H. O. SPADE.

TOOL HOLDER FOR LATHES AND LIKE MACHINES.

APPLICATION FILED NOV. 5, 1914.

1,229,802.

Patented June 12, 1917.

2 SHEETS—SHEET 1.

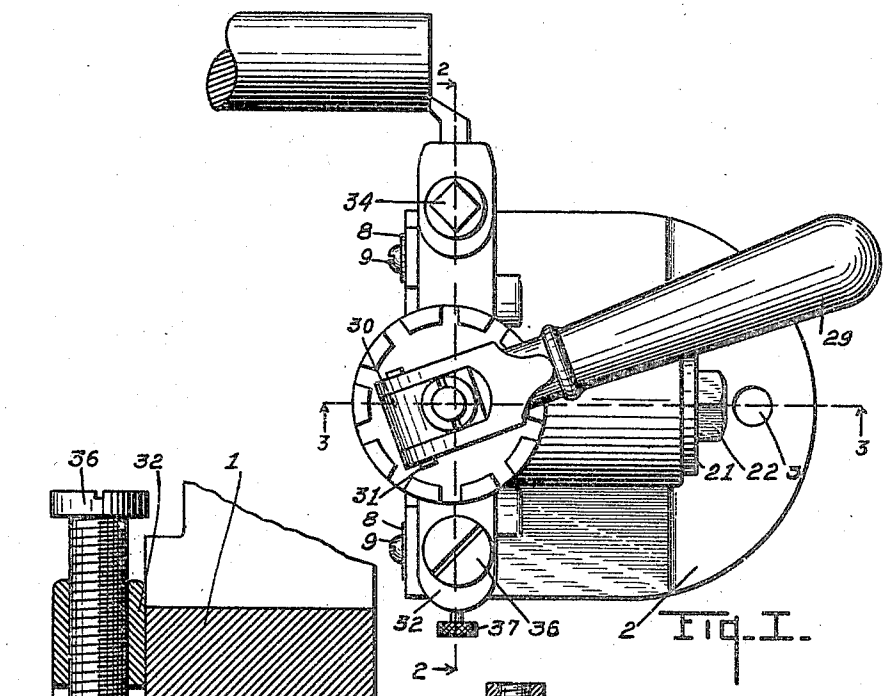


FIG. I.

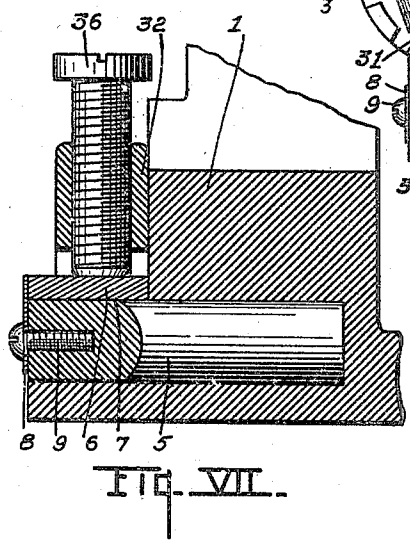


FIG. VII.

