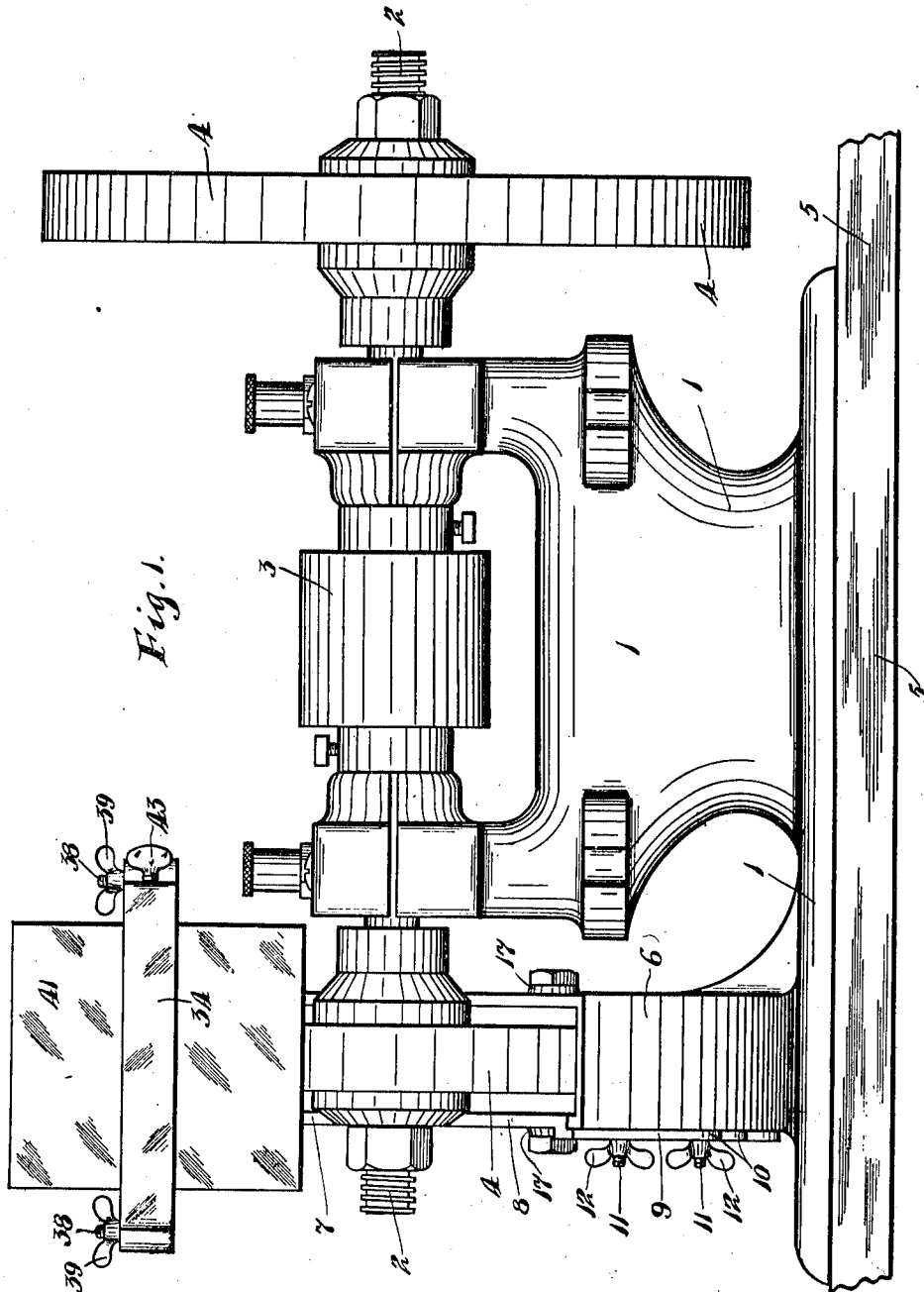


W. B. MARTIN.
 EMERY WHEEL GUARD.
 APPLICATION FILED APR. 29, 1912.

1,041,128.

