(No Model.) 2 Sheets—Sheet 1.

P. BROADBOOKS.

DRILL FRAME.

No. 588,712. Patented Aug. 24, 1897.

Fig. 1.

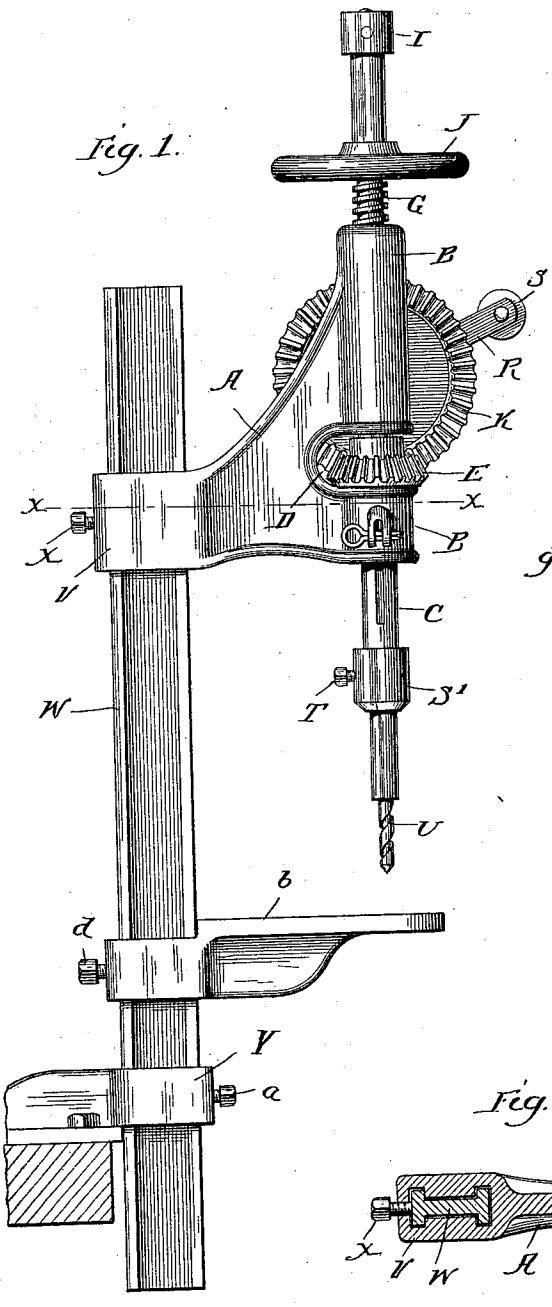


Fig. 2.

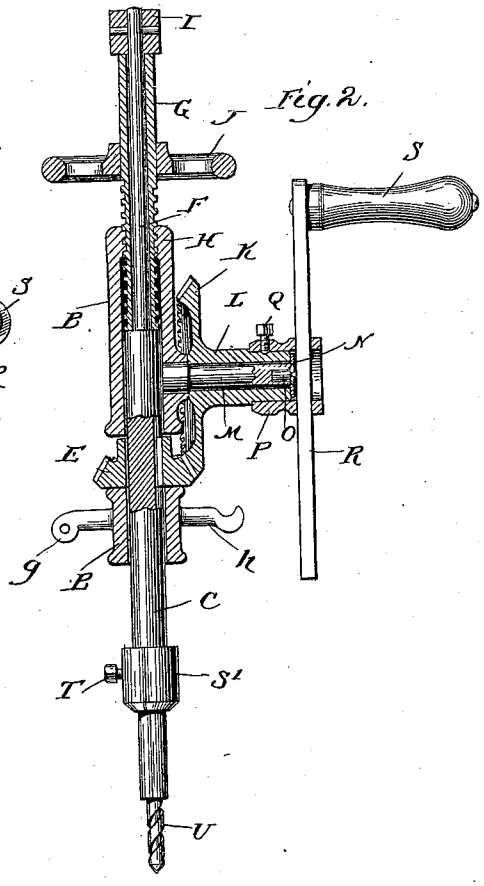
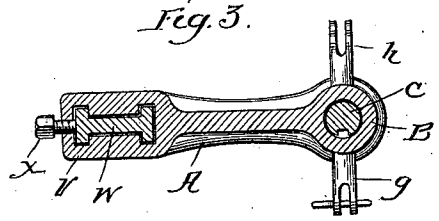


Fig. 3.



