

A. W. BARTHOLOMEW.

STOCK FOR THREADING AND CUTTING OFF RODS.

No. 546,573.

Patented Sept. 17, 1895.

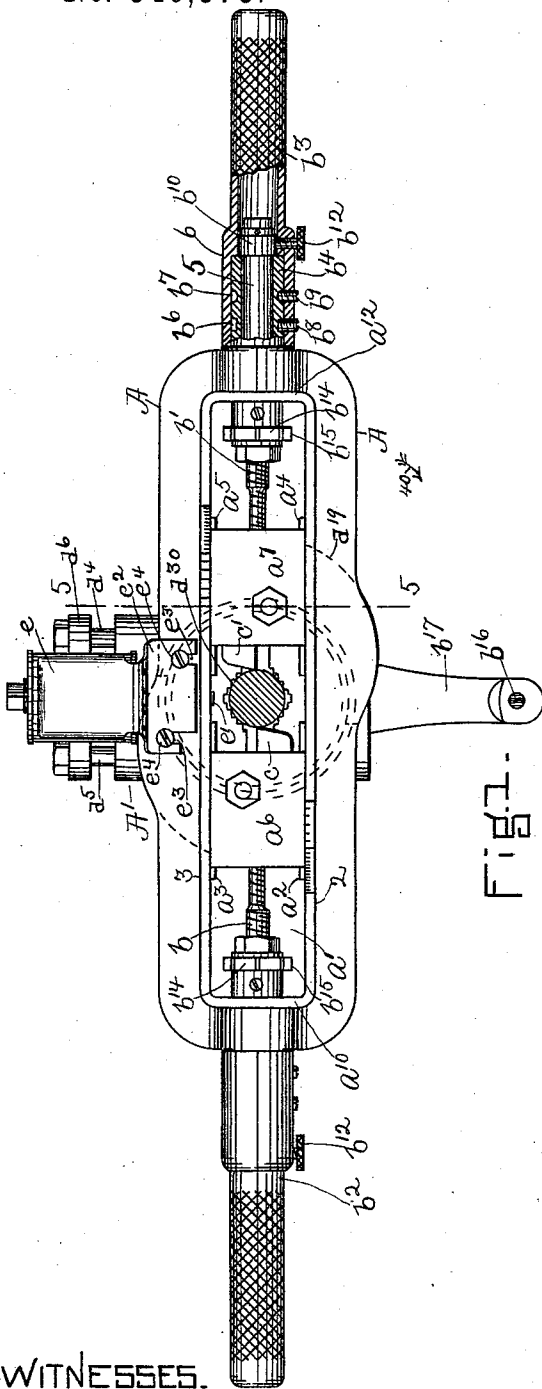


FIG. 1.

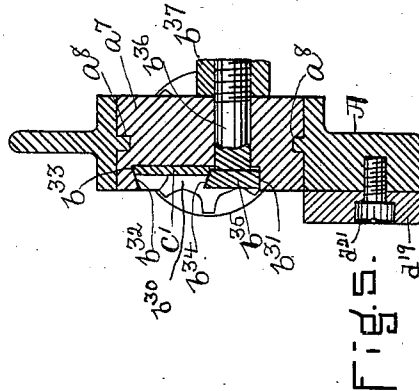


FIG. 2.

WITNESSES.

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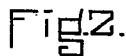
By Jas. H. Lehigh.

ATT'Y.

2 Sheets—Sheet 2.

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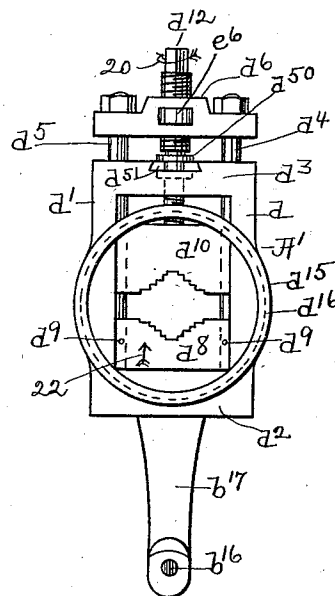


Fig. 3.

