

E. Guillod.
Drill Jars.
N^o 78,958. Patented Jun. 10, 1868.

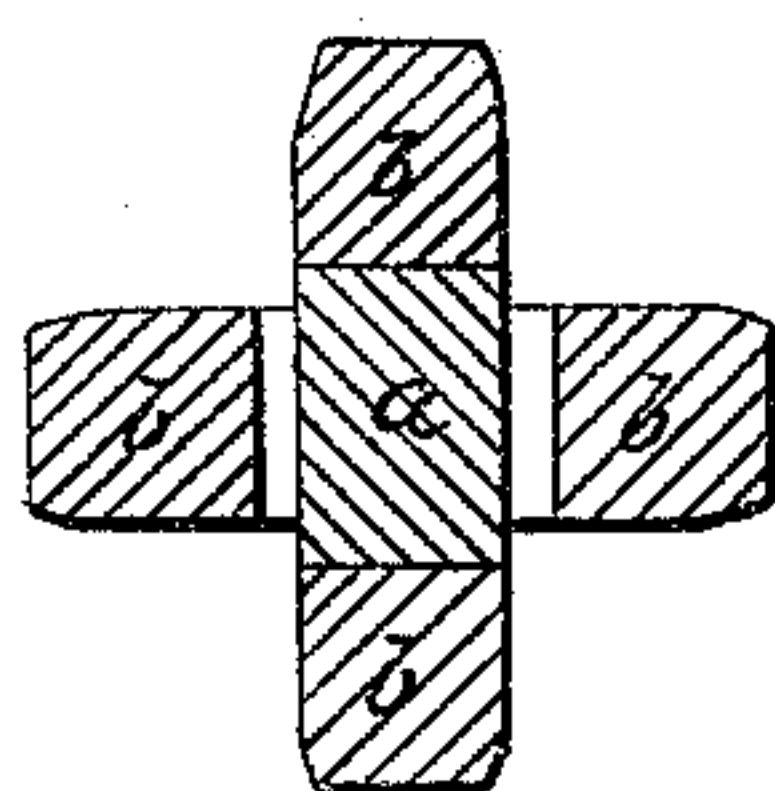
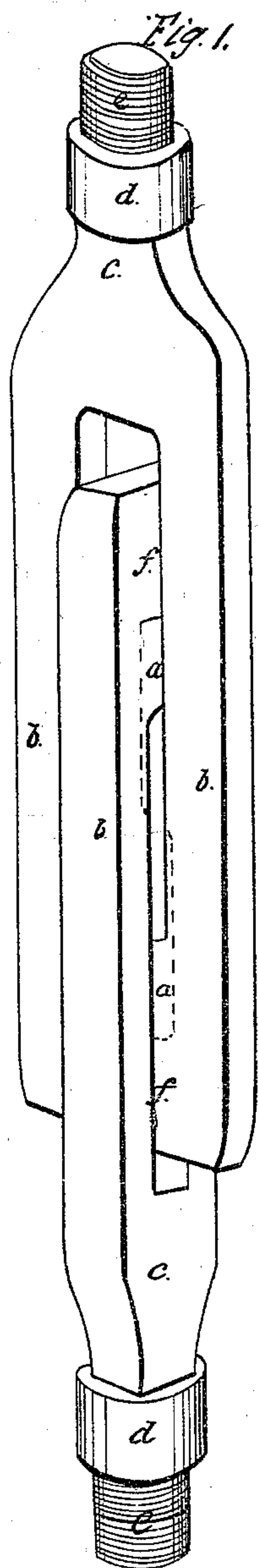


Fig. 3.

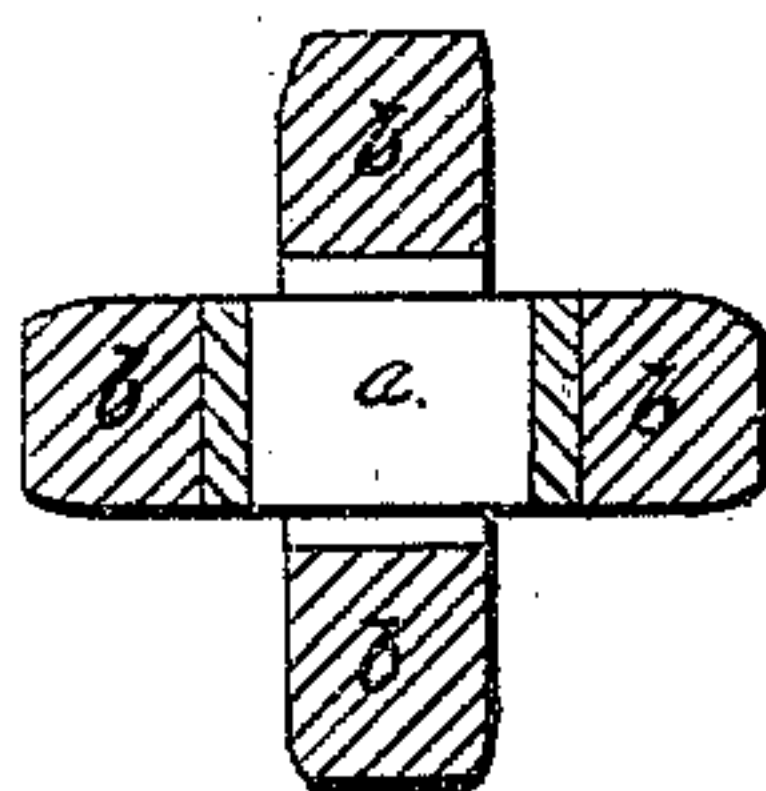
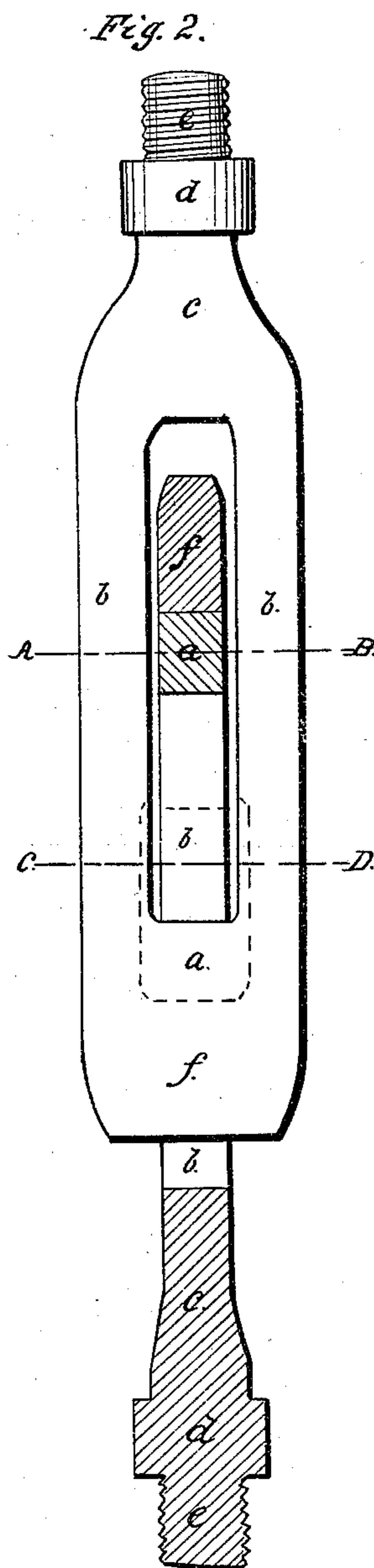


