J. HESKETH.

BORING TOOL.

APPLICATION FILED JULY 2, 1912.

1,099,500.

Patented June 9, 1914.

2 SHEETS—SHEET 1.

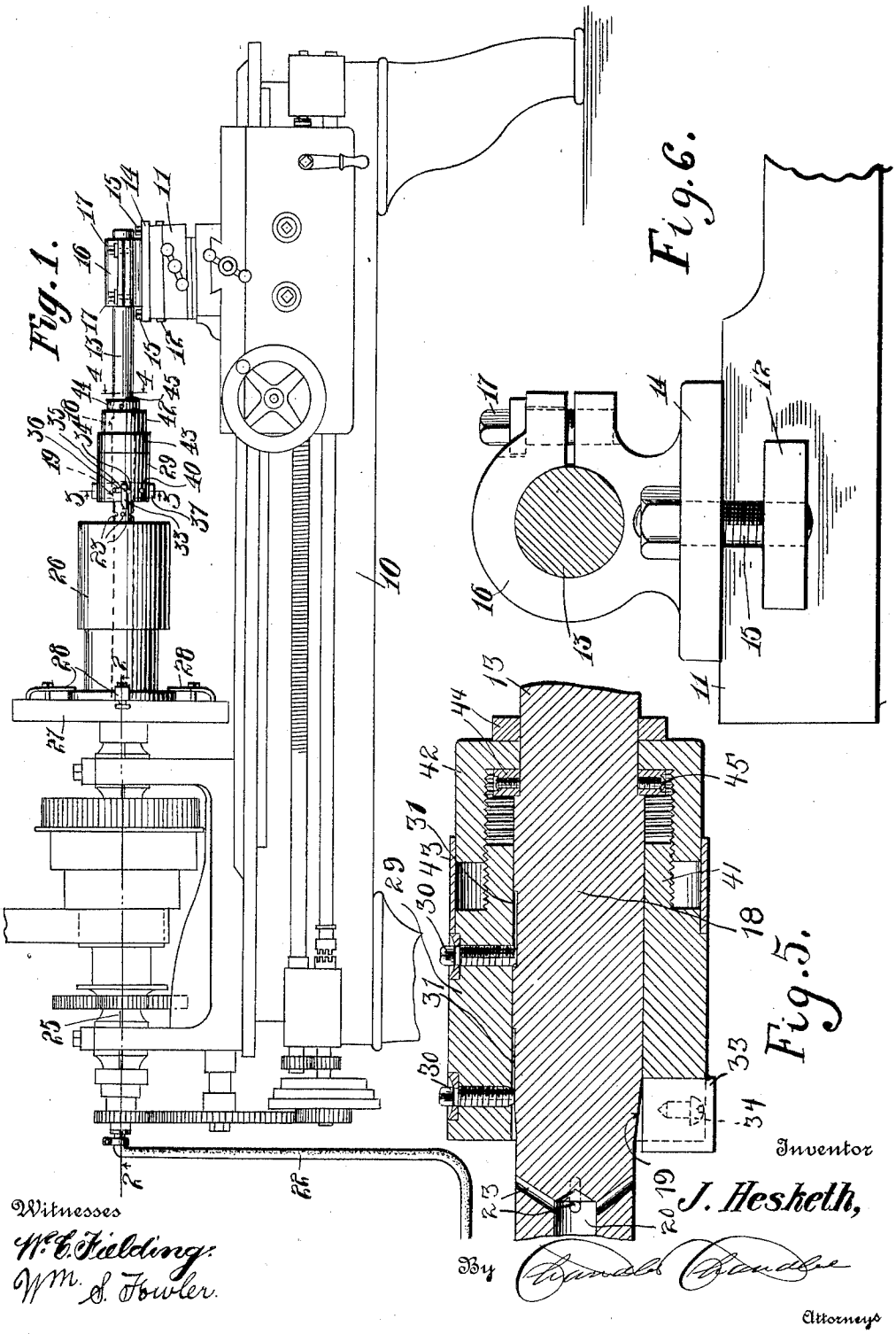


Fig. 1.

Fig. 6.

Fig. 5.

Witnesses

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2 SHEETS—SHEET 2.

Fig. 2.

