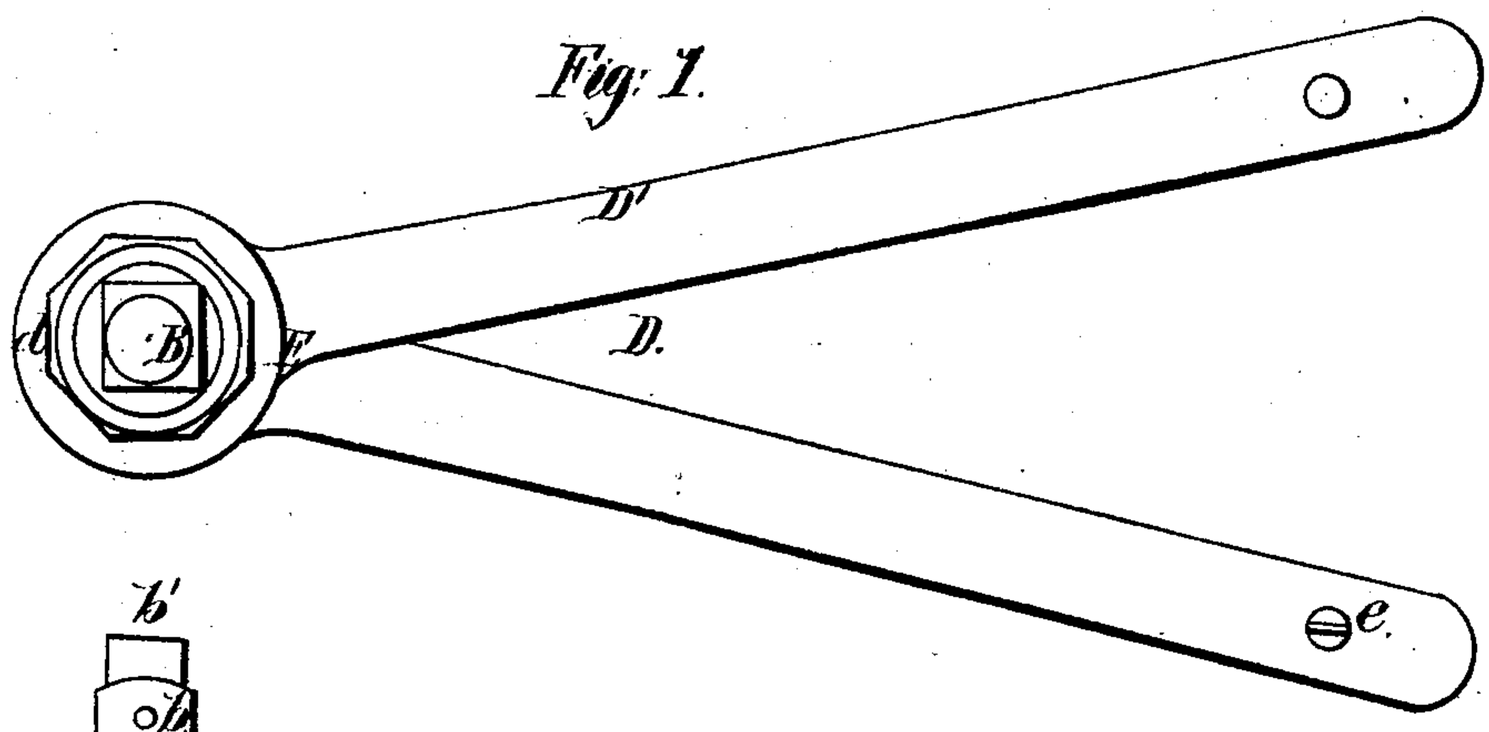
S. Lauchli,

Drill.

No. 90,670. Patented June 1. 1869.

Fig: 1.



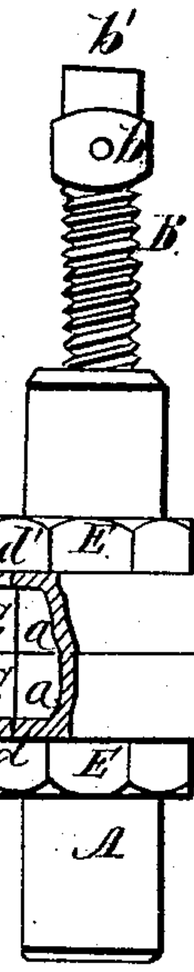


Fig: 2.

