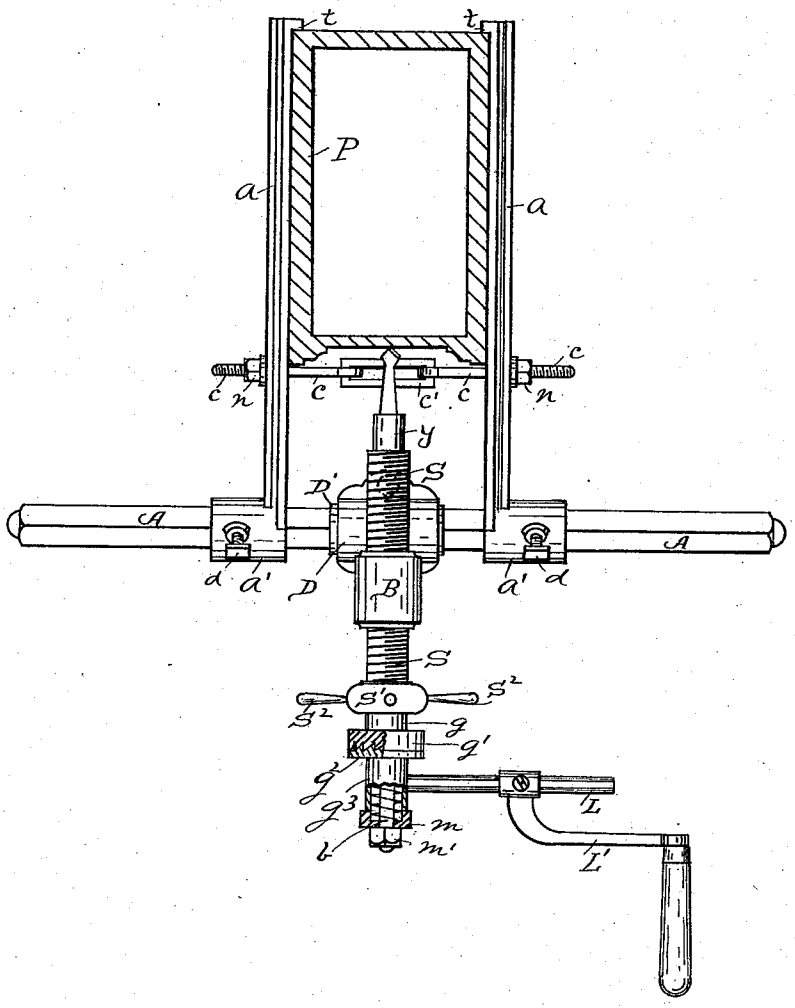
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PORTABLE DRILL.

No. 287,866. Patented Nov. 6, 1883.

Fig. 1.



Witnesses.

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Inventor.

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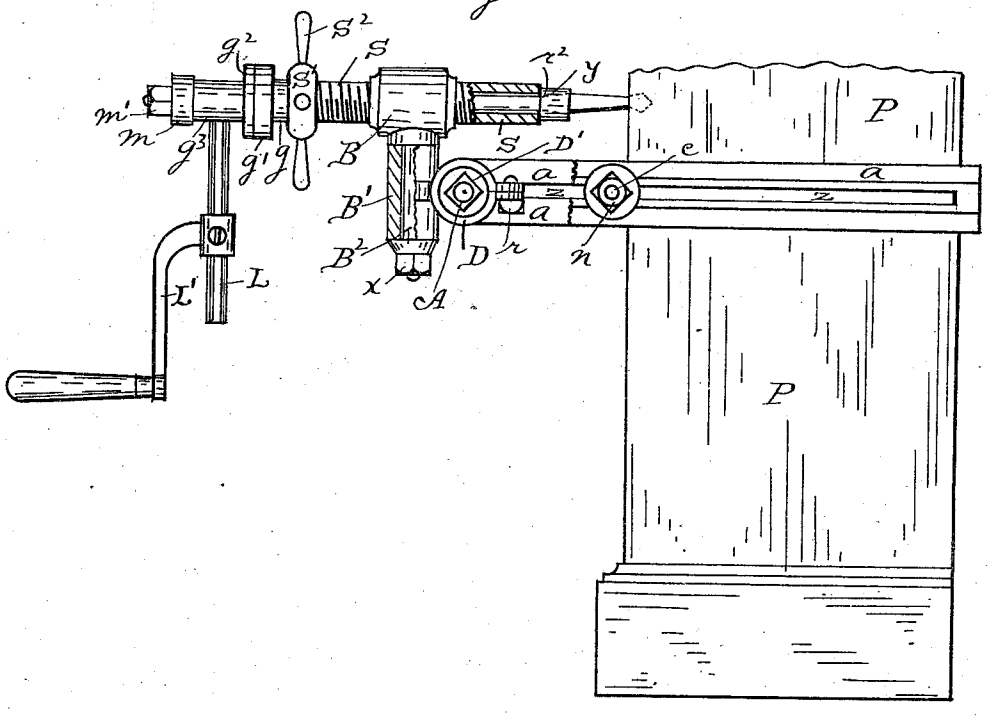
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Fig. 2.



