C. H. Clark,

Bit Stock.

No. 105,906. Patented Aug 2. 1870.

Fig. 1.

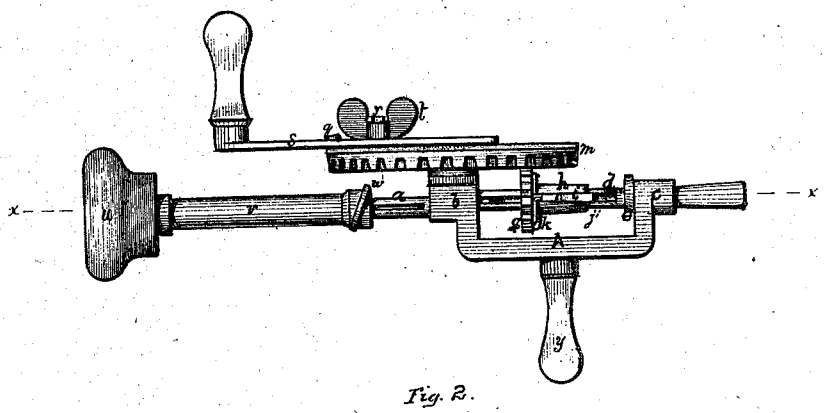


Fig. 2.

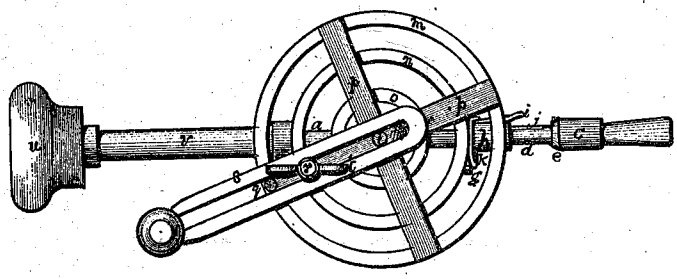
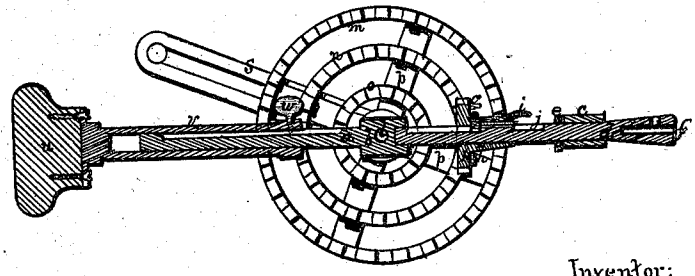


Fig. 3. Section on line x - x



Witnesses:

R. Mason Thomson

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atty

United States Patent Office.

CHARLES H. CLARK, OF PITTSFIELD, MAINE.

Letters Patent No. 105,906, *dated August* 2, 1870.

IMPROVEMENT IN BIT-STOCKS.

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, CHARLES H. CLARK, of Pittsfield, in the county of Somerset and State of Maine, have invented a new and useful improved Brace for Bits; and I do hereby declare the following to be a full, clear, and exact description thereof, sufficient to enable those skilled in the art to which my invention appertains to fully understand and to make and use the same, reference being had to the accompanying drawing forming part of this specification, and in which—

Figure 1 is a top view of the brace;

Figure 2, a view, showing one side thereof; and

Figure 3, a side view, partly in section, on the line *x x*, fig. 1, and showing the inner face of the drive-wheel.

The subject of this invention is a brace for use with drilling and boring-bits, provided with adjustable gearing, whereby the bit can be driven at different rates of speed, and also having an extensible stock and crank for increasing the power, and with a left handle, which can be detached when it is desired to use the brace near a partition or other obstruction.

The invention consists in the construction, arrangement, and combination of parts, as hereinafter described and claimed.

Similar letters of reference indicate like parts in the several figures.

Referring to the drawing—

A represents a frame, which will generally be made of cast-iron, in the form shown, and with a cylindrical shank, *a*, and bearings, *b c*, for the rotary bit-holder *d*, which is kept in place by a collar, *e*.

In the outer end of the bit-holder is a socket, *f*, for the shank of the bit.

g is a pinion, cast or provided with a tubular portion, *h*, which slides on the holder *d*, but is prevented from rotating thereon by the catch *i*, pivoted in a recess in the tubular portion *h*, and entering a groove, *j*, in the bit-holder, in which position it is held by the pressure of a spring, *k*.

There are several notches in the bottom of the groove *j*, into either of which the catch will enter and hold the pinion in place. By pressure on the outer end of the catch it is disengaged from the notch, and then the pinion can be adjusted to another point.

l is a short round pin, projecting from the part *b* of frame A.

On this pin is fitted to revolve a gear-wheel, which, in this example, is composed of three concentric toothed rims, *m n o*, held together by crossed braces *p p*. In practice, these rims and braces will be all cast together.

It is obvious that a solid wheel may be employed, but the one described has the advantage of lightness.

One or more washers may be placed on the pin *l*, between the wheel and frame.

It will be seen that the pinion may be adjusted to engage with either rim *m n o*, and consequently the motion of the crank may be multiplied, to rotate the bit fast or slow, according to the nature of the work, or the material operated upon.

On the outer face of the gear-wheel are two projecting pins, *q r*, one of which is provided with a screw-thread.

These pins serve as guides for the crank-handle *s*, which is slotted, as shown, to receive the pins.

This handle can be lengthened or shortened, as desired, according to the power to be exerted, and it is fixed, when adjusted, by means of the thumb-nut *t*, screwed onto one of the pins, *r*.

That the stock *u* may be adjusted according as the crank-handle is lengthened and shortened, it is secured to a tubular shank, *v*, which receives the shank *a*, and is adjustable thereon, being provided with a thumb-screw, *w*, which enters a groove in the part *a*.

By this construction the stock may be lengthened or shortened, and fixed at any point, but is rendered incapable of rotation on the shank.

The left handle *y* is detachably secured to the frame A, so that it can be removed when it is required to use the brace in close proximity to a partition or other impediment of the kind.

In this example, the handle is provided with a threaded shank, which screws into the frame A.

When the gear-wheel and pinion are toothed, as in this instance, the bit-holder is rotated once at each revolution of the crank, when the inner rim is engaged, twice when the middle rim is used, and three times with the outer circle.

I reserve the right of employing any number of rims, and providing any number and size of teeth.

By lengthening the handle, the power exerted is made much more effective, which is important when drilling hard metals.

The stock is not only made extensible, to accommodate the lengthening of the crank-handle, but for an additional purpose—the fact that, when the stock is lengthened, it is easier to make a true bore.

The brace as thus constructed is very useful for drilling in metals, as well as boring wood, because the speed and power can be so readily multiplied and adapted to the nature of the work and material, and the size of the bit.

Having thus described my invention,

What I claim as new, and desire to secure by Letters Patent, is—

1. The adjustable pinion *g h*, sliding on the notched shank *d*, and provided with a spring catch, whereby it is held in engagement with either toothed rim of the gear-wheel, as herein shown and described.

2. A brace for bits, having its several parts constructed and arranged to operate substantially as herein described.

In testimony that I claim the above, I have hereunto subscribed my name in presence of two witnesses.

CHARLES H. CLARK.

Witnesses:

R. M. MANSUR,

H. B. LILLEY.