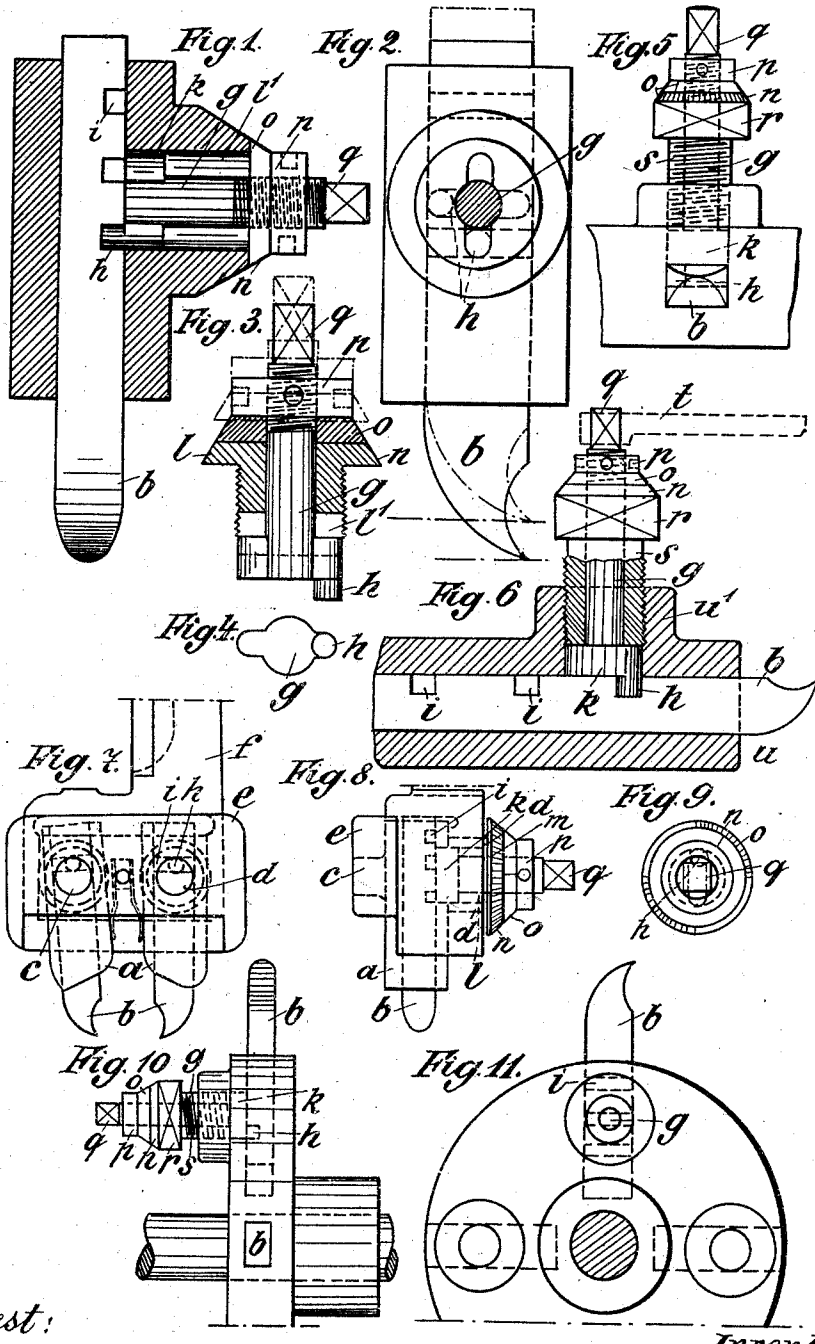
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TOOL HOLDER.

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928,057. Patented July 13, 1909.



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CARL KARPA, OF BERLIN, GERMANY, ASSIGNOR TO ERNST MATTHES & COMPANY, OF BERLIN, GERMANY.

TOOL-HOLDER.

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To all whom it may concern:

Be it known that I, CARL KARPA, master workman, a citizen of the German Empire, residing at Waldstrasse No. 34, Berlin, Germany, have invented certain new and useful Improvements in Tool-Holders, of which the following is a specification.

The present invention has for its object a tool holder for machine tools in which the tool is adjustable. The desired adjustment is attained by means of a key adapted to be made fast and provided with a crank pin and rotatably mounted on a support serving as a bearing for the tool, the tool held in this carrier being provided with at least one groove in which the crank pin on the key engages, so that when the latter is rotated the tool is displaced relatively to the said carrier. The magnitude of this displacement is indicated on a scale by an index on the key.

The invention is illustrated in various forms in the accompanying drawing, in which;

Figure 1 is a section through a tool holder constructed in accordance with the invention. Fig. 2 is a side elevation of the same showing the key in cross section. Fig. 3 shows a modified form. Fig. 4 is bottom plan view of the key in Fig. 3. Figs. 5 and 6 show other modifications of the improved tool holder. Figs. 7 and 8 are two views of a fourth modification in which a second tool is provided and both tools are pivotally suspended. Fig. 9 illustrates a detail of this last form showing the measuring device. Figs. 10 and 11 show another construction.