Witnesses.

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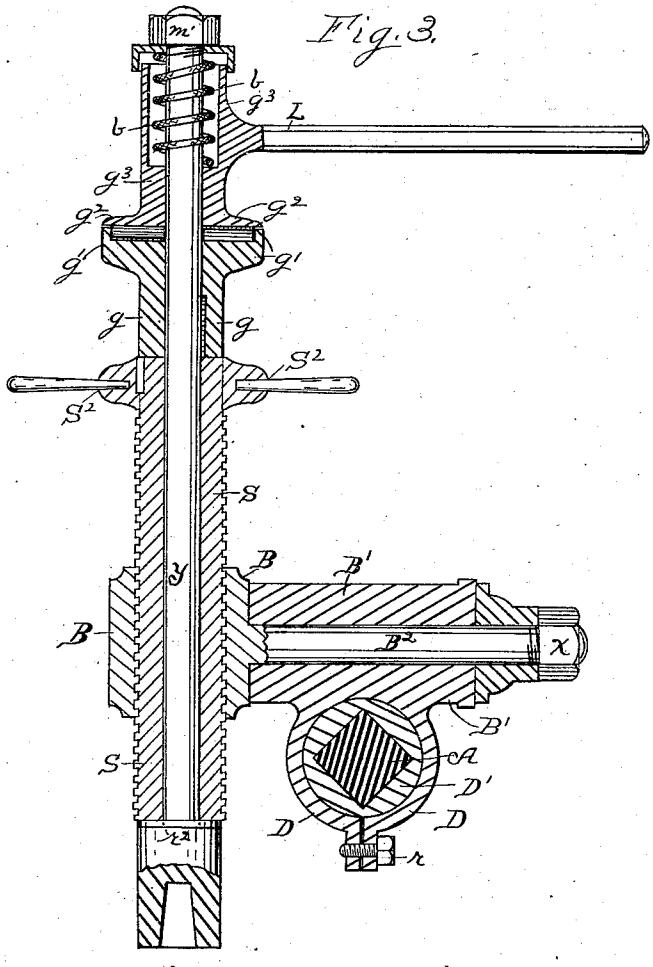
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PORTABLE DRILL.

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Fig. 3.



Witnesses.

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UNITED STATES PATENT OFFICE.

WILLIAM SANDIFORD, OF JOLIET, ILLINOIS.

PORTABLE DRILL.

SPECIFICATION forming part of Letters Patent No. 287,866, dated November 6, 1883.

Application filed May 15, 1883. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM SANDIFORD, a citizen of the United States of America, residing at Joliet, in the county of Will and State of Illinois, have invented certain new and useful Improvements in Portable Drills, of which the following is a specification, reference being had therein to the accompanying drawings.

Figure 1 is a plan view, and Fig. 2 is a side elevation. Fig. 3 is a longitudinal sectional view.

This invention relates to certain improvements in portable drills; and it consists, principally, in the construction of the frame, by means of which the drill can be clamped to a column in such manner that the drill may be pointed in any direction by means of a universal joint, which supports the drill-stock, and so that its attachment to the column is of such character and strength that any amount of pressure can be brought to bear on the drill against the face or side of the column.