Patented Oct. 15, 1912.

5 SHEETS—SHEET 1.



Witnesses,
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 A. H. Opsahl.

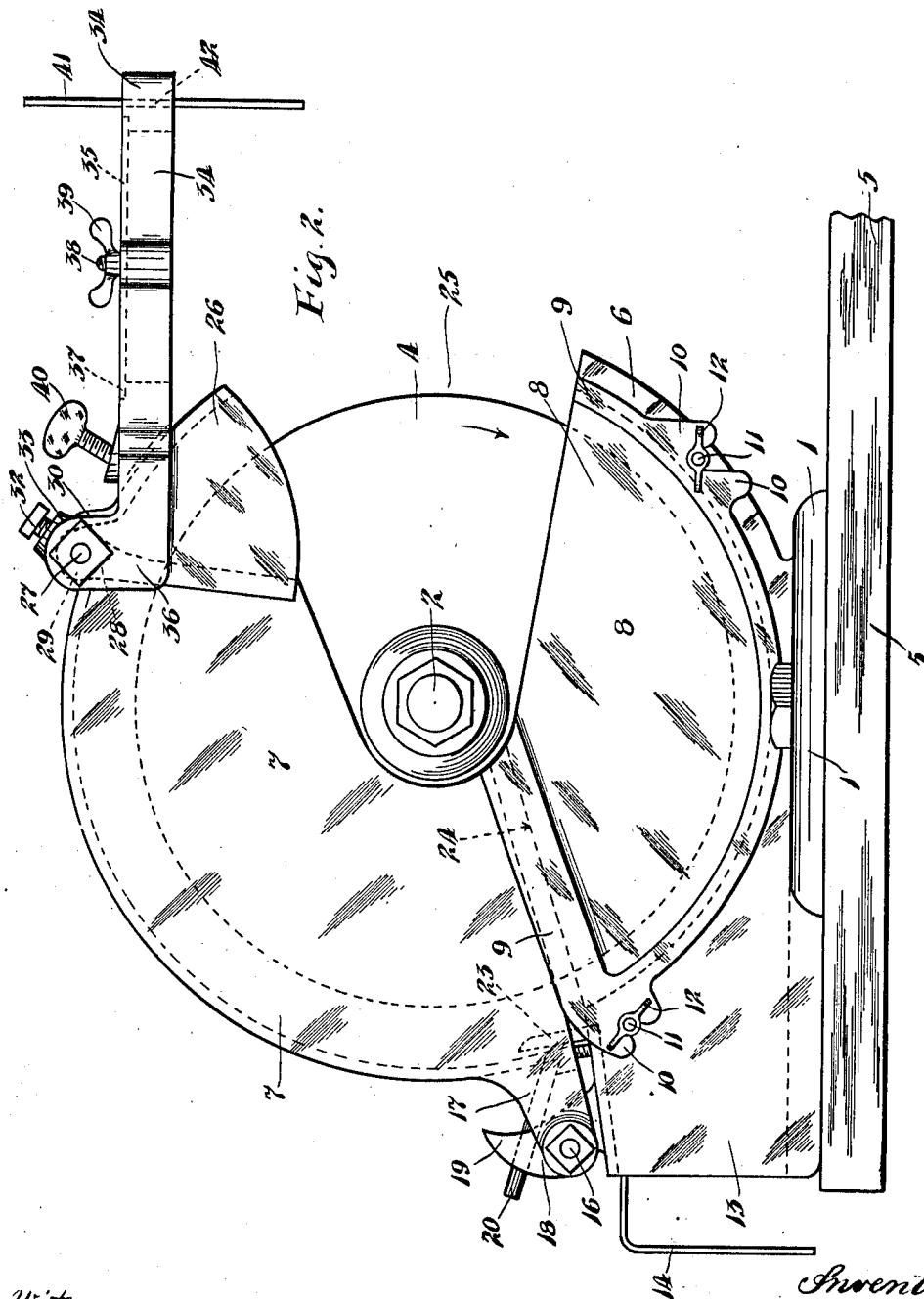
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5 SHEETS—SHEET 2.



