No. 647,644. Patented Apr. 17, 1900.

J. G. BLOUNT.

TAIL STOCK FOR LATHES.

(Application filed Sept. 21, 1898.)

(No Model.) 2 Sheets—Sheet 1.

FIG. 1.

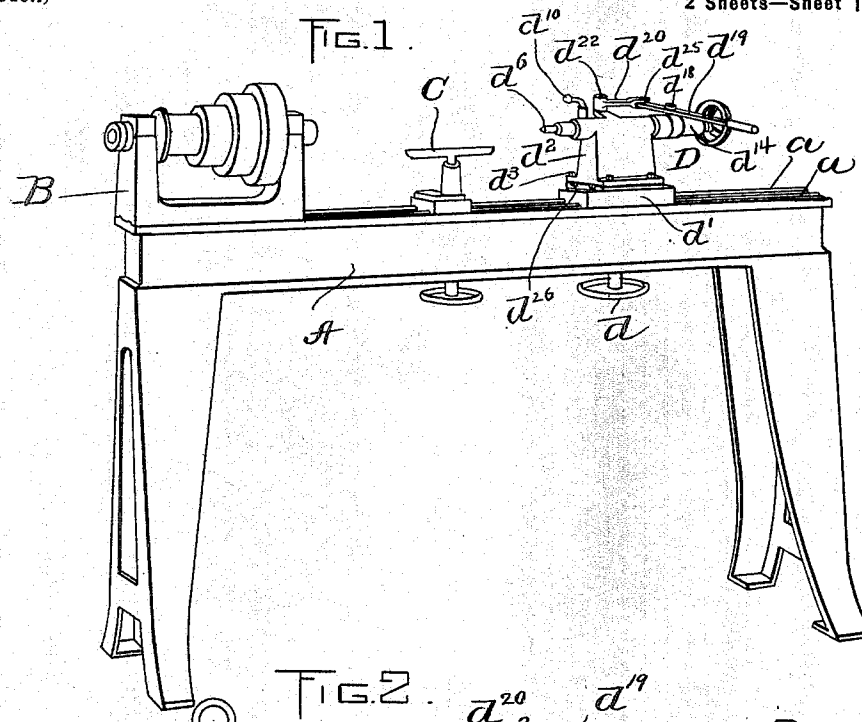
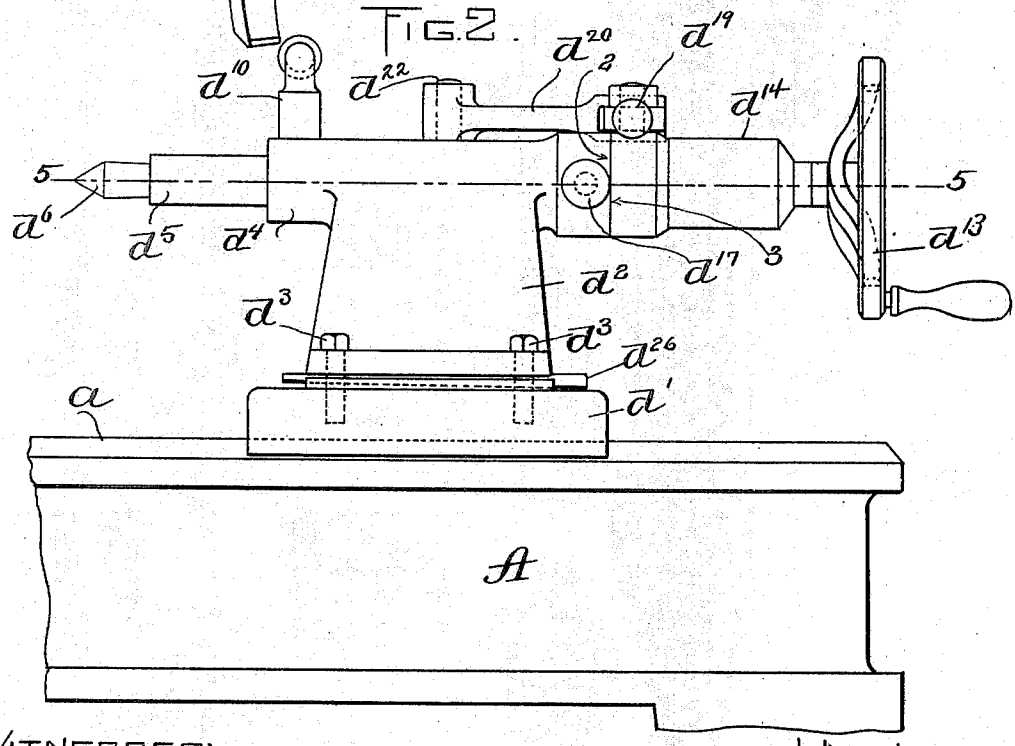


