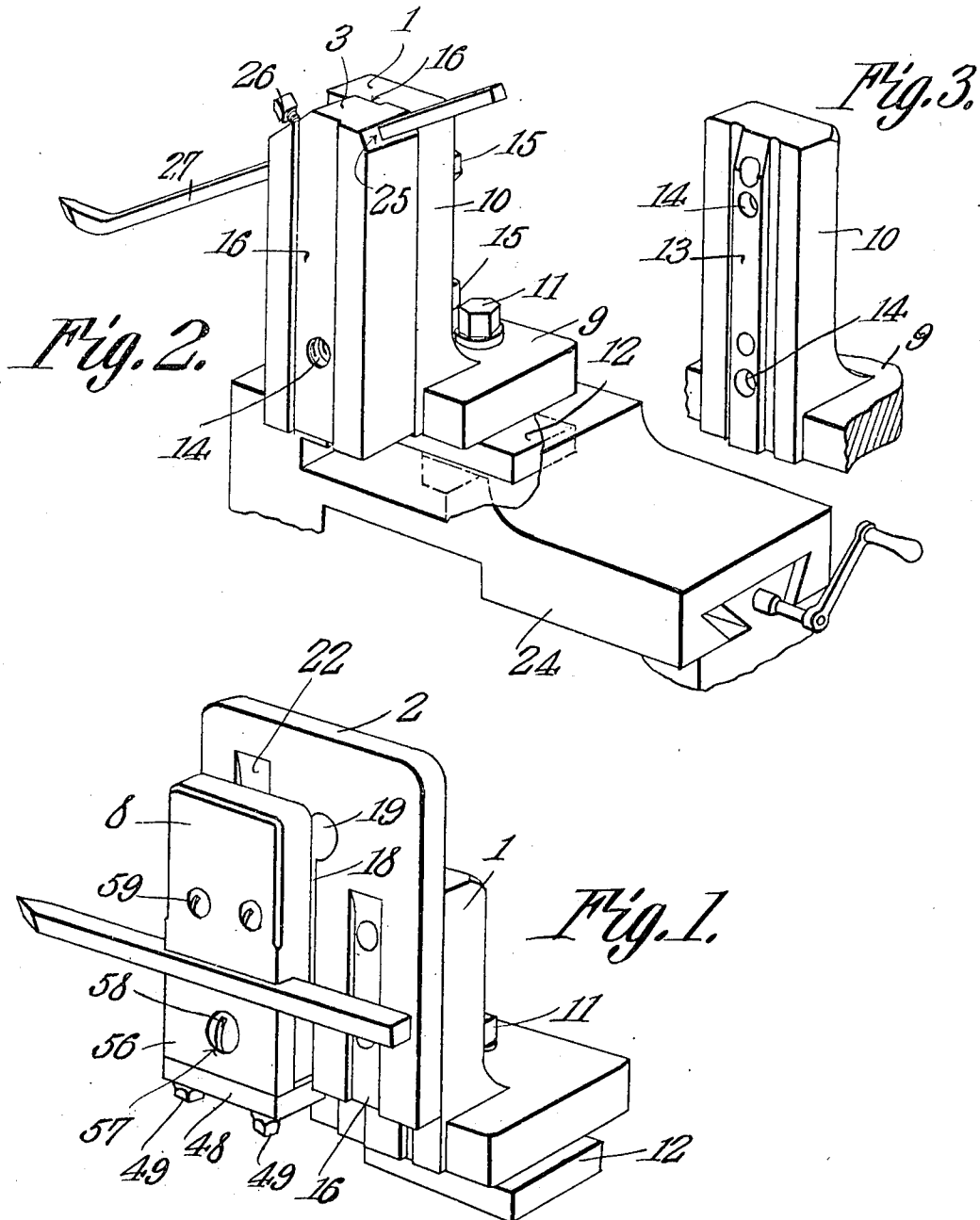


H. A. HILLENBRAND.
TOOL RETAINER.
APPLICATION FILED JAN. 4, 1909.

950,329.

Patented Feb. 22, 1910.

