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DEVICE FOR REMOVING PLASTER OF PARIS CASTS FROM THE HUMAN BODY

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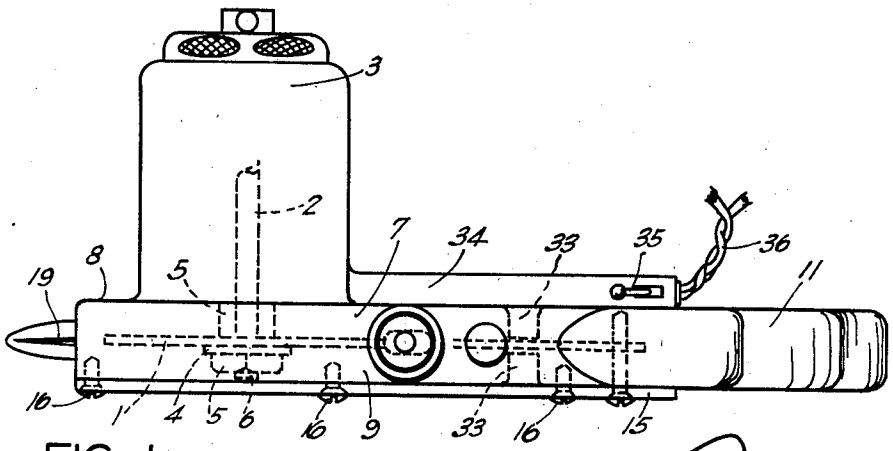


FIG. 1.

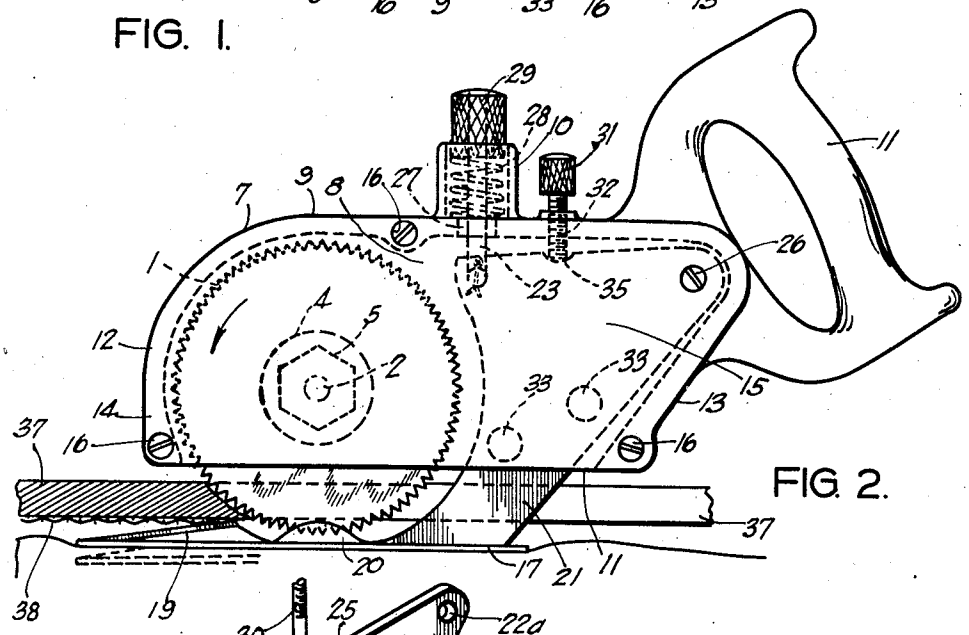


FIG. 2.

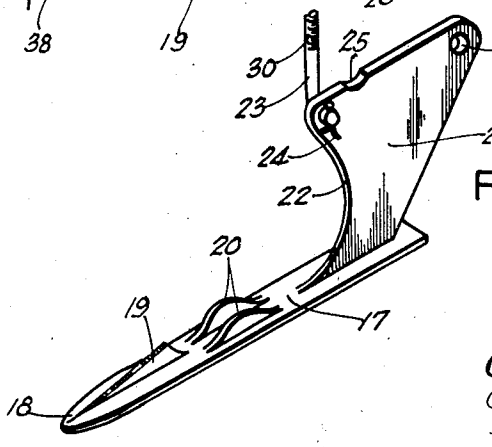


FIG. 3.

