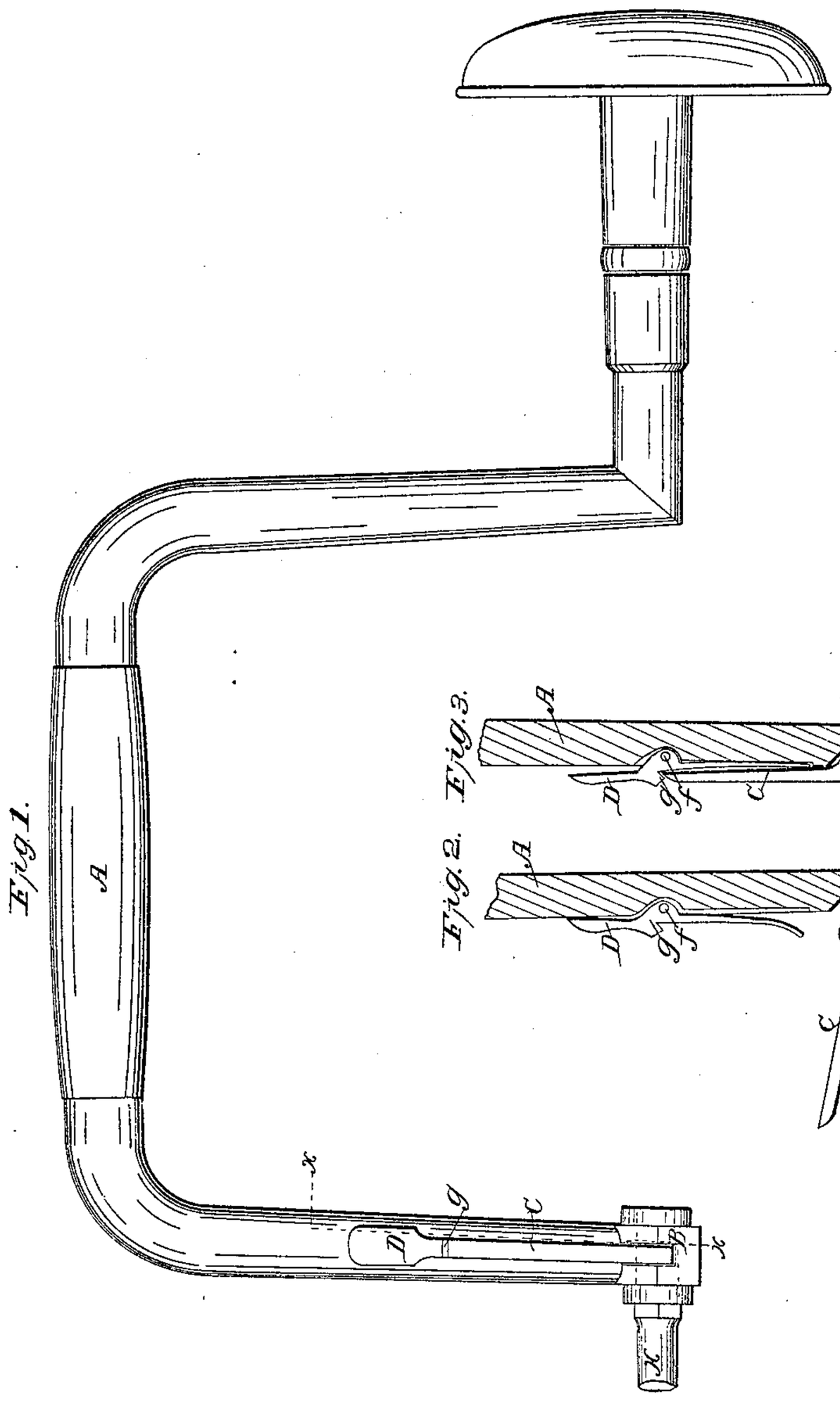
E. Smith,

Bit Stock.

No. 9,209. Patented Aug. 17, 1852.



UNITED STATES PATENT OFFICE.

ERASMUS SMITH, OF NORWICH, NEW YORK, ASSIGNOR TO DAVID MAYDOLE.

FASTENER OF BITS TO BRACES.

Specification of Letters Patent No. 9,209, dated August 17, 1852.

