(Model.)

L. D. ESHENBAUGH.

DRILL JAR.

No. 265,788. Patented Oct. 10, 1882.

Fig. 2

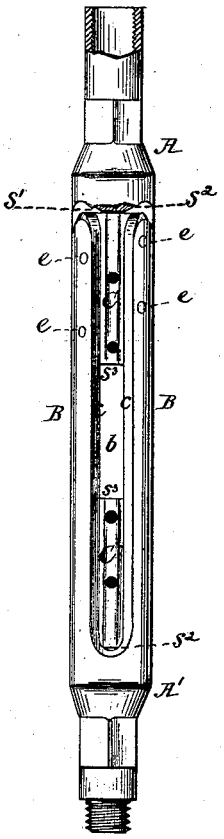


Fig. 4

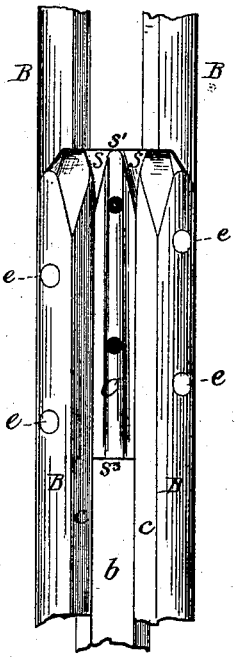


Fig. 3

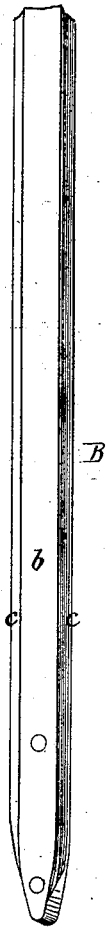


Fig. 1

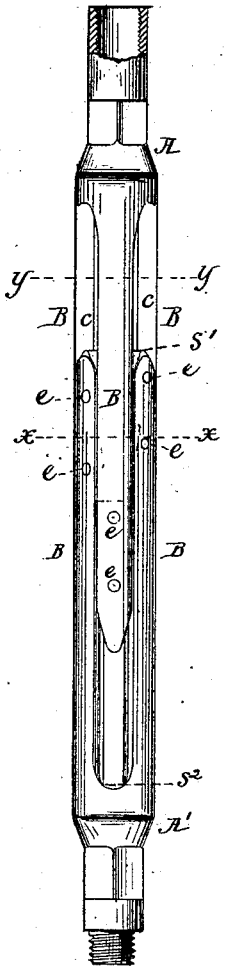


Fig. 5.

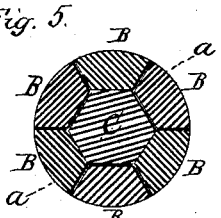


Fig. 8.

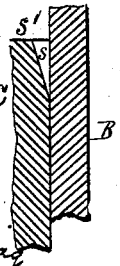


Fig. 6

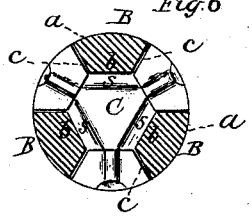
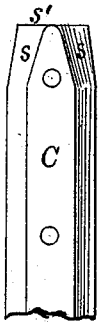


Fig. 7.



Witnesses:
Edmund Brodhead
F. L. Brown

Inventor
L. D. Eshenbaugh
By Johnson & Johnson
Attys

UNITED STATES PATENT OFFICE.

LORENZO D. ESHENBAUGH, OF ROCK VIEW, NEW YORK.

DRILL-JAR.

SPECIFICATION forming part of Letters Patent No. 265,783, dated October 10, 1882.

Application filed May 31, 1882. (Model.)

To all whom it may concern:

Be it known that I, LORENZO D. ESHENBAUGH, a citizen of the United States, residing at Rock View, in the county of Cattaraugus and State of New York, have invented new and useful Improvements in Drill-Jars, of which the following is a specification.

My invention relates to the manufacture of what are known as "drill-jars," which are usually two coupled links, used in well boring, one attached to the drill-tool and the other to the operating-rope, and capable of moving one within the other, so that in raising and lowering the drill the upward movement of one link striking the other loosens the tool for the next stroke.

