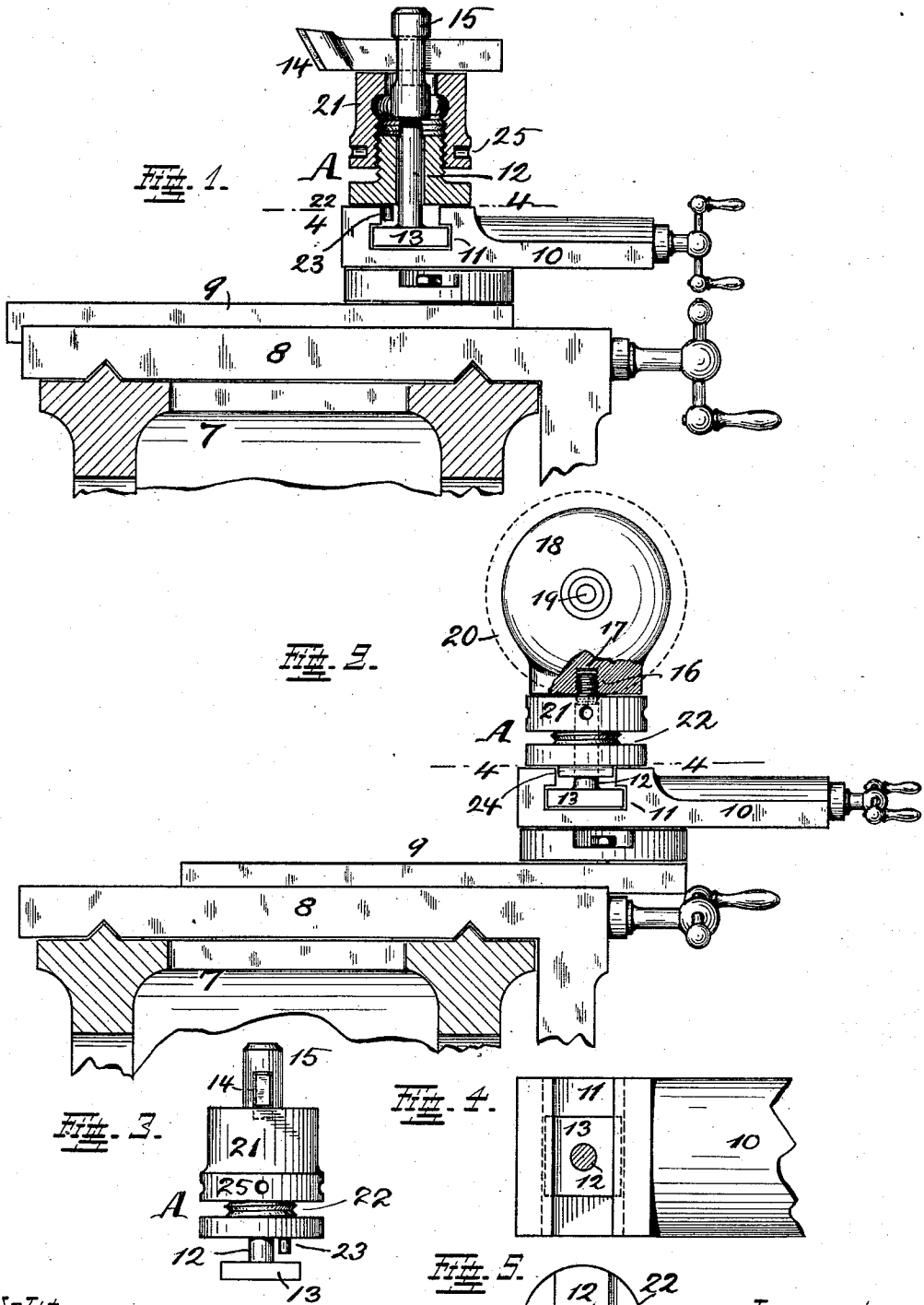


E. F. SMITH.
 TOOL HOLDING MEANS.
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1,018,525.

Patented Feb. 27, 1912.



Witnesses.
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UNITED STATES PATENT OFFICE.

EDWARD F. SMITH, OF CINCINNATI, OHIO, ASSIGNOR TO THE SMITH ELECTRIC TOOL CO., OF CINCINNATI, OHIO, A CORPORATION OF OHIO.

TOOL-HOLDING MEANS.

1,018,525.

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To all whom it may concern:

Be it known that I, EDWARD F. SMITH, a citizen of the United States, and a resident of Cincinnati, Hamilton county, State of Ohio, have invented certain new and useful Tool-Holding Means; and I do declare the following to be a clear, full, and exact description of the invention, attention being called to the drawing which accompanies this application and forms a part thereof.