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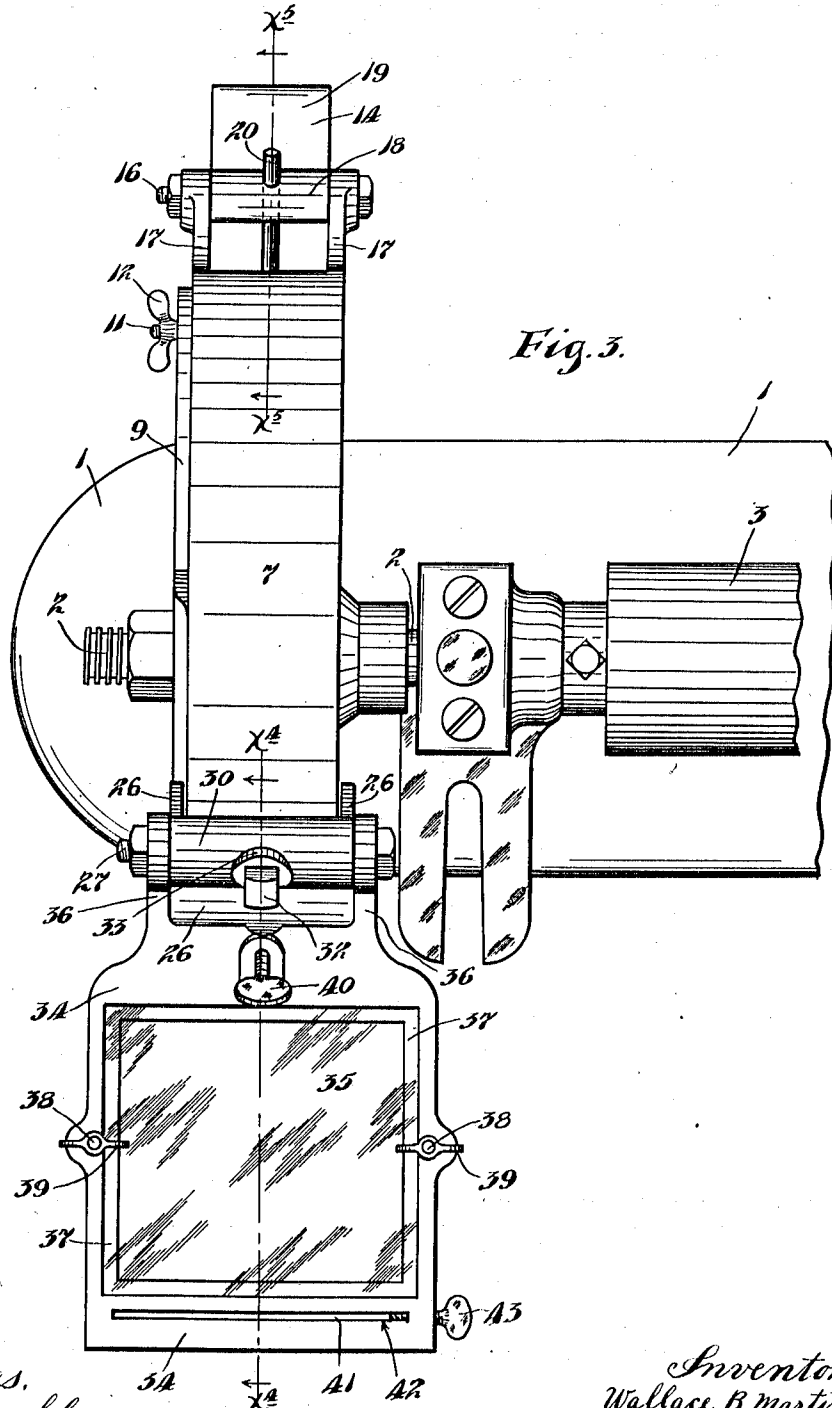
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5 SHEETS-SHEET 3.



