Aug. 10, 1965 C. E. STACEY 3,199,235

PORTABLE POWER UNIT HAVING AN ANGLED FRAME WITH MOTOR MEANS ON ONE LEG THEREOF

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Fig. 1.

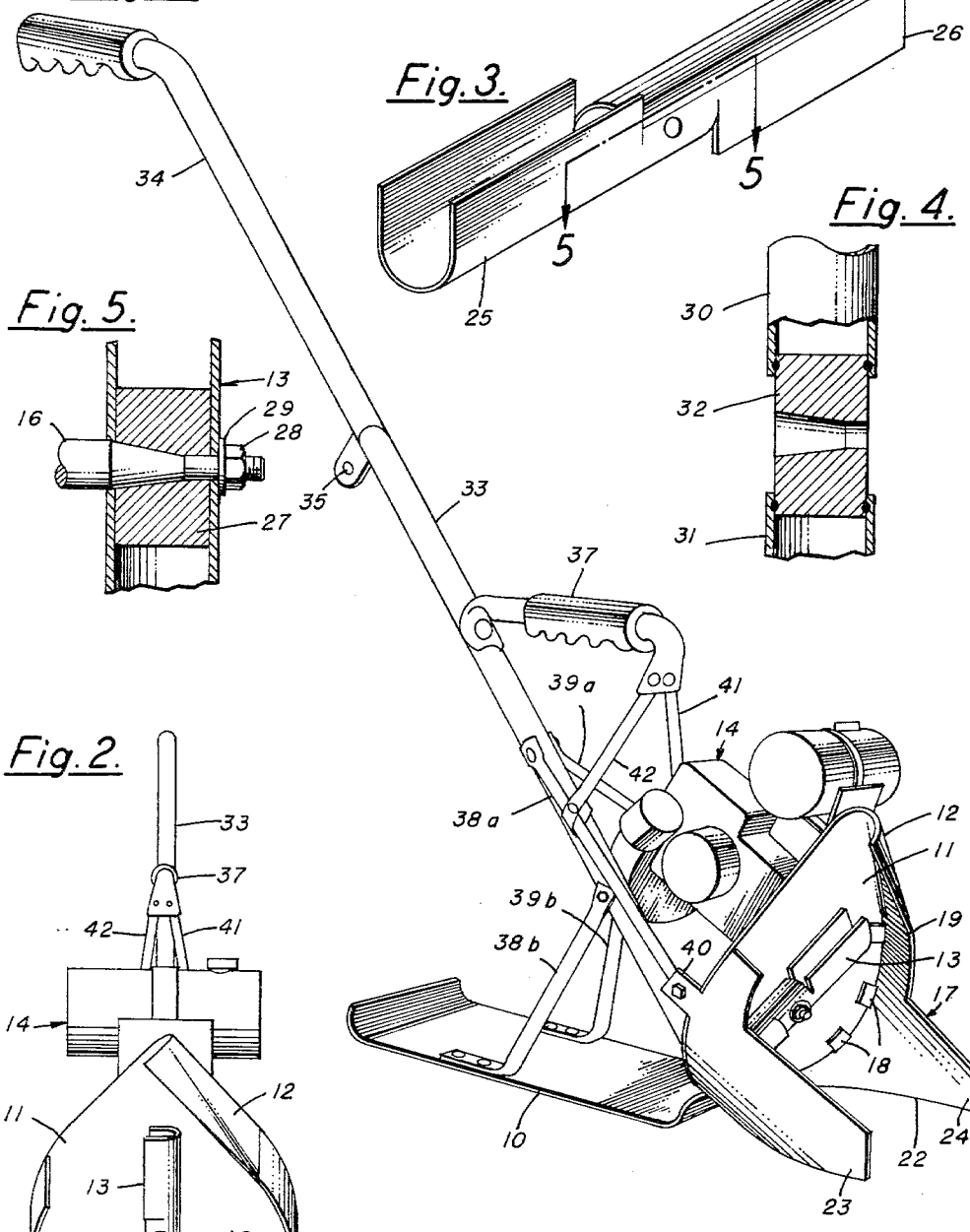


Fig. 3.

Fig. 4.

Fig. 5.

Fig. 2.

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Fig. 6.