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UNITED STATES PATENT OFFICE

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DEVICE FOR REMOVING PLASTER-OF-PARIS CASTS FROM THE HUMAN BODY

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This invention relates to a power driven saw for the splitting of plaster of Paris casts for removal from the human body or its members.

The objects of this invention are to provide a device of this class which is new, novel, practical and of utility; which will cut and split bandages and plaster of Paris casts from the human body or its members; which in operation is safe, which cannot be mishandled so as to mutilate or harm the flesh; which is painless in operation; which is power driven; which is self-contained; which is compact; which is durable; which is adjustable; which is easily handled; which may be readily cleaned; which may be sterilized; which is speedy in operation; which saves time and labor; which will be efficient in accomplishing all the purposes for which it is intended.

In so far as these inventors are informed or can ascertain there is now in use no device of this character for the purpose for which this device is intended. Plaster of Paris casts are now being removed by cutting with a knife, a process which is slow, laborious, productive of nervous strain to both operator and patient, and fraught with the danger of cutting into the flesh of the latter.

With these and other objects in view as will more fully appear our invention consists in the construction, novel features, and combination of parts hereinafter more fully described, pointed out in the claims hereto appended, and illustrated in the accompanying one-sheet drawing, of which,

Figure 1 is a plan view.

Fig. 2 is a side elevational view.

Fig. 3 is a perspective view of shoe, showing knife and pivotal plate.

Like characters of reference designate like parts in all the figures.

It is understood that various changes in the form, proportion, size, shape, weight and other details of construction, within the scope of our invention may be resorted to without departing from the spirit or broad principle of our invention and without sacrificing any of the advantages thereof; and it is also understood that the drawings are to be interpreted as being illustrative and not restrictive.

A practical embodiment of the invention as illustrated in the drawings includes:

A disc saw 1 rotating forwardly on a shaft 2 of a motor disposed in a motor housing 3. Said saw 1 is clamped by a washer 4 and lock nuts 5, threaded upon the end portion 6 of said shaft 2, which extends through the perforated side of and into a saw housing 7.

Said housing 7 preferably cast of aluminum or the like, may comprise in one piece a vertical side 8, a top 9 together with a spring housing 10 disposed thereupon, a handle 11, of saw handle design, a front end 12, and a rear end 13. The thickness of the casting at said ends 12 and 13 and said top 9 forms an edge 14 providing a seat for a vertical side plate 15, conforming in size and shape to said vertical side 8. Said edge 14 and said plate 15 have a plurality of threaded perforations shown at 16 for machine screws of the same index number. Said saw housing 7 is widely curved convexly from its said front end 12 to its said top 9, and, at its said rear end 13 is sharply and convexly curved downward from said top 9, and thence angled forward and downward to a point horizontally in line with the lowermost portion of said end 12.

A shoe 17 is provided, consisting of a narrow flat base roundly pointed at its forward end 18. A cutting blade 19 positioned edgewise, slopes gradually upward and backward from the surface of the central forward portion of said shoe 17. Said blade 19 may be made detachable, from, or integral with, said shoe 17. Adjacent the central surface portion of said shoe, and extending therefrom vertically and longitudinally thereto are two narrow ribs 20, alined and parallel one with the other. Extending vertically from the rear portion of said shoe 17 and preferably cast integral therewith is a plate 21. Said plate 21 is circularly indented as to its forward edge portion 22, in order that there may be no interference when assembled, with the action of said saw 1. Its upper rear portion is provided with a perforation 22^a, its upper forward portion with an L shaped rod,

horizontal portion of which is pivotally extended therethrough and secured by cotter pin 24 or other usual means. A notch 25 is formed in the upper edge portion of said plate 21.

