Nov. 1, 1949 G. M. REYNOLDS 2,486,880

LINOLEUM CUTTING MACHINE

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Fig. 1.

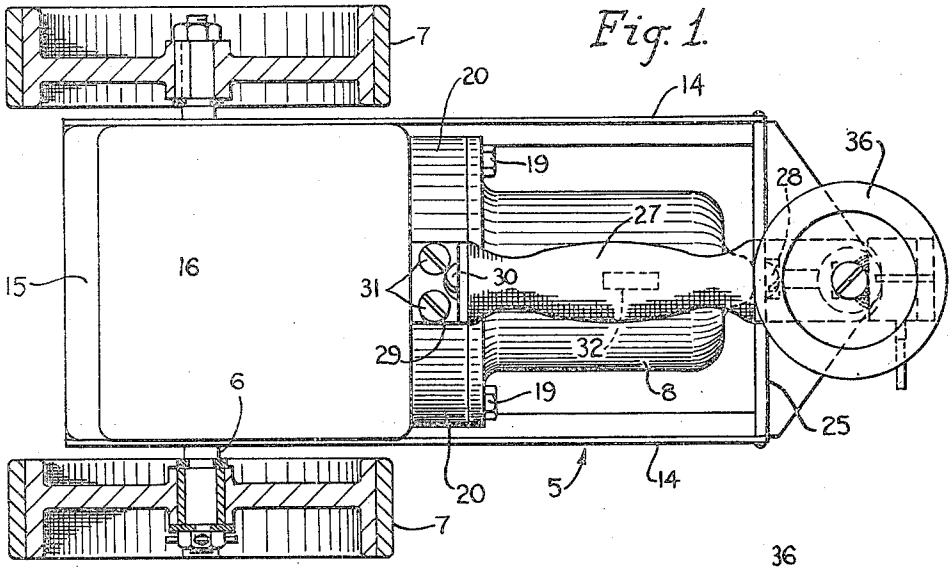
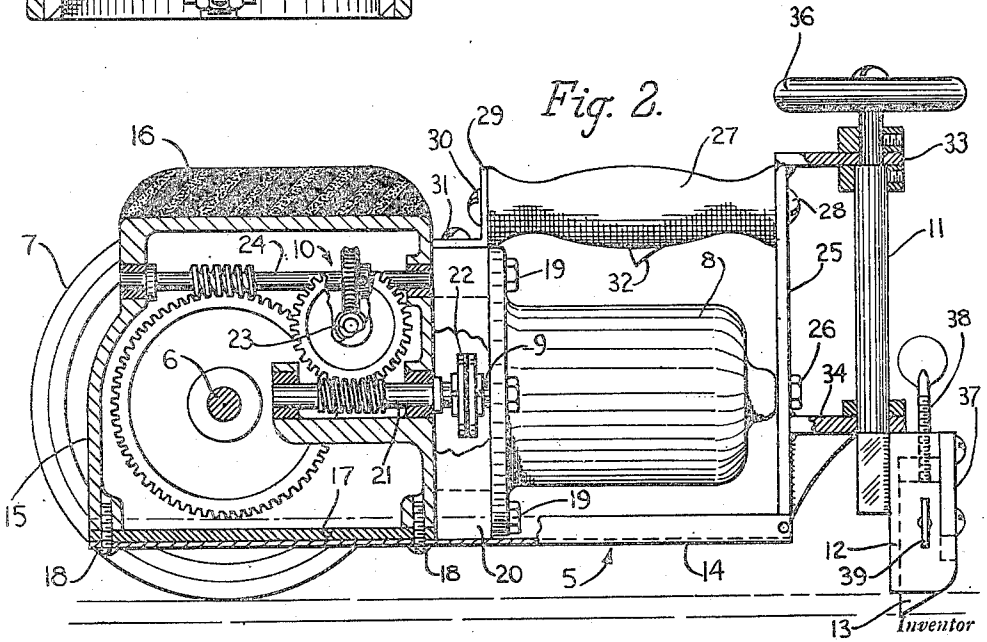


Fig. 2.



Inventor

Glenn M. Reynolds.

By Thomas O'Brien and Harvey B. Jackson

Attorneys

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Fig. 3.