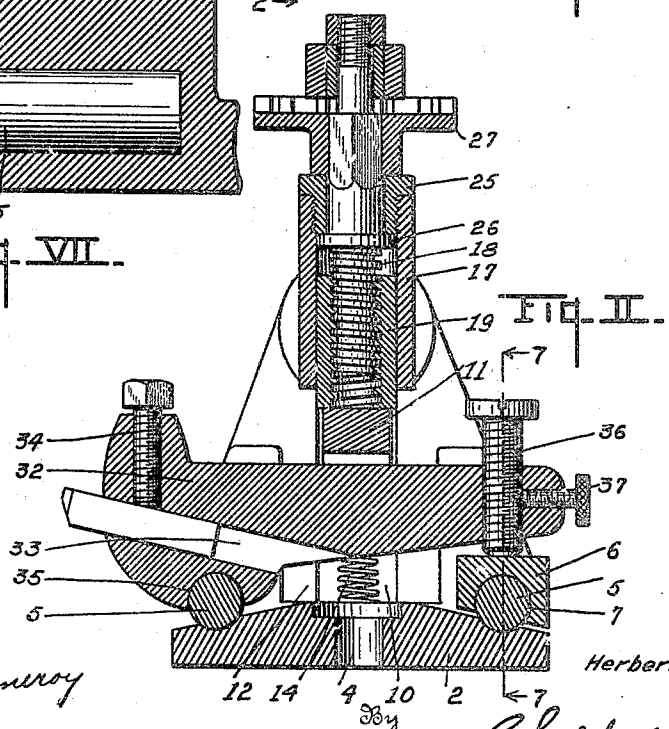


FIG. II.

Witnesses

P. H. Pomeroy

Lenn Gilmore

Inventor

Herbert O. Spade

By Chappell & Earl

Attorneys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

H. O. SPADE.

TOOL HOLDER FOR LATHES AND LIKE MACHINES.

APPLICATION FILED NOV. 5, 1914.

1,229,802.

Patented June 12, 1917.

2 SHEETS—SHEET 2.

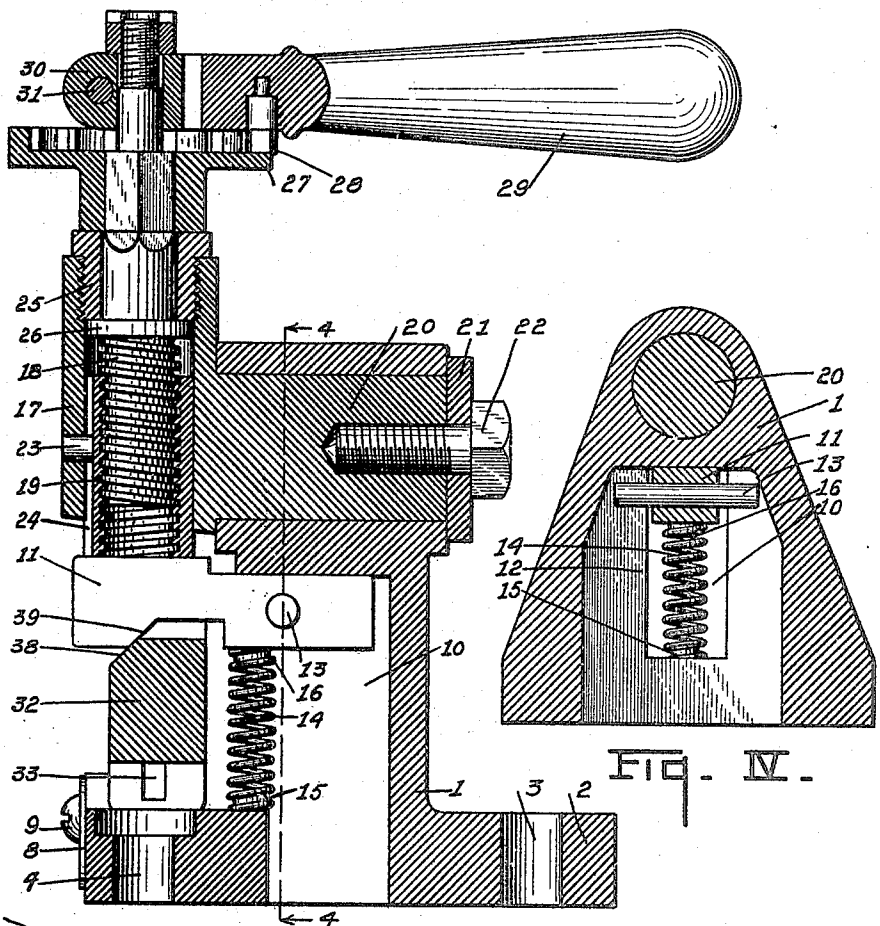


FIG. III.

FIG. IV.

