

(No Model.)

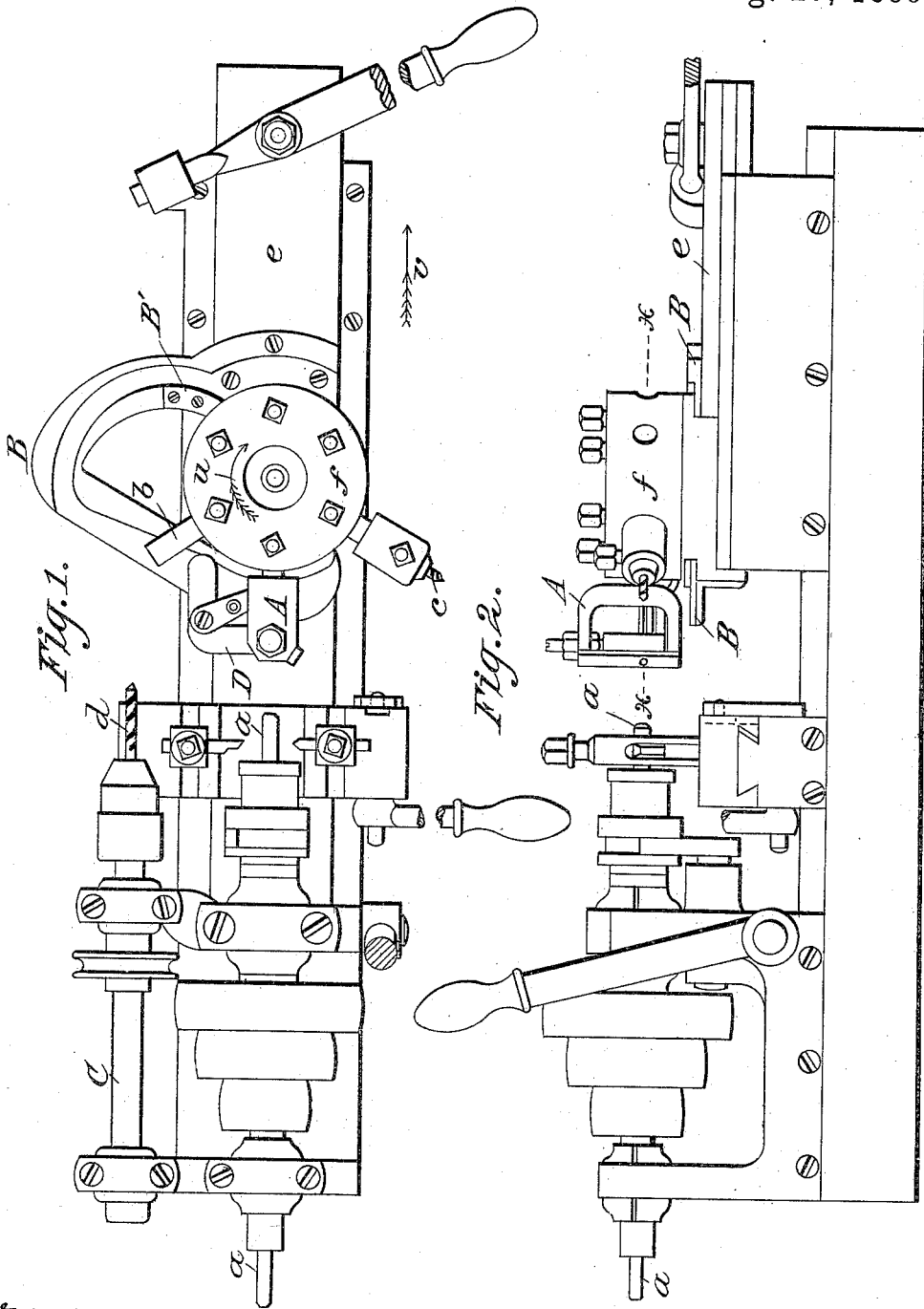
2 Sheets—Sheet 1.

J. HARTNESS.

TURRET LATHE HAVING A SUPPLEMENTAL DRILL SPINDLE.

No. 409,786.

Patented Aug. 27, 1889.