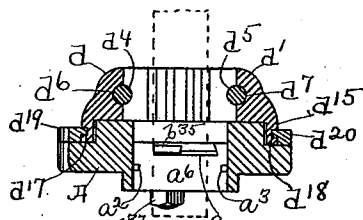


Fig. 4.

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ATT'Y_

UNITED STATES PATENT OFFICE.

ALBERT W. BARTHOLOMEW, OF BOSTON, MASSACHUSETTS, ASSIGNOR OF
ONE-HALF TO CHESTER M. SPRAGUE, OF SAME PLACE.

STOCK FOR THREADING AND CUTTING OFF RODS.

SPECIFICATION forming part of Letters Patent No. 546,573, dated September 17, 1895.

Application filed April 24, 1895. Serial No. 546,995. (No model.)

To all whom it may concern:

Be it known that I, ALBERT W. BARTHOLOMEW, residing in Boston, county of Suffolk, and State of Massachusetts, have invented an
5 Improvement in Stocks for Threading and Cutting Off Rods, of which the following description, in connection with the accompanying drawings, is a specification, like letters and numerals on the drawings representing like
10 parts.

This invention relates to a cutting-off and die-stock machine of the class shown and described in United States Patent No. 395,686,
15 granted to me January 8, 1889, and has for its object to improve the construction of the same, whereby a simpler and more efficient instrument or machine may be obtained.

One feature of this invention consists in an improved construction of the stock or frame
20 of the instrument, as will be described.

Another feature of the invention consists in a novel construction for automatically feeding the operating-tools.

The invention further consists in a novel
25 construction, as will be described, for automatically supplying oil to the operating parts.

These and other features of this invention will be pointed out in the claims at the end of this specification.

30 Figure 1 is a front elevation of an instrument or machine embodying this invention; Fig. 2, a side elevation of the instrument shown in Fig. 1 with the die-stock shown in a position at right angles to that shown in
35 Fig. 1 to more clearly illustrate the operation of the automatic feed; Fig. 3, a detail in plan of the chuck removed; Fig. 4, a transverse section on the line 4 4, Fig. 2; and Fig. 5, a sectional detail, on an enlarged scale, on the
40 line 5 5, Fig. 1.

The instrument herein shown comprises two parts—namely, a stock A and a chuck A'. The stock A in accordance with this invention is composed of a frame or casting having
45 a parallel-sided substantially-oblong slot or opening a' , the side walls 2 3 of the said opening having secured to or forming part of them two sets of inwardly-projecting ribs or ledges $a^2 a^3 a^4 a^5$, forming guides for tool-carriers
50 $a^6 a^7$, which are provided on their opposite sides with longitudinal grooves or channels a^8 , into which the guiding-ribs extend, as

represented in Fig. 5. The guiding-ribs $a^2 a^3$ constitute the support for the tool-carrier a^6 and are located on one side of the transverse
55 center of the slot or opening a' , and the guiding-ribs $a^4 a^5$ constitute the support for the carrier a^7 and are located on the opposite side of the said transverse center, the ribs $a^4 a^5$ being herein shown as separated from the
60 ribs $a^2 a^3$.

The ribs $a^2 a^3$ extend toward the end a^{10} of the opening a' , but not to the said end, so that the side walls 2 3 are left smooth for a distance
65 between the ends of the ribs 2 3 and the end a^{10} of the slot a' equal to or greater than the length of the carrier a^6 to permit the carrier to be slid off from its guides $a^2 a^3$ and removed from the stock A. The guide-ribs a^4
70 a^5 may also be extended toward the end a^{12} of the slot a' in a similar manner, so as to leave the side walls 2 3 smooth for a distance equal to or greater than the length of the carrier a^7 to permit the said carrier to be slid off
75 from its guides $a^4 a^5$ and removed from the stock A.

The carriers $a^6 a^7$ are adapted to be positively moved toward and from each other on their supporting-guides by means of screw-threaded rods $b b'$ extended into hollow handles
80 $b^2 b^3$, which are preferably detachably secured to the rods $b b'$, as will be described, and as the connections of both screw-rods to their handles are alike I will specifically describe but one.