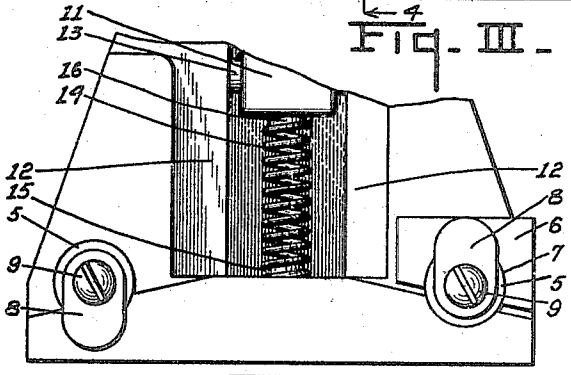


FIG. VI.

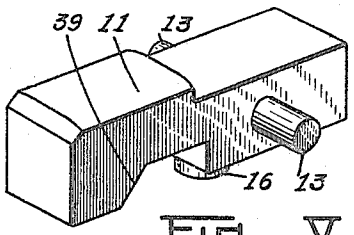


FIG. V.

Witnesses

P. M. Pomeroy

Lenn Gilman

Inventor

Herbert O. Spade

By Chappell & Earl

Attorneys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

HERBERT O. SPADE, OF KALAMAZOO, MICHIGAN.

TOOL-HOLDER FOR LATHES AND LIKE MACHINES.

1,229,802. Specification of Letters Patent. Patented June 12, 1917.

Application filed November 5, 1914. Serial No. 870,323.

To all whom it may concern:

Be it known that I, HERBERT O. SPADE, a citizen of the United States, residing at Kalamazoo, Michigan, have invented certain new and useful Improvements in Tool-Holders for Lathes and like Machines, of which the following is a specification.

This invention relates to improvements in tool holders for lathes and like machines.

The main objects of this invention are:

First, to provide an improved tool holder for lathes and like machines which enables the very rapid changing of the tools.

Second, to provide an improved tool holder for lathes and like machines which enables the very rapid changing of tools and avoids the necessity of re-adjustment or centering for each change of tools.

Third, to provide an improved tool holder having these advantages which is adapted for attachment to lathes as commonly constructed.

Further objects, and objects relating to structural details, will definitely appear from the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification. The invention is clearly defined and pointed out in the claims.

A structure which is a preferred embodiment of my invention is clearly illustrated in the accompanying drawing forming a part of this specification, in which:

Figure I is a plan view of a structure embodying the features of my invention, the tool being shown in operative relation to a piece of work.

Fig. II is a vertical section on a line corresponding to line 2—2 of Fig. I, parts being shown in full lines to better illustrate their structure.

Fig. III is an enlarged vertical section on a line corresponding to line 3—3 of Fig. I, certain parts being shown in full lines.

Fig. IV is a vertical section on a line corresponding to line 4—4 of Fig. III.

Fig. V is a perspective view of the clamping member 11.

Fig. VI is a detail front view showing the arrangement of the rests on the post member.

Fig. VII is an enlarged detail vertical section on a line corresponding to line 7—7 of Fig. II.

In the drawing similar reference characters refer to similar parts throughout the several views, and the sectional views are taken looking in the direction of the little arrows at the ends of the section lines.

Referring to the drawing, the post member 1 is provided with a base 2 having bolt holes 3 and 4 therein adapted to receive bolts for attaching it to the carriage of a lathe in lieu of the tool post commonly provided on such machines. The base of the post member projects in front of the post and is provided with cylindrically curved rests 5. The rest block 6 has a curved seat 7 adapted to be engaged with either of the rests 5 when presented longitudinally thereto. The curve of the seat 7 being greater than a half circle the rest block is retained on the rest, that is, it can be engaged and disengaged only by longitudinal movement. The rests 5 are provided with buttons 8 mounted on the screws 9 so as to be swung to and from operative position as will be readily understood.

The post member is provided with a recess 10 adapted to receive the tail end of the tool holder clamping member 11. At the front of the recess 10 are inwardly projecting flanges 12 with which the transverse pin 13 on the clamping member engages to limit the forward movement of the clamping member. The clamping member is held in its elevated position by the coiled spring 14, the lower end of which is engaged on the lug 15 on the post base and the upper end engaging a lug 16 on the under side of the clamping member 11.

