Aug. 22, 1967 H. C. MULTER 3,336,703

PORTABLE POWER TOOL

Filed March 2, 1965

FIG. 1

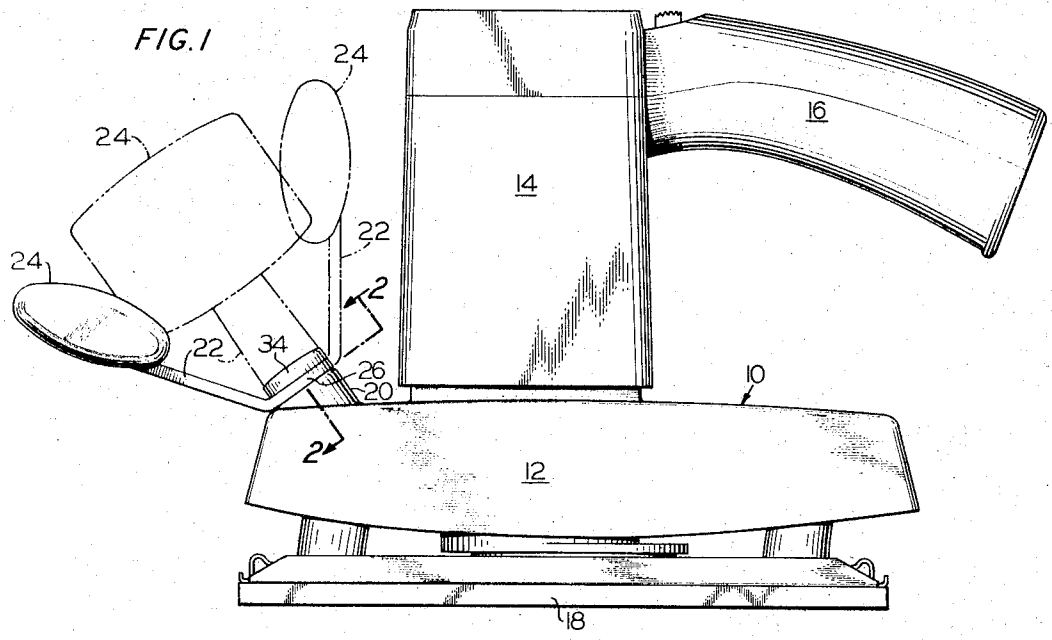


FIG. 2

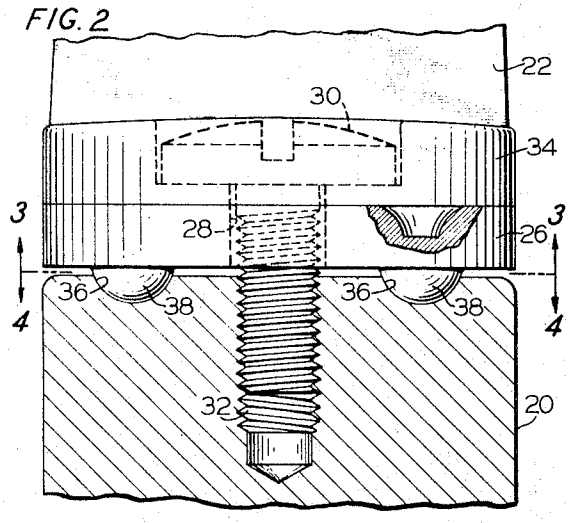


FIG. 3

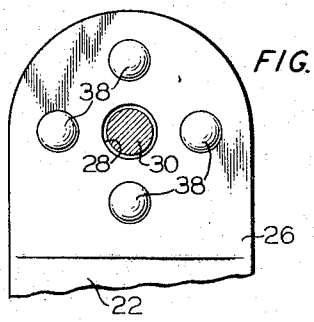
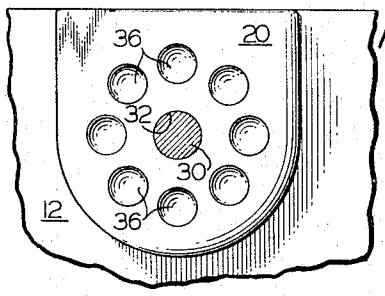


FIG. 4



INVENTOR.
HOWARD C. MULTER

BY Lindsey, Pautzman and Hayes

ATTORNEYS

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PORTABLE POWER TOOL

Howard C. Muiter, West Hartford, Conn., assignor to The Stanley Works, New Britain, Conn., a corporation of Connecticut

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This invention relates to portable power tools and more particularly concerns the handles by which such tools are grasped and manipulated during use.

