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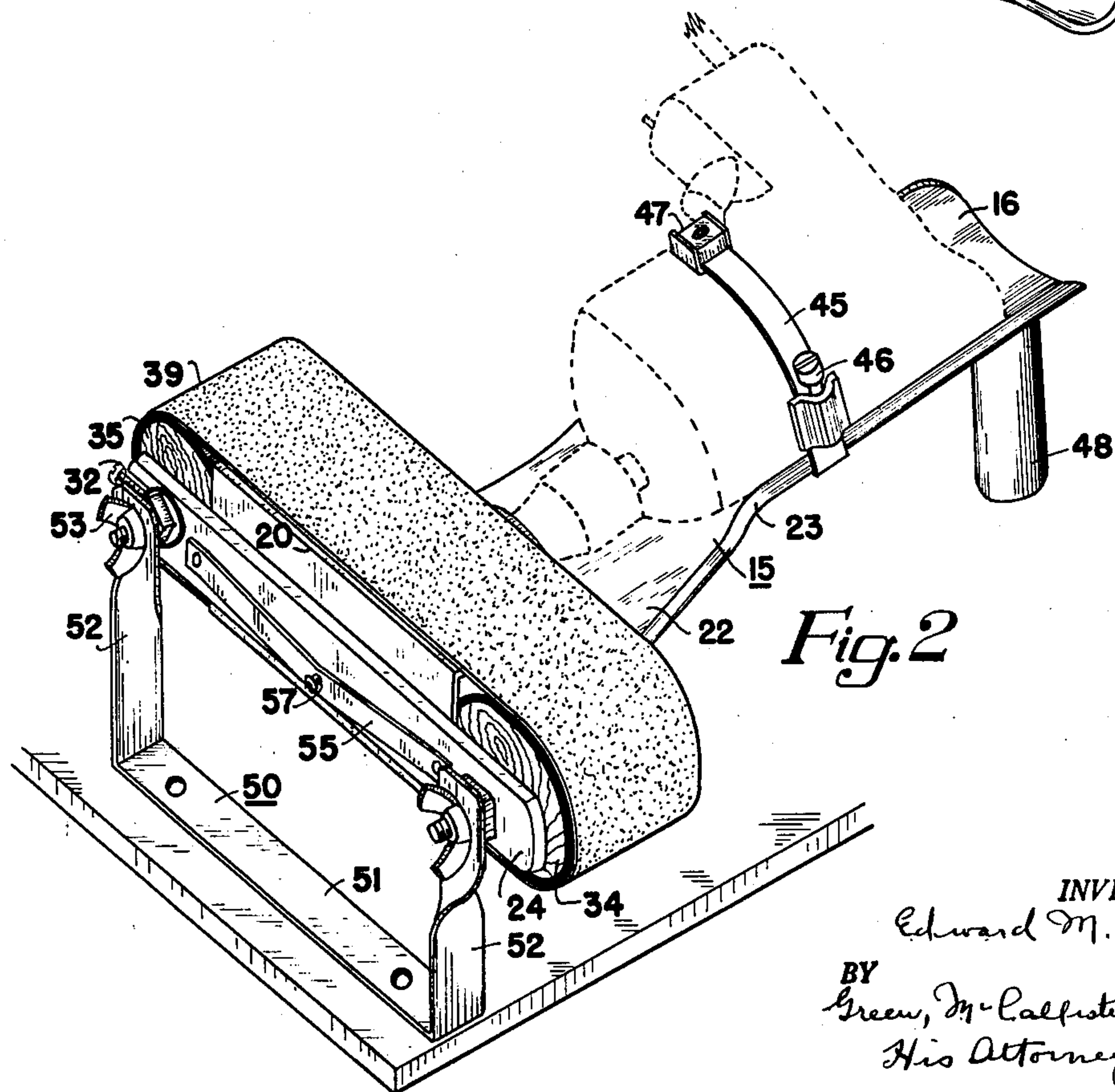