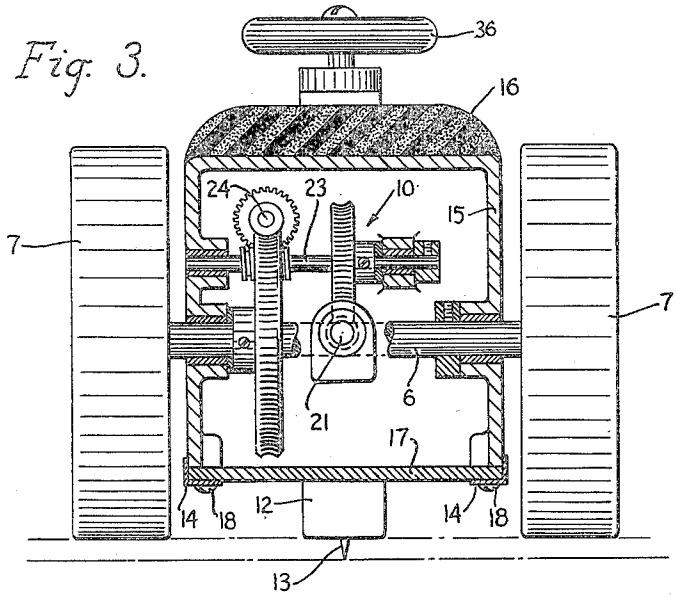
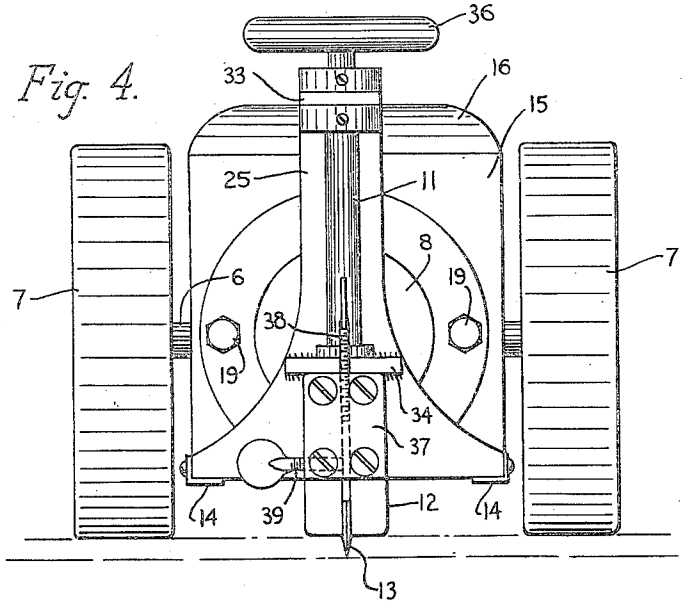


Fig. 4.



Inventor

Glenn M. Reynolds

By *Warren A. O'Brien and Harvey B. Jacobson*

Attorneys

Patented Nov. 1, 1949

2,486,880

UNITED STATES PATENT OFFICE

2,486,880

LINOLEUM CUTTING MACHINE

Glenn M. Reynolds, Parkersburg, W. Va., assignor of one-half to Joseph Ralph Gallagher, Parkersburg, W. Va.

Application November 8, 1945, Serial No. 627,314

6 Claims. (Cl. 30—293)

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This invention relates to a machine particularly adapted for cutting linoleum and similar materials.

The primary object of the present invention is to provide a machine of the above kind which is motor propelled and has driven rear traction wheels, which has a manually steered cutter blade block at the front adapted to ride on the surface of the material being cut and to be turned for cutting the material accurately along a curved or straight line, and which includes means to facilitate application of pressure upon the machine to insure effective tractive engagement of the traction wheels with the surface of the material and maintenance of the cutter blade in proper cutting relation to the material.

A more specific object of the invention is to provide a machine of the above kind in which the cutter blade is vertically adjustable to protrude below the cutter blade block a distance corresponding to the thickness of the material being cut.

Still another object of the invention is to provide a machine of the above kind which is comparatively simple and durable in construction, efficient in operation, and easy to operate.

