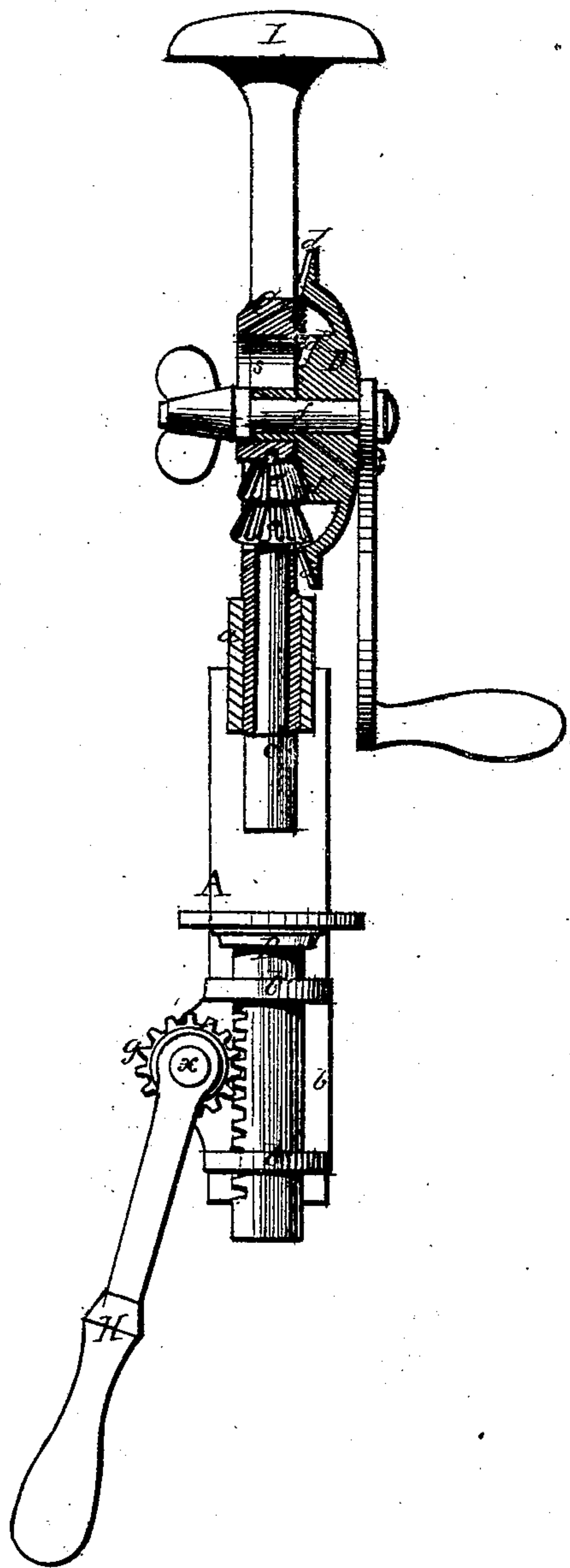


J. SMITH.  
Hand Metal Drill.

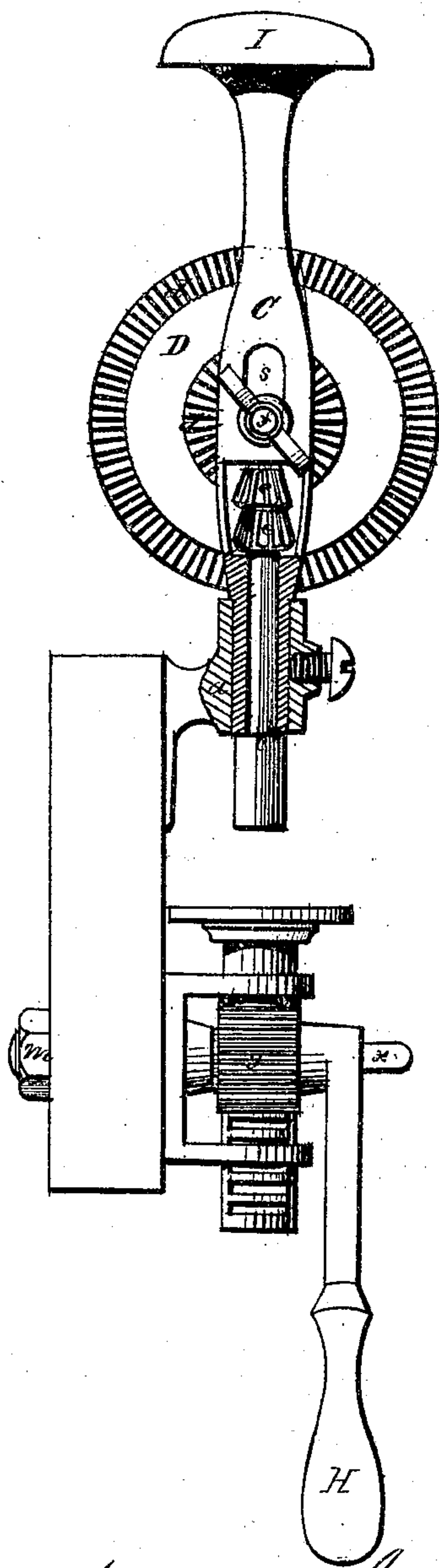
No. 103,515.