3 SHEETS—SHEET 1.



Witnesses
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Mason B. Lawton

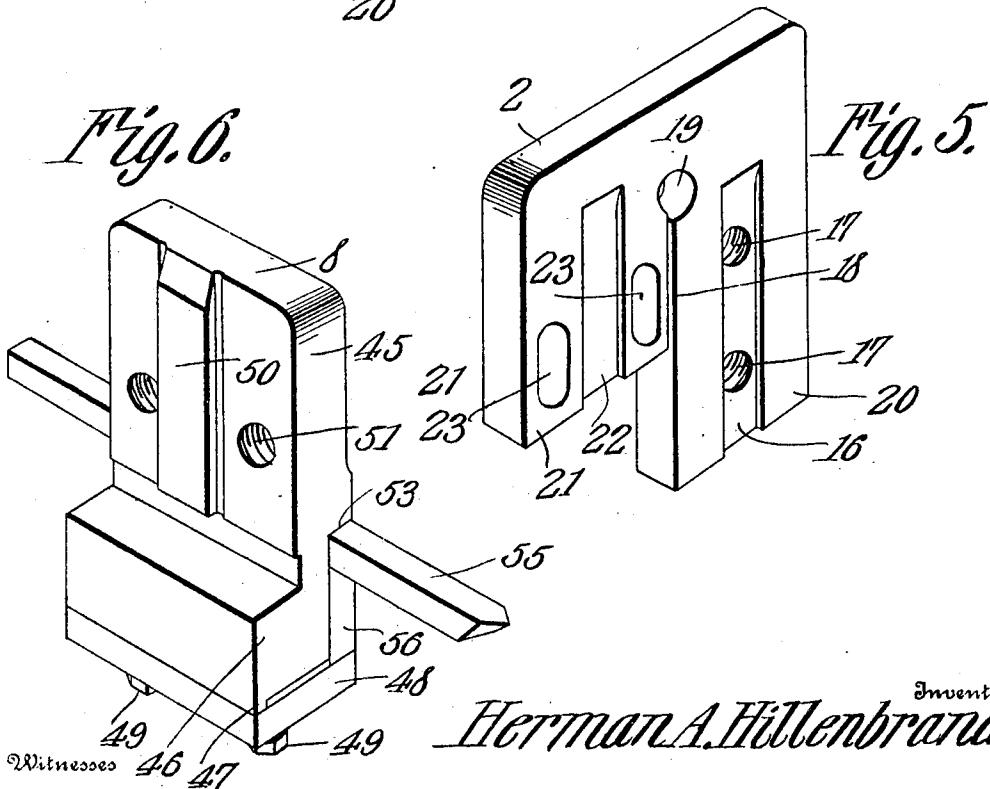
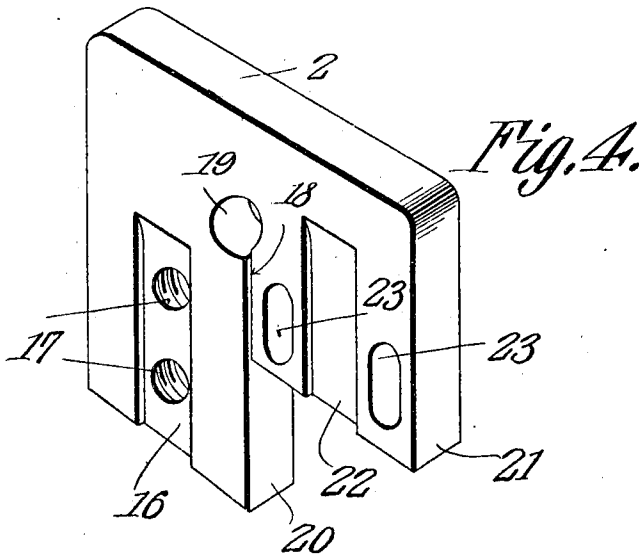
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