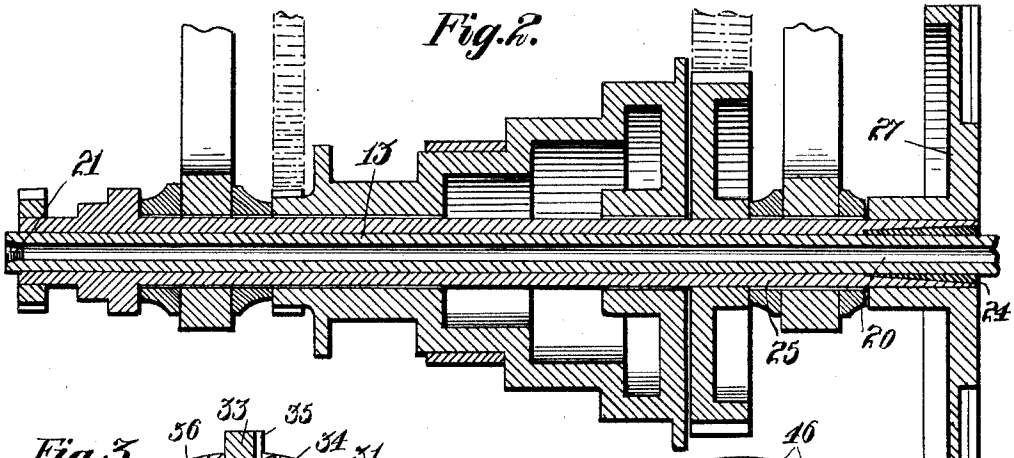


Fig. 3.

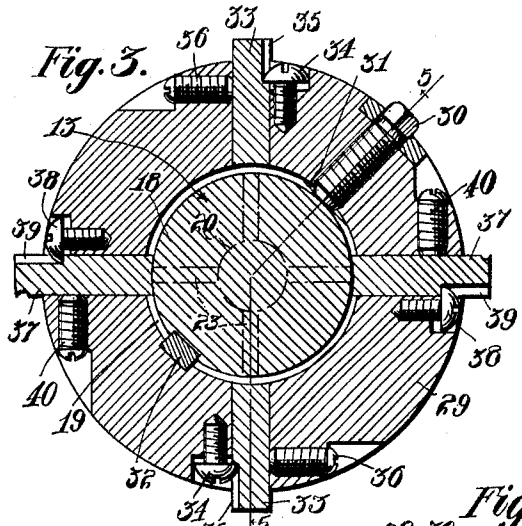


Fig. 4.

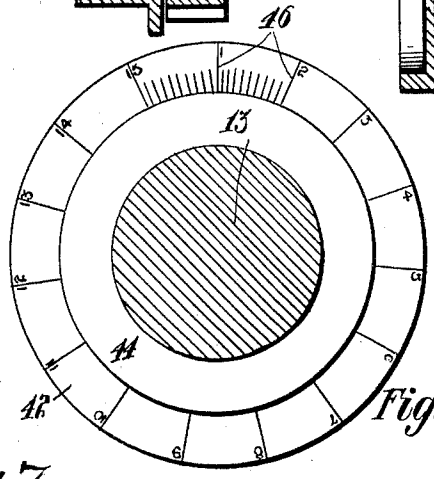
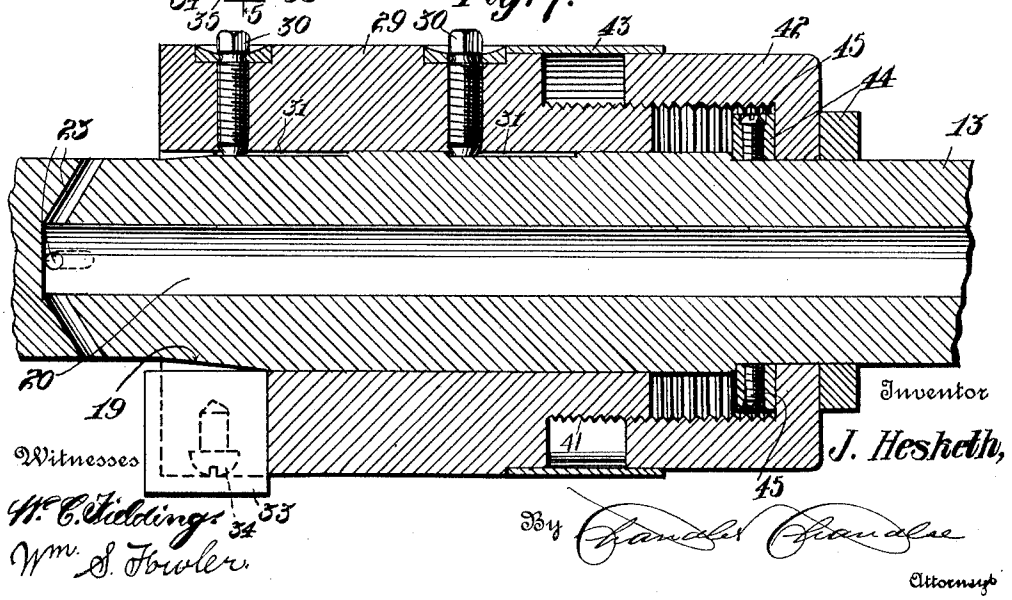


Fig. 7.