Witnesses,
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5 SHEETS-SHEET 4.

Fig. 4.

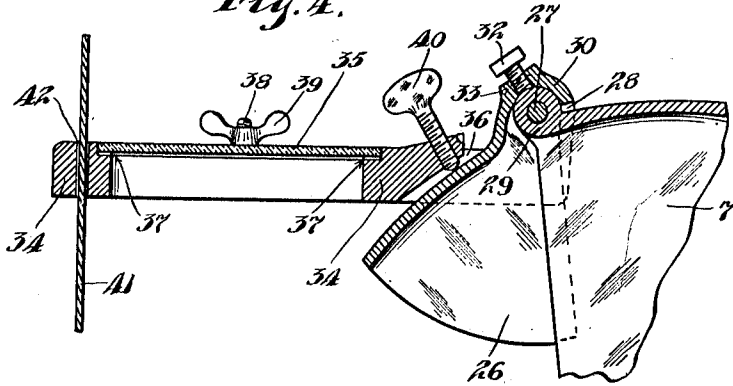
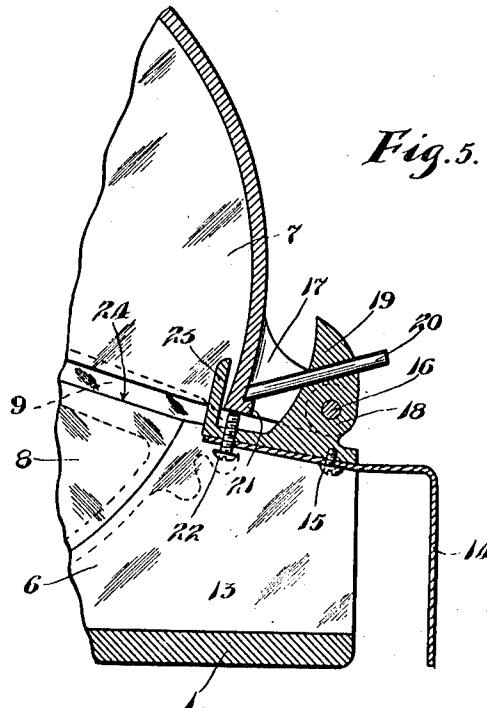


Fig. 5.



Witnesses,
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 A. H. Opsahl.