FIG. 2.



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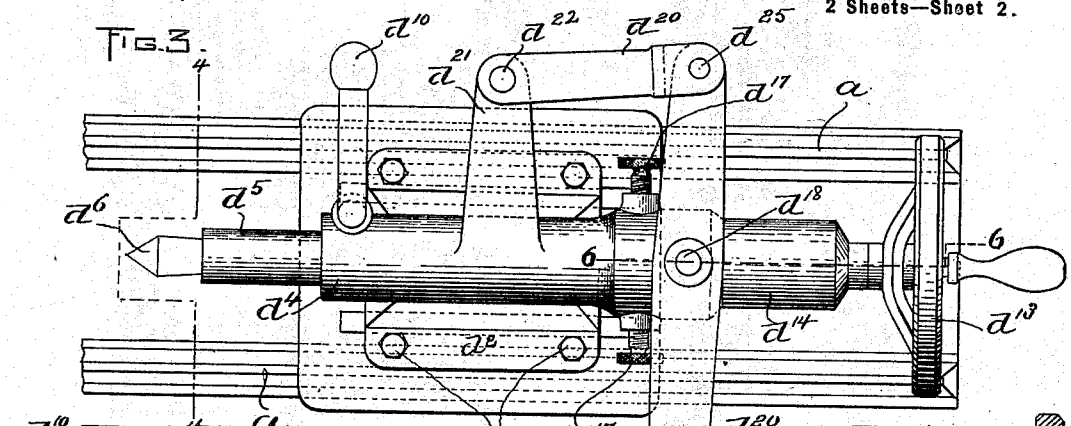
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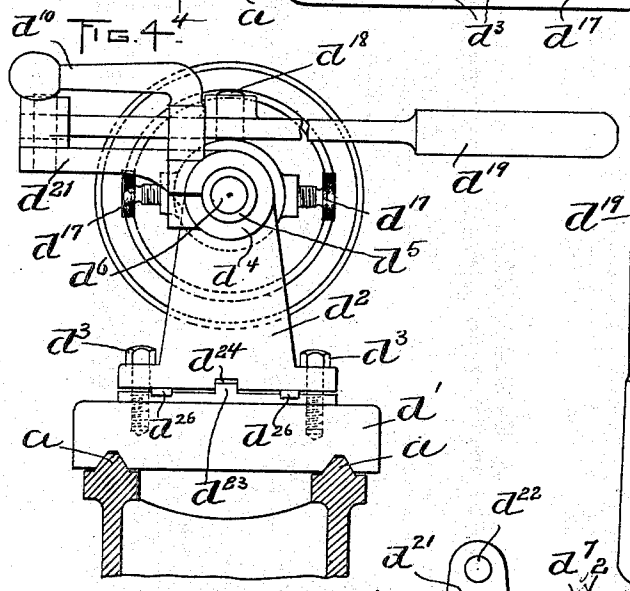
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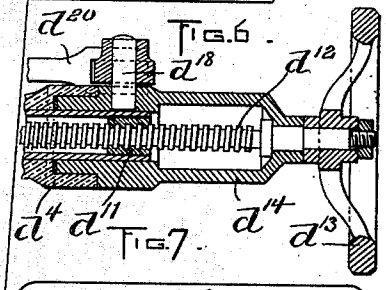
TAIL STOCK FOR LATHES.

