

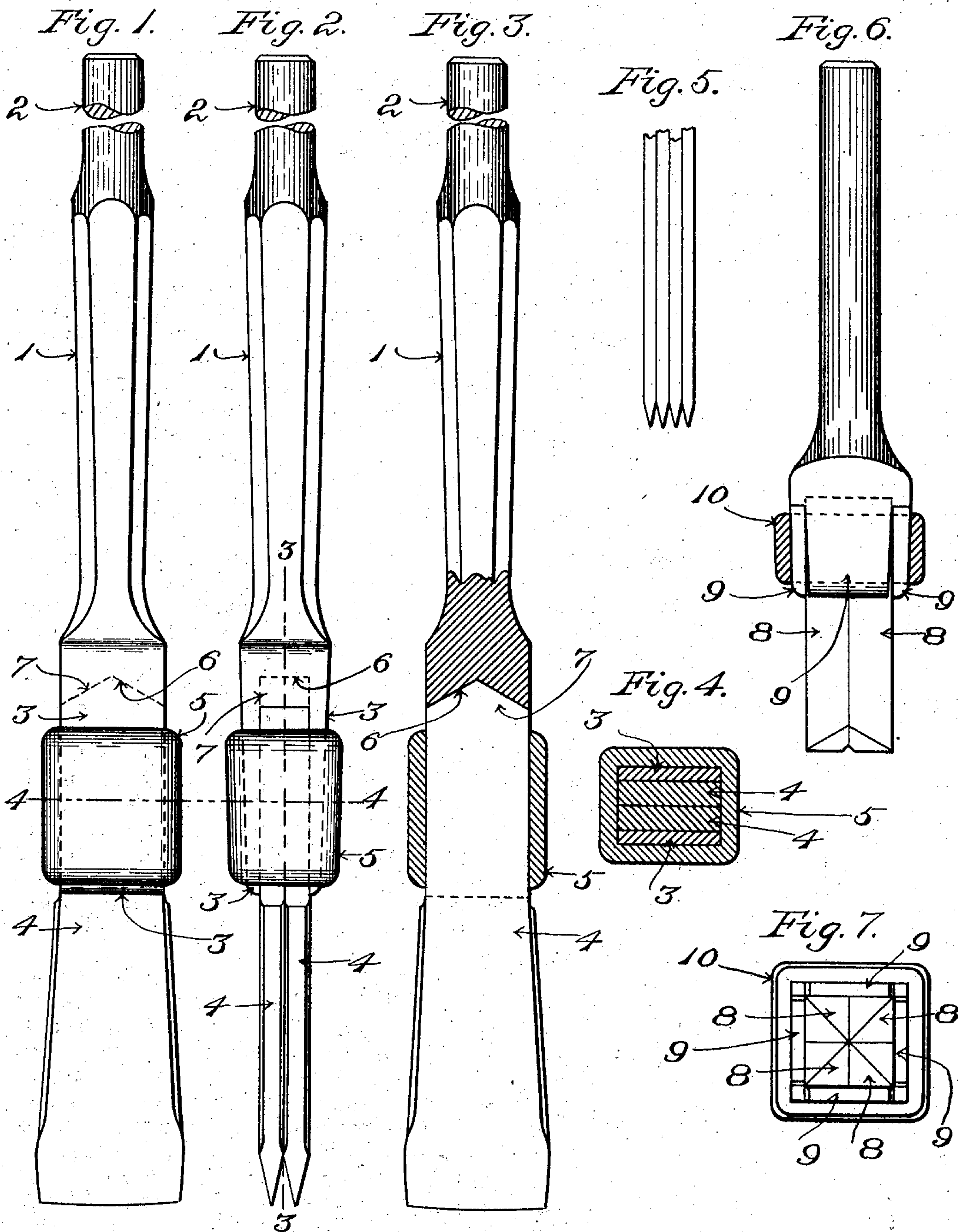
No. 768,113.

PATENTED AUG. 23, 1904.

E. S. COSTA.
SELF TIGHTENING TOOL HOLDER.

APPLICATION FILED FEB. 12, 1904.

NO MODEL.



Witnesses:

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UNITED STATES PATENT OFFICE.

ENOS S. COSTA, OF QUINCY, MASSACHUSETTS.

SELF-TIGHTENING TOOL-HOLDER.

SPECIFICATION forming part of Letters Patent No. 768,113, dated August 23, 1904.

Application filed February 12, 1904. Serial No. 193,315. (No model.)

To all whom it may concern:

Be it known that I, ENOS S. COSTA, of Quincy, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Self-Tightening Tool-Holders, of which the following is a specification.

The invention is specially intended for application to tools in which two or more are held in one handle and operated by pneumatic power for use in granite, marble, or iron work, such as bush-chisels and the like; and the drawings illustrate the invention as embodied in such a device, but the invention is not limited to such use.

