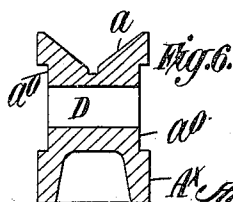
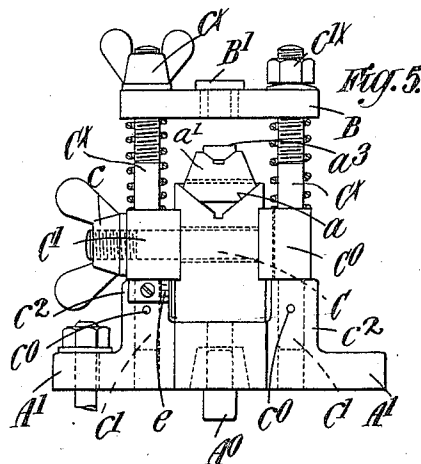
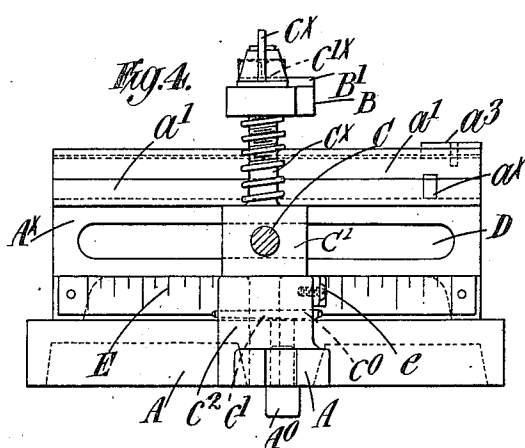
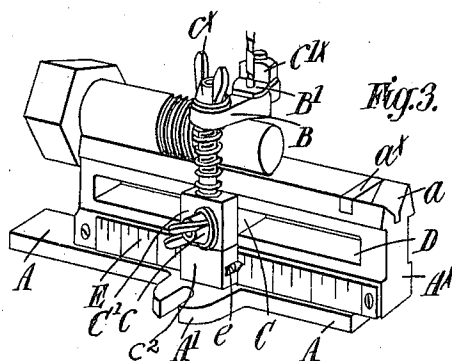
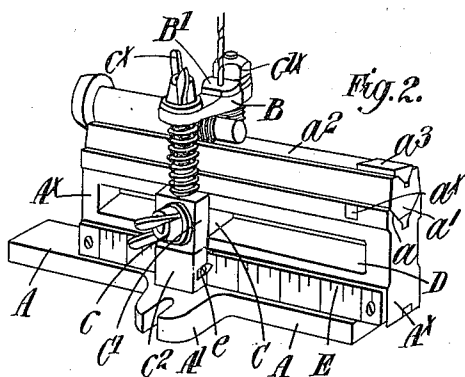
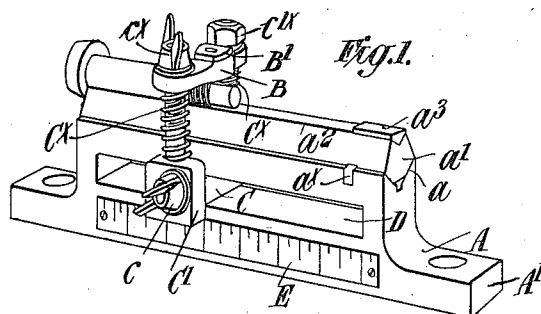


A. SWAINSON-BROOKE.
 DRILL JIG.
 APPLICATION FILED MAR. 8, 1910.

1,045,633.

Patented Nov. 26, 1912.



Witnesses:

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UNITED STATES PATENT OFFICE.

ARTHUR SWAINSON-BROOKE, OF DONCASTER, ENGLAND.

DRILL-JIG.

1,045,633.

Specification of Letters Patent.

Patented Nov. 26, 1912.

Application filed March 8, 1910. Serial No. 548,071.

