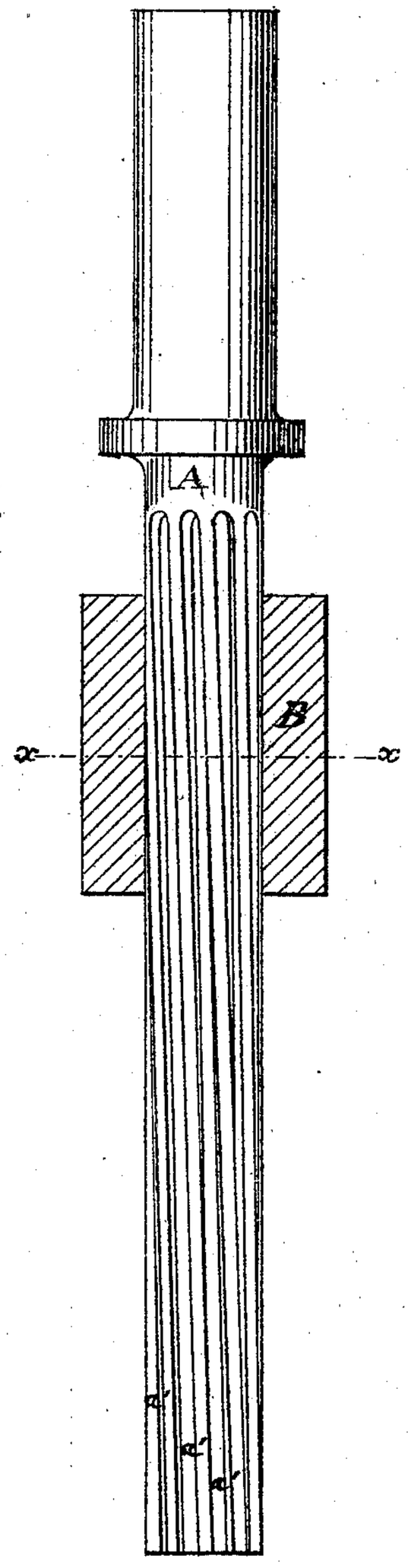
SIMON INGERSOLL.

Improvement in Rock Drills.

No. 120,279. Patented Oct. 24, 1871.

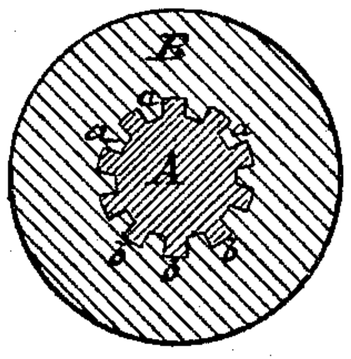
Fig. 1.



Scale: Full-Size.

Fig. 2.

Section on line x–x



Witnesses:

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Inventor:

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120,279

UNITED STATES PATENT OFFICE.

SIMON INGERSOLL, OF NEW YORK, N. Y.

IMPROVEMENT IN ROCK-DRILLS.

Specification forming part of Letters Patent No. 120,279, dated October 24, 1871.

To all whom it may concern:

Be it known that I, SIMON INGERSOLL, of the city and State of New York, have invented a new and useful improvement in Rock-Drills, of which the following is a clear, full and exact description, reference being had to the accompanying papers and drawing, in which—

Figure 1 is a side elevation, and Fig. 2 is a cross-section through the line *x x*.

My invention has reference to the class of rock-drills driven by machinery, and in which the drill is caused to revolve while in operation, and consists in a spiral bar where square bars have heretofore been used.

To enable others skilled in the art to understand and use my invention, I will proceed to explain the manner in which I have carried it out.

In the drawing, A represents my spiral bar with the grooves *a' a' a'*, the wearing sides of which are true radiuses from the center of the bar as seen in Fig. 2. Hence the travel is only in proportion to the wear; or, in other words, the lost motion or looseness produced by the wear is only the exact portion worn off of either, for there is no tendency to a rotary motion in my spiral bar as is the case case with the square bar. Each wearing edge of my spiral bar presents a radius of the circle of the bar, while the bearing on the square bars is on the extreme corners alone, there being no bearing on the center of its sides. The tendency of the square bar toward a rotary motion soon wears away the corners, and this will continue until the bar becomes round or nearly so, when the drill will cease to revolve on account of the great amount of lost motion. My improvement entirely obviates this difficulty. Again, by means of the grooves *a' a' a'* cut as described in my spiral bar, it is evident I keep my wearing points on the outer points of the radiuses, and the result necessarily is I not only gain a longer radius, but I can multiply my wearing-surface at pleasure by increasing the number of grooves in my bar. A spiral bar, as shown, secures more than three times the amount of wearing-surface that can be had in a square bar of the same diameter.

Another fact, which is important to the proper understanding of the advantages of my invention, is, that I do not weaken the spiral as much in cutting the grooves *a' a' a'* as would be done in cutting the bar square, for all my spirals are left on the extreme outside of the diameters.

After the spiral has been cut or grooved as desired the metal nut B should be cast on it, so as to secure a perfect fit of the projections *a a a* in the nut into the grooves *a' a' a'* in the spiral bar as shown in Fig. 2.

Having thus described my invention, what I claim as new, and desire to secure by Letters-Patent, is—

The spiral bar A having the grooves *a' a' a'* cut as described, in combination with the nut B when applied to a rock-drill and operated substantially as and for the purpose set forth.

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