W. O. VIVARTTAS.

WORK GRIPPING TOOL.

APPLICATION FILED JULY 7, 1916.

1,276,596. Patented Aug. 20, 1918.

Fig. 1,

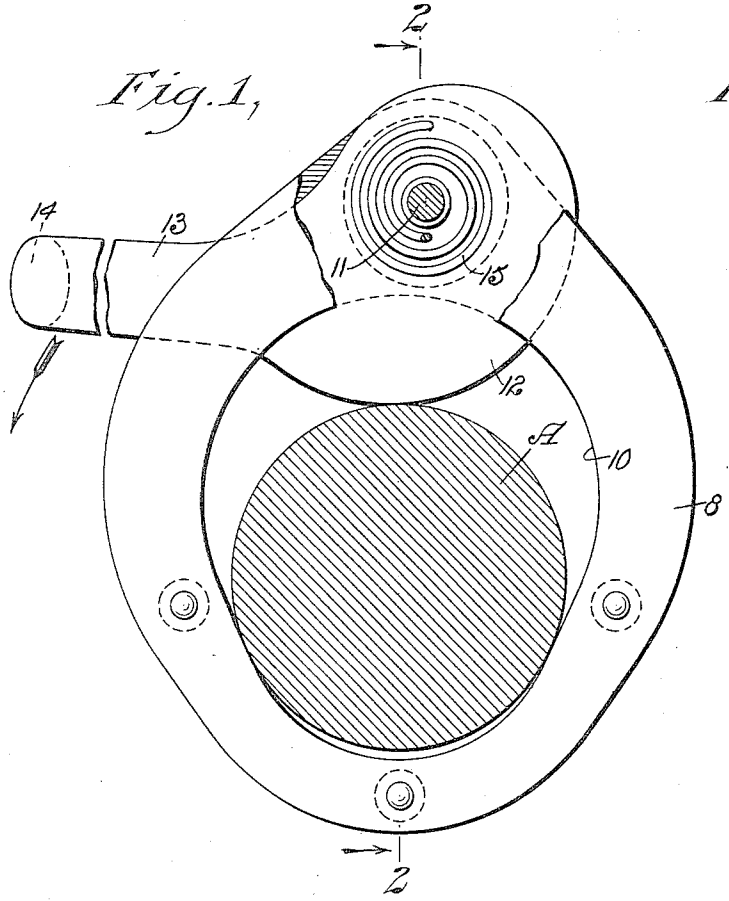


Fig. 2,

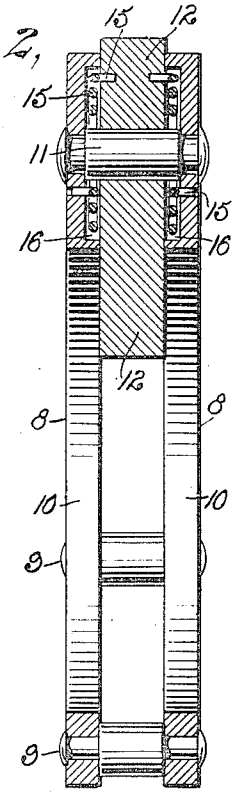
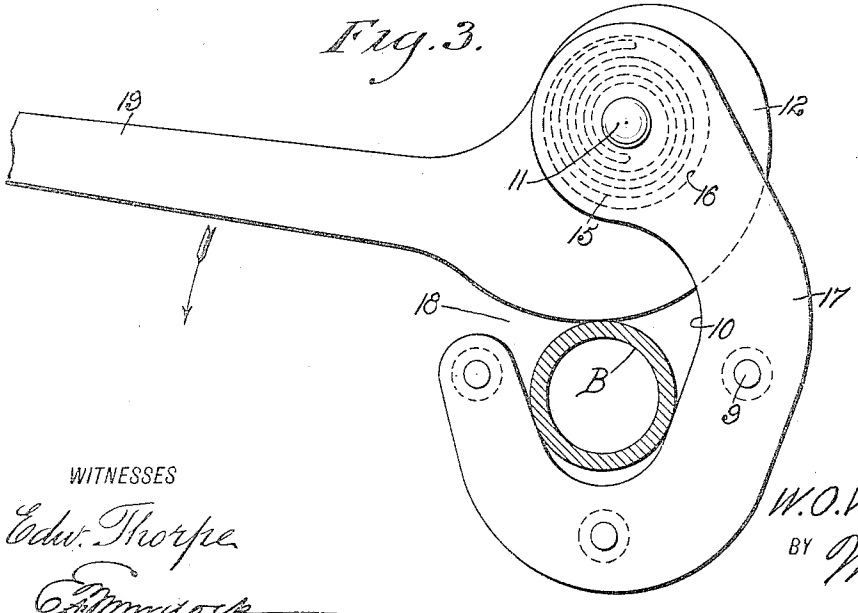


