

No. 707,472.

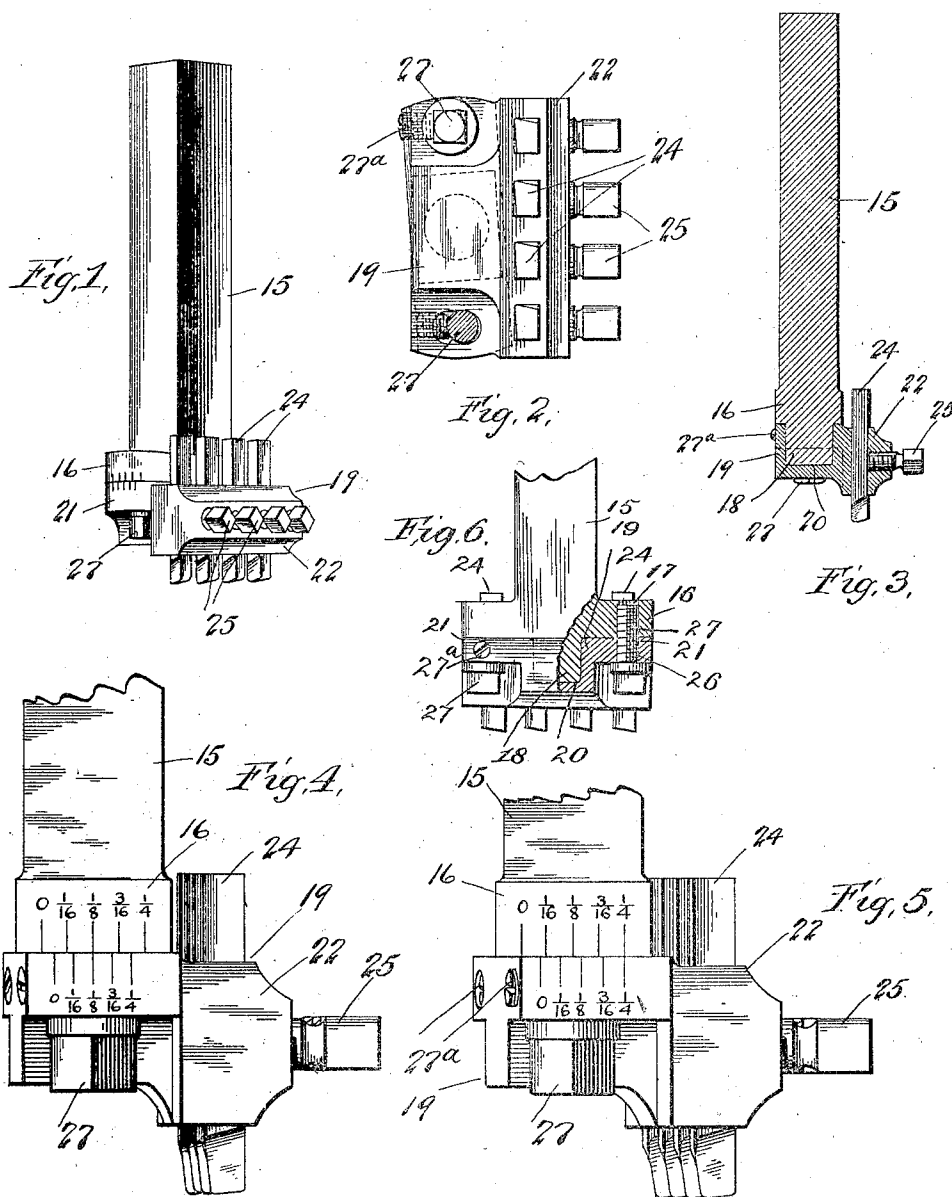
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S. WELTER & J. ARMSTRONG.

TOOL HOLDER.

(Application filed Mar. 27, 1901.)

(No Model.)



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UNITED STATES PATENT OFFICE.

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TOOL-HOLDER.

SPECIFICATION forming part of Letters Patent No. 707,472, dated August 19, 1902.

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To all whom it may concern:

Be it known that we, SAMUEL WELTER and JOHN ARMSTRONG, citizens of the United States, and residents of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Tool-Holders, of which the following is a specification, and which are illustrated in the accompanying drawings, forming a part thereof.

Our invention relates to certain improvements in tool-holders for metal planing and shaping machines, and more particularly to a holder of that type which is adapted to carry a gang or plurality of cutting-tools designed to act in unison to surface a considerable area of metal at each cutting operation.