I am aware of the construction of most all the drill-jars in use, and my object in producing the hereinafter-described improvement is to prevent the usual unequal wear of the reins, to give more wearing-surface, greater and stronger knocking-surface, and to avoid the kinking or twisting of the reins. This I accomplish by using a jar of three reins instead of two, as heretofore, and have found from experiment and continued use my objects best carried out by the jars hereinafter described, and shown in the accompanying drawings, in which—

Figure 1 is a view in elevation, showing the jars extended as in knocking; Fig. 2, a similar view, the jars being in position as when the downstroke is completed, and with one of the reins broken away to expose the anvils; Fig. 3, a detail of one of the reins; and Fig. 4, an enlarged partial elevation, showing one of the anvils; Figs. 5 and 6, cross-sections of the jars on lines *x x* and *y y* of Fig. 1; Fig. 7, the anvil, and Fig. 8 a sectional detail of the anvil and rein.

In these drawings, A A′ are the jars, which are coupled in the usual manner, except that to attain my objects in using three reins instead of two the shape of the rein and of the anvil necessarily differs from those jars having two reins.

B B are the reins, having beveled ends, and C C the anvils or knockers. The outer surface, *a*, (when produced,) of the reins is cylindrical, the inner surface, *b*, flat, and the wearing-surfaces *c* radial. Necessarily with this form of three-reined jar the anvil C would be triangular in cross-section to fill the space formed between reins of such shape, and which I find in practice to be a superior form. This construction of three reins gives more wearing-surface to the jars and causes them to wear evenly and smoothly, each rein having the same bearing in all its parts, rendering it impossible to twist or kink, there being a perfect compensating-guide.

In two-reined jars having much play the greatest difficulty is found in the fact that one rein wears more than the other, it being no uncommon occurrence for one rein to wear almost out, so as to be useless and so thin as to break, while the other is comparatively little worn.

The anvil of triangular form possesses all the advantages sought for in anvils without diminishing the strength of the reins, as would result from a cylindrical anvil within thin concaved reins. The anvils are secured to the reins by the rivets *e*, and are beveled at *s* on three sides from their striking ends a short distance. The outer flat ends, *s′*, of the anvils form triangular-shaped knockers and act against flat faces s^2 at the junction of the reins B with the solid end of the link, as shown in Fig. 2, and at such ends the anvils are beveled on their three non-connected sides *s*, corresponding with the beveled ends of the reins to which they are secured, whereby the jar is rendered more effective, the reins less liable to bind and jar in the descending blows of the links, and the exposed surfaces more easily freed from particles of rock, gravel, and earth. The anvils are of triangular form with reference to the reins of each link and their outer striking ends; but they are six-sided with reference to the bolt-links, so that while their outer triangular ends, beveled on three sides, give important advantages in the descending action of the drill, the inner flat knocking-heads, s^3 s^3, are of the full area of the space between the inner flat sides of the reins of each link and give the full striking-surface and jar in the ascent of the upper drill-link.

I claim—

1. In drill-jars, the tool-carrying links, each having three reins springing from a solid end, having a flat knocker-surface, s^2, each link having an anvil formed with flat striking-faces at

both ends, one of which is of triangular form, substantially as described, for the purpose specified.

2. The tool-carrying links of a drill-jar, each having an anvil formed with a flat striking-face at both ends, one of which is of triangular form and beveled at *s* on its non-connected sides, corresponding with and joining the beveled ends of the reins to which the anvil is riveted, substantially as described, for the purpose specified.

3. A drill-jar composed of two links of three reins each, in the form of longitudinal segments of a hollow cylinder, flat on their inner faces, and an anvil for each link, formed with a flat striking-face at both ends, one of which is of triangular form and beveled at *s* on its non-connected sides, corresponding with and joining the beveled ends of the reins to which said anvil is riveted, and co-operating with corresponding flat knocking-surfaces s^2, formed at the junction of the three reins with the solid end of the link, substantially as shown and described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

LORENZO D. ESHENBAUGH.

Witnesses:
FRANK RUMSEY,
M. B. JEWELL.