Fig. 3.



WITNESSES

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WORK-GRIPPING TOOL.

1,276,596. Specification of Letters Patent. Patented Aug. 20, 1918.

Application filed July 7, 1916. Serial No. 107,929.

To all whom it may concern:

Be it known that I, WILLIAM O. VIVARTTAS, a citizen of the United States, and a resident of Weehawken, in the county of Hudson and State of New Jersey, have invented a new and Improved Work-Gripping Tool, of which the following is a full, clear, and exact description.

Among the principal objects which the present invention has in view are: to reduce the time factor of adjustment of the holder on work to be rotated; to provide a tool of the character mentioned which increases the grip of the tool on the work in correspondence with the increase of the turning strain; and to provide a holding tool of the character mentioned which will not mar the work.

Drawings.

Figure 1 is a side view of a tool constructed and arranged in accordance with the present invention, a portion of the receptacle being cut away to show the interior construction;

Fig. 2 is a section of the tool, the section being taken as on the line 2—2 in Fig. 1;

Fig. 3 is a side view of a modified form of the invention.

Description.

The present tool is adaptable for a variety of employments, the preferred form being that shown in Figs. 1 and 2 of the drawings, where the tool is adapted for use as a metal lathe dog. Lathe dogs of usual construction are provided with a receptacle portion having two converging sides and a set screw actually disposed to move in a path between said sides, the object being to provide a three-point contact on the work held by the receptacle.

Objections have arisen to this form of dog particularly where the work has been performed on relatively soft metal such as brass or copper. The point or end of the screw if not protected mars the work. To avoid this the practice has been to place soft metal pads or strips between the work and end of the screw to prevent the abrasion by said end when the screw is turned to grip the work.

A further objection arising out of the need above mentioned, is the loss of time required for placing the protective pad. As an incident of this objection, the pad oftentimes becomes dislodged or lost, which absorbs the time of the mechanic to hunt for the dislodged part, or to find or make a substitute therefor.

A more serious objection has been that where the work is of a delicate nature, the mechanic to avoid marring the work often fails to set the screw sufficiently tight to hold the work, which results in the slipping of the dog around the work, marking the surface thereof, so as to require further handling, if not at times utterly destroying the product.

As seen in the drawings, the clamp ring 8 is preferably constructed from two correspondingly shaped face plates. The plates are permanently connected by bolts 9, and are each provided with a central opening 10, which openings are ovoid-shaped.

Adjacent to the larger ends of the openings 10 and extending between the plates of the ring 8, is a pivot-bolt 11. The bolt 11 forms a pivot for a spirally-curved cam head 12. The edge of the head 12 forms a gripping member for the work A, and operates to move the same toward the smaller ends of the openings 10 and to jam the said work against the sides of the contracted walls of said openings.

Extending laterally from the head 12 and integrally formed therewith, is a tail piece 13. Extended perpendicularly from the tail piece 13 is a finger 14. The finger 14 is shaped to all intents and purposes, like the ordinary finger on the usual lathe dog, and functions in the same manner, that is, it protrudes into one of the radial slots with which the chuck of the lathe is provided. The head 12 is rotated on the bolt 11 to move the larger part of the head toward the center of the openings 10.