In a tool-holder of the character referred to employing a fixed series of tools intended to cut over a certain area without variation and not provided with means for adjusting the gang of tools so that the cutting area may be changed at will difficulty has been encountered, owing to the different conditions under which the tool must be made to operate and which conditions are due to the character—viz., the hardness or softness—of the metals to be surfaced. For example, a tool having its cutters fixed to surface a relatively large area at each stroke may work easily and without difficulty in a soft metal, such as brass, whereas the same tool, the cutting area being unchanged, in operating in a tough metal, such as steel, would be inoperative, owing to the great resistance offered to the cutting edges. This is true also of metals of the same class—as, for instance, cast-iron—some pieces of which are quite soft, while others are extremely hard, and a tool set to surface a certain area of the former would be useless in working in the latter. Our invention is designed to remedy these imperfections and to provide a tool capable of being adapted to the various conditions that may arise; and it consists generally in mounting the series or gang of cutting-tools in a swiveled or adjustable head carried by the tool-holder shank or support, so that the surfacing area of the cutters may be varied at will, the device being simple in construction and capable of performing the required work in an efficient and satisfactory manner and being provided with

positive means for securing the head in its adjusted positions.

The invention consists in certain novel constructions and combination of parts, as will be hereinafter described and claimed.

Reference is had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a perspective view of the invention. Fig. 2 is a bottom plan view, the tool-holder head being shown in dotted lines in an adjusted position. Fig. 3 is a vertical section. Figs. 4 and 5 are enlarged views looking in the direction of the travel of the work, showing the adjustment of the tool, the width of the feed being exaggerated for the purpose of illustration. Fig. 6 is a rear elevation of the device, partly in section, showing the adjusting means.

The shank or support 15 of the tool-holder, intended to be secured in the tool-clamp of a planing or shaping machine in the usual manner, is provided at its end with a cross-piece 16, the ends of which are preferably rounded, as illustrated, and provided with the threaded apertures 17.

Projecting centrally from the cross-piece 16 is a circular tongue or pin 18, providing a swivel for the tool-holding head 19, the latter having a socket or recess 20, in which is designed to fit closely, in order to avoid any play, the tongue 18. When the tool-holding head 19 is mounted on the cross-piece 16 before adjustment, or as illustrated in Fig. 1, the flanges 21 of the former bear against the ends of the cross-piece 16 and the rounded end of each coincides or registers with the one adjacent thereto. The head 19 is provided with a tool-carrying member 22, parallel thereto, which is provided with a plurality of apertures 23 to receive the cutting-tools 24, each of which is held in position by a set-screw 25. The flanges 21 of the head 19 are provided with curved slots 26, the axis of the circular tongue 18 being taken as a center, which slots register with the threaded apertures 17 of the cross-piece 16, threaded bolts 27 being passed through the slots to engage the apertures 17 for securing the two members together. This construction provides for a lateral or axial adjustment of the head

19 on the cross-piece 16. The cutting-tools 24 are arranged in a line parallel to the head 19 and under certain conditions to the cross-piece 16, and when in that position the tool may, if desired, be used for channeling; but by means of the swivel connection and the slots 26, the bolts 27 having been loosened, the head may be turned on the tongue 18, so that the line of the cutting edge of all the tools 24 will be at an angle to the direction of travel. When thus adjusted, the tools are so disposed that each cutting edge overlaps the cutting edge of the preceding tool and all act in unison, cutting to the full depth and each making a successive cut and completing a determined surface by itself without leaving an intervening fin.

In order to avoid accidental play of the swiveled head in case the bolts 27 should not be tightened sufficiently or should become loose, screws 27^a, passing through the edges of the flanges and entering the slots 26, are provided and are designed to serve as positive stops for the fastening-bolts 27. In adjusting the head 19 after the bolts 27 have been tightened up the screws 27^a are moved up against the bolts, and any tendency of the latter to move backwardly in the slots or the head to oscillate on its pivot is resisted by the screws.

The adjustment of the tool will be readily understood on reference to Figs. 4 and 5, which for the purpose of clearly illustrating the nature of the adjustment are shown with

the angle or obliquity of the line of the cutting edges of the tools greatly exaggerated—that is to say, the width of cut as shown is much greater than that called for by the graduated scale provided for enabling the operator to quickly and accurately set the tools to any desired feed and which indicates in Fig. 4 one-eighth of an inch feed and in Fig. 5 one-fourth. This scale, placed on one of the rounded ends of the cross-piece 16 and the adjacent end of the flange 21, consists of a series of marks designed to indicate when the head is adjusted so that the lines designated by the same fraction of a number register a certain adjustment of the feed or area that may be covered at one cutting operation.

We claim as our invention—

In a tool-holder for planing-machines, in combination, a shank, a head carried by the shank and having a curved slot, a bolt passing through the slot for securing the head to the shank, an adjustable stop entering the slot and adapted to engage the bolt, and a plurality of cutting-tools secured in and arranged in a line parallel to the head, the head being adapted to be adjusted so that the cutting edges of the tools will be in a line at an angle to the direction of travel.

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