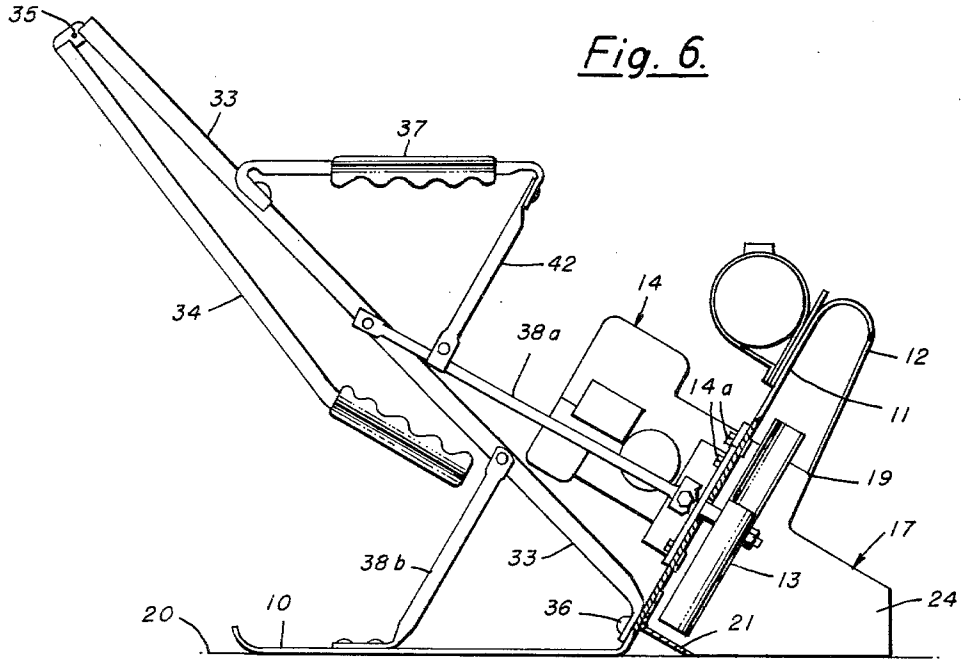


Fig. 7.

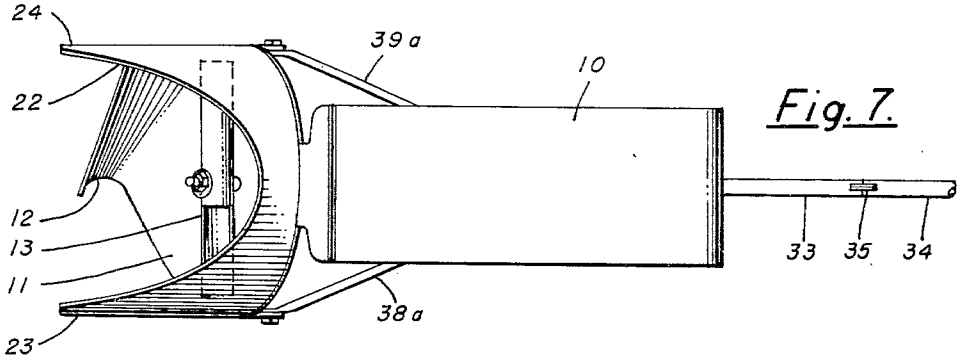
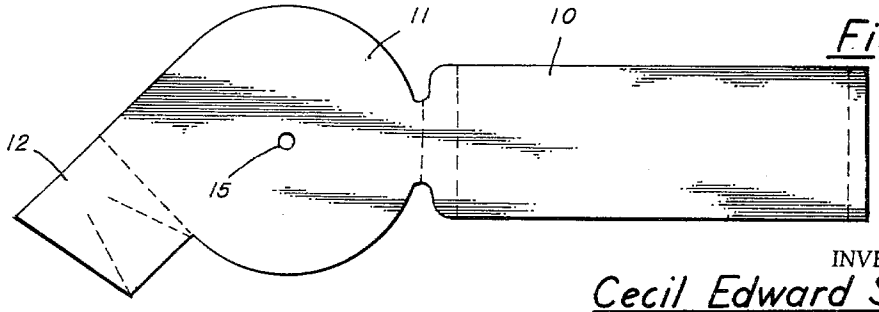


Fig. 8.



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PORTABLE POWER UNIT HAVING AN ANGLED FRAME WITH MOTOR MEANS ON ONE LEG THEREOF

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7 Claims. (Cl. 37—43)

This invention relates to portable power units, and the preferred form has been developed as a rotary snowplow. An exposed power shaft is readily accessible for coupling a wide variety of accessories such as flexible shafting, spray compressors, rotary brushes, and an endless assortment of other devices. The central features of the invention relate to the conformation and assembly of the components for simplicity and economy. These components are preferably of formed sheet metal, and several of them perform multiple functions resulting in a remarkably light weight with respect to the utility of which the machine is capable.