To all whom it may concern:

Be it known that I, ARTHUR SWAINSON-BROOKE, a subject of the King of Great Britain, residing at 47 Cartwright street, Doncaster, in the county of York, England, have invented certain new and useful Improvements in and Relating to Drill-Jigs, of which the following is a specification.

This invention relates to drill jigs and has for its chief object to provide a jig which will give a quick, accurate and secure positioning of the work under the drilling machine.

The invention is more particularly intended for use in connection with the drilling of pin holes in bolts, studs, pins, and similar parallel work.

According to this invention, the jig comprises two superposed V blocks of different sizes, and a cross-beam adapted to receive bushes to suit the size of the drill employed, the said cross-beam also serving to clamp the work to be drilled, to one or the other of the V-blocks. The said V blocks and the cross-beam are capable of relative movement in a longitudinal direction *i. e.* in the direction of the grooves in the V blocks. A scale is provided either on a fixed or a movable part of the jig, so that the relative positions of the cross beam and the V blocks can be quickly altered to any desired position, suitable clamping means being provided for holding the cross-beam securely on the work to be drilled and for retaining the parts in their adjusted position.

In order that my said invention may be clearly understood and readily carried into effect, I will describe the same more fully with reference to the accompanying drawings, in which:—

Figure 1 is a perspective view illustrating one constructional form of my invention and showing a bolt in position to be drilled. Fig. 2 is a perspective view illustrating a modified construction. Fig. 3 is a similar view showing the device adapted for use with comparatively large work. Fig. 4 is a front elevation on an enlarged scale, of Fig. 2 showing more clearly the details of construction. Fig. 5 is an end elevation also on an enlarged scale, of Fig. 4, and Fig. 6 is

a cross section showing the construction of the lower V block of the modification illustrated in Figs. 2 to 5.

In all these figures A represents the base plate and A' the lugs by means of which it is bolted to the table of the drilling machine, B is the aforesaid cross beam, C the square spindle disposed in the slot D, and E is the scale.

Referring more particularly to Fig. 1, *a* is the large V groove formed in the top of the base plate A, the said groove serving for the reception of the V block *a'* having a small V groove *a''* formed therein. The said V block *a'* is retained in position by means of a key *a^x*. The V groove *a''* is provided with a stop *a³* which is used as an abutment for the work during the drilling operation when the work is unprovided with a head or collar to bear against the end of the V blocks as shown in the drawing; the key *a^x* is also used for this purpose when the lower V block only is employed. The aforesaid square spindle C is provided at one end with a head (not shown) and is screw threaded at the other end to receive a wing nut *c* or the like. A block C' is loosely mounted on this end of the spindle C, and this block and the head of said spindle carry pillars C^x C^x which receive the aforesaid cross beam B. The said pillars are provided with spiral springs to support the cross beam clear of the work when the cross beam is released and the cross beam is retained in position by means of two nuts *c^x* *c^x* screwed on the upper ends of the pillars C^x, one (*c^x*) being a wing nut to allow of the work being more readily clamped and unclamped. The scale E is so placed that the distance of the drill from the end of the V block *a'* can be readily seen. On the longitudinal center and to the right of the transverse center the cross beam B is formed with a hole for the reception of a bush B' of hardened steel. Bushes having various sized holes are provided to suit drills of different diameters.

Referring to the construction shown by Figs. 2 to 6 of the drawings, the large V groove *a* is formed in a block A^x movable with respect to the base plate A. The upper V block *a'* is as in the construction described