Witnesses

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UNITED STATES PATENT OFFICE.

JOSEPH HESKETH, OF PORTSMOUTH, VIRGINIA.

BORING-TOOL.

1,099,500. Specification of Letters Patent. Patented June 9, 1914.

Application filed July 2, 1912. Serial No. 707,311.

To all whom it may concern:

Be it known that I, JOSEPH HESKETH, a citizen of the United States, residing at Portsmouth, in the county of Norfolk, State of Virginia, have invented certain new and useful Improvements in Boring-Tools; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to boring tools employed upon lathes for boring cylinders and the like and has for an object to provide a boring tool of this character carrying both rough boring tools and finishing tools adjustably mounted in the tool carrying head which is in turn adjustably secured upon the boring rod.

Another object is to provide a tool of this character constructed in such manner that both sets of tools may be readily adjusted and means for adjusting the tool carrying sleeve upon the bar, said adjusting means having graduations on one face to indicate the adjustment of the tools.

Another object is to generally improve the construction and operation of devices of this character whereby the double operation of boring a cylinder and finishing or smoothing the bore may be performed with one operation of the device.

With the above and other objects in view, my invention will be more fully described, illustrated in the accompanying drawings which show a preferred embodiment of my device and then specifically pointed out in the claims which are attached to and form a part of this application.

In the drawings: Figure 1 is an elevational view of the device in operative position upon a lathe. Fig. 2 is a longitudinal sectional view on the line 2—2 of Fig. 1. Fig. 3 is an enlarged cross sectional view on the line 3—3 of Fig. 1. Fig. 4 is a cross sectional view on the line 4—4 of Fig. 1 showing the tool carrying member adjusting means with the graduations upon its face. Fig. 5 is a fragmentary sectional view on the line 5—5 of Fig. 3, showing the means for securing the tool carrying member in adjusted position upon the rod. Fig. 6 is a detail view of the means for securing the rear end of the rod to the tool post head of the lathe. Fig. 7 is a fragmentary view similar to Fig. 5 but showing the device adapted for boring a cylinder or the like having one end closed.

Referring more specifically to the drawings, in which similar reference numerals designate corresponding parts throughout, 10 designates in general the lathe to the tool post head 11 of which is secured the base 12 of the support for the rear end of the rod 13. The lower bearing 14 is secured to the base 12 by means of the bolts 15 and the upper bearing 16 is secured to the lower bearing 14 by means of the bolts 17, clamping the rear end of the rod 13 between said bearings 14 and 16 as will be clearly apparent, it being understood that the upper bearing 16 is a continuation of the lower bearing 14 and that the bolts 17 pass through the outwardly directed edges of said bearing. It will also be understood that the base 12 fits within the grooves of the upper face of the tool post head 11.

The rod 13 has a reduced forward end which connects with the enlarged central portion 18 by means of the inclined portion 19, the reduced forward end being provided with a central longitudinal bore 20, the forward end of which is threaded as shown at 21 to receive a compressed air conducting hose 22, while the opposite end of the bore terminates in the rearwardly and outwardly directed radially arranged passages 23 opening upon the surface of the rod slightly forwardly of the inclined portion 19.

Loosely engaged over the forward portion of the rod 13 is the brass sleeve 24 which is adapted for engagement within the lathe spindle 25, said sleeve being beveled for proper frictional engagement with the interior of the spindle, it being understood that the forward portion of the rod passes through the spindle.

The cylinder 26 or other work to be bored is secured to the rotating work carrier 27 by means of the clamp 28 or in any other suitable and well known manner, said cylinder 26 rotating freely around the rod 13. Positioned around the enlarged portion 18 of the rod 13 is the cutter carrying sleeve 29 which is locked in position by means of the locking screws 30 which extend toward the center of the sleeve and have their flattened ends engaged against the flat faced recesses 31 of the enlarged portion 18 of said rod 13, thus locking the sleeve 29 against rotation upon said rod and securing the same in proper

adjusted position longitudinally of said rod. It will also be evident that the recesses 31 are properly spaced from one another and owing to the length of said recesses, the longitudinal movement of the sleeve 29 upon the rod 13 is limited. The sleeve 29 is further held against rotation upon the rod 13 by means of the locking key 32 secured through registering longitudinal grooves in the outer face of the enlarged portion 18 of said rod and in the inner face of the sleeve 29.