Referring to Fig. 1, the screw-rod b' is provided with a smooth rear portion 5, which extends into a sleeve b^4 supported by the stock A, the said sleeve being provided, as herein
85 shown, with two annular grooves $b^6 b^7$, into which project screws $b^8 b^9$, extended through the enlarged portion 6 of the handle b^3 , the said enlarged portion being fitted over the sleeve b^4 . The handle b^3 is secured by the screws $b^8 b^9$ to the sleeve against longitudinal
90 movement and is free to turn thereon by reason of the screws $b^8 b^9$ traveling in the annular grooves $b^6 b^7$. The sleeve b^4 is rigidly secured to the stock A in any suitable or desired manner, and in order to impart a rotary
95 movement to the screw-rod b' by the turning of the handle b^3 the latter is detachably connected to the portion 5 of the screw-rod.

The attachment of the handle b^3 to the

screw-rod b' may be effected after the manner herein represented—namely, by providing the end of the smooth portion 5 of the screw-rod with a milled or toothed disk b^{10} , with which engages a set-screw b^{12} extended through the handle b^3 , so that when the handle b^3 is rotated or turned a rotary movement will be imparted to the screw-rod b' by the connections b^{10} b^{12} .

By unscrewing the set-screw b^{12} it will be seen that the handle b^3 may be disconnected from the screw-rod b' , so that the handle may be turned without imparting any rotary movement to the screw-rod b' , and therefore without effecting any longitudinal movement of the tool-carrier a^7 . The connection of the screw-rod b with its operating-handle b^2 is and may be effected in the same manner. The screw-rod b' has also fast to it a ring, disk, or collar b^{14} , provided on its periphery with a series of teeth or arms b^{15} , which are adapted to be rotated by the engagement of a tooth or arm b^{15} with a stud or projection b^{16} on an arm b^{17} of the chuck A' , as will be more specifically described hereinafter.

The carriers a^6 a^7 , as represented in Fig. 1, are provided with removable cutters c c' , which, as shown, are secured to the rear side of the said carriers, and one feature of this present invention consists in providing a more secure attachment of the cutters to their carriers, and as this attachment is the same in both I will specifically describe but one—namely, that of the cutter-carrier a^7 .

Referring to Fig. 5, the carrier a^7 is shown as provided on what may be termed its "rear side" with a slot or opening b^{30} , having one of its side walls b^{31} made straight and the other side wall b^{32} beveled, with which latter wall co-operates a correspondingly-beveled side b^{33} of the cutter c' , the opposite side of the cutter being made straight and being engaged by the beveled side b^{34} of a clamping-plate b^{35} , having its opposite side wall made straight to engage the straight wall b^{31} . The clamping-plate b^{35} has secured to or forming part of it a bolt or rod b^{36} , threaded at its end and extended through a suitable hole in the carrier a^7 , the projecting threaded end of the said bolt or rod being engaged by a nut b^{37} , by means of which the clamping-plate may be drawn toward the carrier, so that its beveled side b^{34} will force the cutter c' toward and into engagement with the beveled side b^{32} , between which and the beveled side b^{34} of the clamp the cutter is firmly held.

It will be noticed that the beveled side b^{34} of the clamp and the beveled side b^{32} form a dovetailed slot, in which the cutter c' is located. The cutter c' may be quickly and easily removed by unloosening the nut b^{37} and withdrawing the clamp b^{35} from engagement with the cutter to permit it to be slid out from the carrier.

The stock A may be secured to a chuck A' , (shown separately in Fig. 3,) the said chuck, as

herein shown, consisting of an open substantially-rectangular frame, composed of the side bars d d' and end bars d^2 d^3 , the end bar d^2 having secured to or forming part of it the arm b^{17} .

The end bar d^3 of the chuck-frame is provided with suitable holes, through which are extended two rods d^4 d^5 , connected by a cross-bar d^6 , the said rods being made preferably round and fitted into substantially-semicircular grooves d^6 d^7 in the side bars d d' , (see Fig. 4,) the said rods being extended into substantially-semicircular grooves in the sides of a work-holding jaw d^8 , which is fitted into the opening of the chuck-frame A' , and is secured to the rods d^4 d^5 to move therewith by pins d^9 extended through the jaw and the said rods.