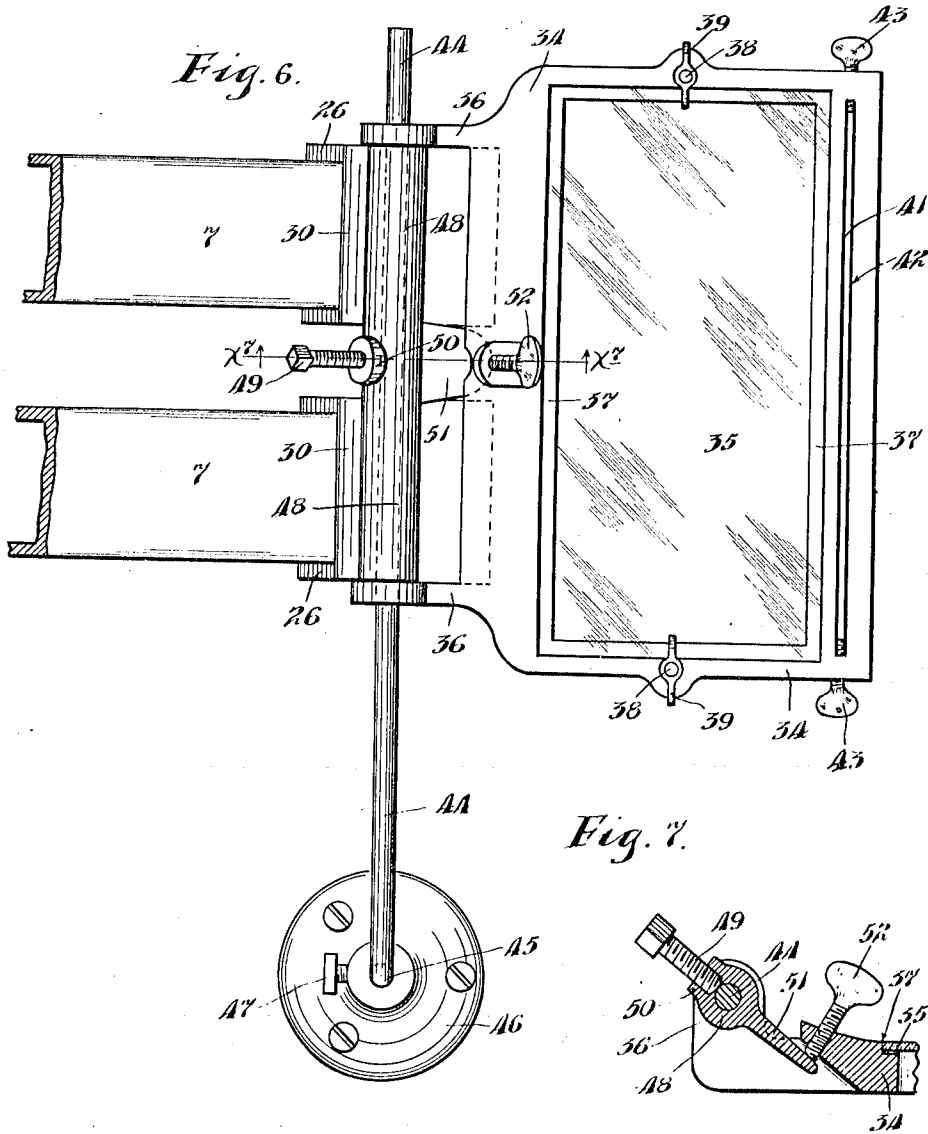
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W. B. MARTIN.
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Patented Oct. 15, 1912.

5 SHEETS—SHEET 5.



Witnesses.
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 W. H. Opsahl.

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UNITED STATES PATENT OFFICE.

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EMERY-WHEEL GUARD.

1,041,128.

Specification of Letters Patent.

Patented Oct. 15, 1912.

Application filed April 29, 1912. Serial No. 693,842.

To all whom it may concern:

Be it known that I, WALLACE B. MARTIN, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented certain new and useful Improvements in Emery-Wheel Guards; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has for its object to provide a guard for grinding wheels, such as emery wheels and the like, and, to this end, it consists of the novel devices and combinations of devices, hereinafter described and defined in the claims.

The invention is illustrated in the accompanying drawings, wherein like characters indicate like parts throughout the several views.

Referring to the drawings, Figure 1 is a view in front elevation of the improved grinding wheel guard applied in working position to a grinding head and grinding wheel; Fig. 2 is a side elevation of the same; Fig. 3 is a plan view of the same, some parts being broken away; Fig. 4 is a longitudinal vertical section, taken on the line $x^4 x^4$ of Fig. 2; Fig. 5 is a longitudinal vertical section, taken on the line $x^5 x^5$ of Fig. 3; Fig. 6 is a plan view showing a modified form of the so-called dust shield, together with a portion of the improved guard; and Fig. 7 is a vertical section, taken on the line $x^7 x^7$ of Fig. 6.

The numeral 1 indicates a grinding head having journaled thereon a horizontally extended wheel spindle 2. Rigidly secured to the intermediate portion of the spindle 2, is a driving pulley 3 and to each end thereof is secured a grinding wheel 4. The grinding head 1 is bolted, or otherwise rigidly secured, to a suitable support 5, such as the top of a bench or pedestal. All of the above described parts may be of the standard or of any desired construction.