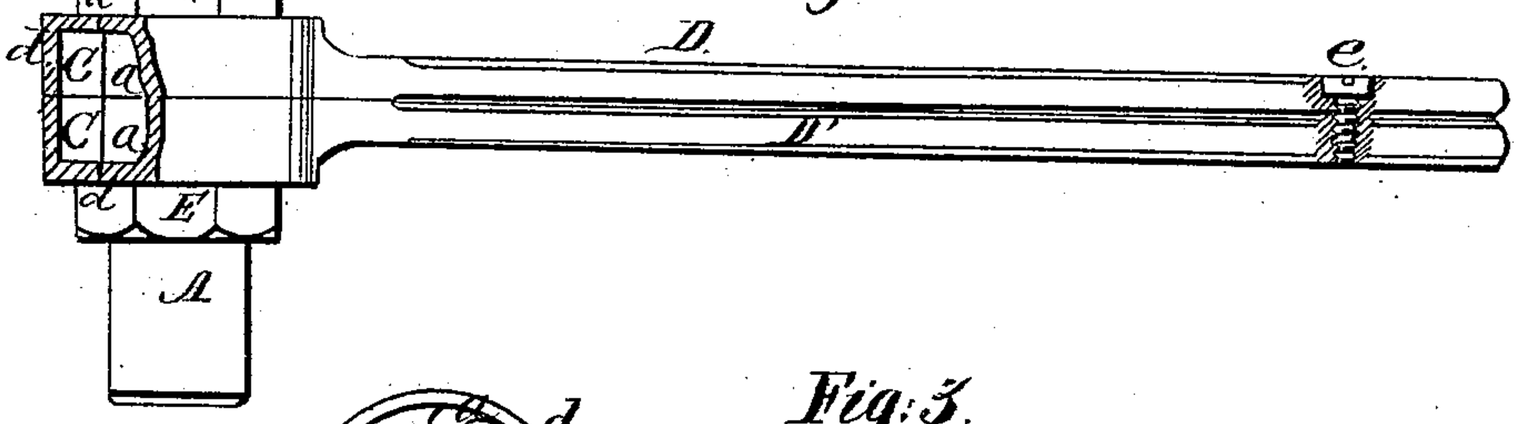
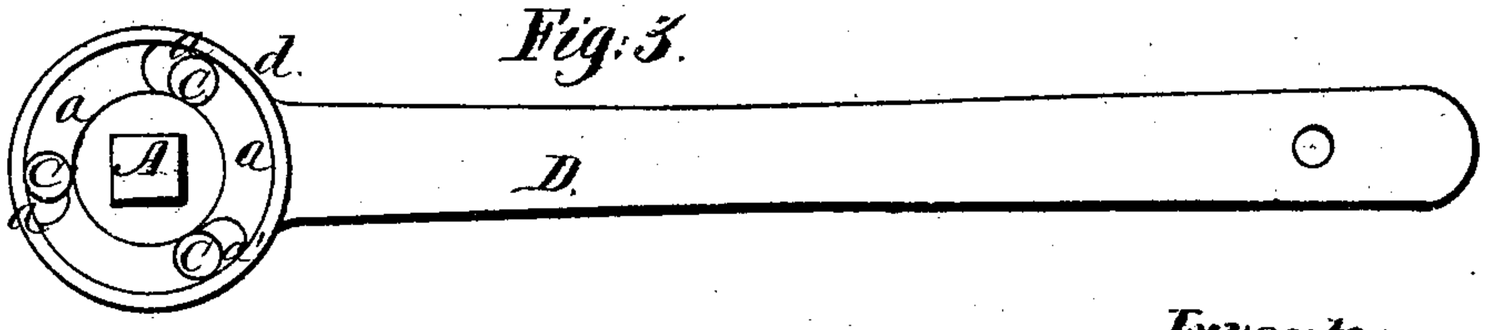


Fig: 3.



Witnesses:

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attys

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United States Patent Office.

SAMUEL LAUCHLI, OF ST. LOUIS, MISSOURI, ASSIGNOR TO HIMSELF AND FREDERICK SHICKLE, OF SAME PLACE.

Letters Patent No. 90,670, *dated June* 1, 1869.

IMPROVEMENT IN DRILLING-APPARATUS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, SAMUEL LAUCHLI, of St. Louis, in the county of St. Louis, and State of Missouri, have made certain new and useful Improvements in Drilling-Apparatus; and I do hereby declare that the following is a full and clear description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

This invention relates to that form of wrench which is generally applied to operating drilling and similar cutting-tools, although the application of the specific features of this invention is in nowise limited and confined hereto.

