

Sept. 6, 1932.

L. A. MEAD

1,876,337

PLASTER CAST CUTTER

Filed Nov. 23, 1931

2 Sheets-Sheet 1

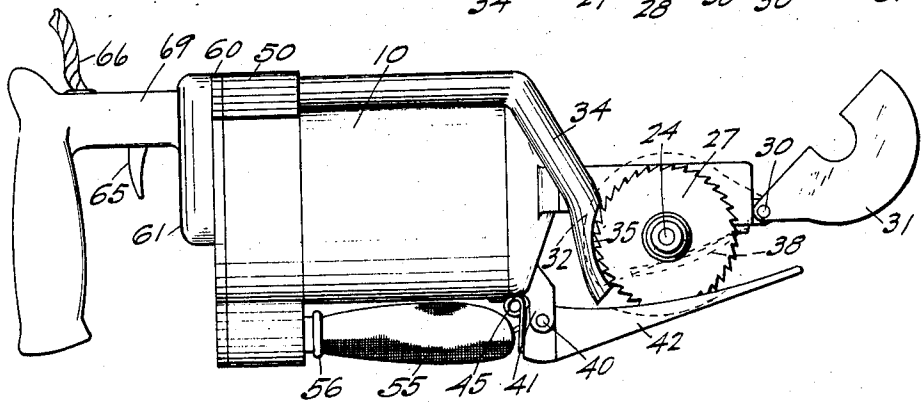
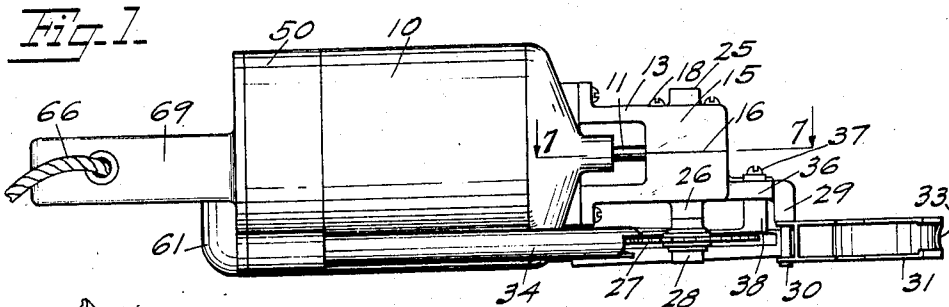


Fig. 2.

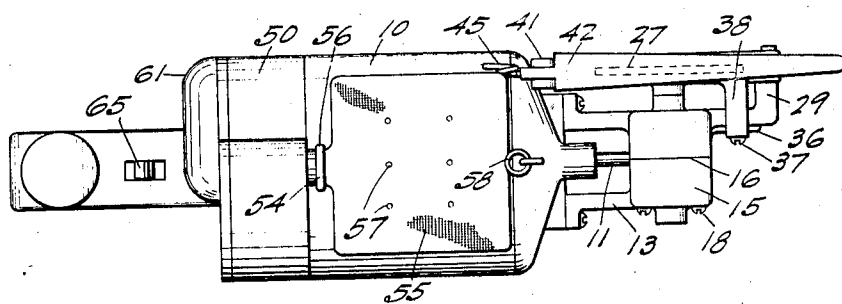


Fig. 3.

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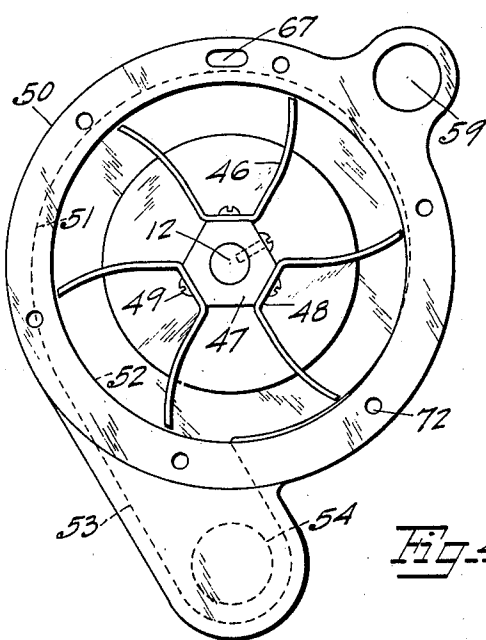


Fig. 4.