Referring now to the improved guard, one thereof is shown in connection with the grinding wheel 4, at the left with respect to Fig. 1. This grinding wheel 4 is substantially all incased, except the working point thereon, in a housing comprising a fixed lower or base section 6, and a removable upper or top section 7. As shown, the base sec-

tion 6 is preferably cast integral with the grinding head 1, but, of course, may be entirely independent thereof and bolted, or otherwise rigidly secured to the bench or pedestal adjacent to the grinding head 1 for the purpose of permitting the grinding wheel 4 to be placed upon or removed from the wheel spindle 2 or a new grinding wheel substituted therefor, the outer side plate 8 of the base section 6 is made removable. On the lower segmental edge of the side plate 8, is formed a laterally and outwardly offset retaining flange 9 that overlaps the adjacent edge portion of the base section 6. Integrally formed with and as extensions of the flange 9 are, as shown, two pairs of retaining lugs 10 that embrace screw threaded studs 11 anchored to the base section 6. These retaining lugs 10 are clamped onto the overlapped portion of the base section 6 by means of thumb nuts 12 having screw threaded engagement with the studs 11.

The rear end portion of the base section 6 terminates in a rearwardly extended dust discharge passage 13 through which all dust and dirt from the grinding wheel and work held thereon is delivered under the action of the rotation of the grinding wheel 4, which wheel is rotated in the direction of the arrow marked thereon in Fig. 2. For the purpose of stopping pieces of stone which might be discharged through the dust discharge passage 13 and striking a person passing thereby, in case the grinding wheel 4 should break, a vertically extended stop plate 14 is placed directly in front of the discharge passage 13, but is spaced outward therefrom a distance sufficient to permit dust and dirt to discharge therearound. This stop plate 14 is formed with an inwardly horizontally extended top extension that projects into the dust discharge passage 13 and is secured to the top of the casing thereof, by means of a set screw 15. In some instances, it might be desirable to connect the delivery end of the dust discharge passage 13 directly to a pipe system arranged for drawing the dirt and dust there-through by suction.

The top section 7 of the housing is secured to the base section 6 for hinge-like movements, to and from operative positions, by means of a horizontally extended hinge bolt 16 passed through a pair of rearwardly projecting hinge lugs 17 cast on the top section

7, and a single hinge lug 18 cast on the top of the casing of the dust discharge passage 13. The hinge lugs 17 embrace the hinge lugs 18 and hold the top section 7 against lateral movement. On the top of the hinge lug 17 is formed an upwardly projecting stop projection 19 against which the top section 7 rests when in its open or inoperative position. For the purpose of preventing the top section 7 from being accidentally thrown open, for instance, in case the grinding wheel should break, a lock pin or bolt 20 is mounted for endwise sliding movement through an opening in the stop projection 19, and its inner end normally engages and overlies a laterally and rearwardly extended lock flange 21, integrally formed with the rear end portion of the top section 7. To open the top section 7, it is only necessary to draw the lock pin 20 rearward a distance sufficient to permit the lock flange 21 to clear the inner end thereof.

The top section 7 is held for different adjustments toward and from the axis of the grinding wheel 4 by means of an upwardly projecting set screw 22 having screw threaded engagement with an internally threaded opening formed in the top of the casing of the dust discharge passage 13, and on the upper end of which screw rests the lock flange 21. As is evident, by adjusting the said screw 22, the top section 7 may be kept in its proper relation with the grinding wheel 4. At its inner edge, the top of the casing of the discharge passage 13 terminates in a laterally and upwardly projecting flange 23 that extends into the top member 7 and thereby forms a comparatively tight joint between the adjacent portions of the base section 6 and the top section 7, as best shown in Fig. 5.

The upper inner edge portions of the sides of the base section 6, at the rear of the wheel spindle 2, terminate in laterally offset flanges 24 that embrace the lower side edges of the top section 7, when in a closed position and thereby forms comparatively tight joints between the adjacent portions of the base section 6 and top section 7. The forward portions of the base section 6 and top section 7 are cut away to afford a work opening 25 through the housing, for the purpose of exposing the grinding point on the grinding wheel 4, and also to clear the wheel spindle 2.