WITNESSES

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J. J. Williamson

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BY Geo. H. Holgate

ATTORNEY.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 2 Sheets—Sheet 2.

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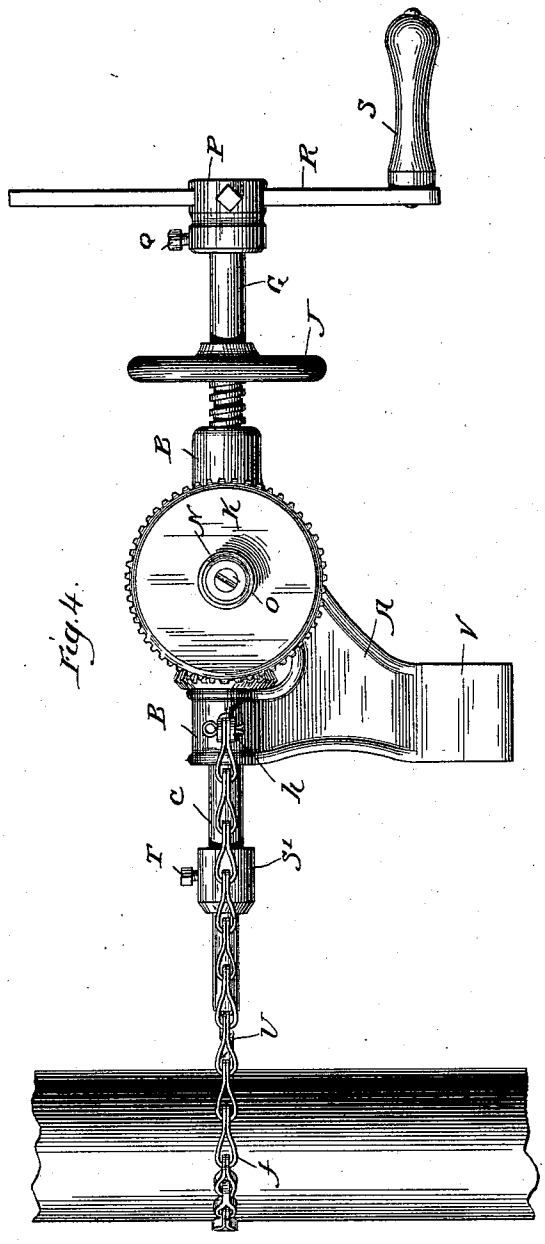

Fig. 4.

WITNESSES

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UNITED STATES PATENT OFFICE.

PETER BROADBOOKS, OF BATAVIA, NEW YORK.

DRILL-FRAME.

SPECIFICATION forming part of Letters Patent No. 588,712, dated August 24, 1897.

Application filed October 23, 1896. Serial No. 609,786. (No model.)

To all whom it may concern:

Be it known that I, PETER BROADBOOKS, a citizen of the United States, residing at Batavia, in the county of Genesee and State of New York, have invented a certain new and useful Improvement in Drill-Frames, of which the following is a specification.

My invention relates to a new and useful improvement in drill-frames, and has for its object to so design and construct a device of this description that it may be used either as a bench-drill, brace-drill, clamp-drill, or clamp, and which will be exceedingly simple in construction, cheap in cost of manufacture, and effective in operation.

With these ends in view this invention consists in the details of construction and combination of elements hereinafter set forth and then specifically designated by the claims.

In order that those skilled in the art to which this invention appertains may understand how to make and use the same, its construction and operation will now be described in detail, referring to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is an elevation of my improvement when utilized as a bench-drill; Fig. 2, a vertical section of the drill-frame; Fig. 3, a section at the line *x x* of Fig. 1; Fig. 4, an elevation of my improvement when removed from the upright and utilized as a clamp-drill.