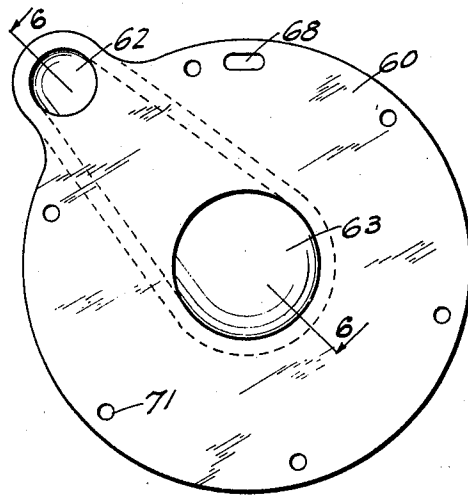


Fig. 5.

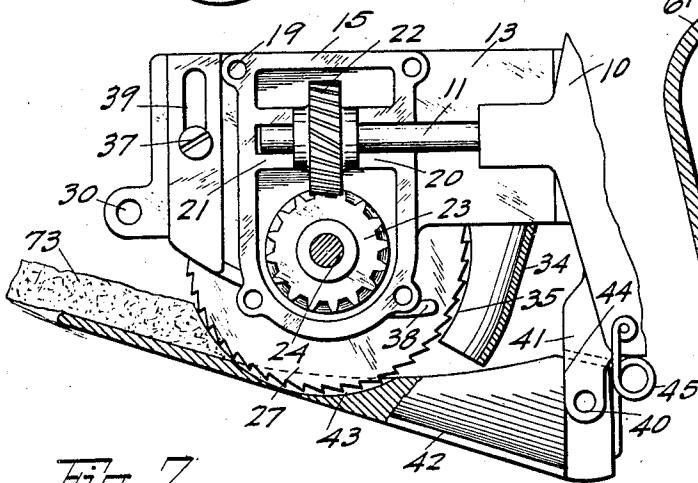


Fig. 7.

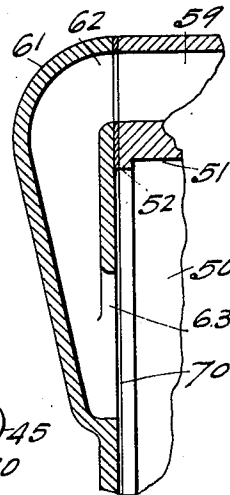


Fig. 6.



Fig. 8.

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UNITED STATES PATENT OFFICE

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PLASTER CAST CUTTER

Application filed November 23, 1931. Serial No. 576,687.

This invention is a plaster cast cutter and is adapted to the particular purpose of removing plaster casts quickly and without danger or inconvenience to the patient.

5 The main object of the invention is to provide means for cutting plaster casts to permit their removal from the injured member of the patient.

10 Another object of the invention is to provide the means outlined with suitable safety guards to protect the patient from injury by the cutting elements.

15 A further object of the invention is to provide the means outlined with means for collecting any small fragments or dust formed during the cutting operation preferably by vacuum means.

20 Other objects and advantages of the invention will become apparent as the following description is read on the drawings forming a part of this specification and in which similar reference characters are used to indicate similar parts throughout the several views and in which:

25 Fig. 1 is a plan view of the invention.

Fig. 2 is a side elevation showing the saw guard swung forward to permit changing of saws.

Fig. 3 is a bottom view of the invention.

30 Fig. 4 is an enlarged rear elevation of the fan and housing with cover removed.

Fig. 5 is an enlarged inside view of the fan housing cover.

35 Fig. 6 is a section taken on line 6—6 of Fig. 5 and showing the connection to the housing Fig. 4.

Fig. 7 is an enlarged section taken on line 7—7 of Fig. 1.

Fig. 8 is a plan view of the guard finger.

40 The invention consists of an electric motor 10 having shaft extensions 11 and 12 at its opposite ends, a bracket 13 being removably secured to the front end of the motor and having an integral gear housing 15 which is divided on the center line 16 and secured together by means of screws 18 passing through holes 19 which are tapped in one of the housing halves.

50 Shaft 11 is rotatably mounted in bearings 20 and 21 and has fixedly secured thereto, a

spiral gear 22 which meshes with a spiral gear 23 mounted on a shaft 24 which is located beneath and at right angles to shaft 11 and is rotatably mounted in bearings 25 and 26 which are integral with the gear housing 15.