This invention relates to a certain device for attaching a usual lathe-tool to the tool-rest of a lathe, whereby it is held in adjustable position. Other tools, like electrically operated grinders, are sometimes used in connection with lathes and in place of the usual cutting-tool.

My invention is likewise adapted for such use.

In the following specification and particularly pointed out in the claims at the end thereof will be found a full description of my invention, together with its manner of use, parts and construction, which latter is also illustrated in the accompanying drawing, in which:—

Figure 1, shows my invention used to hold the cutting tool of a lathe in position, as much of this latter as is necessary for the purpose being shown in cross-section. Fig. 2, in a view similar to Fig. 1, shows my invention as used for the purpose of holding an electrical grinder in position. Fig. 3, shows in elevation and in a view at right angles to the plane of view of Fig. 1, the upper part of said figure. Fig. 4, is a horizontal section on line 4—4 of Figs. 1 or 2, it showing the parts below said section line. Fig. 5, shows an underside view of the parts above said section line in Fig. 2.

In the drawing, 7 shows the lathe-bed, and 8 is the carriage fitted to slide lengthwise thereon.

9 is the cross-slide fitted to the carriage to be transversely adjustable thereon.

10 is the usual tool rest adjustably connected to the cross-slide. This tool-rest contains the customary T-slot 11, which receives the tool-post, generally used in connection with lathes. The device of my invention takes the place of this tool-post and is shown instead. It may be placed in position on the tool-rest in the same manner as the tool post and requires no alteration whatsoever of the former. This device consists of the

anchor 12, it being substantially a rod provided at its lower end with a rectangular flange 13, fitted to occupy the lower and wider part of the T-slot. Two of the parallel opposite sides of this flange are fitted against the opposite sides of this slot to prevent rotation of the anchor. Its upper end is screw-threaded as shown at 16 in Fig. 2. In case an electrically operated tool like a grinder for instance is used, as shown in same figure, this upper end is received by a correspondingly threaded socket 17 in the housing 18 of the motor of this tool. 19 indicates the armature-shaft of such a grinder and upon which the grinding-wheel is mounted, the same being indicated by dotted line 20. If a lathe tool is to be used as shown at 14 in Figs. 1 and 3, a head 15 is mounted upon this threaded end 16, said head being slotted to receive such a tool.

The particular tool, held at the upper end of the anchor is set up in rigid working position by means adapted to bear against its underside, so as to raise it and the anchor with it, thereby drawing this latter tight in T-slot 11. For such purpose I use the complementary members of an expansion screw A, 21 being the nut thereof and 22 being the correspondingly threaded shank upon which it is seated. This latter rests upon the member which contains the T-slot and has an axial opening to admit anchor 12 which extends above it. It is also prevented from moving with this nut, when this latter is rotated, by suitable means which may project on its underside and extend into the T-slot. This may be a pin 23 as shown in Figs. 1 and 3, or a shoulder 24 as shown in Figs. 2 and 5, both extending into the T-slot.

Nut 21 is arranged to permit application of a suitable tool to rotate it. It may have openings 25 to permit use of a spanner-wrench. It will now be seen that when nut 21 is raised on shank 22, it will bear against the underside of the tool above it and thereby raise the same. The anchor being engaged by the tool will follow and will also be raised in the T-slot, so that the tool is firmly held to the slotted member 10. The tool is released by lowering the nut. This mode of attachment is of particular value when used in connection with a grinding-tool as shown in Fig. 2, because the tool is supported centrally above the parts holding

it, instead of over-hanging the lathe-bed as is usually the case when the regular tool-post is used. This overhang, by reducing the available space between the periphery of the grinding-wheel and the lathe center, limits the size of the work which may be swung. In my case the grinding-wheel does not hang over and slide 9 has a correspondingly larger range of adjustment and larger work may be taken in. The upper side of nut 21 provides a broad, substantial supporting base which counteracts vibrations of the tool.

Having described my invention, I claim as new:

1. The combination with the usual tool-rest of a lathe having a transversely arranged T-slot, of a screw-shank seated upon this tool-rest, an anchor having at its lower end a rectangular flange fitted to occupy the T-slot mentioned and extending through the screw-shank and above the same, where, at its upper end it is screw-threaded and adapted to permit attachment of a tool-

holding device and a nut seated upon the screw-shank upon which it may be adjusted to bear against the underside of said tool-holding device.

2. In means for holding the housing of an electric motor which supports and operates a tool in working position on a lathe and the housing of which motor is provided with a screw-threaded socket, the combination with the tool-rest of the lathe, of an anchor adapted to engage at one of its ends this tool-rest and being screw-threaded at its other end to engage the socket of the motor-housing and an expansible screw-device interposed between both base and motor-housing and adapted to bear against this latter.

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

EDWARD F. SMITH.

Witnesses:

C. SPENGLER,
T. LE BEAU.

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