Witnesses:
W. D. Wosbon
Geo. M. Farlow

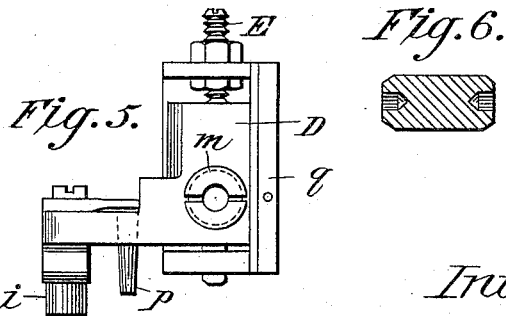
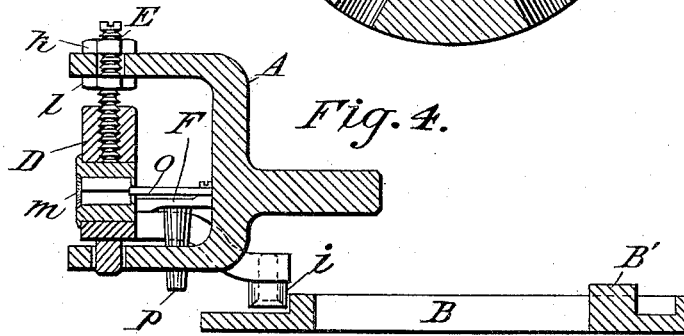
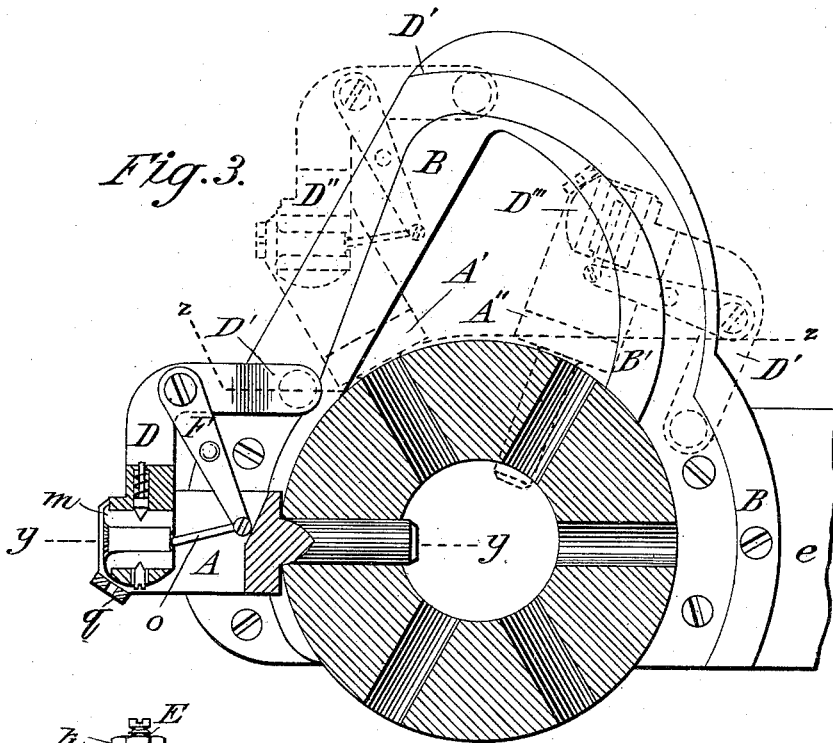
Inventor:
Jamie Hartness

J. HARTNESS.

TURRET LATHE HAVING A SUPPLEMENTAL DRILL SPINDLE.

No. 409,786.

Patented Aug. 27, 1889.



Witnesses:
 W. D. Woodson
 Geo. M. Harlow.

Inventor:
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UNITED STATES PATENT OFFICE.

JAMES HARTNESS, OF TORRINGTON, CONNECTICUT.

TURRET-LATHE HAVING A SUPPLEMENTAL DRILL-SPINDLE.

SPECIFICATION forming part of Letters Patent No. 409,786, dated August 27, 1889.

Application filed December 7, 1888. Serial No. 292,951. (No model.)

To all whom it may concern:

Be it known that I, JAMES HARTNESS, a citizen of the United States, residing at Torrington, in the county of Litchfield and State of Connecticut, have invented an Improvement in Turret-Head Lathes, of which the following is a specification.

The invention is primarily intended for that form of turret-head lathes commonly called "hand-screw machines," and for the purpose of making a roll with a hole drilled in each end, although it can be used with other turret-head lathes and for other work, as will hereinafter appear.