The exact nature of the present invention, as well as more specific objects and features thereof, will become apparent from the following description when considered in connection with the accompanying drawings, in which:

Figure 1 is a view, partly in top plan and partly in section, of a cutting machine constructed in accordance with the present invention.

Figure 2 is a view thereof, partly in longitudinal section, and partly in side elevation.

Figure 3 is a view partly in elevation and partly in transverse section.

Figure 4 is a front elevational view of the machine.

Referring in detail to the drawings, the illustrated form of the invention includes a suitable frame 5, a transverse axle 6 journalled at the rear of the frame, traction wheels 7 secured on the ends of the axle 6 and adapted to run on the surface of the material being cut, a motor 8 mounted on the frame and having a rearwardly projecting drive shaft 9, a reduction gearing 10, between the drive shaft 9 of the motor and the rear axle 6, a vertical steering shaft 11 at the front of the frame, a cutter blade block 12 fixed on the lower end of the steering shaft 11 and projecting below the frame to ride on the upper surface of the material being cut, and a vertically adjustable cutter blade 13 carried by and projecting below the cutter blade block 12.

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The frame 5 includes a pair of spaced longitudinal rails 14 rigidly connected at their rear ends by a gear casing 15 containing the reduction gearing 10 and provided at the top with a pad 16 so as to form a knee rest. The axle 6 extends transversely through the casing 15 and is journalled in the sides of the latter, the ends of the axle projecting beyond opposite sides of the casing 15 and having the traction wheels 7 secured thereon. The casing 15 has a removable bottom cover plate 17 secured in place by bolts 18 which also pass through the rails 14 to secure the casing 15 thereon.

The electric motor 8 is bolted at 19 to the front of the gear casing 15, the bolts passing through vertical spacing blocks 20 interposed between the motor 8 and the gear casing 15 at opposite sides of the drive shaft 9. The reduction gearing 10 may vary in kind and is shown as including a shaft 21 connected by a flexible coupling 22 with the motor drive shaft 9 at a point between the casing 15 and the motor 8 and between the blocks 20, a transverse countershaft 23 driven from shaft 21 by a worm and worm gear, and a longitudinal countershaft 24 driven from shaft 23 by a worm and worm gear, there being a worm and worm gear operatively connecting the shaft 24 with the axle 6.

The frame 5 further includes a vertical plate 25 rigidly secured to and rising from the forward ends of the rails 14 and having the front of the motor 8 bolted thereto as at 26. The plate 25 rises above the motor 8 and has the forward end of a hand grip 27 secured to the upper end portion thereof as at 28, the rear end of the hand grip 27 being secured to an angle bracket 29 as at 30, and the bracket 29 being secured at 31 on the spacer blocks 20. The hand grip 27 may be provided in its under side with a trigger-type switch, as at 32, for controlling the operation of the motor 8.

Vertically spaced bearing plates or brackets 33 and 34 are welded or otherwise rigidly secured to the vertical plate 25 and project forwardly therefrom. Journalled in the bearing plates 33 and 34 is the vertical steering shaft 11 having a steering wheel or handle 36 secured on its upper end and having the cutter blade block 12 welded or otherwise secured to the front of the lower end of the same. The block 12 has a vertically elongated slot in which the cutter blade 13 is vertically movable, a plate 37 being removably secured over the slot to removably secure the

cutter blade therein. Vertical adjustment of the blade 13 is effected by an adjusting screw 38, and the adjustment is secured by a set screw 39. It will be seen that the block 12 projects below the frame 5 and has a broad surface at its lower end adapted to ride on the surface of the material being cut. The blade 13 is disposed centrally between the sides of the block 12 so that the block 12 will ride on the material at opposite sides of the line along which said material is cut by the blade.