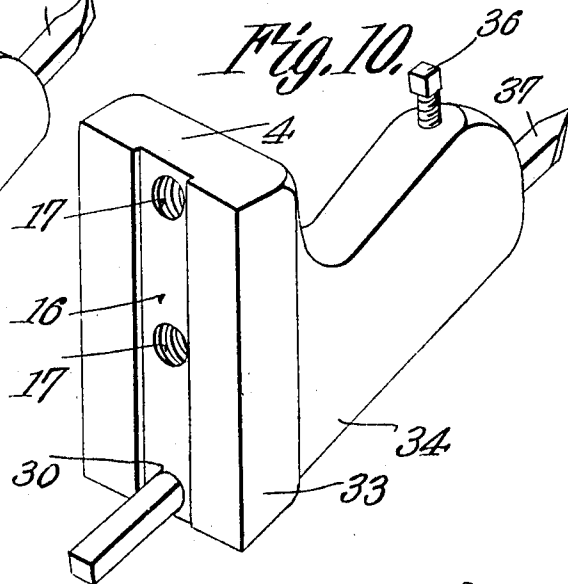
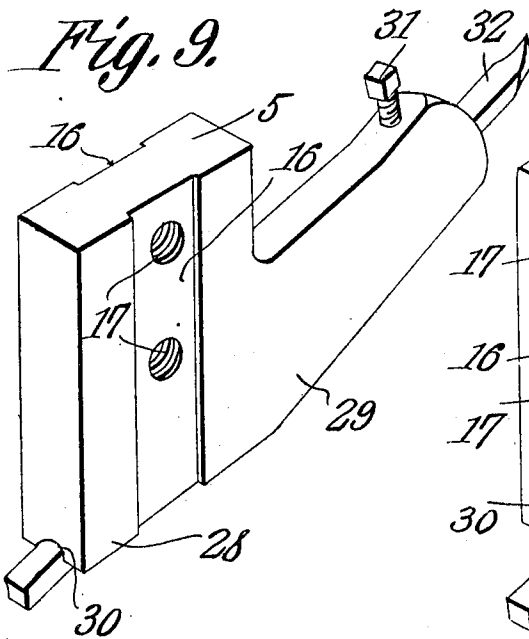
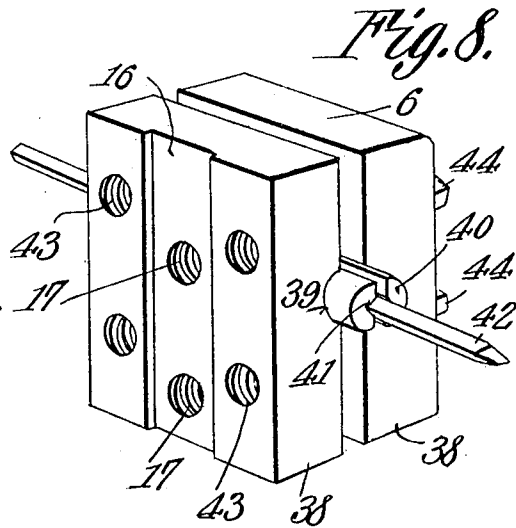
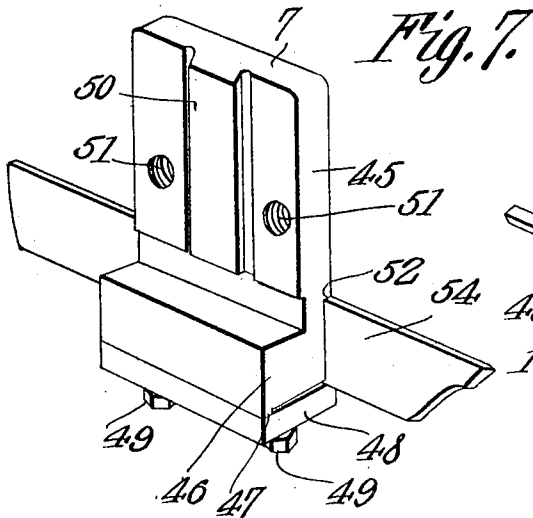
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