Referring to the drawings, P represents a column to which the drill-frame is attached. A pair of parallel bars, *a*, having hooks *t t* at their outer ends to hook behind the column, and boxes *a' a'* at their inner ends, through which the square bar or rod A passes, are held against the sides of the column by means of the hooked bolts *c c*, link *c'*, and nuts *n n*, the set-screws *d d* having been first tightened sufficiently to prevent said bars *a a* from being brought together at their inner ends by said rods *c c* and nuts *n n*. By this arrangement the bars *a a* are clamped against the sides of the column, and form a support to sustain the drill on the horizontal bar A.

D' is a metal sleeve that sleeves on over the horizontal bar A and into the box D, so that it can slide along on said bar A to any place desired, and will permit box D to move around it or on it as a spindle. The box D is split at the side toward the column, and the two parts are held together by a screw, *r*, so that by said screw such frictional contact may be given said box D on said sleeve D' that it will not move thereon when not desired. The sleeve D', being of metal, is not intended to be compressed by means of split box D on the square shaft or bar A, but should be loose to slide along thereon, as stated. Pressure of the drill on its work will prevent the sleeve D' from sliding out of place. The box D is provided at its rear side with an integral standard, B', having a central vertical aperture for the reception of the shaft B^2, which terminates at its upper end in the threaded box B, and is provided at its lower end with the nut *x* to tighten it in said standard B', so it may not rotate therein when not desired. The box B supports the drill-spindle *y*, which passes through it and through the hollow screw S, which screws through said box B. The hollow screw S is for the purpose of carrying the drill forward and holding it to its work by turning up said screw by means of the handles S^2. The foot of the drill-spindle *y* is enlarged to receive the square end of the drill or tool, and to form a shoulder, r^2, for the hollow screw S to bear against to hold the tool against its work. The rear or outer end of the drill-spindle has the nut *m'*, which holds the crank L, which is sleeved on the drill-spindle, from falling off. The hub g^3 of the crank L sleeves on the outer end of the drill-spindle and rotates thereon. The drill-spindle *y* and at its inner end the crank-sleeve g^3 are provided with a pair of disks, *g'* and g^2, the faces of which are provided with ratchet-teeth cut in opposite directions, so that they will engage with each other when the crank L is turned forward. When the crank L turns forward, the offsets will engage with each other and rotate the drill-spindle, and with it the drill. The sleeve g^3 has its outer end bored or hollowed out, forming a chamber between its inner walls and spindle *y*, for the reception of the coil-spring *b*, which coils on said spindle, and is held in place by the nut *m'* on the end of said spindle. This spring *b* holds the ratchet-faces of the parts g^3 and *g'* in contact, so their teeth will engage with each other. When the crank L turns backward, the compression of the coil-spring *b* in the sleeve g^3 will permit the offsets to slip over each other. By this arrangement the drill may be given a partial rotation by the crank when it is desired to use the drill in such place that the crank cannot be rotated entirely around, as in a corner or near the side of a building, &c. The hub *g* is a portion of and integral with the disk *g'*, and both are firmly keyed to the drill-spindle. By this arrangement the drill is supported on what

may be termed a "universal joint," so that it may be adjusted to point and operate in any desired position or direction.

The box D may be set along on the square bar or rod A at any place, and outside of the bars *a*, when desired, out near the end of the said bar A. The drill may be turned to point directly downward, so it can be used as an ordinary vertical drill. The long slots *z* in the bars *a* enable the hooked rods *c* to be set any place along in said slot; and where the column is very small, so the hooks *t t* cannot hold on it, another bolt may be passed through the slots near their outer ends, outside the column, so as to clasp the outer ends of said horizontal bars against the column, to hold firmly against it.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is as follows, to wit:

1. The combination of the slotted bars *a a*, square bar A, hooked bolts *c c*, link *c'*, boxes B B' and D, sleeve D', shaft B^2, drill-spindle *y*, feed-screw S, ratchet-plates $g' g^2$, coil-spring *b*, set-screws *d d*, and crank L, all adapted to operate as and for the purpose set forth.

2. In the portable drill described, the mechanism for varying the direction of the point of the drill, in combination with the feed-screw S, ratchet-plates $g' g^2$, and crank L, all adapted to operate as and for the purpose set forth.

3. The combination of the box D, having the integral standard B', shaft B^2, integral with threaded box B, horizontal bar A, and drill-spindle *y*, all adapted to operate as and for the purpose set forth.

WILLIAM SANDIFORD.

Witnesses:
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THOS. H. HUTCHINS.