For the purpose of further making the improved guard adjustable, thereby adapting the same for use in connection with grinding wheels of different sizes, and also for adjusting the same to compensate for the wear of the grinding wheel 4, a hood extension 26 for the top section 7 is provided. The hood extension 26 is pivotally secured for hinge-like movement to the front upper end portion of the top section 7 by

means of a horizontally extended hinge pin 27 passed through a pair of horizontally spaced hinge lugs 28 integrally formed with the hood extension 26, and a long horizontally extended hinge lug 29, integrally formed on the top of the top section 7. At its upper end, the top of the hood extension 26 terminates in an upwardly and outwardly curved extension 30 that connects the two hinge lugs 28 and overlies the intermediate portion of the pivot pin 27. The sides of the hood extension 26 embrace the sides of the top section 7 and hold said hood extension against lateral movement and with its lower end extending into the work opening 25. The hood extension 26 is held in different adjustments with respect to the top member 7 by means of a set screw 32 having screw threaded engagement with an upwardly projecting boss 33 integrally formed with the intermediate portion of the top extension 28. At its inner end, the set screw 32 impinges against the hinge lug 29 and frictionally holds the hood extension 26 in different set adjustments with respect to the top member 7.

For the purpose of keeping the dust and sparks from the operator's face, a horizontally extended dust shield is mounted on the free end of the section 7. This dust shield comprises a horizontally extended rectangular frame 34 having mounted thereon a transparent pane 35 of glass or any other suitable material, through which the operator may observe the working point of the grinding wheel. Horizontally extended hinge lugs 36 are integrally formed with and extend rearward from the rectangular frame 34, and embrace the sides of the hood extension 36. The hinge bolt 27 also extends through the hinge lug 36 and thereby connects the dust shield to the top extension 7 for hinge-like movement. The edges of the transparent pane 35 are mounted in a rectangular seat 37 formed in the top inner edge of the frame 34. For detachably securing the transparent pane 35 in the seat 37, upwardly projecting screw studs 38 are anchored to the frame 34 and have mounted thereon thumb nuts 39 adapted to be screwed down and into engagement with the transparent pane 35. The dust shield is held in a horizontal position, irrespective of the adjustment of the top section 7 and the hood extension 26, by means of a set screw 40 mounted in the rear end member of the frame 34 with its lower end resting on the top of the hood extension 26. To further protect the operator from dust and sparks from the grinding wheel 4, particularly when objects such as saws are being ground, a vertically extended flat stop plate 41 is mounted for sliding movement in a longitudinally and vertically extended slot 42 formed in the front member of the rectan-

gular frame 34. The stop plate 41 is held in different vertical adjustments by means of a horizontally extended thumb screw 43, mounted in one of the side members of the rectangular frame 34, and its inner end extends into the slot 42 and impinges against the inner edge of the stop plate 41. When not in use, the dust shield may be turned into an inoperative position on top of the top section 7.

Referring to the modification shown in Figs. 6 and 7, the dust shield is entirely independent from the housing or housings of the grinding wheels, and is especially adapted for use where two or more grinding wheels are placed side by side on a common spindle. In this construction, the upper sections of the housing may be independently moved from operative to inoperative positions, and vice versa, without disturbing the dust shield. The said dust shield is made wide enough to extend in front of all of the work openings 25 in the housings. The hinge lugs 36 of the dust shield are pivotally mounted on a horizontally extended arm 44 of a vertically extended standard 45 swiveled at its lower end in a base plate 46. This base plate 46 is secured by screws or otherwise to the top of the bench or pedestal, adjacent to the grinding wheels 4. For holding the standard 45 against swinging movement, a set screw 47 having screw threaded engagement with the base casting 46 with its inner end impinging against the standard 45, is provided. Telescoped onto the arm 44 between the hinge lugs 46 of the dust shield, is a long sleeve 48 that extends the full distance between said hinge lugs and holds the dust shield against lateral movement. The sleeve 48 is held against rotation on the arm 44 by means of a set screw 49 having screw threaded engagement with a boss 50 formed on the intermediate portion of the sleeve 48 and its inner end impinges against the arm 44.