The several features of the invention will be analyzed in detail through a discussion of the particular embodiments illustrated in the accompanying drawings. In the drawings:

FIGURE 1 presents a perspective view of a rotary snowplow embodying this invention.

FIGURE 2 is a front elevation of the device shown in FIGURE 1.

FIGURE 3 is a perspective view, on an enlarged scale, of the rotor of the device shown in FIGURE 1.

FIGURE 4 shows a modified form of rotor construction.

FIGURE 5 is a section taken on the plane 5—5 of FIGURE 3, and showing the motor shaft in engagement with the rotor.

FIGURE 6 is a side elevation showing the folded position of the handle of the FIGURE 1 device.

FIGURE 7 is a bottom view of the machine shown in FIGURE 1.

FIGURE 8 shows a flat "development" of the plate which provides the skid, the mounting plate, and the chute portions of the preferred form of the invention.

Referring to the drawings, the device shown in FIGURE 1 is adapted to function as a snowplow, and includes a frame based upon the skid 10 and the mounting plate 11. In the preferred form of the invention, the skid and mounting plate are integral portions of a single steel plate bent to the illustrated conguration from the flat pattern shown in FIGURE 8. An extension of the mounting plate shown at 12 is formed to function as a tangential discharge chute for the snow thrown by the rotor 13 under the action of the motor unit 14. The mounting plate 11 is provided with a central hole 15 for receiving the shaft 16 of the motor unit 14, and the motor unit itself is secured in any convenient fashion (as by the bolts 14*a*) to the mounting plate 11.

A scoop 17 is preferably of generally cylindrical configuration, and may be secured to the mounting plate 11 by welding tabs as shown at 18. The scoop provides a trough-shaped configuration that terminates at the point indicated at 19, where the chute 12 functions as a continuation to provide a continuous path of discharge for the snow or other bulk material.

It is significant that the scoop 17 is mounted at an angle with respect to the plane of the ground surface 20 established by the skid 10, and that the scoop 17 intersects this plane at a position such as will leave a portion of the bottom to form an inclined surface 21 which is continuous under the rotor. When the cylindrical form is used for the scoop, as shown in the drawings, the intersection with the plane of the ground forms a parabolic edge 22 which acts as a scraper. The opposite arms 23 and 24 of the

scoop 17 not only serve as guides, but cooperate with the skid 10 to maintain the stability of the machine. These arms also function to protect and embrace any auxiliary equipment that may be attached to the shaft 16 in place of the rotor 13, when the device is used as a power source.

The preferred form of the rotor is best shown in FIGURE 3. A tubular piece of steel is slotted on opposite sides over a portion of the length, and opened up to provide the channel portions 25 and 26 which both open at the ends and in the direction of rotation of the motor unit 14. It is preferable to incorporate a hub block 27 to reinforce the central portion of the rotor, and the conformation of the bore in the hub block may be adapted to suit the particular tapered form of the engine shaft 16. A nut 28 and washer 29 are standard arrangements for securing rotary members to such a shaft. The modified form of the rotor shown in FIGURE 4 differs from that of FIGURE 3 merely in the fact that the end channel portions 30 and 31 are not integral parts of a continuous piece of tubing, but are independently secured by welding to the hub block 32.

A handle assembly is preferably incorporated in the structure, and may include a folding portion for use from standing position. This includes the lower section 33 and the upper section 34, these being hinged with respect to each other at 35. The lower section 33 is secured to the mounting plate 11 by means of rivets 36 or the like (refer to FIGURE 6). In the folded position, the device may be placed in the trunk of an automobile, as the preferred engine is of a very light high-speed type, resulting in a total weight of the entire assembly of something around fifteen pounds. It is also desirable to include a fixed handle 37 which can be connected to the lower section 33, and also to the side braces 38*a* and 39*a* extending from the portion 33 outward in a diverging arrangement to a point of connection with tabs as shown at 40 on the scoop 17. Independent brackets on the mounting plate 11 may also be used as terminals for the side braces 38 and 39. The diagonal braces 38*b* and 39*b* extending from the handle section 33 to the skid 10 are also recommended. The struts 41 and 42 connecting the side braces to the fixed handle 37 may be of the same materials as the braces 38 and 39.