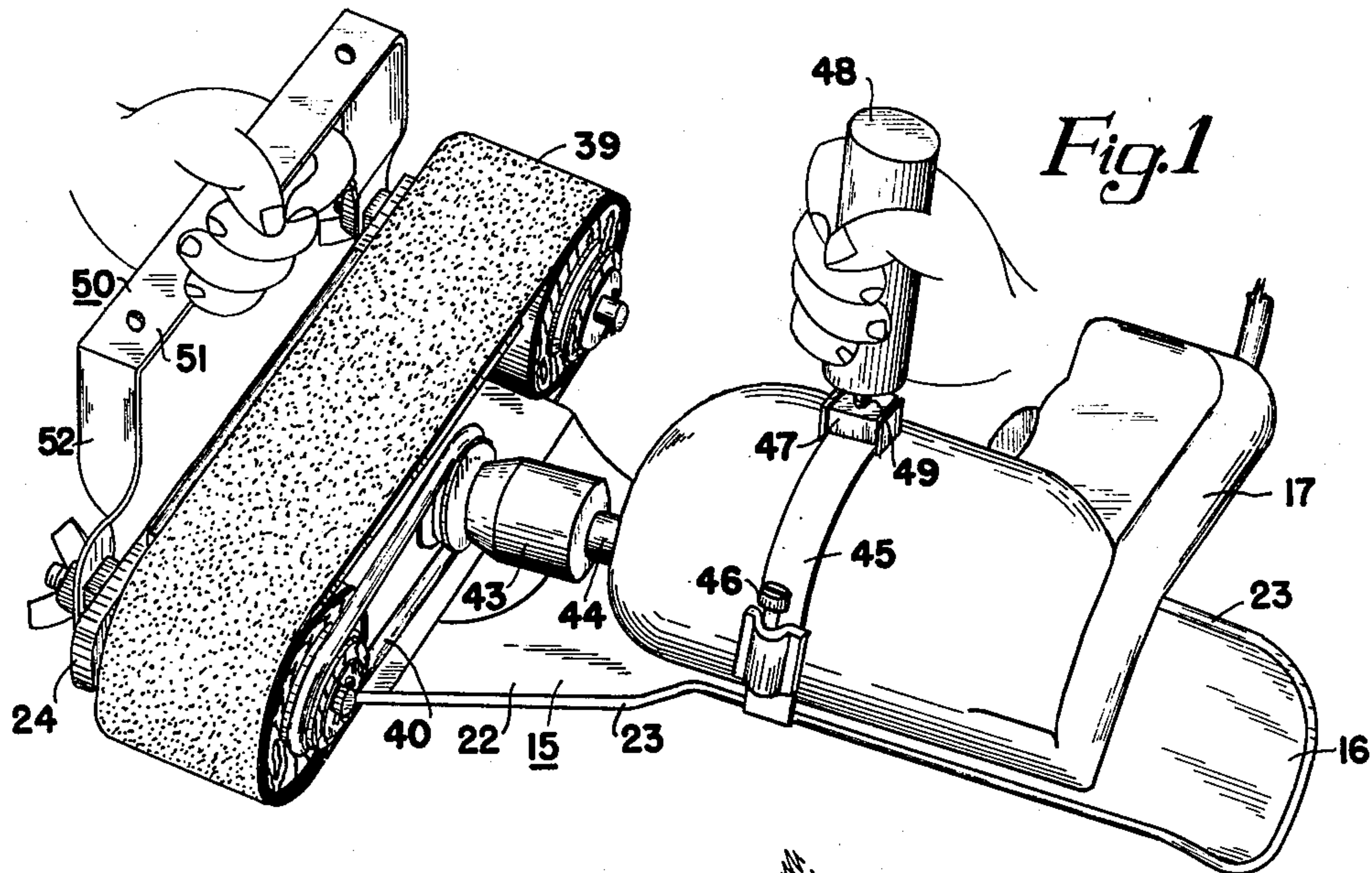
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PORTABLE BELT TYPE SANDING DEVICE

