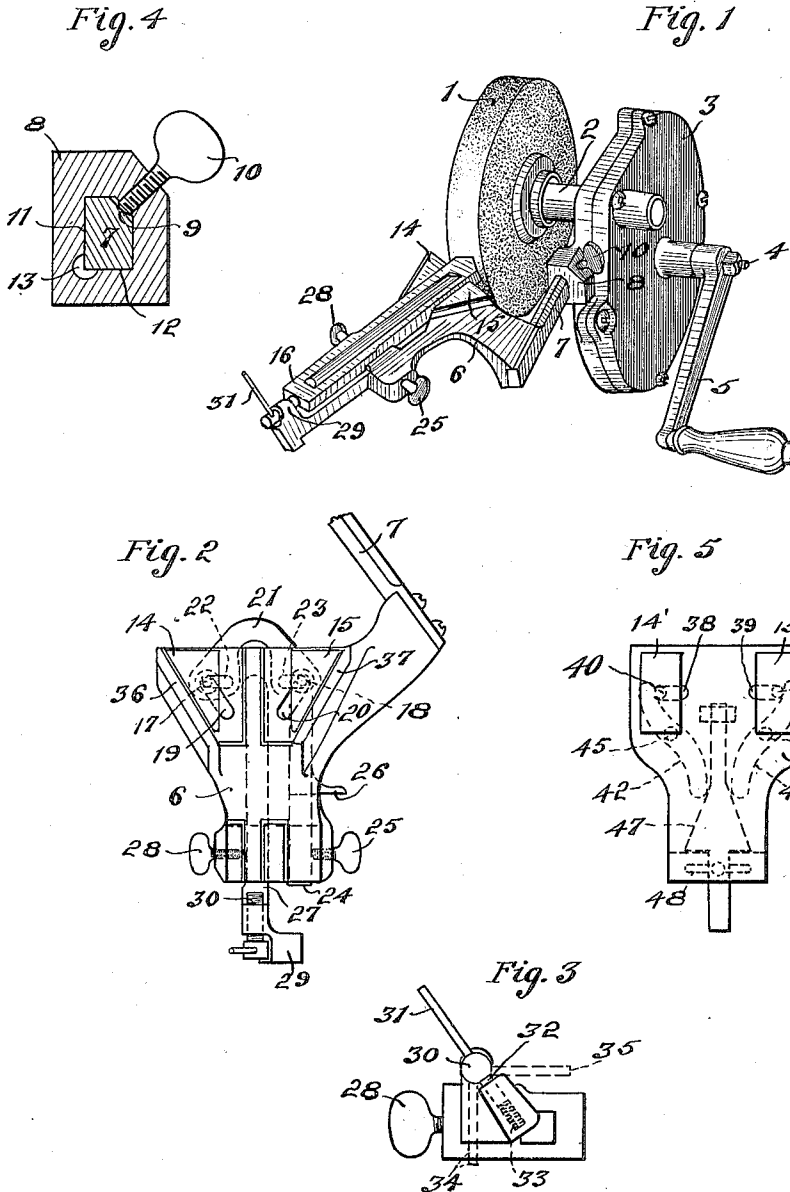


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ATTACHMENT FOR GRINDING MACHINES.
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1,101,593.

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ATTACHMENT FOR GRINDING-MACHINES.

1,101,593.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, MICHAEL WAGNER, a citizen of the United States, residing at Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Attachments for Grinding-Machines, of which the following is a specification.

The invention relates to grinding machine attachments, and particularly to an attachment for holding drills while being ground; and the present application constitutes a division of my application Serial Number 686,413, filed March 26, 1912. The invention has for its primary objects; the provision of an improved drill holder capable of accommodating drills of widely varying lengths and widths; the provision of a drill holder of simple, cheap construction which can be readily and conveniently adjusted to fit any size of drill; the provision of a drill holder for flat drills in which improved means are provided for moving the drill longitudinally during the grinding operation; and the provision of improved means for securely and rigidly holding the shank of the attachment. Certain embodiments of the invention are illustrated in the accompanying drawings, wherein—

Figure 1 is a perspective view of the grinding machine with my improved attachment applied thereto, Fig. 2 is a plan view of the attachment, Fig. 3 is an end view of the attachment, Fig. 4 is an enlarged section through the socket which carries the shank of the attachment, and Fig. 5 is plan view of a modified form of attachment.

As shown in Fig. 1, 1 is the grinding wheel which may be of any desired abrading material and mounted on the shaft 2; 3 is a gear casing for carrying the gears for driving the wheel 1 at a high rate of speed, from the driving shaft or spindle 4, and 5 is the operating handle.

The attachment which comprises the invention includes the main supporting framework 6 and a shank or bar 7 which slidably engages a socket in the cast lug 8 integral with one of the parts of the gear casing 3. As indicated most clearly in the cross sectional view of Fig. 4, the bar 7 is provided with a flat face 9 which is adapted to be engaged by the holding screw 10 so that the clamping force which is applied to the bar is applied diagonally and tends to force the

two sides 11 and 12 of the bar against the corresponding walls of the socket, a recess 13 in the socket being provided opposite the corner formed by the intersection of the sides 11 and 12. This arrangement secures a much firmer support for the bar than is the case where the holding screw comes opposite one side only of the bar, the recess 13 permitting the sides 11 and 12 to be forced inwardly so that they contact firmly with the two sides of the socket.