To all whom it may concern:

Be it known that I, ERASMUS SMITH, of Norwich, in the county of Chenango and State of New York, have invented a certain new and useful Improvement in Hand Bit or Drill Stocks, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form part of this specification, and in which—

Figure 1 is a side view of a hand brace and bit with my improvement attached for securing the latter; Fig. 2 a sectional view through the line *x x* of Fig. 1, showing the bit-holder open; Fig. 3 a similar view showing the devices for securing the bit closed.

Various spring-catches and other contrivances have been proposed and adopted for holding boring or other bits in the sockets of hand drills or braces. These contrivances have generally been arranged with a view to holding the bit firmly in its place, and admitting of its entry and release from the socket of the brace with facility and despatch. These objects have hitherto been but imperfectly attained for the devices employed have proved too liable to derangement. Most of the spring catches in use for securing bits in their stocks, are exposed to the same strains to which the bit is exposed, which strains soon weaken the catch, and finally disable it.

My invention has for its object the remedy of these defects, and to present a firm, durable, and efficient arrangement for holding and releasing the bit, and it consists of a cam or eccentric lever C arranged and operating in connection with a spring catch D as follows: The lever C is of any suitable length, and formed near one end with a curved projection or cam *c;* this lever turns on a pivot *d*. A mortise or slot is cut through the side of the socket B of the brace A. In this slot the cam portion *c* of the lever C is fitted and hung, so that it turns within the slot on the fulcrum *a* which is formed by a pin passed lengthwise through one of the angular projections of the socket, the cam *c* protruding when the lever C is closed as in Fig. 3; into the socket. The mortise in the socket is at or near the extremity of the lower arm of the brace, so that the lever C when closed lies parallel with or against the one side of the said arm. The shanks X of the bits are formed with notches or recesses *e* as wide as the cam *c*. The shank of the bit is square in its cross section and is designed to fit the cavity of the socket which is of corresponding form, the lever C being thrown out as in Fig. 2 while the bit is being inserted or removed to clear it of the cam *c* which when the lever is closed as in Fig. 3 projects into the notch *e* and bears or presses tight against the back surface thereof.

The spring catch D hung on a fulcrum *f* to the lower arm of the brace, serves to hold the lever C tight to its place when closed and to release the lever from its hold on the bit when required, the catch being made with a long spring arm on the one side of the fulcrum *f*, a thumb piece on the opposite side, and a hook or lip *g*, over the fulcrum. This catch D has but a slight movement on its fulcrum, the thumb piece or end of the catch working toward the arm of the brace, when throwing the lever C open, and the spring arm of the catch being sprung inward or straightened by the lever C when closing it as in Fig. 3.

Thus it will be seen that when the bit is inserted, the cam *c* of the lever, fitting in the notch *e* when the lever is closed, prevents the withdrawal of the bit, the lever C being held to its closed position by its outer end which catches under the hook or lip *i* of the lever D which is kept engaged with the end of the lever by a slight forward pressure given to it, being the bearing of the inner edge of the lever on the spring arm of the catch. The bit thus secured in the socket by the cam of the closed lever can have no tendency to unduly tighten in or work out of the socket by either the thrust or pull upon the bit which occurs in entering and withdrawing the bit in the process of drilling or boring, as the square shoulders of the bit rest against the sides of the cam which in turn are supported in the slot in which they turn, so that the strain thrown upon the cam will be borne by the sides of the mortise through which it passes, and will not be felt by or thrown upon the spring catch to injure it or release its hold upon the lever.

When it is desired to withdraw the bit, this may be effected with the greatest despatch by simply pressing slightly inward on the thumb piece of the catch which will throw the hook *g* off the end of the lever C and at the same time the spring arm of the catch will spring or bend outward against the lever and cause it to fly out to the position seen in Fig. 2. When the cam *c* is clear

of the notch *e* in the bit, that may then be easily withdrawn from the socket. The pivot of the lever may be either parallel to the radius or axis of rotation of the stock, as may be most convenient.

Having thus described my improved hand drill or brace, what I claim as new therein and desire to secure by Letters Patent is—

The combination of the cam lever, with the lever spring-catch, for securing the bit in the socket and releasing it therefrom, the same being constructed, arranged and operating substantially as described.

In testimony whereof I have hereunto subscribed my name.

ERASMUS SMITH.

Witnesses:
N. B. HALE,
W. U. MASON.