One of the objects of the present invention is to provide a portable power tool having an adjustable handle which may be secured in any one of a plurality of positions so as to facilitate use of the tool under various circumstances.

Another object of the present invention is to provide a portable power tool having an adjustable auxiliary handle which may be positioned so as to lie entirely within the peripheral boundaries of the housing of the tool.

Still another object of the present invention is to provide a portable power tool having a main handle and an angularly adjustable, forwardly projecting auxiliary handle which may be mounted so as to permit the tool to be operated with two hands in close quarters.

Other objects will be in part obvious and in part pointed out more in detail hereinafter.

The invention accordingly consists in the features of construction, combination of elements and arrangement of parts which will be exemplified in the construction hereafter set forth and the scope of the application which will be indicated in the appended claims.

In the drawing:

FIG. 1 is a side elevation view of a portable power tool embodying the present invention;

FIG. 2 is a sectional view taken along the line 2—2 in FIG. 1;

FIG. 3 is a sectional view taken along the line 3—3 in FIG. 2; and

FIG. 4 is a cross sectional view taken along the line 4—4 in FIG. 2.

The present invention is useful in conjunction with various types of portable power tools having an auxiliary handle as well as a main handle to permit the tool to be grasped by both hands of the operator. By way of example, there is illustrated in FIG. 1 an orbital pad sander **10** comprising a horizontally disposed transmission housing **12**, an upright electric motor housing **14** mounted on the housing **12** and a rearwardly extending main handle **16** secured to the upper portion of the motor housing **14**. Underlying the transmission housing **12** and generally coextensive therewith is a sanding pad **18** which is secured to the transmission housing **12** by suitable means permitting it to move in an orbital path in the plane of its bottom surface. Portable sanders of the orbital pad type are well known in the art and since the components which drive the sanding pad **18** may be of any suitable form they are not disclosed herein.

At the forward end of the transmission housing **12** there is provided a mounting boss **20** forwardly inclined away from the motor housing **14** and arranged to support an arm **22** to which is secured an auxiliary handle **24**. The arm **22** includes an angularly projecting mounting portion **26** having a central aperture **28** through which extends a mounting screw **30** threaded in a tapped hole **32** in the mounting boss **20**. Preferably, the head of the screw **30** is partially concealed by a countersunk washer **34** interposed between the head of the screw **30** and the mounting portion **26** of the arm **22**.

It will be observed that the angle of inclination of the mounting boss **20** and the angle at which the mounting portion **26** is inclined with respect to the arm **22** are such

that the handle **24** may be shifted along a forwardly tilted circular path about the axis of the hole **32**. Thus the handle **24** may be mounted in a rearmost position in which it does not extend outside the peripheral boundaries of the housing **12**, as well as positions extending forwardly or to either side of the housing **12**. When the sander **10** is operated on an unobstructed surface the auxiliary handle **24** may be mounted in its forward position. However, when edge portions of surfaces bounded by obstructions such as upright walls are to be sanded, placement of the handle **24** in its rearmost position or one of the side positions permits the operator to guide the sanding pad over such surfaces while continuing to grip the sander **10** with both hands.

In order to permit the handle **24** to be firmly secured to the mounting boss **20** in various angular positions, a group of semi-spherical depressions **36** are formed in the surface of the mounting boss **20** and are arranged in a circle concentric with the axis of the tapped hole **32** so as to cooperate with a similarly arranged group of semi-spherical detents **38** formed on the lower surface of the mounting portion **26** of the arm **22**. Thus, in the illustrated embodiment of the invention the handle **24** may be mounted in any one of eight different angular positions disposed about the axis of the tapped hole **32**.