The holder 17 for the clamping screw 18 and clamping block 19 is, in the structure illustrated, formed separately from the post and is provided with a shank 20 clamped into a transverse hole in the upper end of the post by means of the washer plate 21 and screw 22. The clamping block 19 is internally threaded to receive the clamping screw. The clamping block is, in the structure illustrated, cylindrical and is held against rotation by means of the pin 23 engaging the longitudinal groove 24 in the block. The clamping screw is journaled in the bushing-like bearing 25 threaded into the upper end of the holder 17 and is provided with a flange 26 engaging the lower end of the screw bearing, see Fig. III.

On the upper end of the clamping screw is

a ratchet head 27 with which the tooth or pawl 28 on the hand lever 29 coacts. This hand lever is adjustably mounted on the clamping screw by means of the block 30 pivotally mounted on the screw above the ratchet head, the lever being mounted on the block by means of the horizontal pivot 31 so that it can be raised to entirely free the tooth and swung to any position for convenience in manipulation and reëngaged as desired.

The tool holder 32 is provided with a tool holder socket 33 at its head end and tool clamping screw 34. The tool holder has a curved seat 35 at its head end adapted to coact with one of the rests 5 on the post member. At its tail end the tool holder is provided with a rest 36 adapted to coact with the rest block 6, see Fig. II. The rest 36 is preferably in the form of a screw for convenience in attachment and is provided with a set screw 37 for retaining it in its adjusted position. The upper edge of the tool holder is beveled at 38 while the clamping member 11 has a beveled jaw 39 adapted to coact therewith so that when the clamping member is forced downwardly into clamping engagement with the tool holder it not only clamps the tool holder upon its rests but draws it against the side of the post, the forward movement of the clamping member being limited by its transverse pin 13 engaging the flanges of the post and its inner end being supported by engagement with the top of the recess as shown in Fig. III.

In the use of my improvements it is intended that a number of tool holders 32 shall be provided with the particular tools required for the desired work, all of the tools having been placed in their respective holders and properly adjusted and centered to the work by means of the adjustment of the tool in the tool holder and the adjustable rest 36.

The tools being arranged conveniently accessible to the operator the desired tool for the first operation is placed in the device and on account of the form and arrangement of the rests the tool is properly centered merely by replacing in the device. When the work of a particular tool is completed it may be removed very quickly by releasing the clamping screw and another tool holder with the proper tool for the next required operation quickly substituted. It is found that with this equipment the amount of work is very greatly increased and the quality of the work enhanced, that is, more accurate work can be done as it is not necessary to re-adjust the tools with each change. The tools may be reversed in the post member, that is, the rest block 6 may be engaged with either of the rests 5, thus enabling the use of the device in all operations to the full capacity of the machine.

As stated, the tools for their respective holders may be very quickly changed for the several operations that are required on some pieces of work. The structure is comparatively simple in its parts and strong and durable.

I have illustrated and described my improvements in a very satisfactory embodiment. I have not attempted to illustrate or describe various modifications which I contemplate as I believe the disclosure made will enable those skilled in the art to which my invention relates to embody or adapt the same as circumstances may render desirable.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. In a structure of the class described, the combination of a recessed post member having inwardly projecting flanges at the front of the recess and provided with a base adapted for attachment to a lathe carriage, a pair of cylindrically curved rests on said post base, a rest block having a curved seat in rocking engagement with one of said rests, the curve of the seat exceeding that of a half circle whereby the seat may be engaged with the rest when presented longitudinally thereto, a retaining button for said rest block, a tool holder provided with a curved transverse seat at its head adapted to coact with the other rest of said post member and with a rest at its tail adapted to coact with said rest block, said tail rest being threaded for adjustment, the curve of said tool holder rest seat exceeding that of a half circle whereby it may be engaged with the rest when presented longitudinally thereto, said tool holder being beveled on its outer side at its upper edge, a clamping member arranged in said post recess and provided with a downwardly facing beveled jaw coacting with said beveled edge of said tool holder and with a transverse pin engaging behind the said flanges of said post, the inner end of said clamping member being adapted to rest against the upper end of the recess, a non-rotatable internally threaded clamping block mounted on said post for longitudinal adjustment to act on said clamping member, and a clamping screw rotatably mounted on said post to coact with said clamping block.