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2 Sheets-Sheet 1



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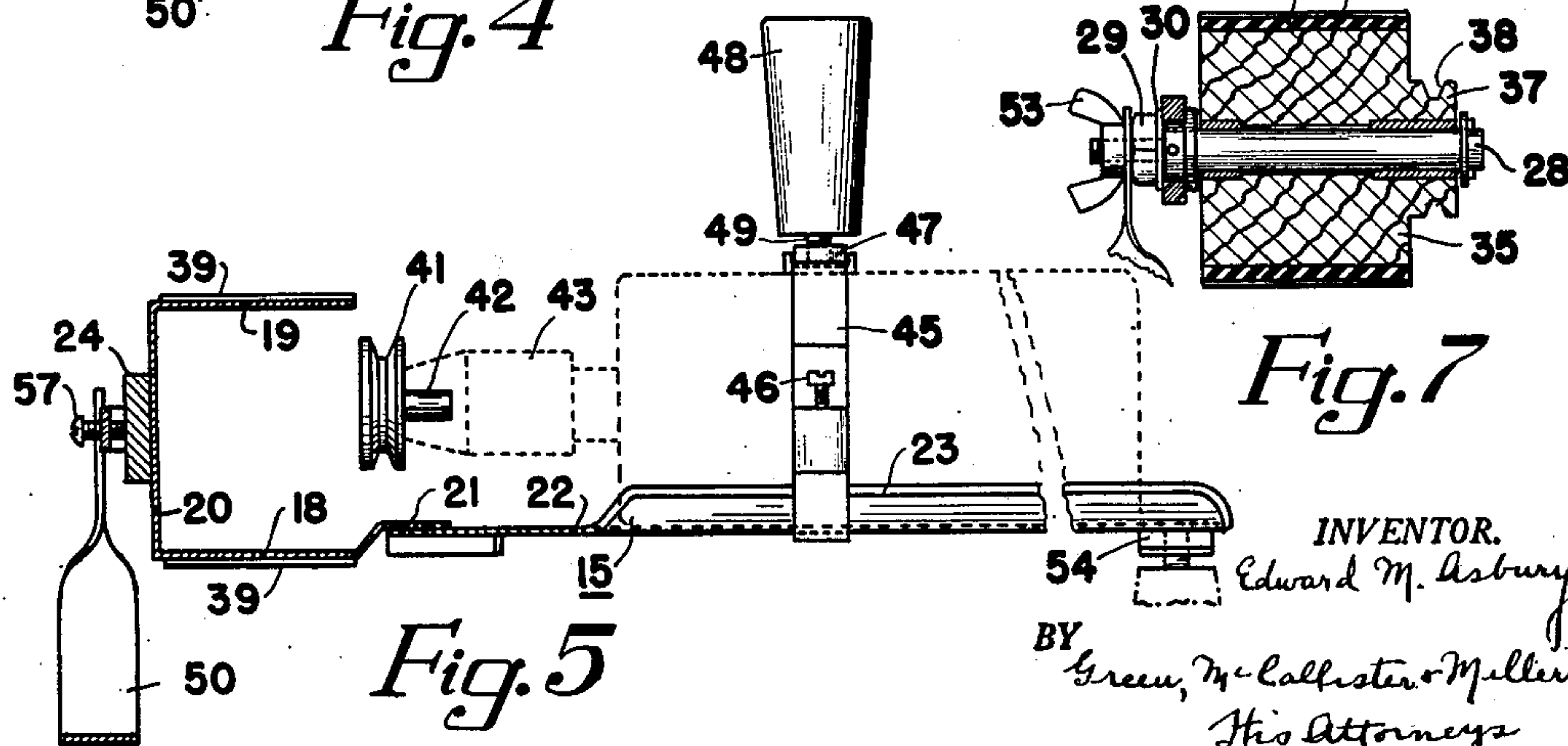
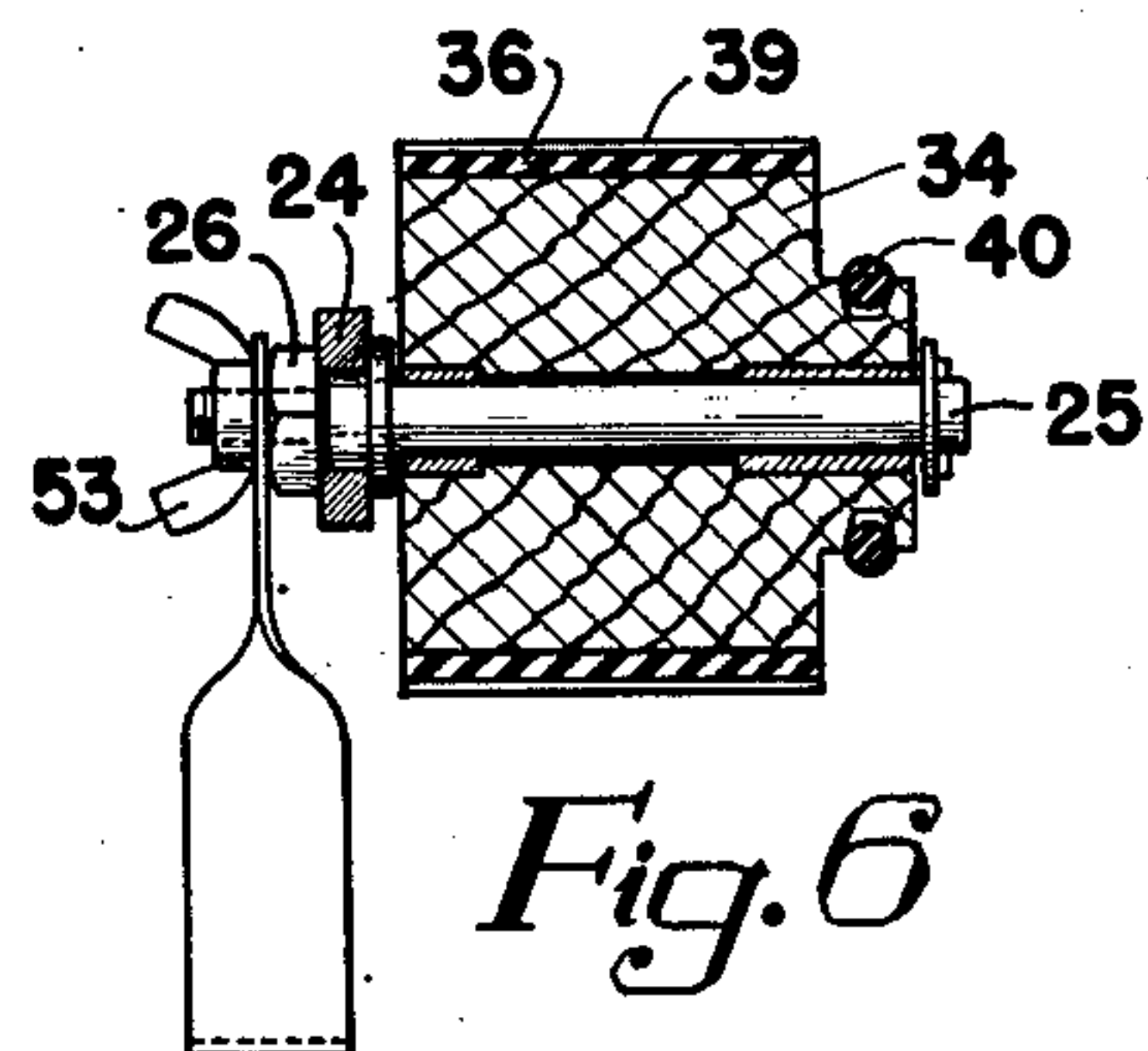
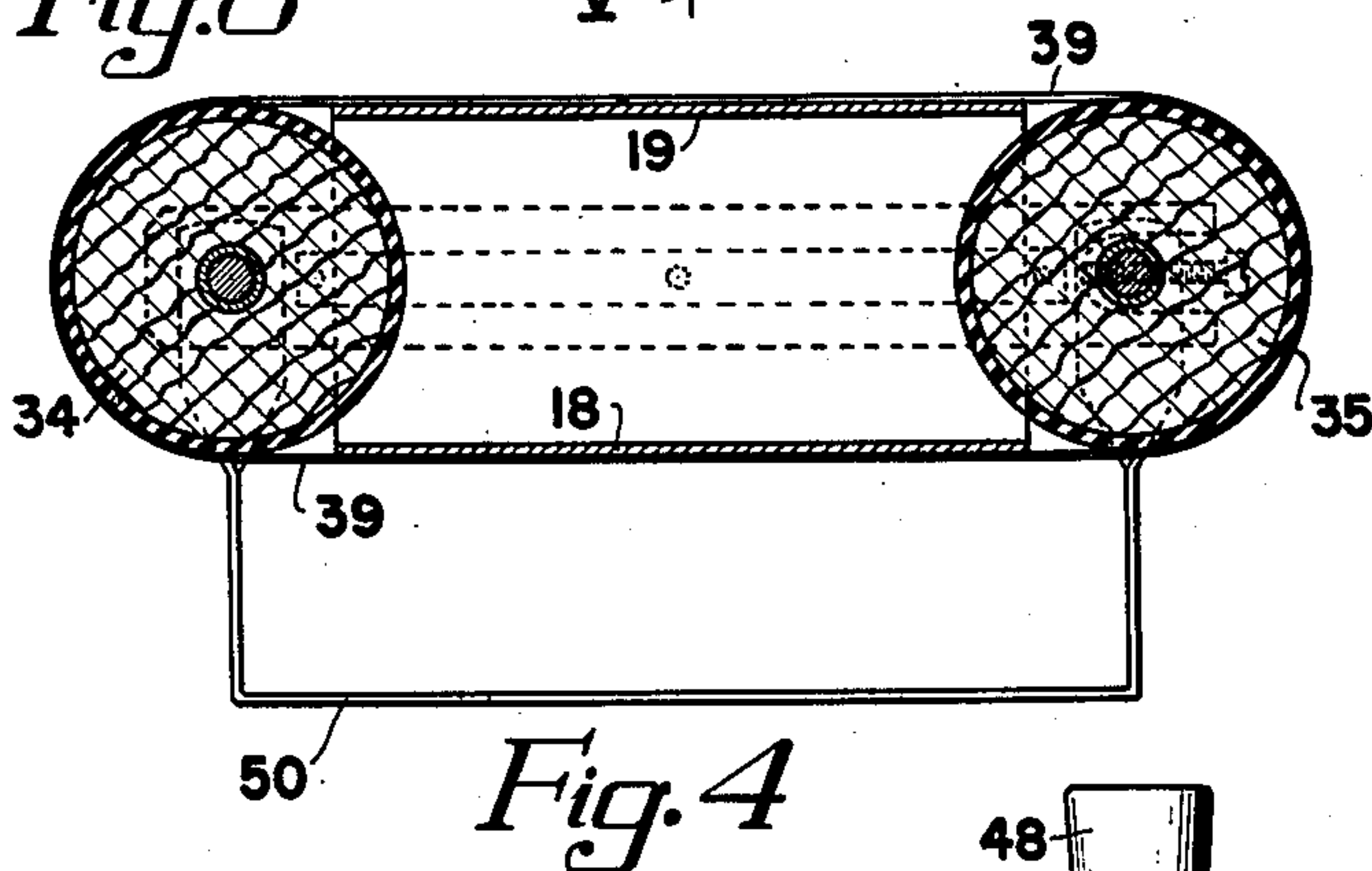
