B. M. W. HANSON.

TOOL SUPPORT FOR TURRET LATHES.

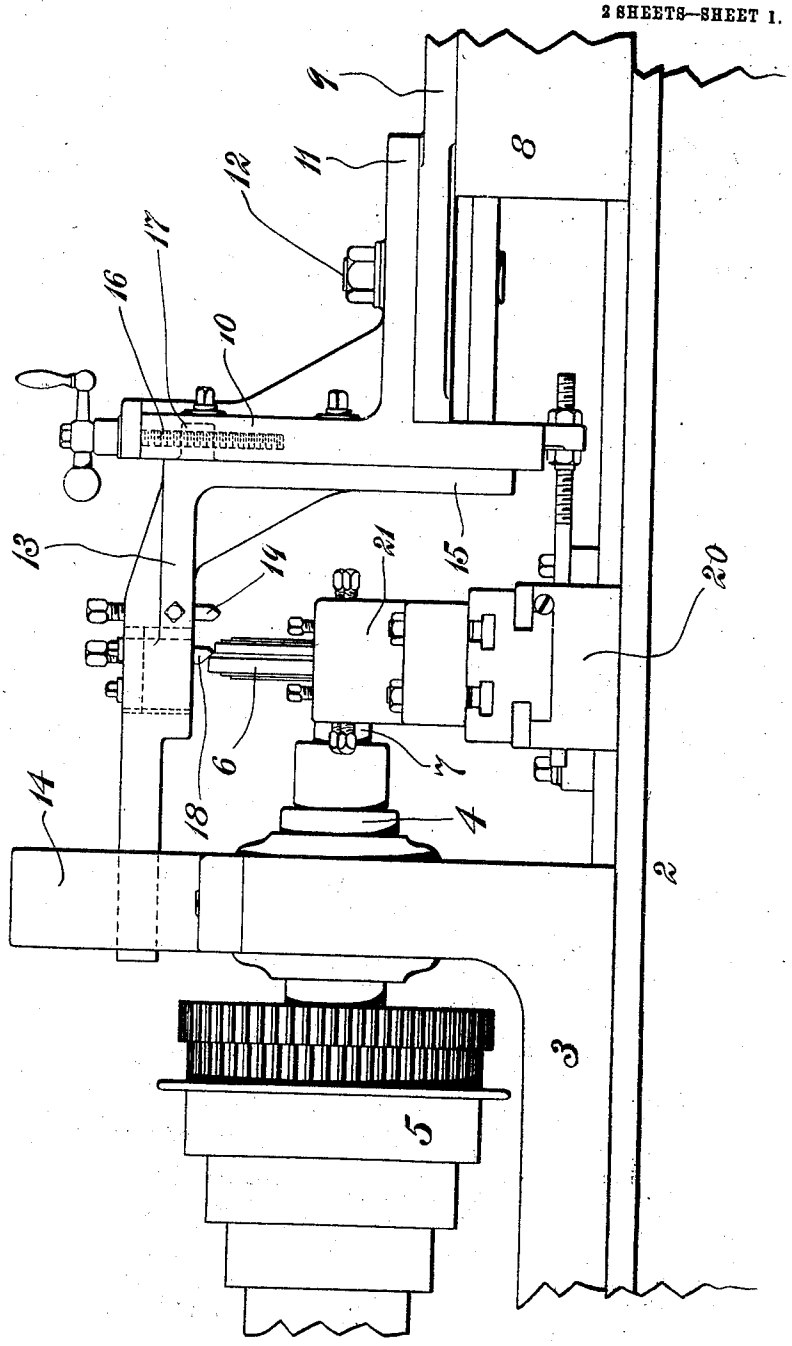
APPLICATION FILED OCT. 27, 1909.

968,052.