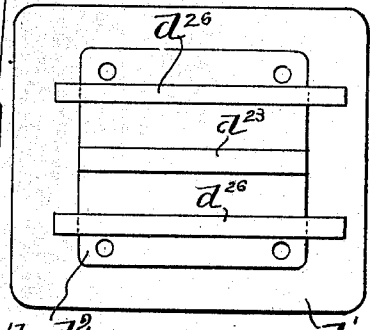
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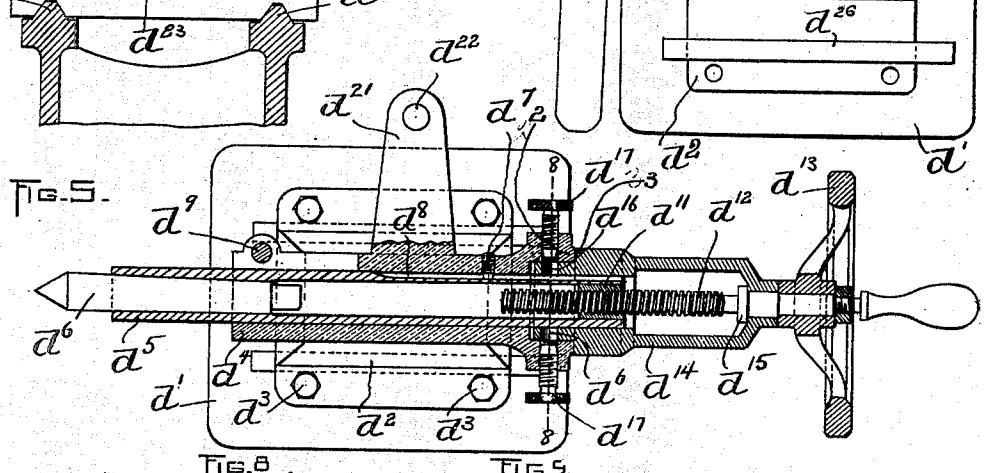
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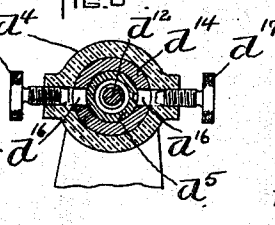


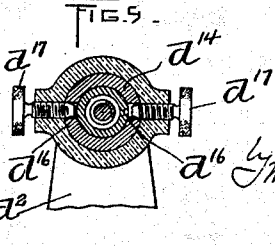












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UNITED STATES PATENT OFFICE.

JOHN G. BLOUNT, OF EVERETT, MASSACHUSETTS, ASSIGNOR TO J. G. BLOUNT & CO., OF SAME PLACE.

TAIL-STOCK FOR LATHES.

SPECIFICATION forming part of Letters Patent No. 647,644, dated April 17, 1900.

Application filed September 21, 1898. Serial No. 691,490. (No model.)

To all whom it may concern:

Be it known that I, JOHN G. BLOUNT, of Everett, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Tail-Stocks for Lathes, of which the following is a specification.

This invention relates to the tail-stocks of lathes and similar machines, and has for its object to save time in the longitudinal adjustment of the tail-spindle when work is to be removed or positioned in drilling, &c.

The invention also has for its object to provide an improved transverse adjustment for the tail-spindle.

The invention consists in a hand-lever mechanism which, as hereinafter described, is supplementary to the usual screw adjustment for the tail-spindle, whereby a quick longitudinal movement of said spindle may be readily obtained.

The invention further consists in a mechanism for accomplishing the transverse adjustment of the spindle, all as will be more fully pointed out in the succeeding description and claims with the aid of the accompanying drawings.