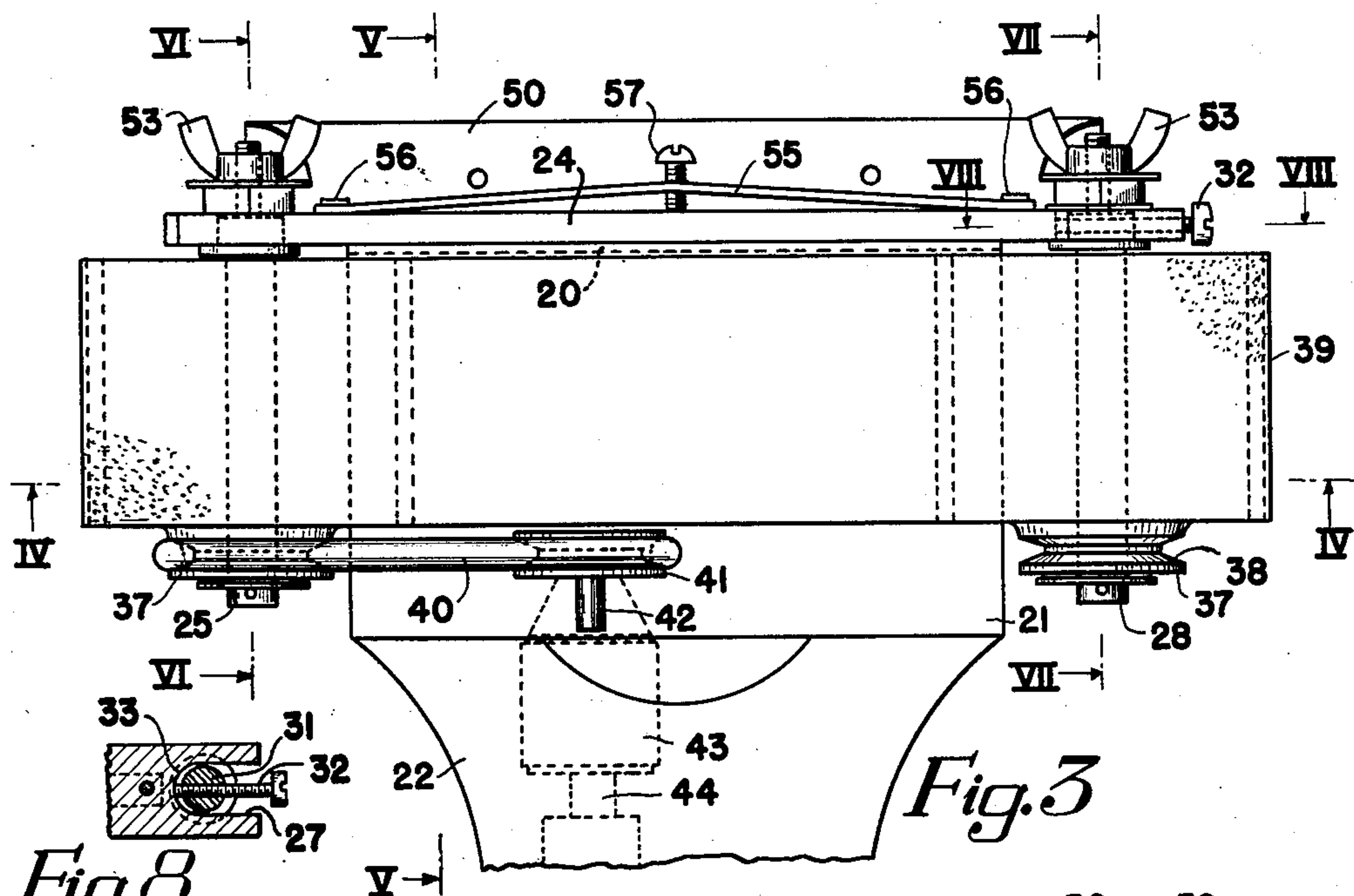
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UNITED STATES PATENT OFFICE