with respect to Fig. 1, held in place by means of a key a^x and is provided with the stop a^3 in its groove a^2 . The aforesaid block C' carrying one of the pillars C^x , and the head C^o of the spindle C are provided with projections c' , c' , (Figs. 4 and 5) which fit in holes formed in lugs c^2 , c^2 on the base plate A , the said projections being retained in position by means of pins c^o . The inner surfaces of the block C' and the head C^o are adapted to fit in grooves a^o , a^o (Fig. 6) formed in the sides of the lower V block A^x ; when the wing nut c is tightened up on the spindle C the said block C' and the head C^o retain the V blocks in position in rigid connection with the base plate. The base plate is provided with a pin A^o (Figs. 4 and 5) which is adapted to fit in the usual central hole in the table of drilling machines, of the kind in which a smooth table is provided, (*i. e.* one in which no holes or channels are provided for bolting work thereon); as the axes of the bush B' and the said pin are in alinement, this provides a quick means of bringing the center of the bush into line with the drill. It will be observed that in this construction when once the base plate has been placed or secured on the table in such a position that the drill and the hole in the bush are in alinement, no movement of the cross beam B takes place when the necessary adjustments for various lengths of work to be drilled are made, and as soon as the V block A^x has been moved to the desired extent, and the nut c has been tightened, and the nuts c^x , c^x adjusted, the jig is in order to receive work for the drilling operation to be performed at once. A pointer e for the scale E is fixed to the lug c^2 .

What I claim and desire to secure by Letters Patent of the United States is:—

1. In a jig for use with drilling machines, the combination with a work supporting block having a longitudinal slot therein, of a spindle disposed in said slot, a cross beam for clamping the work on the aforesaid block, means connecting the spindle with the cross beam and means for retaining the spindle at any desired position in the length of the said slot.

2. In a jig for use with drilling machines, the combination with a V block, of a cross beam capable of longitudinal movement with respect to the V block, a drill bush carried by said cross beam, means for clamping said cross beam upon the work supported on said V block, and means whereby the said cross beam and the aforesaid block can be relatively adjusted to the desired predetermined extent.

3. In a jig for use with drilling machines, the combination with a base plate, of a slotted V block slidable longitudinally

thereon, a cross beam, a drill bush carried by the cross beam, a member connected to the cross beam and disposed in the slot in the V block, and means for clamping said cross beam upon the work supported on said V-block.

4. In a jig for use with drilling machines, the combination with a base plate, of a slotted V block slidably mounted thereon, a square spindle disposed in the slot of said V block, a cross beam, a drill bush carried by the cross beam, means for clamping said cross beam upon the work supported on said V-block, and means for connecting said cross-beam with the said square spindle.

5. In a jig for use with drilling machines, the combination with a base plate, of a slotted V block slidably mounted thereon, a square spindle disposed in the slot of said V block, a second V block mounted on the first, a transverse key for detachably connecting said blocks together, a cross beam, a drill bush carried by the cross beam, means for clamping said cross beam upon the work supported on said second V-block, and means for connecting said cross-beam with the said square spindle.

6. In a jig for use with drilling machines, the combination with a base plate, of a slotted V block slidably mounted thereon, a square spindle disposed in the slot of said V block, a second V block, a transverse key for detachably connecting said blocks together, a cross beam, a drill bush carried by the cross-beam, means for clamping said cross beam upon the work supported on said second V-block, pillars connecting said square spindle with the cross-beam, and means for rigidly connecting the V blocks with the base plate at will.

7. In a jig for use with drilling machines, the combination with a base plate, of a slotted V block slidably mounted thereon, a square spindle disposed in the slot of said V block, a second V block, a transverse key for detachably connecting said blocks together, a cross beam, a drill bush carried by the cross beam, means for clamping said cross beam upon the work supported on said second V-block, pillars connecting said square spindle with the cross-beam, a scale mounted on the lower V block, and means for rigidly connecting the V blocks with the base plate at will.

8. In a jig for use with drilling machines, the combination with a base plate, of a slotted V block slidably mounted thereon, a square spindle disposed in the slot of said V block, a second V block, a transverse key for detachably connecting said blocks together, a cross beam, a drill bush carried by the cross beam, means for clamping said cross beam upon the work supported on said second V-block, pillars connecting said

square spindle with the cross-beam, spiral
springs encircling said pillars, and bearing
at their upper ends against the lower sur-
face of the cross beam, a scale mounted on
the lower V block, and means for rigidly
connecting the V blocks with the base plate
at will.

In testimony whereof I affix my signature
in presence of two witnesses.

ARTHUR SWAINSON-BROOKE.

Witnesses:

E. M. TROTTER,
F. BIRCHALL.