The rods d^4 d^5 form guides for a work-holding jaw d^{10} , fitted into the opening of the chuck-frame and having its sides provided with substantially-semicircular grooves, which embrace the rods d^4 d^5 , the jaw d^{10} having a threaded opening or socket in one end, into which extends the threaded end of a right-and-left threaded rod d^{12} , extended through a threaded hole in the cross-bar d^6 .

The screw-rod d^{12} is provided with a collar d^{20} , fitted into an opening in the end bar d^3 of the chuck-frame and secured against longitudinal movement by a forked or yoke-shaped plate d^{21} , dovetailed into the end bar d^3 , as clearly shown in Fig. 3, and embracing a groove in the said collar.

The work-holding jaws d^8 d^{10} travel in opposite directions when the threaded rod d^{12} is turned—that is, when the rod d^{12} is turned in one direction—as, for instance, in the direction indicated by arrow 20, Fig. 3—the cross head or bar d^6 , the rods d^4 d^5 , and the jaw d^8 will move in the direction indicated by arrow 22, and at the same time the jaw d^{10} will move on the rods d^4 d^5 in an opposite direction until the work operated upon is firmly clamped by the said jaws, the said work being shown in the present instance as a solid bar d^{20} , which it is supposed to be cut by the cutters c c' .

When the rod d^{12} is turned in the direction opposite to that indicated by the arrow 20, the jaws d^8 d^{10} will move in opposite directions and will release the work, the jaw d^8 traveling in the direction opposite to that indicated by the arrow 22 and the jaw d^{10} traveling in the direction indicated by said arrow.

The chuck A' and the stock A may and preferably will be secured together after the manner herein shown, the chuck being provided with a ring d^{15} , having an annular groove d^{16} , into which extend flanges d^{17} d^{18} on plates d^{19} d^{20} , which are secured to the stock A by suitable clamping-screws d^{21} , (see Fig. 5,) extended through elongated slots in the said plates, which construction permits the said plates when unclamped from the stock to be slid or moved outward a sufficient

distance to withdraw their flanges from the annular groove d^{16} , and yet leave the said plates secured to the stock.

In the present instance I have shown the carriers $a^6 a^7$ as provided with cutters for severing the work; but when it is desired to cut a thread on the work the carriers $a^6 a^7$ may be removed and other carriers having thread-cutting dies may be substituted therefor.

In order to increase the efficiency of the tool, it is desirable that the work be kept well oiled at the surface operated on, and to accomplish this result the stock is provided with an oil reservoir or can e , preferably detachably secured to the stock (see Fig. 1) and having a nozzle e' extended through a suitable hole in one side of the stock, substantially at the center of the same.

The oil can or receptacle e may and preferably will be provided with a projecting plate or arm e^2 , slotted as at e^3 , as herein shown, for the reception of clamping-screws e^4 , adapted to enter suitable threaded sockets in the stock A, and by which the said plate and the oil-receptacle are firmly secured to the stock A to revolve therewith.

The oil can or receptacle may and preferably will be provided with a bulging or spring-like bottom, which is adapted to be struck by a projection e^6 carried by the chuck, it being herein shown as carried by the cross-bar d^6 .

The side walls 2 3 of the stock may each be provided with a scale (see Fig. 1) to assist in accurately adjusting the cutters.

The operation of my improved instrument may be briefly described as follows: The bar or other work being operated on is firmly clamped in the chuck between the jaws $d^8 d^{10}$, and the cutter-carriers $a^6 a^7$ are then adjusted in the stock A to the desired or proper position. The stock A is then turned about the work in the direction indicated by the arrow 40, Fig. 1, by means of the handles $b^2 b^3$, and if it is desired to automatically feed the cutters the handles are disconnected from the screw-rods $b b'$ by unloosening the set-screws b^{12} , and during each revolution of the stock A about the work the screw-rods $b b'$ are partially rotated by the engagement of an arm b^{15} on the ring, disk, or wheel b^{14} with the stud or projection b^{17} . During each revolution of the stock A, the bottom of the oil receptacle or can e engages the stud or projection and forces a quantity of oil out of the nozzle e' onto the work, thereby facilitating the operation of the cutters. When the stock A is used independent of the chuck—as, for instance, in cutting a thread on a piece of pipe—the cutter-carriers may be fed by turning the handles $b^2 b^3$, which are in this case fastened to the screw-rods $b b'$ by the set-screws b^{12} .