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PORTABLE BELT TYPE SANDING DEVICE

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7 Claims. (Cl. 51—135)

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This invention relates to portable sanding devices of the endless belt type and more particularly to motor driven devices of this type.

One object of this invention is to produce an improved inexpensive, rugged, motor driven belt type sanding device for home use.

Another object is to produce an improved motor-driven belt type sanding device provided with means for adapting it to be used either as a hand tool or as a bench tool.

Another object is to produce a device which, when a portable electric drill is secured in position thereon, becomes an improved home belt type sanding device.

A further object is to produce a belt type sanding device equipped to receive and be driven by any one of a number of small portable electric drills now on the market.

These and other objects which will be apparent to those skilled in this art, I attain by means of the device described in the specification and illustrated in the drawings accompanying and forming part of this application.

In the drawings:

Figure 1 is a perspective view of the device of this invention equipped with a motor in the form of a portable drill and having the handles adjusted to adapt it for use as a hand tool;

Fig. 2 is a perspective view of the device of Fig. 1 with the handles adjusted to adapt the device to bench operation. In this view the motor is shown in dotted lines.

Fig. 3 is a top plan view of a portion of the device of this invention and shows the sanding belt portion of the device in top plan;

Fig. 4 is a sectional view taken on line IV—IV of Fig. 3 but on a reduced scale;

Fig. 5 is a sectional view taken on line V—V of Fig. 3; but on a reduced scale and with the motor shown in dotted lines;

Fig. 6 is a detail view taken on line VI—VI of Fig. 3;

Fig. 7 is a sectional view taken on line VII—VII of Fig. 3; and

Fig. 8 is a detail sectional view taken on line VIII—VIII of Fig. 3.

The device of this invention is provided with a base 15 which, adjacent one end, is provided with a saddle 16 adapted to receive the body portion of a portable electric drill 17. At the end opposite such saddle, the base is provided with a cross member comprising a flat floor 18, a flat ceiling 19 which parallels such floor and which is connected thereto by a right angled wall 20.

Base 15 is preferably formed in two parts from

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heavy sheet metal and the parts are preferably joined together as at 21 by spot welds. The edges of the saddle and connecting portion 22 are provided with a finish and reinforcing bead 23 as shown in Figs. 1, 2 and 5.

A relatively heavy bar 24, which as clearly shown in Figs. 2 and 3, is considerably longer than wall 20, is connected by spot welds to such wall in such manner that its longitudinal center line coincides with the longitudinal center line of such wall.

Bar 24, adjacent one end, is drilled to receive the smaller of two contiguous shoulders of a spindle 25 which is held in position in such bar by a nut 26 as shown in Fig. 6.