The nature of said invention is in the arrangement and application of one or more rollers about the drill-stock, or similar tool which is to be turned, in such manner that the concentric collar of the wrench-handle shall, in a forward motion, bind upon said rollers, and thus also turn the drill-stock within; but upon a return motion, (in contrary direction to the forward motion aforesaid,) the wrench-collar shall release the rollers, and thus the handles alone shall perform said return motion.

The nature of said invention is, furthermore, in a combination of two handles, by which, in using short, rapid strokes, an operator is enabled to increase the operative speed of the drilling or cutting-tool, all of which will hereinafter more fully appear.

To enable those skilled herein to make and use my said invention, I will now more fully describe the same, referring to the accompanying

Figure 1 as a plan; to

Figure 2 as a sectional elevation; to

Figure 3 as a plan, showing the rollers as seen after removing superincumbent parts.

The said figures represent my said improvements in their adaptation to ordinary hand-drill or cutting-tool.

A represents the tool-stock, into which a drilling-tool, screw-thread cutter, or similar tool is inserted in the ordinary manner.

At the upper end of the tool-stock, the feed-screw B is arranged, which engages in a proper nut in said drill-stock.

Said feed-screw has the eye *b*, for inserting a small rod or lever to turn said screw, as in the ordinary hand-feed motion.

The end *b'* of said screw B being brought to a bearing in a proper drill-frame, or against a proper rest, the operator, by turning the feed-screw B, (the drill-stock being held against turning,) forces the tool down, producing the feed-motion in the usual manner.

About the middle of the length of the drill-stock A, I arrange the flange *a*, having one or more mortises, *a'*, as indicated in fig. 3.

In each of said mortises is arranged a cylindrical roller, C.

The said mortises *a'* are so formed that said roller may be fully contained without projecting beyond the line of the outer cylindrical surface of the said flange *a*, but that when said rollers pass out of said position, they will at once impinge upon the exterior parts now to be described.

About said flange *a*, I arrange the handle or handles D, having, at the junction with said flange *a*, the collar *d*.

Owing to the construction of the mortises *a'* aforesaid, the rollers C, in a forward movement of the handle D, by their contact with the inner surface of the collar *d*, will move outwardly to a "lock," the inner edge of the mortise *a'* being arrranged tangentially to the circle of the drill-stock A, for the special purpose of moving the said rollers out to the lock.

Then, so long as the operator continues the forward motion of the said handle, the roller is jammed tightly between the tangential edge or surface of the drill-stock mortise and the handle-collar *d*.

Thus the drill-stock is locked to and compelled to move and turn with the handle, as required by the operation of drilling or cutting which is to be performed.

In the return motion, however, the pressure of the collar *d* is to return the roller C to the receding portions of the mortise *a*, thus releasing the gripe upon the drill-stock, and this, therefore remains stationary whilst the return motion of the handle is being performed.

The collar *d* of the handle D is arranged with a projecting annular lip, *d'*, fitting about the drill-stock, thus confining the rollers C endways.

Check-nuts E, engaging upon the drill-stock A, hold the handle D in proper position about the drill-stock and roller.

In light work, it is important to economize time by operating the drill-stock with increased speed.

This I accomplish by arranging the handle in two parts, D D', each being, by entirely similar series of rollers, brought to action upon the drill-stock.

The operator, grasping both handles, performs the forward movement with one handle, at the same time that he performs the return stroke with the other handle.

When the work requires more effort, the handles D' are moved into contact with each other, and a set-screw, *e*, is inserted, to hold them together.

I prefer to use three rollers C, as three rollers giv-

ing three points of engagement between the drill-stock and handles, of which none interfere to decrease the effective pressure of the others, but a greater or less number may be used.

I construct the parts aforesaid of the usual materials, such as wrought-iron, or malleable cast-iron, but prefer to make the rollers C of steel. Said rollers may be spherical or cylindrical form.

I do in nowise confine myself to the specific forms before described, and I do especially herewith include such changes of form as in the nature of this invention.

Having thus fully described my invention,

What I claim, is—

The combination and arrangement of the handles D and D′, each having a collar, *d*, about the flanges *a*, with the rollers C and check-nuts E, upon the stock A, substantially as and for the purposes set forth.

SAMUEL LAUCHLI.

Witnesses:

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