Fig. 4.



Witnesses:

A. B. Howland.
Bentley

Inventor:

Edward Guillod

UNITED STATES PATENT OFFICE.

EDWARD GUILLOD, OF TITUSVILLE, PENNSYLVANIA, ASSIGNOR TO BRYAN, DILLINGHAM & CO., OF SAME PLACE.

IMPROVEMENT IN THE CONSTRUCTION OF DRILLING-JARS.

Specification forming part of Letters Patent No. 78,958, dated June 16, 1868.

To all whom it may concern:

Be it known that I, EDWARD GUILLOD, of the city of Titusville, county of Crawford, and State of Pennsylvania, have invented a new and Improved Mode of Constructing Drilling-Jars for Use in Drilling Oil and other Artesian Wells; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification, and in which similar letters represent similar parts in all the views.

The object of my invention is to so combine iron and steel in the manufacture of drilling-jars that they shall be more durable and less liable to break when in use in the well than when made of either metal alone. They have heretofore been made usually of wrought-iron alone, and in rare instances entirely of steel, the form or design being substantially similar to that shown in the drawings. When used in deep Artesian wells these jars are required to lift or jerk at each stroke of the drill a set of tools weighing from five hundred to one thousand pounds at an average rate of thirty to forty blows per minute; and when a set of tools becomes "fast" in the well from any cause it often becomes necessary to jar them constantly for days and sometimes for weeks before they are loosened, and in such case the success or failure of the attempt to remove the tools depends mainly upon the strength and durability of the jars, as the breaking or cracking of a jar-link in the well frequently necessitates its abandonment. The vertical bars of the links sustain great tensile strain, tending to tear them asunder, while the head of the link gives and receives a severe blow, tending to batter and upset the metal. When in the latter condition the links frequently become locked together and inoperative, and can only be removed by lowering and attaching another set of tools and jars, which, in turn, are equally liable to the same misfortune. When constructed entirely of wrought-iron the parts giving and receiving the blow soon become battered and worse than useless; while, if made wholly of steel, the vertical bars would be too brittle to sustain the great shock and tensile strain at each stroke.

By my mode of construction I so combine iron and steel as to avail myself of the toughness and tenacity of wrought-iron in those parts of the links subjected to tensile strain and of the hardness of steel in the parts which give and receive the blow, and I thus insure greater durability with less risk of breakage and burring.

My mode of construction is illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of the jars complete. Fig. 2 is a sectional and side view of the same. Figs. 3 and 4 are transverse sections, taken on lines A B and C D.

a represents the head or portion of the link which gives and receives the blow, and which I make of solid steel. When the jars are to be used with a heavy set of tools I also face the inner or wearing edge of the link near the head with steel, as shown.

All other parts of the link, including the bars *b*, shank *c*, collar *d*, and pins *e*, and also the outer end, *f*, of the jar-head, all of which are subjected to a tensile strain, I make of the best of wrought-iron.

By this arrangement of metals it will be seen that the steel head-piece *a* is completely embraced and held in place by the wrought-iron bars and the outer portion of the head, to which it is welded. The manner of uniting or welding the steel and wrought-iron is shown by the dotted lines in the sectional drawings. The welding should be done by experienced workmen and in the very best manner. I do not deem it necessary to represent in detail the precise shape in which the several parts of each link should be made previous to welding them together, as these details may safely be left to the discretion of any skilled workman.

Having thus described my mode of construction, what I claim as my invention, and desire to secure by Letters Patent, is—

The within-described drilling-jars, constructed of wrought-iron and steel, combined and applied substantially in the manner and for the purposes set forth.

EDWARD GUILLOD.

Witnesses:

A. B. HOWLAND,
BEN. W. MURRAY.