End of bar 24 remote from spindle 25 is provided with a slot 27 as shown in Fig. 8 to receive the smaller of two contiguous shoulders of a spindle which is secured in place by a nut 29 which as shown in Fig. 7 is threaded to the end of such spindle and bears against a washer 30 interposed between it and bar 24.

Shoulder 31 which is the smaller of the two contiguous shoulders of spindle 28, is drilled and tapped to receive an adjusting screw 32. The inner end of this adjusting screw bears against the curved end wall 33 of slot 27. By setting up nut 29 until spindle 28 is fairly rigid, its proper position can be obtained by turning adjusting screw 32 in or out as the case may be, after which nut 29 is set up tight.

A cylindrical roller is mounted for rotation on each spindle, that on spindle 25 is numbered 34, while that on spindle 28 is numbered 35. These spindles are preferably made from hard wood and the outer cylindrical surface of each is provided with a rubber cushion cover 36.

The spindle bore of each roller is provided with metal bushings as shown in Figs. 6 and 7 and each roller is preferably provided with a pulley extension 37 having a belt groove 38 turned therein.

An endless abrasive belt 39 is supported by the rollers and its upper run passes above upper wall or ceiling 19 and its lower run passes below lower wall or floor 18 of the cross member portion of base 15 of the device.

Proper tensioning of the abrasive belt 39 is obtained by adjusting adjustment screw 32.

The abrasive belt and the rollers are driven by a standard $\frac{1}{4}$ " rubber drive belt 40 which engages pulley 37 of one of the rollers and a belt pulley 41, the shaft 42 of which is engaged by chuck 43 carried at the end of shaft 44 of the electric drill 17.

Drill 17 is secured in position within its saddle

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portion of base 15 by a clamping band 45 which surrounds both the drill body and the saddle portion 16 of the base and is tightened by means of a screw device 46 common to standard hose clamps. The position of the drill is such that its trigger control switch can be used as intended. Since pulley 41 is located nearer one pulley 37 than the other, I have the choice of two lengths of drive belt 40.

Clamping band 45 has a nut 47 secured thereto, preferably by brazing or welding and a handle 48 having a screw 49 projecting from one end is adapted to be secured to nut 47 when it is desired to use the device as a portable sander, as shown in Fig. 1.

In order that the sander can be manipulated by both hands, I provide an additional handle 50. Handle 50 is preferably made from strap-like metal fashioned so as to have a flat portion 51 and angled end portions 52. End portions 52 have their extreme ends twisted as shown in the drawings and these extreme end portions are provided with holes that are drilled so that they can be applied to the threaded ends of spindles 25 and 28. This handle 50 is secured in position on the threaded end of the spindles by wing nuts 53.

When the device is to be used as a portable device, the handles will be arranged as disclosed in Fig. 1 and when it is to be used as a bench device, handle 50 will be reversed and will be secured in the position shown in Fig. 2. When handle 50 is reversed, handle 48 will be unscrewed from nut 47 and screwed into a nut-like fixture 54 which is secured to the outer face of saddle portion 16 of base 15, by being brazed or welded to such outer face as shown in Fig. 5.

In order to prevent abrasive belt 39 from moving off the rollers during operation of the device, in other words, in order to cause it to track properly, the axes of the rollers are canted in a plane which includes the roller axes. To accomplish this, I secure a metal strap-like tensioning member 55 to the outer side of bar 24. This member 55 has its ends riveted to bar 24 as at 56 in line with the roller axes. Between its ends, member 55 stands away from bar 24 as shown in Fig. 3 and midway between its ends it is drilled and tapped to receive a tensioning screw 57. The inner end of this screw bears against bar 24. From this construction, it will be apparent that by tightening screw 57 sufficiently, bar 24 may be so flexed that the roller spindles and therefore the roller axes can be canted sufficiently to cause the roller axes to diverge. Only a slight divergence is sufficient to cause abrasive belt 39 to track properly.

What I claim is:

1. A portable sanding device comprising a pair of spaced rollers, fixed spindles upon which such rollers are mounted for rotation, a bar to which such spindles are secured, an endless abrasive belt mounted on such rollers, means for adjusting at least one of such spindles toward or from the other, means for flexing such bar between such spindles in order to cant the axes of such rollers, an electric motor having a shaft projecting from one end thereof substantially paralleling such spindles and having its axis substantially midway between the axes of such spindles, and means operated by such motor for driving one or the other of such rollers to operate such belt.