The object of this invention is to provide means for drilling or threading the second end of the work without rechucking it or handling it the second time. This object I attain by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a plan of a hand turret-lathe with the improvement attached thereto. Fig. 2 is a front elevation of the same. Fig. 3 is a sectional view on line xx of Fig. 2, with b and c , Fig. 1, removed. Fig. 4 is a vertical section of A on line yy and of B on line zz , Fig. 3. Fig. 5 is an end view of A, Figs. 3 and 4. Fig. 6 is a sectional view of roll as made by this invention.

The operation of making the rolls is as follows: Referring to Fig. 1, the turret f revolves one-sixth of a revolution at each backward motion of slide e in the usual manner. The direction in which the turret revolves and the backward motion of slide are indicated by the arrows u and v , respectively. The roll is cut from rod of wire a , which is revolved by chuck S, as usual; but instead of it dropping when severed from the rod it is held by the turret-chuck A, which, when the turret turns to its next position, carries said roll in line with auxiliary spindle C to be drilled by the next forward motion of the slide e , and while this roll is having its second hole drilled by the auxiliary spindle C the next roll is having its first hole drilled by turret-drill c , the first hole being drilled before the roll is cut from the rod. The next backward motion of slide e turns the turret-chuck past the expelling-block B' on cam B, where the roll is ejected from the chuck. The turret-chuck D is pivotally supported by the frame A, Fig. 4.

Said frame is provided with a shank, by which it is held in the turret-head f of Figs. 1 and 2 in the usual manner. The clamping-screw E is held rigidly to frame A by nuts k and l , and the lower part of said screw enters a threaded hole in chuck D, Fig. 4, allowing the end to bear against the split bushing m , which holds the work. To open and close said bushing on the work, the chuck D is turned on the screw E, and to cause it to turn the requisite amount a fixed face cam B, Fig. 3, is attached to the slide e , Fig. 1. This cam controls the position of roller v , Figs. 4 and 5, which is attached to the arm of the chuck. Referring to Fig. 3, it will be seen that in the first position the arm D' of chuck D is close to the turret-head f . The chuck is now open to receive the work as it is being cut from the rod. The next backward motion of the slide e turns the turret-head f one-sixth of a revolution and brings the chuck to the position indicated by dotted lines D''. At this position the arm D' is held out from the turret-head f , and was forced to this position by fixed cam B while the turret-head was turning. Thus the work is clamped and held rigidly to be operated upon by the tool carried by the auxiliary spindle C at the next forward motion of slide e . The next backward motion of said slide turns the turret to and a trifle past the position indicated by dotted lines D'''. Coming to this position the cam B has forced the chuck-arm D' to return to its first position close to the turret-head f , thus relieving the pressure of clamping-screw E on the work to allow the expelling device to eject said work.

The expelling device is composed of three principal parts—the lever F, the plunger O, and the stud p of Figs. 3, 4, and 5. The plunger is attached to the lever and the lever to the chuck D, Fig. 4, by screws, which allow a free pivotal motion. The stud p is attached to the middle of the lever and extends downward just far enough to come in contact with that part of the cam B which is marked B', Figs. 3 and 4. When the chuck is passing this part of the cam the stud's motion is retarded, and it causes lever F, Fig. 3, to push plunger O into chamber in bushing m , which holds the work, thereby expelling said work. A drill-guide q is attached to the frame A, Figs. 3 and 5. The auxiliary

spindle C, Fig. 1, is shown with a drill-chuck and drill. These can be removed and a threading-die attached when it is desired to thread instead of drilling the second end of the work, or a slotting-saw attached for slotting screw-heads and similar work. When used for slotting, the auxiliary spindle must be held at a line perpendicular to instead of parallel with the axis of main spindle. The auxiliary spindle C is preferably driven by a round belt from a counter-shaft above the machine.

I claim as my invention—

1. In a turret-head machine having an auxiliary spindle carrying a tool, the combination of a chuck attached to the turret for the purpose of taking the work cut from the rod of stock held in the main spindle to the said auxiliary spindle, there to be operated upon by the tool held in the said auxiliary spindle,

the said chuck being pivoted on the clamping-screw E, which is secured to the turret by frame A, with a non-revolving cam B, by which the said pivoted chuck is caused to turn on its pivot when the said turret turns, substantially as shown and described.

2. In a turret-head lathe or machine, a chuck D, held by frame A, attached to the turret-head *f*, combined with cam B, for the purpose shown and set forth.

3. In a turret-head lathe, the combination of a frame A, clamping-screw E, chuck D, lever F, plunger O, and stud *p*, with cam B and auxiliary spindle C, substantially as shown and described.

JAMES HARTNESS.

Witnesses:

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JOHN N. BROOKS.