In operation, the blade 13 is adjusted to project below the block 12 for a distance substantially equal to the thickness of the material to be cut. The machine is then placed so as to ride on the material, the grip 27 being grasped by one hand and the other hand being used to steer the cutter by manipulation of the handle or wheel 36. The operator does this while in a kneeling position with one knee disposed on the pad 16. By exerting downward pressure on the pad 16 and hand grip 27 effective tractive engagement of the wheels 7 with the material being cut is had, so that the machine will be effectively propelled ahead by throwing the motor 8 in operation through actuation of switch 32. This downward pressure also insures maintenance of the lower end of block 12 into engagement with the surface of the material so that the blade 13 will cut therethrough. By properly setting the shaft 11, and maintaining it in such set position, the operator may accurately cut the material along a straight line so that satisfactory seams can be insured between adjacent pieces of the material. On the other hand, by turning shaft 11, the machine may be steered by swinging the block 12 with its blade 13 laterally in either direction, thereby insuring accurate cutting along other than straight lines. The block 12 is only forced into contact with the material with sufficient pressure to insure proper action of the blade 13 without materially interfering with the forward travel of the machine by reason of excessive frictional engagement of the block 12 with the material. Due to the use of the reduction gearing, efficient propulsion is insured even though a small motor of low horse power is used.

From the foregoing description, it is believed that the construction, operation and advantages of the present invention will be readily understood and appreciated by those skilled in the art. It will be seen that the machine is of very simple, compact and durable construction. Also, the machine is convenient and easy to use and manipulate, and is such as to enable accurate cutting of heavy linoleum or similar material without the exercise of special skill or care. Minor changes may be made such as fall within the scope of the invention as claimed.

What I claim is:

1. A self propelled and manually steered cutting machine of the character described comprising a frame, a transverse axle journalled at the rear of the frame, traction wheels secured on the ends of the axle and adapted to run on the surface of the material being cut, a motor mounted on the frame and having a drive shaft, a reduction gearing between the motor drive shaft and the axle, a vertical steering shaft at the front of the frame, a cutter blade block fixed on the lower end of the steering shaft and projecting below the frame to ride on the upper surface of the material, and a vertically adjustable cutter blade carried by and projecting below the cutter blade block, a knee rest at the rear of the frame and a hand grip on the frame in front of the knee rest, whereby downward pressure may be exerted upon the frame to provide effective tractive engagement of the traction wheels with the surface of the material and to maintain contact of the cutter blade block with the surface of the material to keep the cutter blade in proper cutting relation to the material.

2. A power propelled manually steered cutting machine of the character described comprising a frame having rear traction wheels, power means for driving said traction wheels, a cutter carrying block mounted at the front of the frame to turn about a substantially vertical axis, a knee rest at the rear of said frame, and manually operable means for turning said cutter carrying block to steer the machine.

3. A power propelled manually steered cutting machine of the character described comprising a frame, a transverse axle journalled at the rear of the frame, traction wheels secured on the ends of the axle and adapted to run on the surface of the material being cut, a motor mounted on the frame and having a drive shaft, a reduction gearing mounted on the frame between the motor drive shaft and the axle and having a casing, a knee pad on said casing, a vertical steering shaft at the front of the frame, a cutter blade block fixed on the lower end of and movable with the steering shaft, said cutter blade block projecting below the frame to ride on the upper surface of the material, and a cutter blade carried by and projecting below the cutter block.

4. A power propelled manually steered cutting machine of the character described comprising a frame, a transverse axle journalled at the rear of the frame, traction wheels secured on the ends of the axle and adapted to run on the surface of the material being cut, a motor mounted on the frame and having a drive shaft, a reduction gearing between the motor drive shaft and the axle, a vertical steering shaft at the front of the frame having a steering handle at its upper end, a cutter blade block fixed on the lower end of and movable with the steering shaft, said cutter blade block projecting below the frame to ride on the upper surface of the material, and a cutter blade carried by and projecting below the cutter block, said frame including a gear casing for said reduction gearing having a pad thereon to provide a knee rest and facilitate the application of downward pressure on the machine.

5. The construction defined in claim 4, wherein the motor is arranged in front of the gear casing and bolted thereto, and a hand grip rigidly mounted on the frame above the motor.

6. The construction defined in claim 4, wherein the motor is arranged in front of the gear casing and bolted thereto, and a hand grip rigidly mounted on the frame above the motor, said frame further including a vertical plate supporting the hand grip at its forward end, and forwardly projecting spaced bearing plates fixed to said vertical plate, said steering shaft being journalled in said bearing plates.

GLENN M. REYNOLDS.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
2,327,930	Ranney	Aug. 24, 1943