HERMAN ARCHER HILLENBRAND, OF LOUISVILLE, KENTUCKY.

TOOL-RETAINER.

950,329.

Specification of Letters Patent.

Patented Feb. 22, 1910.

Application filed January 4, 1909. Serial No. 470,697.

To all whom it may concern:

Be it known that I, HERMAN ARCHER HILLENBRAND, a citizen of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented a new and useful Tool-Retainer, of which the following is a specification.

The objects of the invention are, the provision, in a merchantable form, of a device of the above mentioned class, which shall be inexpensive to manufacture, facile in operation, and devoid of complicated parts; the provision of an angle bracket of novel and improved construction, of a series of tool-supporting elements arranged for interchangeable mounting upon the angle-bracket, of a series of tool-holders adapted to be used with certain of the tool-supporting elements; other and further objects being made manifest hereinafter as the description of the invention progresses.

The invention consists of the novel construction and arrangement of parts hereinafter described, delineated in the accompanying drawings, and particularly pointed out in that portion of this instrument wherein patentable novelty is claimed for certain distinctive and peculiar features of the device, it being understood that, within the scope of what hereinafter thus is claimed, divers changes in the form, proportions, size, and minor details of the structure may be made, without departing from the spirit or sacrificing any of the advantages of the invention.

Similar numerals of reference are employed to denote corresponding parts throughout the several figures of the drawings.

In the accompanying drawings:—Figure 1 is a perspective showing the angle-bracket, the spring plate, and a tool-holder, assembled; Fig. 2 is a perspective showing the angle-bracket mounted upon the cross slide of a lathe, one of the tool-supporting elements being carried by the angle-bracket; Fig. 3 is a perspective of the angle-bracket, portions of the same being broken away; Fig. 4 is a perspective, showing one side of the spring plate; Fig. 5 is a perspective, showing the opposite side of the spring plate from that delineated in Fig. 4; Fig. 6 is a detail perspective of the tool-holder shown assembled with the other elements in Fig. 1; Fig. 7 is a perspective of one of the tool-holders; Fig. 8 is a perspective, show-

ing the boring-bar holder, a boring tool being retained by the device; Fig. 9 is a perspective of one of the tool supports; Fig. 10 is a perspective of another of the tool supports.

In carrying out my invention, I provide an angle-bracket, denoted generally by the numeral 1. Referring particularly to Figs. 1, 2 and 3, it will be seen that the angle-bracket comprises a base member 9, from one edge of which rises a standard 10, provided, upon its outer face, with a longitudinally disposed tongue 13. The base member 9 is provided with an aperture arranged to receive a bolt 11, carrying upon its lower terminal a clamping plate 12, whereby the angle-bracket may be rotatably mounted upon the cross slide 24 of the lathe and clamped thereon. The standard 10 is provided with apertures 14 passing transversely through the standard, and piercing the longitudinally disposed tongue 13, these apertures 14 being arranged to receive bolts 15, whereby the tool-supporting elements, hereinafter described, may be clamped to the angle-bracket 1. I further provide a series of tool-supporting elements, comprising a spring plate 2, shown in Fig. 1, assembled with other elements, and in detail in Figs. 4 and 5; a supporting plate 3 designed to receive a slight spring chaser, and shown in Fig. 2; a tool-support 4, shown in Fig. 10; a second tool-support 5, shown in Fig. 9; and a boring-bar-support 6, shown in Fig. 8. Each of these tool-supporting elements 2, 3, 4, 5, and 6, are arranged to be mounted upon the angle-bracket 1, and to this end, I have provided each of the said tool-supporting elements, with a groove 16, arranged to receive the tongue 13 of the angle-bracket 1, and provided with apertures 17 arranged to register with the apertures 14 in the standard 10, and to receive the bolts 15, whereby the said tool-supporting elements may be clamped to the angle-bracket 1. Of these tool-supporting elements, the members 5, 2 and 3 are grooved upon opposite faces, whereby they may be reversibly mounted upon the angle-bracket 1. The members 4 and 6 are grooved upon a single face only, and therefore not adapted for reversible mounting upon the angle-bracket 1.

Passing now to a detailed description of the various tool-supporting elements, and referring particularly to Figs. 4 and 5, it will be seen that the spring plate 2 is upwardly

slit, as shown at 18, to form an attaching arm 20 and a tool-supporting arm 21, the slit 18 terminating superiorly in an enlarged opening 19, the tool-supporting arm 21 being somewhat shorter than the attaching arm 20. The attaching arm 20 is provided with grooves 16 hereinbefore described, the tool-supporting arm being provided upon both of its faces with grooves 22, having functions which will be hereinafter described. The tool-supporting arm 21 is pierced by elongated openings 23, disposed upon either side of the grooves 22.