Diametrically opposite the boss 50, the sleeve 48 is provided with an integrally formed stop lug 51 on which rests the lower end of a thumb screw 52 having screw threaded engagement with the rear member of the rectangular frame 34. As is evident, by adjusting the thumb screw 52, the horizontal position of the dust guard may be varied. When the dust guard is not in use, the same may be turned into an inoperative position on top of the housings of the grinding wheels 4.

What I claim is:—

1. The combination with a grinding wheel, of a pivotally mounted housing for said wheel, a work passage in said housing affording access to a grinding point on said wheel, and a transparent dust shield through which said work passage may be observed, said dust shield being mounted on said

housing and movable therewith into operative and inoperative positions.

2. The combination with a grinding wheel, of a pivotally mounted housing for said wheel, a work passage in said housing affording access to a grinding point on said wheel, a horizontally extended transparent dust shield, through which said work passage may be observed, said dust shield being mounted on said housing and movable therewith into operative and inoperative positions, and a vertically adjustable stop plate carried by said dust shield.

3. The combination with a grinding wheel, of a housing for said wheel mounted for hinge-like movement into operative and inoperative positions, a hood extension pivotally mounted on said housing and extending into said work passage, means for adjusting said hood toward and from the axis of said wheel, and a transparent dust shield pivotally mounted on said housing and through which shield said work passage may be observed, said dust shield adapted to be moved with said housing into inoperative positions.

4. The combination with a grinding wheel, of a housing for said wheel mounted for hinge-like movement into operative and inoperative positions, a hood extension and a horizontally extended transparent dust shield independently connected to said housing on a common pivot, said hood extension normally extending into said work passage, means for adjusting said hood toward and from the axis of said wheel, said dust shield adapted to be moved with said housing into inoperative positions and through which shield said work passage may be observed when the shield is in an operative position, and means for adjusting said dust shield with respect to said housing and hood extension.

5. The combination with a grinding wheel, of a housing for said wheel mounted for hinge-like movement into operative and inoperative positions, a hood extension and a horizontally extended transparent dust shield independently connected to said housing on a common pivot, said hood extension normally extending into said work passage, means for adjusting said hood toward and from the axis of said wheel, said dust shield adapted to be moved with said housing into inoperative positions and through which shield said work passage may be observed when the shield is in an operative position, means for adjusting said dust shield with respect to said housing and hood extension, and a vertically adjustable stop plate mounted in said dust shield.

6. The combination with a grinding wheel, of a housing for said wheel mounted for hinge-like movement into operative and inoperative positions, a lock for holding said

housing in an operative position, a hood extension and a horizontally extended transparent dust shield independently connected to said housing on a common pivot, said
5 hood extension normally extending into said work passage, means for adjusting said hood toward and from the axis of said wheel, said dust shield adapted to be moved with said housing into inoperative positions
10 and through which shield said work passage may be observed when the shield is in an operative position, means for adjusting said dust shield with respect to said housing and hood extension, and a vertically adjustable stop plate mounted in said dust
15 shield.

7. The combination with a grinding wheel, of a housing for said wheel mounted for hinge-like movement into operative and
20 inoperative positions, a lock for holding said housing in an operative position, means for adjusting said housing toward or from the

axis of said wheel, a hood extension and a horizontally extended transparent dust shield independently connected to said housing on a common pivot, said hood extension
25 normally extending into said work passage, means for adjusting said hood toward and from the axis of said wheel, said dust shield adapted to be moved with said housing into inoperative positions and through which
30 shield said work passage may be observed when the shield is in an operative position, means for adjusting said dust shield with respect to said housing and hood extension, and a vertically adjustable stop plate mounted in said dust shield.
35

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

WALLACE B. MARTIN.

Witnesses:

MILDRED L. MUMMA,
HARRY D. KILGORE.