2. A portable sanding device comprising a pair of spaced rollers, fixed spindles upon which such rollers are mounted for rotation, a bar to which

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such spindles are secured, an endless abrasive belt mounted on such rollers, means for adjusting at least one of such spindles toward or from the other, means for flexing such bar between such spindles in order to cant the axes of such rollers, a pair of spaced flat parallel members between such rollers and serving as backing means for both runs of such belt, an electric motor having a shaft projecting from one end thereof substantially paralleling such spindles and having its axis substantially midway between the axes of such spindles, and means operated by such motor for driving one or the other of such rollers to operate such belt.

3. In a portable sanding device, a base member formed at one end with a saddle for receiving a portable electric motor and at the opposite end being widened out to provide a floor, a roof paralleling such floor and an upright wall joining such roof and floor, a relatively heavy bar secured to such upright wall and projecting beyond opposite ends thereof, roller spindles mounted in such bar and extending rearwardly toward such saddle, rollers mounted for rotation on such spindles, an endless abrasive belt mounted on such rollers and passing immediately above such ceiling and immediately below such floor, means for adjusting at least one of such spindles toward and from the other, means carried by such bar for flexing the same to cant the axes of such rollers an electric motor secured within such saddle, having its shaft substantially paralleling such spindles, located substantially midway between the same and having a pulley secured thereto, a pulley secured to at least one such roller and an endless belt connecting such pulleys.

4. In a portable sanding device, a base member formed at one end with a saddle for receiving a portable electric motor and at the opposite end being widened out to provide a floor, a roof paralleling such floor and an upright wall joining such roof and floor, a relatively heavy bar secured to such upright wall and projecting beyond opposite ends thereof, roller spindles mounted in such bar and extending rearwardly toward such saddle, rollers mounted for rotation on such spindles, an endless abrasive belt mounted on such rollers and passing immediately above such ceiling and immediately below such floor, means for adjusting at least one of such spindles toward and from the other, means carried by such bar for adjustably flexing the same to cant the axes of such rollers, an electric motor secured within such saddle and having a shaft that extends toward such bar substantially midway between such spindles, and means for connecting one of such rollers to such motor shaft.

5. In a portable sanding device, a base member having at one end a saddle for receiving a portable type electric motor and at the opposite end having spaced abrasive belt backing members connected by a wall arranged at right angles thereto; a support bar attached to such wall and extending beyond opposite ends thereof, a pair of spaced spindles secured to such bar and extending toward such saddle, support rollers mounted on such spindles, an abrasive belt mounted on such rollers, a portable type electric motor positioned on such saddle and arranged to drive such belt through at least one of such rollers, a clamping band for securing such motor in place and having a threaded socket for receiving the threaded end of a handle, a threaded socket secured to the convex wall of such saddle for also receiving such threaded handle, and a re-

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versible handle secured to such bar; the construction and arrangement being such that said handles when adjusted in one position serve as handles for manipulating the device and when adjusted in the opposite position serve as supports by means of which the device can be supported and/or secured to a supporting member.

6. In a portable belt type sander, a bar-like support, spaced spindles secured to such support, means for adjusting at least one such spindle toward and from the other, rollers mounted on such spindles, an abrasive belt carried by such rollers, a bar flexing member having its ends secured to such bar adjacent such spindles and which, intermediate its ends is spaced from such bar, and an adjusting screw threaded through such member adjacent its center and bearing on such bar whereby, by tightening such screw such bar can be flexed for the purpose of causing the axes of such rollers to converge sufficiently to prevent said belt from moving laterally off such rollers.

7. In a portable belt type sander, a bar-like support, spaced spindles secured to such support, means for adjusting at least one such spindle toward and from the other, rollers mounted on such spindles, an abrasive belt carried by such rollers, a bar flexing member having its ends secured to such bar adjacent such spindles, and

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which, intermediate its ends is spaced from such bar, an adjusting screw threaded through such member adjacent its center and bearing on such bar, a base member, having at one end an upright portion to which such bar is attached and at the opposite end having a saddle for receiving a portable type electric motor, a portable type electric motor secured within such saddle and having its shaft projecting toward such bar, a belt pulley associated with at least one of such rollers, a belt pulley carried by the shaft of such motor, and a flexible belt connecting such pulleys.

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