I claim—

1. In a cutting-off and die-stock machine, the combination of the following instrumentalities, viz:—a stock provided with a substantially oblong opening, cutter carriers

movable longitudinally in said opening, threaded rods connected to said cutter carriers and having smooth extensions 5 projecting through the end walls of the said opening, stationary sleeves carried by the said end walls and through which the smooth extensions 5 project, handles fitted over the said sleeves and secured thereto against longitudinal movement but capable of rotary movement thereon, and means to connect the said handles with the extensions of the threaded rods, to effect rotation of the said rods by a rotary movement of the handles on the said sleeves, substantially as described. 70 75 80

2. In a cutting-off and die stock-machine, the combination of the following instrumentalities, viz:—a stock provided with a substantially oblong opening, cutter carriers 85 movable longitudinally in said opening, threaded rods connected to said cutter carriers and extended through the end walls of the said opening, toothed wheels or disks fast on the said threaded rods, handles attached to said stock to rotate the same, means to connect the said handles to the threaded rods and to permit the same to be disconnected therefrom, a chuck to which the stock is secured to revolve thereon, and a projection 95 carried by the chuck to engage the toothed wheels or disks and rotate the threaded rods independent of the handles when the latter are disconnected from the said rods, substantially as described. 100

3. In a cutting-off and die-stock machine, the combination of the following instrumentalities, viz:—a work holding chuck, a tool carrying stock revoluble thereon, an oil receptacle carried by said stock, and means on the chuck to engage the oil receptacle in the revolution of the stock to eject oil from the said receptacle, for the purpose specified. 105

4. In a cutting-off and die-stock machine, the combination of the following instrumentalities, viz:—a work holding chuck, a tool carrying stock revoluble thereon, an oil receptacle detachably carried by said stock, and means on the chuck to engage the oil receptacle in the revolution of the stock to eject oil from the said receptacle, for the purpose specified. 110 115

5. In a cutting-off and die-stock machine, the combination of the following instrumentalities, viz:—a stock provided with a substantially oblong opening a' , cutter carriers 120 movable longitudinally in said opening, threaded rods connected to the said carriers and extended through the end walls of said opening, handles attached to the said rods, and an oil can or receptacle detachably secured to one side of the stock and provided with a nozzle projecting into the opening a' substantially at right angles to the length of the opening and to the handles, substantially as 125 130 described.

6. In a cutting-off and die-stock machine, the combination of the following instrumentalities, viz:—the stock A provided with the

substantially oblong slot or opening *a'* having its side walls provided with guiding ribs or ledges of less length than said opening, cutter carriers inserted in said opening and
5 mounted to slide on said guiding ribs, threaded rods *b b'* connected to the said cutter carriers and having extensions *5* projecting through the end walls of the said opening, stationary sleeves carried by the stock through which
10 the said extensions project, handles fitted over the said sleeves and secured thereto against longitudinal movement but capable of rotary movement thereon, and means to connect the said handles with the extensions
15 of the threaded rods, substantially as described.

7. In a cutting-off and die-stock machine, the combination of the following instrumen-

talities, viz: a stock, cutter carriers movable in an opening in said stock, threaded rods 20 connected to said carriers to move the same, toothed wheels or disks on said threaded rods within the openings in the stock, and handles attached to the stock, and means to connect the handles to the threaded rod and 25 which permit the said handles to be disconnected from the threaded rods while remaining attached to the stock, substantially as described.

In testimony whereof I have signed my 30 name to this specification in the presence of two subscribing witnesses.

ALBERT W. BARTHOLOMEW.

Witnesses:

JAS. H. CHURCHILL,
J. MURPHY.