Removably secured to shaft 24 beyond bearing 26 is a circular saw 27 which is secured by means of a nut 28.

60 An arm 29 is integral with housing 15 and has pivotally mounted thereon, at 30, a guard 31 which covers the upper portion of the saw 27, being normally disposed in the position shown by dotted lines 32, and swingable to the position shown at 31 for removal or replacement of saws. A slot 33 fits about the intake pipe 34, the lower portion of which is arcuately milled on the front face to just clear the saw as indicated at 35.

70 Slidably and adjustably secured to a bracket extension 36 by means of a screw 37 is a depth gauge 38, a slot 39 permitting adjustment of the gauge substantially to the bottom of the saw 27.

75 Pivotally secured at 40 to brackets 41 which are integral with the motor housing is a combination stop guard and feeler 42 which is provided with a slot 43 adapted to clear the saw 27 and with shoulders 44 adapted to cooperate with brackets 41, preventing cooperation of the saw 27 with the bottom of slot 43 by limiting the movement of the guard in one direction. The guard is free to swing in the other direction and is resiliently retained in the position shown in Figs. 2 and 7 by the spring 45. The rearward portion of the guard is brought to inverted V form to act as a spreader for the cut.

80 The exhauster consists of an impeller which is formed of a plurality of pairs of curved blades 46 which are secured to a flattened hub 47 by means of an integral cross-member 48 and screws 49, the hub 47 being removably secured to shaft extension 12 on motor 10.

85 The exhauster housing 50 is removably secured to the motor 10 the interior of the casing being of the usual scroll form 51 and an opening 52 permitting removal of the impeller, the scroll terminating in a pocket 53

which has a forwardly extending outlet 54 to which a bag 55 formed of fine mesh flexible material is removably secured, as by an elastic collar 56, the bag having restraining members 57 connecting the upper and lower walls to retain the bag substantially flat. A suitable hook and ring 58 are provided for securing the forward end of the bag.

An intake port 59 is provided with means, such as a taper joint, for removably securing the intake pipe 34.

The fan housing cover 60 is provided with an integral manifold 61 having an opening 62 adapted to register with the port 59 in housing 50 and a fan intake opening 63 which is centrally disposed relative to the impeller.

A pistol grip 64 is preferably formed integral with cover 60 and is provided with a trigger switch 65 for control of current to the motor 10 through wires or cord 66 the wires extending to the motor through apertures 67 and 68 in the housing 50 and cover 60, the aperture 68 opening into the member 69 of the handle. A gasket 70 forms a tight joint between the housing 50 and cover 60, the housing and cover being secured together and to the motor by means of screws passing through apertures 71 in the cover 60 and 72 in housing 50.

In operation, the feeler 42 is passed inside the cast 73 and by drawing back on the trigger 65, the motor is cut into circuit, coincidentally driving the saw 27 and impeller 46. The saw 27 cuts through the cast 73 and the feeler 42 protects the patient from injury as it is impossible for the saw to pass through, due to the stop 44, the rearward portion of the feeler 42 spreading the cut as the saw is advanced. The dust formed by the saw is drawn through pipe 34, thence through port 59 and manifold 61 through the opening 63 and discharged through the pocket 53 and outlet 54 into bag 55 which retains all dust as is usual with vacuum cleaner bags, and being formed of similar material.

Release of the trigger 65 stops the saw and fan, therefore the device is under instant control.

The guard 38 is intended to be used where the feeler 42 cannot be used and is to be adjusted carefully for depth to prevent cutting too deep.

Having described an operable method of constructing and using the invention it will be noted that variations in construction and arrangement of parts which are consistent with the appended claim may be resorted to without detracting from the spirit or scope of the invention or sacrificing any of the advantages thereof.

I claim:

A plaster cast cutter comprising an electric motor, a bracket secured to the front of

said motor and having an integral gear box a saw rotatably mounted on one side of said bracket, and driven by said motor through spiral gears, an adjustable depth gauge for said saw, an undersurface gauge for said saw, an exhauster mounted on the rear of said motor and driven thereby, an intake pipe extending from said exhauster to the rear of said saw, and a dust collecting bag removably secured to the discharge outlet of said exhauster.

In testimony whereof I affix my signature.
LESLIE A. MEAD.

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