The particular embodiments of the present invention which have been illustrated and discussed herein are for illustrative purposes only and are not to be considered as a limitation upon the scope of the appended claims. In these claims, it is my intent to claim the entire invention disclosed herein, except as I am limited by the prior art.

I claim:

1. A rotary snowplow comprising:

a frame including an integral plate forming an obtuse angle and providing a central and continuous skid of substantial width and a mounting panel, respectively, by the opposite legs of said angle,

said mounting panel having a central hole, and also having an integral extension formed to provide a tangential chute open on the side thereof adjacent said hole;

a motor partially overlying said skid and secured to said mounting panel, said motor having a shaft traversing said hole;

handle means secured to said frame; and

a scoop having a trough-shaped configuration, and secured at one end thereof to said mounting panel, said scoop being disposed at an angle to the plane of said skid and terminating substantially at the intersection thereof with said plane to form a support, guide, and scraper,

said chute forming a continuation of one side of said scoop;

and a rotor mounted on said shaft opposite said chute and within said scoop.

2. A rotary snowplow comprising:

a frame including plate portions forming an obtuse angle and providing a central and continuous skid of substantial width and a mounting panel, respectively, by the opposite legs of said angle,

said mounting panel having a central hole, and also having an extension formed to provide a tangential chute open at the end and on the side thereof adjacent said hole;

a motor partially overlying said skid and secured to said mounting panel, said motor having a shaft traversing said hole;

handle means secured to said frame; and

a scoop having a trough-shaped configuration, and secured at one end thereof to said mounting panel, said scoop being disposed at an angle to the plane of said skid and terminating substantially at the intersection thereof with said plane to form a support, guide, and scraper,

said chute forming a continuation of one side of said scoop;

and a rotor mounted on said shaft opposite said chute and within said scoop.

3. A rotary snowplow comprising:

a frame including plate portions forming an obtuse angle and providing a central and continuous ground support of substantial width and a mounting panel, respectively, by the opposite legs of said angle,

said mounting panel having a central hole, and also having an extension formed to provide a tangential chute open at the end and on the side thereof adjacent said hole;

a motor partially overlying said ground support and secured to said mounting panel, said motor having a shaft traversing said hole;

handle means secured to said frame; and

a scoop having a trough-shaped configuration, and secured at one end thereof to said mounting panel, said scoop being disposed at an angle to the plane of said ground support and terminating substantially at the intersection thereof with said plane to form a support, guide, and scraper,

said chute forming a continuation of one side of said scoop,

and a rotor mounted on said shaft.

4. A rotary snowplow comprising:

a frame including portions providing a ground support and a mounting panel;

a motor secured to said mounting panel and having a shaft provided with a longitudinal axis;

and a rotor carried by said shaft,

said rotor including channel portions disposed at the opposite ends thereof and opening at the outer ends thereof and in the direction of rotation of said motor, and also including a cylindrical hub portion having a longitudinal axis extending transversely with respect to said shaft axis, and embraced by and secured to said channel portions.

5. A power unit comprising:

a frame including an integral plate forming an obtuse angle and providing a central and continuous, horizontally disposed skid of substantial width and a mounting panel extending upwardly from said skid, respectively, by the opposite legs of said angle,

said mounting panel having a central hole, and

a motor partially overlying said skid and secured to said mounting panel, said motor having a shaft traversing said hole; and

handle means secured to said frame.

6. A power unit comprising:

a frame including plate portions forming an obtuse angle and providing a central and continuous skid of substantial width and a mounting panel, respectively, by the opposite legs of said angle,

said mounting panel having a central hole, and

a motor partially overlying said skid and secured to said mounting panel, said motor having a shaft traversing said hole;

handle means secured to said frame; and

a member having a trough-shaped configuration, and secured at one end thereof to said mounting panel, said member having opposite spaced arms extending on the opposite side of said mounting plate from said skid, and terminating substantially at the plane of the bottom of said skid to form a support.

7. A power unit comprising:

a frame including plate portions forming an obtuse angle and providing a central and continuous, horizontally disposed ground support of substantial width and a mounting panel extending upwardly from said ground support containing a hole, respectively, by the opposite legs of said angle;

a motor partially overlying said ground support and secured to said mounting panel, said motor having a shaft traversing said hole; and

handle means secured to said frame.

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