the combination, with the similar parallel standards A and the adjustable connecting-braces B, of the collars S, provided with the binding-screw *b'*, the brace-rods, each composed of a pointed tubular part, F, and a threaded part, E, having a flattened and notched end, C, to rest against a screw, *b'*, and the binding nuts or collars G, each provided with a screw, *a*, substantially as described.

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

ALBERT BALL.

Witnesses:

GEO. O. BALL,

FRANK A. BALL.