The invention will now be fully described, reference being made to the accompanying drawings, and the novel features thereof will be particularly pointed out in the claims at the close of the specification.

Referring now to the drawings, Figure 1 is a front elevation of a device embodying the invention. Fig. 2 is a side elevation of Fig. 1. Fig. 3 is a section on line 3 3 of Fig. 2. Fig. 4 is a cross-section on line 4 4 of Fig. 1. Fig. 5 is a side elevation showing a group of four cuts which may be used instead of two, as shown in Fig. 2. Fig. 6 is a side view showing a modified form of holder to adapt it to surface cutters which are held four square. Fig. 7 is an end view of Fig. 6.

1 represents the handle, having a cylindrical shank 2, which is to fit in the socket of the pneumatic machine by which the tool is driven. The tool-holding end of the handle is bifurcated, having fork arms or jaws 3 3, between which are inserted the shanks of the cuts 4 or other tools which are to be held. As devices of this class have been ordinarily constructed heretofore the cuts have been secured in the handle by screw-bolts which pass through the fork-arms and through the shanks which are between them and are provided with set-nuts to hold the bolts. On account of the great force of the vibration in the use of tools of this character the nuts have to be set up very tight to properly hold the tools and keep them from becoming loosened, and it is necessary to use a vise in order to remove the

cuts for sharpening or for replacing, and oftentimes a vise is inconvenient of access.

In the device of the present invention no bolts are used. The inner faces of the jaws 3 3 are parallel with each other. The shank of each cut or chisel 4, which is included between the jaws 3 3, is formed with faces parallel with each other instead of tapering, so that when placed face to face they will fit between the parallel inner faces of the jaws 3 3. Preferably, also, the shanks are formed with parallel edges—that is, of uniform width instead of tapering.

The jaws 3 3 are formed of the same width as the shanks of the tools, as shown in Fig. 4; but they are made tapering in thickness toward the ends, the taper being formed on the outer face, as shown in Fig. 2, the inner faces being parallel with each other, as previously stated, and the edges of each jaw being also parallel with each other.

Fitting over the jaws 3 3 and surrounding them is a clamping-ring 5, whose opening is made tapering outward on two sides, as shown in Fig. 2, corresponding with the tapering outer faces of the jaws; but the other two sides of the opening are parallel with each other, corresponding with the parallel edges of the jaws and the cuts, as shown in Figs. 1 and 3.

In use the tool is held in a vertical position, pointing down. The effect of the vibratory movement in use of the tool when connected with a pneumatic machine, as previously mentioned, is to force the ring farther and farther back on the handle, and thus constantly tighten the hold on the tools; yet when the power is stopped the tools may be easily withdrawn.

In the modification shown in Figs. 6 and 7 the device is adapted for holding tools of somewhat different shape. These are what are termed "surface" tools by reason of the character of the work done by them in finishing the surface of the stone. The tools 8 are four in number, arranged in a square, and the holder is formed with four jaws 9, one on each side of the square, instead of two jaws. There is a space between the sides of the adjacent jaws to allow for tightening and clamp-

ing by the ring 10. In the form of holder shown in Fig. 6 a number of cuts like those shown in Fig. 2 may be used for surface cutting.

5 When the holder is formed with four jaws and the tools are arranged in a square, as in Figs. 6 and 7, all four of the jaws 9 taper on their outer faces, and therefore the clamping-ring 10 tapers on all four of its inner faces.

10 What I claim is—

1. A self-tightening tool-holder to be used with a pneumatic impact-tool, said holder having one end formed to fit a socket in the machine, and the other end being formed with
15 work-tool-receiving jaws, said jaws being formed with their interior faces parallel with each other and with their exterior faces tapering toward each other in the direction of their outer ends, and a clamping-ring which is made
20 with interior faces tapering in the direction of the outer end and fitting over said jaws, and held in engagement with the jaws by friction only.

2. A self-tightening tool-holder to be used
25 with a pneumatic impact-tool, said holder having one end formed with work-tool-receiving jaws, said jaws being formed with their interior faces parallel with each other and with their exterior faces tapering toward each

other in the direction of their outer ends, a 30 plurality of working tools having parallel-faced shanks which are inserted between the parallel interior faces of the said jaws, and a clamping-ring which is formed with interior
35 faces tapering in the direction of the outer ends and fitting over said jaws and held in engagement with the jaws by friction only.

3. A self-tightening tool-holder to be used with a pneumatic impact-tool, said holder having one end formed with work-tool-receiving
40 jaws, said jaws being formed with their interior faces and with their edges parallel with each other, and with their exterior faces tapering toward each other in the direction of
45 their outer ends, a plurality of working tools having parallel-faced shanks which fit between said jaws, and a clamping-ring whose interior is tapering in the direction of the outer ends
50 on two opposite sides and parallel on the other two sides to fit over said jaws and held in engagement with the jaws and working tools by friction only.

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

ENOS S. COSTA.

Witnesses:

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