In carrying out my invention as here embodied, A represents the drill-frame, which is so cast as to provide the head B, which is bored for the reception of the spindle C. This head is cut away at D for the reception of the beveled pinion E, which is splined to the spindle C so as to revolve therewith, but permit the spindle to have a vertical movement independent of the pinion.

The spindle has projecting upward therefrom a rod F, of less diameter than the spindle, and around this rod is placed the screw G. This screw engages with the internal threads H, which are formed in the upper end of the head, so that when the screw is revolved it will be raised or lowered, as the case may be, and since the lower end of said screw bears against the upper end of the spindle and the upper end thereof is confined by the collar I, which is pinned upon the rod, the rod and spindle will also be raised or lowered.

A hand-wheel J is secured upon the blank portion of the screw for convenience in manipulating the same. K is a beveled gear which meshes with the pinion E, and this gear has formed therewith an elongated hub L, which is journaled upon the stud M and is held thereon by the washer N and screw O, as clearly shown in Fig. 2. A cap P is fitted upon the outer end of the hub L and held thereon by the set-screw Q, and this cap has secured thereto a crank-arm R, provided with the handle S for its operation. From this it will be seen that when the crank-arm is revolved the spindle C will also be revolved, but at a higher rate of speed, and a drill carried by the lower end of the spindle may be fed downward while the spindle is being revolved by the manipulation of the hand-wheel J.

S′ represents a chuck which may be secured upon the end of the spindle by the set-screw T, and this chuck is adapted to receive a suitable drill U.

Formed with the frame is an eye V, arranged to fit and slide upon the upright W and be held thereon in any adjustment by the set-screw X. This upright is adapted to fit and slide within the eye of the bracket Y, which bracket is arranged to be secured to a bench by bolts, and the upright may be held in any adjustment within this bracket by a set-screw *a*.

When the device is to be used as a bench-drill, the upright is secured, as just described, in the bracket Y, and also a surface plate *b* is fitted thereon and held in position by the set-screw *d*, as shown in Fig. 1, and when thus fitted my device is applicable for all uses to which a bench-drill may be put, the work being placed upon the surface plate.

When it is desired to use my device as a brace-drill, a chain *f* is secured to the projection *g* and passed around the work, as shown in Fig. 4, and engaged with the hook *h*, said projection and hook being cast with the frame. When so secured to the work, the drill is fed by the hand-wheel, and I prefer that the spindle be then revolved by the cap P being secured to the collar I, when the crank-handle may be utilized for this purpose.

My improvement may be utilized as a clamp-drill by simply removing the upright from the

bracket Y and utilizing the surface plate to secure the device to the work.

When occasion requires, the chuck S' may be removed from the end of the spindle and a swiveled shoe substituted therefor, which will permit the device to be used as a clamp for holding work together or in position by securing the frame A and surface plate upon the upright and manipulating the hand-wheel J to force the shoe in contact with the desired surface.

It is obvious that my improvement may be used for a variety of purposes not here set forth, and I therefore do not wish to limit myself to the uses here described.

Having thus fully described my invention, what I claim as new and useful is—

1. In combination, a frame, a head formed therewith, said head having a cut-away portion, a spindle fitting within the head, a screw surrounding the rod and engaging with the threads formed in the upper end of the head, a collar secured to the rod and confining the screw, a hand-wheel for revolving the screw, a pinion splined upon the spindle, a bevel-gear meshing with said pinion, a cap secured to the hub of the gear, a projection having an eye and another projection having a hook secured to the head and a chain adapted to be secured to the projections, substantially as described.

2. In combination, an upright, a frame having an eye slidable on the upright, a head formed with said frame, said head having a cut-away portion, a spindle fitting within the head, a screw surrounding the rod and engaging the threads formed in the upper end of the head a collar secured to the rod and confining the screw, a hand-wheel for revolving the screw, a pinion splined upon the spindle, a bevel-gear meshing with said pinion, a cap secured to the hub of the gear, a projection having an eye and another projection having a hook secured to the head and a chain adapted to be secured to the projections, substantially as described.

In testimony whereof I have hereunto affixed my signature in the presence of two subscribing witnesses.

PETER BROADBOOKS.

Witnesses:
S. S. WILLIAMSON,
W. E. WEBSTER.