Patented Aug. 23, 1910.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses:

Inventor:
B. M. W. Hanson
By his Attorneys,
Sutherland & Anderson

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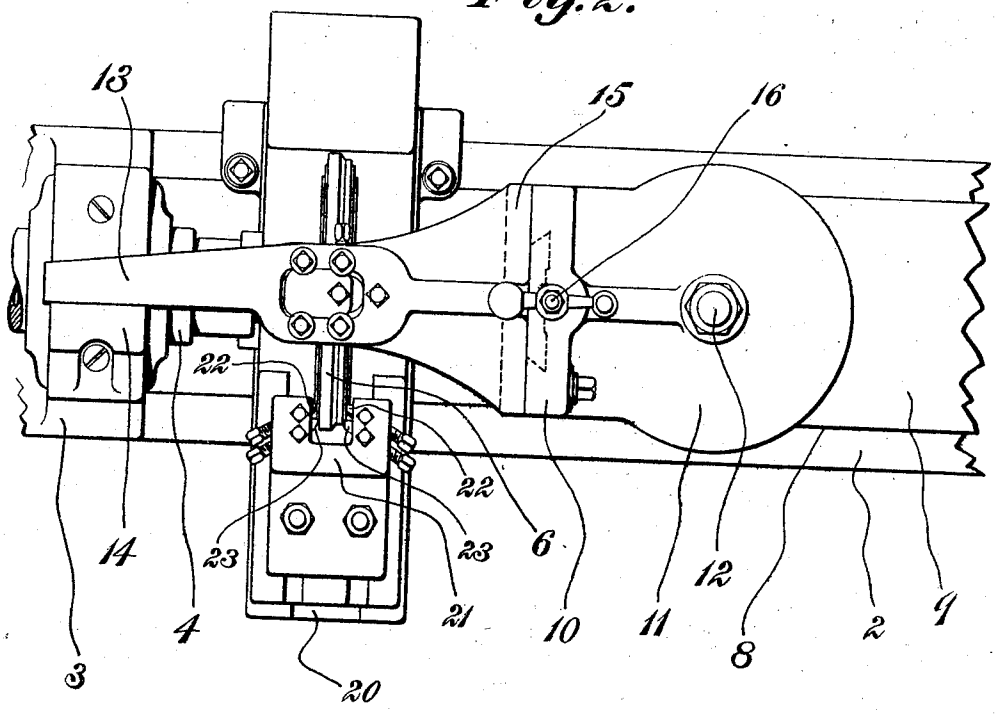
Fig. 2.



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UNITED STATES PATENT OFFICE.

BENGT M. W. HANSON, OF HARTFORD, CONNECTICUT, ASSIGNOR TO PRATT & WHITNEY COMPANY, OF HARTFORD, CONNECTICUT, A CORPORATION OF NEW JERSEY.

TOOL-SUPPORT FOR TURRET-LATHES.

968,052. Specification of Letters Patent. Patented Aug. 23, 1910.

Application filed October 27, 1909. Serial No. 524,970.

To all whom it may concern:

Be it known that I, BENGT M. W. HANSON, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Tool-Supports for Turret-Lathes, of which the following is a specification.

This invention relates to tool supports primarily adapted for application to turret lathes.

One of the more important features of the invention is the provision of simple and effective means for holding the tool or tools steady whereby precisionized work can be secured.

The invention possesses other advantageous features which with the foregoing will be set forth at length in the following description wherein I shall outline in full that form of embodiment of the invention which I have selected for illustration in the drawings accompanying and forming part of the present specification. This disclosure is so that those skilled in the art to which the invention relates may practice the latter. I do not restrict myself to the showing thus made for certain variations may be adopted within the spirit of my invention as expressed in the claims succeeding said description.

Referring to said drawings, Figure 1 is a front elevation of a lathe involving my invention, and, Fig. 2 is a top plan view of the same.

Like characters refer to like parts in both views.

In the drawings I have shown somewhat fully the principal parts of a turret-lathe the turret of which, however, is omitted or removed so as to permit of the mounting of certain devices hereinafter described.

The turret-lathe illustrated involves in its makeup a bed as 2 upon which is mounted a relatively stationary head-stock as 3 which may be either rigid with or adjustable on the bed 2. This head-stock presents a suitable work-carrier and it sustains for rotation a work-spindle as 4 which may be turned through the intervention of the usual means part of which is the stepped cone pulley 5 suitably fastened to said spindle. The work, which may be of any desirable nature, in the present case is a gear-blank 6 and it is carried by the familiar arbor 7 connected with the work-spindle in any of the customary ways.

Movable longitudinally of the upper side of the bed 2 is a turret-block, as it is sometimes known, or carriage 8 and which supports a slide as 9 both of which are adapted to slide longitudinally of said bed, the block 8 directly on the bed and the slide 9 on the block. This slide is usually utilized to support the turning turret it being the familiar turret-slide although the turret is not in place owing to the character of construction hereinafter described. I have not shown any of the usual mechanisms for moving the turret-block and turret-slide back and forth as these do not concern the present invention.