As the work A is usually rotated contra-clockwise against the cutting tool, the said cam is similarly moved by the springs 15. The springs 15, as shown best in Fig. 2 of the drawings, are each mounted in counterbores 16 formed in the plates of the ring 8 and concentric with the bolt 11. The ends of each of the springs are anchored in the plates forming the ring 8 and in the cam head 12, respectively.

In Fig. 3 of the drawings, a modified form of the invention is shown. The modification consists in providing as a substitute for the

ring 8, a hook 17. Like the ring 8, the hook 17 is constructed of two face plates, which are structurally engaged by the bolts 9. The plates forming the hook 17 are arranged to provide an entrance opening 18, through which work, such as the pipe B, may be introduced.

A further modification is to be found in the substitution for the tail piece 13, of a handle bar 19. The cam head 12 is preferably the duplicate of the cam head shown in Figs. 1 and 2, and used in the tool when employed as a lathe dog. The operation of the cam head in the modified form is the same as above described.

To insure the application of a gripping pressure on the work A and B, the bolts 11 in both forms of the invention are offset from the plane coincident with the long axes of the ring 8 and hook 17. The offset thus provided insures the engagement by the head 12, of the work at a point in the cam head similarly coincident with the long axes of the ring 8 and hook 17. The result of this arrangement is that the point of pressure of the cam head 12 on the work is equidistant from the points of contact of the sides of the ring 8 and hook 17 on the work. The even pressure thus provided insures an evenness of grip of the tool on the work which prevents the objectionable slip of the tool on the work above referred to.

When using a tool such as described, it is obvious that the time necessary to the setting of the screw in the older form of the lathe dog is eliminated. To set the tool on the work A, it is only necessary to throw back the tail 13 and rotate the head 12 until the openings 10 in the ring 8 are unobstructed. The work A is then placed within the ring and the tail 13 is released, when the springs will rock the cam head to contact with the work A. The finger 14 is then placed in the slots of the chuck as in dogs of conventional make.

When employing the tool as a pipe wrench, as shown in Fig. 3 of the drawings, the hook 17 is rotated on the bolt 11 contraclockwise until the smaller part of the cam head 12 is presented in the opening of the hook 17, so that the work B may be introduced through the opening 18. When the hook is released, the springs 15 swing the same until the cam head engages the work.

Application of power to the piece 13 and the handle bar 19, is in the direction shown by the arrows in both Figs. 1 and 3 of the drawings. It is obvious that power applied to these members in the direction indicated, operates to bind the cam head in both instances upon the work held within the ring and the hook.

It will be noted that the converging sides of the ovoid opening 10 adapt the tool for holding work of different diameters. The cam head 12 by reason of the fact that its pivot shaft 11 is offset with reference to the long axis of the opening 10, coöperates therewith so that the pressure applied to the work in the ring 8 or hook 17 is always at a point therein equidistant from the points of contact of the work with the said converging sides.

While herein there has been described a lathe dog having a finger 14 at the end of the tail-piece 13, it will be understood that this form may be greatly varied, in particular that the finger 14 may be eliminated.

Claims.

1. A tool as characterized comprising a cam-shaped head having a laterally-extended operating member and an eccentrically-disposed pivot; a work-supporting member having converging edges, said member embodying a plurality of plates rigidly connected in spaced relation and forming a guide for the movement of said head and operating member therefor, said plates forming a support for said pivot and having recesses concentric to said pivot; and a plurality of springs mounted in said recesses, said springs operatively connecting said head and said plates.

2. A tool as characterized comprising a cam-shaped head having a laterally-extended operating member and an eccentrically-disposed pivot; a work-supporting member having converging edges, said member embodying a plurality of plates said plates having supports for said pivot and provided with recesses concentric to said pivot; a plurality of bolts rigidly connecting said plates in spaced relation, said bolts having reduced rivet-headed ends and relatively enlarged bodies forming abutment supports for said plates for maintaining the same in parallel relation; and a plurality of springs mounted in said recesses, said springs operatively connecting said head and said plates.

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