The angle at which the surface of the mounting boss **20** is forwardly inclined from the motor housing **14** and the angle at which the mounting portion **26** of the arm **22** is disposed with respect to the remainder of the arm **22** are chosen so that the arm **22** extends generally vertically and parallel to the motor housing when in its rearmost position. When the arm **22** is in this position, the handle **24** lies behind the front edge of the sander **10** and between its side edges, and hence it is possible to operate the sander **10** with both hands even though the surface to be sanded is bounded by obstructions rising above its level.

From the foregoing it will be evident that the present invention provides an auxiliary handle for portable power tools which may be mounted in a variety of positions to permit the tool to be used under various conditions, that the handle may be mounted so that it does not extend beyond the boundaries of the main housing of the tool and that the position of the handle may be quickly and easily changed to adapt the tool for various working conditions.

As will be apparent to persons skilled in the art, various modifications and adaptations of the structure above described will become readily apparent without departure from the spirit and scope of the invention, the scope of which is defined in the appended claims.

I claim:

1. In a portable power tool having a housing and a main handle, a mounting boss on said housing between the front edge thereof and said handle, said boss having a mounting surface inclined forwardly away from said main handle, an auxiliary handle including an arm having at one end thereof a mounting portion adapted to be secured to said mounting boss in a plurality of positions angularly displaced about an axis perpendicular to said mounting surface, said mounting portion being angularly disposed with respect to the remainder of said arm whereby said auxiliary handle may be secured on said mounting boss in a plurality of positions including one in which it extends forwardly from said housing and another in which it extends generally vertically above said housing, and means for securing said mounting portion on said mounting boss.

2. In a portable power tool having a housing and a main handle, a mounting boss on said housing between the front edge thereof and said handle, said boss having

a mounting surface inclined forwardly away from said main handle and a tapped hole therein perpendicular to said mounting surface, an auxiliary handle including an arm having at one end thereof a mounting portion adapted to be secured to said mounting boss in a plurality of positions angularly displaced about the axis of said tapped hole, said mounting portion having an aperture therein and being angularly disposed with respect to the remainder of said arm whereby said auxiliary handle may be secured on said mounting boss in a plurality of positions including one in which it extends forwardly from said housing and another in which it extends generally vertically above said housing, a screw extending through said aperture into threaded engagement with said tapped hole, and detent means for securing said mounting portions on said mounting boss in each of said plurality of positions.

3. In a portable power tool having a normally horizontally extending housing and an upright housing thereon, a mounting boss on said horizontally extending housing adjacent said upright housing for supporting an adjustable auxiliary handle, said boss having a mounting surface inclined forwardly away from said upright housing, an auxiliary handle including an arm having at one end thereof a mounting portion adapted to be secured to said mounting boss in a plurality of positions angularly displaced about an axis perpendicular to said mounting surface, said mounting portion being angularly disposed with respect to the remainder of said arm whereby said auxiliary handle may be secured on said mounting boss in a plurality of positions including one in which it extends forwardly from said horizontally extending housing and another in which it extends generally vertically therefrom, and means for securing said mounting portion on said mounting boss.

4. In a portable power tool having a normally horizontally extending housing and an upright housing thereon,

a mounting boss on said horizontally extending housing adjacent said upright housing for supporting an adjustable auxiliary handle, said boss having a mounting surface inclined forwardly away from said upright housing and a tapped hole therein perpendicular to said mounting surface, an auxiliary handle including an arm having at one end thereof a mounting portion adapted to be secured to said mounting boss in a plurality of positions angularly displaced about the axis of said tapped hole, said mounting having an aperture therein and being angularly disposed with respect to the remainder of said arm whereby said auxiliary handle may be secured on said mounting boss in a plurality of positions including one in which it extends forwardly from said horizontally extending housing and another in which it extends generally vertically therefrom, a screw extending through said aperture into threaded engagement with said tapped hole, and detent means for securing said mounting portion on said mounting boss in each of said plurality of positions.

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ROBERT C. RIORDON, *Primary Examiner.*

J. A. MATHEWS, *Assistant Examiner.*