Of said drawings, Figure 1 represents a perspective view of a lathe provided with a tail-stock constructed in accordance with my invention. Fig. 2 represents a side elevation, on a larger scale, of the rear end of the lathe and tail-stock. Fig. 3 represents a top plan view thereof. Fig. 4 represents a front elevation, being a section on the line 4 4 of Fig. 3. Fig. 5 represents a horizontal section on the line 5 5 of Fig. 2. Fig. 6 represents a section on the line 6 6 of Fig. 3. Fig. 7 represents a plan view of the tail-stock base with the upper parts removed. Figs. 8 and 9 represent transverse sections on the line 8 8 of Fig. 5, showing the parts in different positions.

The same reference characters indicate the same parts in all the figures.

Referring to the drawings, A designates the bed or frame of a lathe provided with the usual slides *a a*. B is the head-stock, C the tool-rest, and D a tail-stock constructed after the manner of my invention and adjustable along the slides *a a*, being provided underneath with the usual clamping devices, including a hand-wheel *d*. The tail-stock is provided with a base *d'*, which rests on the slides, and a main frame or spindle-support d^2, attached by screw-bolts d^3 d^3 to said base and formed at the top as a sleeve d^4, which constitutes the guide or bearing for the tail-spindle d^5. The latter is hollow and carries at its forward end a center d^6. A screw stud or pin d^7, mounted in the sleeve d^4 and engaging a longitudinal groove d^8 in the side of the spindle, prevents the latter from turning in its bearing. At the forward end the bearing or sleeve d^4 is split and provided with the usual threaded post d^9 and clamp d^{10}, which upon being turned holds the spindle fast in its bearing or releases the same.

Secured in the rear end of the hollow spindle d^5 is an internally-screw-threaded block d^{11}, engaged by a feed-screw d^{12}, having a hand-wheel d^{13} fixed to its rear end. The screw is journaled in a sleeve or bearing d^{14} and is held from longitudinal movement with respect thereto by means of a shoulder d^{15} on the screw and the hub of the hand-wheel d^{13} engaging opposite sides of the end wall of the bearing. The screw-bearing d^{14} is movable longitudinally with respect to the spindle-support d^4, but may be attached thereto, when the two abut, by means of two thumb-screws d^{17} d^{17}, mounted in opposite sides of the spindle-support and adapted to enter holes d^{16} d^{16}, bored in a forward reduced portion of the screw-bearing d^{14}, the spindle-support being counterbored in its rear end to receive said reduced portion. The operation of the thumb-screws is illustrated in Figs. 8 and 9.

In a hole in the top of the screw-bearing d^{14} is driven a pin d^{18}, on which is pivoted a hand-lever d^{19}. The rear end of the latter is pivotally connected at d^{25} with a link d^{20}, whose other end is pivoted on a pin d^{22}, mounted at the end of a lug d^{21}, which projects laterally from the spindle-bearing d^4. It will readily be seen that by grasping the end of the hand-lever d^{19} and swinging said lever to the right from the position shown in Fig. 3 the operator can move the spindle d^5 to the right in the direction of its axis, thus withdrawing said spindle from the direction of the work. A reverse movement of the hand-le-

ver when the spindle is retracted moves said spindle forward in the direction of the work. The hand-lever mechanism thus constitutes a quick motion for adjusting the spindle, and with its use in many classes of work much time can be saved. The slow screw-motion can of course be operated in addition to and independently of the hand-lever motion. If at any time it is desired to use the screw-feed exclusively, the screw-bearing d^{14} is brought to abut against the spindle-bearing d^4, the thumb-screws d^{17} are screwed into the holes d^{16}, as shown in Fig. 9, and the hand-lever d^{19} and link d^{20} are removed from the tail-stock by lifting them off the pins d^{18} and d^{22}, the latter being made headless for this purpose. By manipulating the hand-wheel d^{13} the tail-spindle may then be moved in and out in the ordinary manner.