The supporting plate 3, shown in Fig. 2, is provided with a diagonally disposed opening 25, arranged to receive a light screw chaser 27, or similar tool, a set screw 26 being carried by the said supporting plate 3 and arranged to hold the tool 27 in its place in the aperture 25.

The tool-support 5, shown in Fig. 9, comprises a body portion 28, from one edge of which projects an arm 29. The body portion 28 and the arm 29 are pierced by an opening 30 arranged to receive a tool of the character denoted by the numeral 32, the said tool 32 being retained in position by a set screw 31, carried by the terminal of the arm 29.

In Fig. 10 I have shown a tool-support 4, comprising a body portion 33, from one side of which projects an arm 34. The body portion 33 and the arm 34 are pierced by an opening 35 similar to the opening 30 in the member 5, and arranged to receive a tool 37, the said tool 37 being retained in its place by a set screw 36, disposed similarly to the set screw 31 of Fig. 9.

In Fig. 8 I have shown the boring-bar support, designated generally by the numeral 6. The boring-bar support comprises blocks 38, provided with channels 39 arranged to unite to form a central opening preferably circular in cross section. In the channels 39 is mounted a split bushing 40, having an axial non-circular opening 41, arranged to receive a boring tool 42. The blocks 38 are transversely pierced by apertures 43 arranged to receive bolts 44, whereby the blocks 38 may be clamped together and the split bushing 40 caused to retain the boring tool.

I further provide tool-holders 7 and 8, shown in Figs. 7 and 6 respectively. These tool-holders comprise a body portion 45, from the lower end of which projects a shoulder 46, carrying, at its lower outer edge, a rib 47. A clamping plate 48 is provided, arranged to fulcrum upon the rib 47 and retained upon the tool-holder by means of bolts 49 passing through the said clamping plate, into engagement with the lower face of the shoulder 46. Each of these tool-holders 7 and 8 are provided upon their body portion with an outstanding tongue

50, arranged to register in the groove 22 of the member 2. The body portion of the tool-holders is provided with apertures 51 located upon each side of the tongue 50 and arranged to register with the apertures 23 of the member 2.

Referring to Fig. 1, it will be seen that bolts 59 may be passed through the apertures 23 in the spring plate 2 into registration with the apertures 51 of the tool-holders, whereby the said tool-holders may be clamped to the spring plate 2, the elongated apertures 23 in the said spring plate furnishing a means for vertical adjustment. The front faces of the tool-holders are cut away to form fixed jaws denoted by the numeral 52 in Fig. 7, and by the numeral 53 in Fig. 6. These jaws are identical, except that the jaw 52 of Fig. 7 is made narrower than the jaw 53 of Fig. 6, the former being adapted to retain a thin tool of the type designated by the numeral 54 in Fig. 7, the jaw 53 of Fig. 6 being designed to retain a square tool of the type designated by the numeral 55 in Fig. 6.

In the tool-holder shown in Fig. 7, the clamping plate 48 abuts directly against the tool, forcing it against the fixed jaw 52 and holding it in position.

In the tool-holder shown in Fig. 6, I interpose between the clamping plate 48 and the shoulder 53 a movable jaw 56. This movable jaw 56 is provided with an aperture 57, shown in Fig. 1, and arranged to receive a bolt 58, passing through the said aperture into engagement with the tool-holder proper. The aperture 57 in the movable jaw is of slightly greater diameter than the bolt 58, whereby the said movable jaw 56 is permitted to have a slight movement, in order that it may seize and hold the tool under the impulse of the clamping plate 48.

When the tool-holders are mounted upon the spring plate 2, the shoulder 46 will be positioned to engage the lower end of the tool supporting arm 21, limiting the upward movement of the tool-holders and promoting the rigidity of their attachment.