Upon the upper face of the supporting portion 6 are mounted the jaws 14 and 15, which jaws are adapted to guide the sides of the flat drill 16 and are provided with downwardly projecting studs 17 and 18 engaging the diagonal slots 19 and 20 in the part 6, and adapted to cause a movement of the jaws 14 and 15 toward each other when the studs 17 and 18 are pulled to the rear. These studs are pulled to the rear by means of a U-shaped frame 21 provided with two transverse slots 22 and 23 engaging the studs 17 and 18 and having an arm 24 extending to the rear and adapted to be clamped in any desired position by means of the thumb screw 25. The member 21 may be moved to the rear to cause the jaws 14 and 15 to approach each other and engage the drill by means of the handle 26 which projects laterally from the arm 24.

Slidably mounted in the rear portion of the member 6 is a bar 27, which bar may be rigidly held in any desired position of adjustment by means of the thumb screw 28. The rear end of this bar 27 is provided with an upwardly projecting lug 29 carrying the stud 30. This stud is provided with an operating handle 31 and the handle and stud are normally yieldingly held in the position indicated in Fig. 3 by means of a pin 32 which is yieldingly pressed against the flat side of the stud 30 by means of the spring 33.

The operation of the attachment just described is as follows: The thumb screws 25 and 28 being loose to permit free longitudinal movement of the parts 21 and 27, the drill 16 is placed in position so that its end just touches the edge of the grinding wheel 1. The bar 27 is then moved forward so that the end of the stud 30 engages the rear end of the drill, the handle 31 at this time occupying the position shown in Fig. 3. The thumb screw 28 is then operated to clamp the bar 27 in position, and the handle

26 of the member 21 is drawn to the rear to cause the jaws 14 and 15 to move toward each other and engage the sides of the drill, after which the thumb screw 25 is tightened.

5 The handle 31 is then moved a partial revolution to the left to carry the stud 30 slightly to the rear and permit the drill 16 to move to the rear in case the grinding wheel 1 is not entirely uniform in diameter. Then as
10 the grinding wheel is rotated the handle 31 is moved from the position 34 indicated in dotted lines in Fig. 3 to the position 35 indicated in dotted lines, thus advancing the stud 30 and the drill as the grinding pro-
15 gresses. This operation secures the grinding of one of the cutting faces of the drill, and the grinding of the other cutting face is secured by merely turning the drill upside down and repeating the foregoing opera-
20 tion insofar as the handle 31 is concerned, the adjustment of the bar 27 remaining the same.

It will be understood that the jaws 14 and 15 merely act as guides for the drill and do
25 not prevent free relative movement of the drill therebetween, such drill being held firmly down in position by the free hand of the operator. The outer inclined faces of the jaws 14 and 15 are guided and sup-
30 ported by means of the flanges 36 and 37 upstanding from the base of the supporting frame 36.

An alternative arrangement for operating the jaws 14' and 15' corresponding to the
35 jaws 14 and 15, is shown in Fig. 5. In this construction the supporting frame 6' is provided with transverse slots 38 and 39, which slots are engaged by downwardly projecting pins 40 and 41 upon the jaws 14' and 15'.
40 A pair of lever arms 42 and 43 are pivoted to the under side of the frame 6' at 45 and 46, and the front ends of these levers are positioned so as to engage the sides of the pins 40 and 41. The other ends of the le-
45 vers 42 and 43 are adjusted by means of a wedge 47 which is slidable longitudinally of the bottom of the supporting member 6' and is held in any desired position of ad-
justment by means of a thumb screw 48.

50 What I claim is—

1. A flat drill holder for use with a grind-
ing machine, comprising a support, a pair
55 of jaws carried thereby for guiding the opposite edges of the drill, a slide carried by the support and adjustable toward and from the grinding wheel, means for locking the

slide in any adjusted position, and a screw mounted in the slide and adapted to engage the rear end of the drill whereby the drill may be adjusted longitudinally.

2. A flat drill holder for use with a grind-
ing machine, comprising a support, a pair
of jaws carried thereby for guiding the op-
posite edges of the drill, a slide carried by
the support and adjustable toward and from
65 the grinding wheel, means for locking the slide in any adjusted position, a screw provided with a handle and mounted in the slide and adapted to engage the rear end of
70 the drill, and spring means whereby the handle and screw are maintained yieldingly in one position.

3. A flat drill holder for use with a grind-
ing machine, comprising a support, a pair
of jaws carried thereby for guiding the op-
75 posite edges of the drill, means for adjusting the jaws toward and from each other, a slide carried by the support, means for clamping it in any desired position of ad-
80 justment, and an adjusting screw carried by the slide for engaging the rear end of the drill.

4. A flat drill holder for use with a grind-
ing machine, comprising a support, a pair
of jaws carried thereby for guiding the op-
85 posite edges of the drill, a slide movable transversely to the path of movement of the jaws, connections between the slide and jaws for causing the jaws to move relatively
90 when the slide is moved longitudinally, means for clamping the slide in position, and means for adjusting the drill longitudinally between the jaws.

5. The combination in a grinding ma-
chine having a socket, an attachment, a sup-
95 porting post therefor of a cross section such that a flat side lies opposite the intersection of two other sides and fitting the said socket, and a holding screw extending through the wall of the socket and engag-
100 ing one of the sides of the supporting post opposite one of the corners of the post, the socket being recessed at such corner so as to be spaced away therefrom.

In testimony whereof I have hereunto
105 signed my name in the presence of the two subscribed witnesses.

M. WAGNER.

Witnesses:

ARCHWORTH MARTIN,
LETITIA A. MYERS.