On referring to Fig. 5 it will be seen that the rear end of the sleeve d^4 forms an annular abutment 2, against which a shoulder 3 on the screw-bearing d^{14} abuts squarely when said bearing is brought forward by the hand-lever. It is evident, then, that having brought the spindle d^5 to a certain adjustment with respect to the bearing d^{14} by manipulating the hand-wheel d^{13} the operator will always have his center d^6 at the same point when the hand-lever is moved to the limit of the forward or left-hand stroke. In proceeding to adjust the tail-stock to turn a number of pieces of equal length or to work on one or more pieces which have to be inserted in and removed from the lathe frequently the base d' is first moved, if necessary, on the slides a a to bring it a distance from the head-stock approximating the length of the work. Then, having retracted the spindle d^5 by means of the screw-motion, the operator uses the hand-lever motion to bring the bearing d^{14} against the sleeve d^4, and finally uses the screw-motion to bring the center d^6 forward into contact with the work. After this he uses the hand-lever motion entirely in removing and inserting work so long as the length of the work does not change.

As it is sometimes desirable to realine the tail-spindle with the head-spindle, I have provided the tail-stock with a device for effecting a transverse adjustment of said tail-spindle. For this purpose two wedges d^{26} d^{26} are interposed between the base d' and the upper frame d^2 of the tail-stock on either side of the middle line of the latter. The base d' at the places where these wedges rest is planed on an incline, so as to bring the upper surfaces of the wedges horizontal, as represented in Fig. 2. The base and upper frame of the tail-stock are kept in alinement by means of a tongue d^{23} on the former entering a groove d^{24} in the latter. To shift the spindle transversely, the screws d^3 d^3 are first loosened and the wedges are then moved longitudinally by striking them on the end with a mallet, after which the screws are again tightened. If the wedges are moved equal distances in the same direction, the spindle will be raised or lowered vertically, while if only one wedge is moved or the two are moved in opposite directions the upper frame d^2 of the tail-stock will be canted to one side, so as to shift the spindle laterally.

Having thus explained the nature of the invention and described a way of constructing and using the same, although without attempting to set forth all of the forms in which it may be made or all of the modes of its use, I declare that what I claim is—

1. In a tail-stock, the combination with the tail-spindle and its support or guide, of an abutment on said support, an adjusting-screw engaged with the spindle, a sleeve surrounding and engaging said screw, a hand-lever connected with the sleeve and with said support and adapted to effect a relatively-quick longitudinal movement of the spindle, and an abutment or shoulder formed on the sleeve and adapted to coöperate with the abutment on the support to limit the forward movement of the spindle when actuated by the hand-lever.

2. In a tail-stock, the combination with the support d^2 having the fixed tail-spindle bearing at its upper end, of the spindle sliding within and in contact with said bearing, the clamp for holding said spindle rigid in its bearing, an adjusting-screw engaged with the spindle, a sleeve surrounding and engaging said screw and adapted to abut the support d^2, means to separably attach the sleeve to the support, and a hand-lever connected with the sleeve and with the support and adapted to effect a relatively-quick longitudinal movement of the spindle.

3. In a tail-stock, the combination with the tail-spindle and its support or guide, of an adjusting-screw engaged with the spindle, a sleeve surrounding and engaging said screw, a hand-lever connected with said sleeve and said support and adapted to effect a relatively-quick longitudinal movement of the spindle, a locking-screw mounted transversely in the wall of the spindle-guide, and an aperture in the sleeve adapted to receive the end of the said locking-screw, whereby the sleeve and the guide are locked together.

4. A tail-stock comprising the tail-spindle and its support or guide, a screw engaged with said spindle and having a longitudinally-movable bearing, means for securing said bearing to the spindle-support, and a hand-lever mechanism connected with the bearing and spindle-support and adapted to operate the spindle longitudinally, the connection being by means of holes and headless pins, whereby the said mechanism may be removed by lifting it from position.

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

JOHN G. BLOUNT.

Witnesses:
A. D. HARRISON,
P. W. PEZZETTI.