The tool in the present case is preferably connected with the slide 9 so as to partake of the reciprocatory movements thereof during the turning operation and I provide as a feature of the invention, means for receiving the thrust of the tool at a point remote or removed from said slide so that there are two distinct points or areas at which the thrust of the tool is received, one the slide and the other the independent device and the head-stock 3 or some continuation or extension thereof presents a very convenient and advantageous means of taking up this thrust especially as it is normally rigidly mounted. In view of the described relation chattering of the tool is prevented. The tool is preferably carried by a bridging device which may and as will hereinafter appear be connected with the slide 9 and have a bearing against the head-stock or analogous part. This bridging device supports the tool or tools over the work. In view of the organization outlined I may use this overhead or elevated tool for operating upon the peripheral portion of the work while another tool may be simultaneously operating upon the side or sides of the work.

I have shown as associated with the slide 9 a standard or upright 10 which may as shown be made in the form of a plate and the lower portion of which fits flatwise against the forward edge of the slide 9. There is shown as extending outward from this plate between its upper and lower edges, a projection rigid therewith and denoted by 11. This projection fits also flatwise against the upper surface of the slide 9 and is bolted

or otherwise suitably fastened to said slide, a bolt 12 being shown for the purpose. It will be obvious that said standard or plate 10 will be held upright in a most rigid and substantial manner, that there is no possibility of the same vibrating during turning and that the same constitutes in effect a rigid part of said slide 9.

A bridge 13 is shown as extending between the standard 10 and the head stock 3 or a vertical extension 14 of said head-stock. From this bridge or bar 13 there is pendent the shank 15 which is connected with the standard 10 for adjustment vertically thereof, a hand-operable screw-rod 16 rotatively-supported by said standard and engaging a nut 17 on said shank 15 presenting a simple means for raising and lowering the said shank so as to regulate or adjust the interval between the tool or tools 18 and 19 toward and from the work thereby easily adapting the machine to work which varies in diameter. These two tools are rigidly connected with the bridge or bar 13 in any desirable manner although of course they may be adjustable. While I have shown two tools on the bridging or tool-carrying device 13 it is evident that I might only provide one thereon but where two are present as shown the tool 18 is used for roughing and the tool 19 for finishing. I should state that while in the present case one end of the bar 13 is connected with the slide 9 the other end thereof has constantly or during turning and while the slide 9 is being reciprocated a bearing against the adjacent flattened face of the extension 14 the said bar where it engages said extension being also flattened so as not to interfere with the elevation bodily of the bar or bridge 13 or its endwise movement. As the bar or bridge 13 bears against this rigid extension 14 there is presented at a point removed from the slide 9 an effectual lateral brace for the tool. There may of course be instances where I should prefer to reverse the described arrangement.

It will be evident that as the spindle 4 turns the work 6 is turned in a corresponding direction and it follows that the two tools 18 and 19 operating against the work, are given a thrust. The stiff or rigid bridge 13 is braced, however, at both ends where this thrust is taken up so as to eliminate wabbling or vibration of the tool or tools.

The cross slide of the lathe is denoted by 20 and it may be equipped with the usual adjuncts which it is not necessary to describe except simply to refer to the tool-block 21 which is furnished with roughing tools both denoted by 22 and finishing tools each designated by 23 and these several tools operate upon the sides of the work as the same is turned and at the time or synchronous with the operation of the peripheral tools there being no interference between the two sets of tools.

What I claim is:

1. The combination of a bed, a head-stock on said bed, a slide to travel longitudinally of the bed, and a vertically adjustable tool carrying device extending between the slide and head-stock, connected with one of said parts and having a vertical and horizontal slidable bearing against the other part.

2. The combination of a bed, a head-stock on said bed, a slide to travel longitudinally of the bed, and a tool carrying device extending between said slide and head-stock, connected rigidly with said slide, the head-stock and said tool carrying device having engaging flattened faces.

3. The combination of a bed, a head-stock on said bed, a tool carrying device extending between said head-stock and slide, having a rigid connection with one of said two parts and a slidable bearing against the other, and means for feeding said tool carrying device upwardly and downwardly.

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

BENGT M. W. HANSON.

Witnesses:
HEATH SUTHERLAND,
H. W. KILBOURNE.