The cutting tools 33 are adjustably secured, preferably at opposite points in the forward end of the tool carrying sleeve 29, said cutting tools projecting from the end of the sleeve and being securely held in position by means of the radially extending screws 34 with their heads engaged in the grooves 35 in one face of the tools 33 and by the transversely positioned screws 36 having their points engaged against one side face of the tools 33. It will be evident that the tools 33 are adapted for boring or cutting the interior of the cylinder to approximately the desired depth while the tools 37 are adapted to complete the boring operation, said tool 37 being known as the finishing tool. The lower faces of first tools 33 are held in spaced relation with the rod 13 while the lower faces of the finishing tools 37 are engaged against the inclined beveled portion 19 of said rod and thus adapt it to be moved outwardly upon rearward movement of sleeve 29 upon the rod 13, as will be later more clearly understood.

The finishing tools 37 are retained in their adjusted position by means of the radially directed screws 38 having their heads engaged in the grooves 39 in one side face of the tools 37 and by means of the screws 40 having their points engaged against the opposite faces of said tools 37, it being understood that the screws 38 and 40 are at right angles the same as the screws 34 and 36.

The sleeve 29 is provided with a reduced threaded extension 41 at its rear end over which is engaged the adjusting nut 42 for adjusting the sleeve 29 longitudinally upon the rod 13, a dust cover 43, in the form of a collar being secured to the rear end of the sleeve 29 and projecting over the adjacent end of the adjusting nut 42 to prevent dust and so forth from reaching the threads on the extension 41. The central portion of the nut 42 is loosely engaged around the rear portion of the rod 13 between the spaced collars 44, one of which is positioned against the rear end of the enlarged portion 18 and the collars 44 being secured in position upon the rod 13 by means of the securing screws 45, as will be clearly understood. Upon the rear face of the nut 42 is the indicating scale consisting of the graduation marks 46 to indicate the adjustment of the finishing tools 37.

It will be seen that the sleeve 24 forms a central bearing for the rod 13 and that during operation of the device, the compressed air traveling through the longitudinal bore 20 and through the passages 23 will blow the chips and dust away from the cutters 33 and 37 as the cylinder is being bored. It will also be apparent that the rod 13 will be moved forwardly as the cylinder rotates, thus properly advancing the cutters 33 and 37. Further, the cutting tools 33 and 37 may be readily adjusted after loosening the screws engaged therewith, as above described. It will be understood that when it is desired to force the finishing cutters 37 outwardly, the screws 38 and 40 are loosened and the flattened ends of the screws 30 disengaged from the recesses 31, after which the nut 42 is rotated in the proper direction, the adjustment of finishing tools 41 being indicated upon the scale on said nut.

It will be apparent that should this device be employed for boring a cylinder or the like having one end closed, the forward portion of the rod 13 may be dispensed with and the longitudinal bore 20 located in the rear portion of said rod and extending substantially the full length thereof, as shown in Fig. 7. This change will specially adapt the device for use upon a turret lathe.

What I claim is:—

1. A lathe tool comprising a rod, means for radially connecting the rod to the tool post rest, means for loosely supporting the rod within the lathe spindle, tool carrying means upon the rod, said rod having a beveled portion beneath the tool carrying means, tools carried by the tool carrying means, certain of said tools resting upon the beveled portion of the rod and means for moving the tool carrying means longitudinally upon the rod to force the tools engaged with the beveled portion thereof outwardly, said moving means being loosely mounted upon the rod.

2. The combination with a boring machine, of a rod secured to the tool post head and extending through the bore in the lathe spindle, an adjustable tool carrying sleeve slidable on the rod, manually adjustable roughing tools carried by the sleeve and adjustable finishing tools carried by the sleeve and engaging the rod, means for adjusting the sleeve upon the rod comprising bolts passed through the sleeve and engaging recesses formed in the rod, a nut rotatably secured on the rod and having threaded engagement with one end of the sleeve whereby rotation of said nut will move the sleeve longitudinally on the rod and the rod having a beveled portion beneath the finishing tool whereby longitudinal movement of the sleeve will cause the finishing tools to be forced outwardly.

3. A lathe tool comprising a rod, means

for rotatably connecting the rod to the tool post rest, means for loosely supporting one end of the rod within the lathe spindle, tool carrying means upon the rod, said rod having a beveled portion beneath the tool carrying means, tools carried by the tool carrying means, certain of said tools resting upon the beveled portion of the rod and means for moving the tool carrying means longitudinally upon the rod to force the tools engaged with the beveled portion thereof outwardly, said moving means being loosely mounted upon the rod.

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

JOSEPH HESKETH.

Witnesses:
R. E. CORSON,
JAMES H. CLAYTON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."