The elements comprising my invention may be variously assembled. As shown in Fig. 1, the spring plate 2 may be mounted upon the angle-bracket 1, the spring plate 2, in its turn, carrying either of the tool-holders 7 or 8. These tool-holders 7 and 8 may be mounted upon either of the faces of the spring plate 2, and the spring plate 2 itself may have either of its faces presented to the angle-bracket 1. When the members 2 and 8 are changed from one position to another upon the angle-bracket 1, the bolt 11 may be loosened and the angle-bracket rotated to bring the cutting tool into proper relation with respect to the material which is being subjected to the action of the tool. The plate 2 being slitted, as shown at 18, is ren-

dered resilient to a slight degree, whereby the possibility of the tool catching and breaking may be, to a large measure, obviated.

5 The members 3 and 5 may be mounted directly upon the angle-bracket 1, either of their grooved faces being presented to the angle-bracket, the angle-bracket itself being rotated to bring the cutting edge of the
10 tool into proper position. The members 4 and 6 are adapted to be mounted upon the angle-bracket 1 in a single position only. When these members 4 and 6 are carried by the angle-bracket 1, the said bracket may be
15 rotated to bring them into proper position, as has been hereinbefore already described.

By duplicating the groove in the tool supporting member, the same may be reversed, to bring its opposite side adjacent the standard, the bolt 11 being loosened, so that the
20 standard may be rotated upon the cross slide, to bring the tool into proper relation with the work. By this construction the position of the tool with respect to the stocks of the
25 lathe, may be changed, permitting the said tool to work closer to the stock than would be possible without the reversing process above referred to. The tool supporting member is
30 so constructed, that it is yieldable to a slight, but appreciable extent, under a sudden and violent strain, a construction frequently preventing the injury of the tool, and likewise preventing the marring and injury of the work, caused by sudden snapping of a tool.

35 Having thus described my invention, what I claim as new, and desire to protect by Letters Patent is:—

1. A lathe tool retainer having a bracket for attachment to a lathe and a tool-supporting member, said bracket and tool-supporting member having superficial cooperating interlocking elements, the tool-supporting member having its element duplicated upon
40 opposite faces of the member to permit of its application to the bracket in reversed position.

2. A lathe tool retainer having a rotatable bracket provided with a standard and adapted for attachment to a lathe slide, and a reversible tool-supporting member for engagement with said standard, the standard and tool-supporting member having superficial cooperating interlocking elements of which
50 that on the tool-supporting member is duplicated upon opposite faces of the member
55 to provide for reversing said member.

3. A lathe tool retainer having a bracket provided with a standard and a tool-supporting member for engagement with the

standard, said standard and tool-supporting member being provided respectively with a tongue and groove for interlocking engagement, and the groove of the tool-supporting member being duplicated upon opposite
60 faces of the member to provide for reversing said member. 65

4. A lathe tool retainer having a standard and a tool supporting member having yieldingly connected parts, each one of said parts being adapted for attachment to the standard and likewise adapted for supporting a
70 tool.

5. A lathe tool retainer having a standard and a tool supporting member having yieldingly connected parts, each one of said parts being adapted for attachment to the standard and likewise adapted for supporting a tool, the standard and the tool supporting member having cooperating interlocking
75 elements. 80

6. A lathe tool retainer comprising a standard, a reversible tool supporting member, and a tool-holder, the standard, the tool-supporting member and the tool-holder being provided with superficial cooperating
80 elements, those elements of the tool-supporting member being duplicated upon opposite faces of the member to provide for reversing the same.

7. A lathe tool retainer having a standard, a tool-holder, and a tool-supporting member interposed between the standard and the holder and provided with yieldingly connected parts, each one of said parts being adapted for attachment to the standard and
85 likewise adapted for attachment to the holder. 95

8. A lathe tool retainer having a standard, a tool-holder, and a tool-supporting member interposed between the standard and the holder and provided with yieldingly connected parts, each one of said parts being adapted for attachment to the standard and likewise adapted for attachment to the holder, the standard, the tool-holder and the tool-supporting member being provided with superficial, cooperating elements, those elements of the tool-supporting member being duplicated upon opposite faces of the member to provide for reversing the same.
100 105 110

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

HERMAN ARCHER HILLENBRAND.

Witnesses:

HERMAN BAAB,

VIOLA E. HILLENBRAND.