Patented May 24, 1870.

*Fig. 1*



*Fig. 2*



Witnesses.

*Fred. Haynes*  
*R. M. Mabeau*

*James Smith*  
*per Bonn, Combs & Co.*

*Attorneys*

# United States Patent Office.

JAMES SMITH, OF NEW HAVEN, CONNECTICUT.

Letters Patent No. 103,515, dated May 24, 1870.

## IMPROVED DRILLING-MACHINE.

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, JAMES SMITH, of New Haven, in the county of New Haven and State of Connecticut, have invented a new and Improved Press-Drill; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing which forms part of this specification, and in which—

Figures 1 and 2 represent longitudinal views of my improved drill, having such portions thereof represented in section as are necessary for the better illustration of their working parts, and taken at right angles to each other.

Similar letters of reference indicate corresponding parts in both figures.

This invention consists in a press-drill of novel construction, whereby it may be used in combination with a fixed holder and feed platform, or as a hand or breast-drill.

Referring to the accompanying drawing—

A is a metal frame, which may be screwed up in a vice, or otherwise secured, while the drill is being operated.

At the upper end of this frame A is formed a bayonet socket, *a*, for reception of the upper portion of the apparatus, which is made removable from the lower portion, for a purpose hereinafter explained.

At or near its lower end is a bearing-frame, *b*, in which is fitted the stem of a sliding platform, B.

The sliding or feeding motion of this platform B is effected by the raising or lowering of a hand-lever, H, arranged to turn on a fixed axle, *x*, and which carries a fixed pinion, *g*, operating in cogs formed on the stem of said platform.

Fitted within the socket *a* is the lower extremity of a removable frame or stock, C, containing the drill-socket *c*.

This drill-socket *c* is provided at or near its upper end with fixed beveled pinions *e e'*, one of which is

made to gear at different times with the larger, and the other with the smaller circles of teeth *d d'*, of a beveled driving-wheel, D, so that by the turning of the said driving-wheel, the drill-socket *c* is driven at a greater or less relative speed, according as it is geared with the larger or smaller circle of teeth.

The changing of this relative motion may be effected by first loosening the fixed axle *f*, upon which the driving-wheel turns, and slipping it up or down in the slot *s* of the stock C, so as to effect an engagement of the larger circle of teeth *d* with the pinion *e*, or the smaller circle *d'* with the pinion *e'*, as may be desired.

If preferred, in the construction of the apparatus, the axle *f* may be made stationary, and the sliding motion necessary for varying the speed be imparted to the pinion or pinions *e*, whereby the same end may be attained. By this means, the drill may be made to run fast or slow to suit the size of the drill, and the character of material on which it is being used.

By providing the upper or removable portion or stock C of the apparatus with a breast-bearing, I, it may, when removed from the lower portion A, serve as a breast-drill, or a hand-drill; and, having the said variable motion as above described, it will prove an efficient implement in said capacity.

The bearing-frame *b* of the platform B may be adjusted upward or downward on the frame A, when desirable for any purpose, by first loosening the nut *m*.

What is here claimed, and desired to be secured by Letters Patent, is—

The combination of the platform B and the mechanism to support and adjust the same with the socket *a*, breast-bearing I, and drilling apparatus, substantially as described, and arranged to operate in the manner set forth.

JAMES SMITH.

Witnesses:

LUZON B. MORRIS,  
TIMOTHY J. FOX.