2. In a structure of the class described, the combination of a recessed post member having inwardly projecting flanges at the front of the recess and provided with a base adapted for attachment to a lathe carriage, a cylindrically curved rest on said post base, a tool holder provided with a curved transverse seat at its head adapted to coact with the rest of said post member, the curve of said tool holder rest seat exceeding that of a half circle whereby it may be engaged

with the rest when presented longitudinally thereto, said tool holder being beveled on its outer side at its upper edge, a clamping member arranged in said post recess and provided with a downwardly facing beveled jaw coacting with said beveled edge of said tool holder and with a transverse pin engaging behind the said flanges of said post, the inner end of said clamping member being adapted to rest against the upper end of the recess, a non-rotatable internally threaded clamping block mounted on said post for longitudinal adjustment to act on said clamping member, and a clamping screw rotatably mounted on said post to coact with said clamping block.

3. In a structure of the class described, the combination of a recessed post member having inwardly projecting flanges at the front of the recess and provided with a base adapted for attachment to a lathe carriage, a pair of cylindrically curved rests on said post base, a rest block having a curved seat in rocking engagement with one of said rests, the curve of the seat exceeding that of a half circle whereby the seat may be engaged with the rest when presented longitudinally thereto, a retaining button for said rest block, a tool holder provided with a curved transverse seat at its head adapted to coact with the other rest of said post member and with a rest at its tail adapted to coact with said rest block, said tail rest being threaded for adjustment, the curve of said tool holder rest seat exceeding that of a half circle whereby it may be engaged with the rest when presented longitudinally thereto, said tool holder being beveled on its outer side at its upper edge, a clamping member arranged in said post recess and provided with a downwardly facing beveled jaw coacting with said beveled edge of said tool holder and with a transverse pin engaging behind the said flanges of said post, the inner end of said clamping member being adapted to rest against the upper end of the recess, and a clamping screw for said clamping member.

4. In a structure of the class described, the combination of a recessed post member having inwardly projecting flanges at the front of the recess and provided with a base adapted for attachment to a lathe carriage, a cylindrically curved rest on said post base, a tool holder provided with a curved transverse seat at its head adapted to coact with the rest of said post member, the curve of said tool holder rest seat exceeding that of a half circle whereby it may be engaged with the rest when presented longitudinally thereto, said tool holder being beveled on its outer side at its upper edge, a clamping member arranged in said post recess and provided with a downwardly facing beveled jaw coacting with said beleved edge of said tool holder and with a transverse pin engaging behind the said flanges of said post, the inner end of said clamping member being adapted to rest against the upper end of the recess, and a clamping screw for said clamping member.

5. In a structure of the class described, the combination of a recessed post member having inwardly projecting flanges at the front of the recess, a pair of cylindrically curved rests on said post member, a rest block having a curved seat in rocking engagement with one of said rests, a tool holder beveled on the outer side at its upper edge and provided with a curved transverse seat at its head adapted to coact with the other rest of said post member, and with a rest at its tail adapted to coact with said rest block, said tail rest being threaded for adjustment, a clamping member arranged in said post recess and provided with a downwardly facing beveled jaw coacting with said beveled edge of said tool holder and with a transverse pin engaging behind the said flanges of said post, the inner end of said clamping member being adapted to rest against the upper end of the recess, and a clamping screw for said clamping member.