The construction illustrated in Figs. 1 and 2 is as follows:—In the casing u forming the carrier already referred to the tool b provided with a number of grooves i is adjustably arranged. A lateral eye u' on this casing u serves as a bearing for the rotatable key g which is formed with a square q. Upon a projection k on this key g (which projection may hereinafter be referred to as pressure head) there is provided a crank pin h which engages in one of the grooves i in the tool b. By rotating the key g the tool b may be displaced in the tool holder casing u. A plate o is attached to the key g by means of a wedge g' in such a manner that it is unable to rotate upon the key but is displaceable along it for a short distance. The eye u' of the casing u is circularly turned at its inner end to the largest diameter of the pressure head k and provided with grooves l' proceeding from this bore; the pressure head k of the key g can be introduced into these grooves when it has been brought flush with the grooves l' so that the key g can then be withdrawn from the casing u. Upon the screw thread of the key g a nut p, rotatable by means of a box spanner, is screwed and serves for holding the tool when it has been adjusted to its proper operative position, as by tightening the nut p the pressure head k can be pressed against the right hand wall (Fig. 1) of the bore of the eye u'. The plate o on the key g is provided with an index and a scale n is provided on the eye u' and by means of the index indicates the magnitude of the rotation of the key g and therefore the magnitude of the displacement of the tool.

In the construction illustrated in Figs. 3 and 4, the key g, provided with square q, pressure head k and crank pin h, is mounted in a sleeve l which is screwed into an eye constituting the tool supporting casing previously termed the carrier. In this sleeve l grooves l' are provided for the reception of the pressure head k of the key g when it has been brought flush with the grooves l' so that the key can then be partially withdrawn from the sleeve (position indicated in broken lines) that is to say so far that the pin h no longer engages in the corresponding groove i in the tool. The tool can then be removed without any difficulty from the tool carrier The plate o provided with the index is mounted on the key g in such a manner that it is not rotatable but is capable of slight longitudinal displacement, and the sleeve l is provided with a flange m upon which a scale n is marked. The fixing nut p is screwed onto the key g.

In the constructions illustrated in Figs. 5 and 6, the key g, which is here also provided with a square q, pressure head k and crank pin h, is rotatably mounted in a screw plug s formed with a square r. The screw plug s is screwed into the eye u' of the tool carrier u. The plate o is displaceable but not rotatable on the key g and the scale n is marked upon the square r. The fixing nut p is again screwed onto the key g. A lever arm t may be placed upon the square q on the key g as shown in Fig. 6.

The construction illustrated in Figs. 7 and

8 is as follows:—In the casing *f* which is adapted to be closed by the cover *e;* two sleeves *a*, in which two tools *b* are arranged, are each pivotally suspended upon two axially alined studs *c*, *d*. The cutting edges of these tools are directed toward each other so that one of them is operative during the forward movement of the carriage of the planing machine in which the tool is adapted to be used, and the other during its backward movement. The studs *c*, *d*, on the sleeves *a* are hollow and into each of them a sleeve *l*, similar to that shown in Fig. 3, is screwed. Each of these sleeves *l* serves for the reception of a key *g*, the crank pin *h* of which engages in one of the grooves *i* in the corresponding tool. Fig. 9 is an elevation of a plate *o* provided with an index; a similar plate is mounted on each key *g* and is rotatable with the key relatively to a scale on a flange *m* of the sleeve *l*. When one or other of these keys is rotated, the index on its plate *o* indicates the magnitude of this displacement upon the corresponding scale *n*. In this construction the key will serve for setting the two tools in correct relative position to each other so that one will be operative during the forward movement of the carriage of the planing machine and the other during its backward movement. The correct adjustment has been attained when the tool intended to be operative during the backward movement of the machine has been set lower by the depth of a cut than the tool operative during the forward travel of the carriage of the planing machine.

In the construction illustrated in Figs. 10 and 11 the carrier consists of a turret head provided with a tool *b* and arranged in such a manner that three additional tools can be arranged in it. Otherwise this construction is similar to that illustrated in Fig. 5.

I claim as my invention:—

1. In combination with a grooved tool, a tool holder, a key revolubly mounted in the tool holder and having means to engage the tool, said key having also an enlarged head on its inner end, and the tool holder having a bearing surface in front of said head against which the same may be drawn and held, the said key being screw threaded on its outer portion, and a nut on said screw threaded portion by which the inner head may be drawn against the bearing surface to be held in fixed position, substantially as described.

2. In combination a casing, a tool holder pivotally mounted therein, a key passing through the pivot of the tool holder and having means for adjusting the tool, said key having an enlarged head, and means turning with the key and tool for locking the key against independent movement in respect to the pivoted tool holder, substantially as described.

3. In combination with a grooved tool, a tool holder, a key rotatably mounted in the tool holder and having an eccentrically arranged pin to engage a groove in the tool, said key having a flattened head and said tool holder having within it grooves to permit the outward movement of the key with its head and the consequent disengagement of the eccentric pin from the groove in the tool, substantially as described.

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

CARL KARPA.

Witnesses:

HENRY HASPER,

WOLDEMAR HAUPT.