6. In a structure of the class described, the combination of a recessed post member having inwardly projecting flanges at the front of the recess, a rest on said post member, a tool holder beveled on the outer side at its upper edge and provided with a seat at its head adapted to coact with the rest of said post member, a clamping member arranged in said post recess and provided with a downwardly facing beveled jaw coacting with said beveled edge of said tool holder and with a transverse pin engaging behind the said flanges of said post, the inner end of said clamping member being adapted to rest against the upper end of the recess, and a clamping screw for said clamping member.

7. In a structure of the class described, the combination of a post member, a pair of cylindrically curved rests on said post member, a rest block having a curved seat in rocking engagement with one of said rests, a tool holder beveled at its upper edge and provided with a curved transverse seat at its head adapted to coact with the other rest of said post member and with an adjustable rest at its tail adapted to coact with said rest block, a clamping member movably mounted on said post and provided with a downwardly facing beveled jaw coacting with said beveled edge of said tool holder, a non-rotatable internally threaded clamping block mounted on said post for longitudinal adjustment to act on said clamping member, and a clamping screw rotatably mounted on said post to coact with said clamping block.

8. In a structure of the class described, the combination of a post member, a cylin-

drically curved rest on said post member, a tool holder beveled at its uppper edge and provided with a curved transverse seat at its head adapted to coact with the rest of said post member, a clamping member movably mounted on said post and provided with a downwardly facing beveled jaw coacting with said beveled edge of said tool holder, a non-rotatable internally threaded clamping block mounted on said post for longitudinal adjustment to act on said clamping member, and a clamping screw rotatably mounted on said post to coact with said clamping block.

9. In a structure of the class described, the combination of a post member, a pair of cylindrically curved rests on said post member, a rest block having a curved seat in rocking engagement with one of said rests, a tool holder beveled at its upper edge and provided with a curved transverse seat at its head adapted to coact with said rest block, a clamping member movably mounted on said post and provided with a downwardly facing beveled jaw coacting with said beveled edge of said tool holder, and a clamping screw for said clamping member.

10. In a structure of the class described, the combination of a post member, a cylindrically curved rest on said post member, a tool holder beveled at its upper edge and provided with a curved transverse seat at its head adapted to coact with the rest of said post member, a clamping member movably mounted on said post and provided with a downwardly facing beveled jaw coacting with said beveled edge of said tool holder, and a clamping screw for said clamping member.

11. In a structure of the class described, the combination of a post member provided with a cylindrically curved tool holder rest, a tool holder provided with a curved seat at its head adapted to coact with said rest and with an adjustable rest at its tail, a tool holder clamping member movably mounted on said post, a non-rotatable internally threaded clamping block mounted on said post for longitudinal adjustment to act on said clamping member, and a clamping screw rotatably mounted on said post to coact with said clamping block.

12. In a structure of the class described, the combination of a post member provided with a tool holder rest, a tool holder provided with a seat adapted to coact with said rest, a clamping member movably mounted on said post, a non-rotatable internally threaded clamping block mounted on said post for longitudinal adjustment to act on said clamping member, and a clamping screw rotatably mounted on said post to coact with said clamping block.

13. In a structure of the class described, the combination of a post member provided with a pair of cylindrically curved rests, a rest block having a curved seat in rocking engagement with one of said rests, a tool holder provided with a curved transverse seat at its head adapted to coact with the other rest of said post member and with an adjustable rest at its tail adapted to coact with said rest block, and means for clamping said tool holder on said rests.

14. In a structure of the class described, the combination of a post member provided with a cylindrically curved tool holder rest, a detachable tool holder provided with a curved seat at its head adapted to coact with said rest and with an adjustable rest at its tail, and means for releasably holding said tool holder on said rests engaging said tool holder between its said rests.

15. In a structure of the class described, the combination of a post member provided with a tool holder centering rest, a detachable tool holder provided with a seat at its head adapted to coact with said rest on said post member and with an adjustable rest at its tail, and means for releasably holding said tool holder engaging it between its said rests.

In witness whereof, I have hereunto set my hand and seal in the presence of two witnesses.

HERBERT O. SPADE. [L. S.]

Witnesses:
LUELLA G. GREENFIELD,
N. M. HOPKINS.

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