In assembly said saw 1 is positioned within said housing 7, locked upon the end portion 6 of said shaft 2 extending therewithin, by said nuts 5 and said washer 4. Said plate 21 is positioned within said housing member 7, pivotally supported therein by pivot means 26, operating through a perforation of like designation through said side plate 15. Said L-rod 23 of said plate 21 extends upwardly through a perforation shown as 27 through said top 9, and into said spring housing 10. Encircled by compression spring 28 in said spring housing 10, said L-rod 23 is topped by a knurled thumb nut 29 upon its threaded end 30. A set screw 31 threadedly perforated said top 9 rests its lower extremity 32 in the said notch 25 of said plate 21. Said plurality of screws 16 are applied through said similarly threaded perforations in said side plate 15 and in said edges 14, for the secure positioning of said plate 15 thereupon. Thus positioned pivotally within said housing 7, said plate 21 and thereby said shoe 17 are restrained from downward movement by the said compression spring 28, and prohibited from upward movement by said adjustable set screw 31. As a guide to prevent sidewise movement of said plate 21 I provide on the inner faces, respectively, of said side 8 and said side plate 15, a plurality of lugs 33 opposing each other in pairs and contacting lightly the two sides of said plate 21. The positioning of said plate 21 brings said ribs 20 on said shoe 17 to a position, one upon either side of the lowermost teeth of said saw 1, and establishes said knife 19 in line with and immediately forward of said saw 1.

Said motor housing 3 may be cast integral with said saw housing 7, or it, together with its wire conduit 34 and switch 35 of any usual design, may be attached to said saw housing side 8 by any usual means.

It is not desired to limit this invention to direct motor drive, as it may be found expedient or desirable to connect the saw with a power means not shown, by a flexible drive of usual or desired character.

In use it will be understood that the device as shown will be connected with any usual electric circuit through wires 36. Guided by said handle 11, the said toe 18 of said shoe 17 will be inserted under the bandages and cast which is to be removed, current will be applied through said switch 35 to motor. Said saw 1 will be rotated in a forward motion as indicated by the arrow in Fig. 2, causing same to bite into and split the plaster of Paris mold shown as 37. On the under side of said mold 37 said shoe 17 lying between the flesh of the body member and the said saw 1, will serve to protect said body member and will, through its sloping knife 19 and said ribs 20 bring and keep said plaster mold in contact with the advancing saw 1. A further use of the said sloping knife 19 is to cut the bandages 38, lying between the mold and the body member.

Obviously, the invention is susceptible of embodiment in forms other than that which is illustrated in the accompanying drawings and described herein, and applicable for uses and purposes other than as detailed, and we, therefore, consider as our own all such modifications and adaptations and other uses of the form of the device other than as herein described as fairly fall within the scope of our invention.

Having thus described our invention what is claimed and desired to be secured by Letters Patent, is:

1. A cast removing device, as described, embodying, a power driven circular saw, a housing therefor, a shoe beneath said saw hinged to said housing and adapted for vertical movement, means for controlling the extent of said movement, an upstanding blade upon said shoe in front of said saw, an upstanding rib on said shoe at each side of said saw, all as and for the purposes specified.

2. A device, as described, embodying, a power driven circular saw, a housing therefor, a handle attached to the rear portion of said housing, a flat shoe pivotally attached within said housing extending longitudinally therebelow to a point in front of said saw, an upstanding knife member disposed centrally upon the front portion of said shoe, a pair of parallel upstanding ribs longitudinally disposed upon the central portion of said shoe one each upon each side of the lower edge of said saw, means for adjusting the closest proximity of said saw and said shoe, means for adjustably varying limiting the space between said saw and said shoe, all as and for the purposes specified.

3. A device, as described, embodying, a direct motor driven circular saw, a metal housing therefor, a handle for said device attached to the upper rear portion of said housing, a round-pointed, flat, metal shoe pivotally attached within said housing extending longitudinally therebelow to a point in front of said saw, an upstanding sharp edged knife member disposed centrally upon the front portion of said shoe, a pair of parallel upstanding ribs longitudinally disposed upon the central portion of said shoe one each upon each side of the lower edge of said saw, means for adjusting the closest proximity of said saw and said shoe, spring means for adjustably varyingly limiting the space between said saw and said shoe, all as and for the purposes specified.

4. A device, as described, in combination, a direct motor driven circular saw, a metal

housing therefor, a handle for said device attached to the upper rear portion of said housing, a round-pointed, flat, metal shoe pivotally attached within said housing extending longitudinally therebelow to a point in front of said saw, an upstanding sharp edged knife member disposed centrally upon the front portion of said shoe, a pair of parallel upstanding ribs longitudinally disposed upon the central portion of said shoe one each upon each side of the lower edge of said saw, means for adjusting the closest proximity of said saw and said shoe, spring means for adjustably varyingly limiting the space between said saw and said shoe, all as and for the purposes specified.

5. The combination with a power driven circular saw and its housing and handle, of a shoe beneath said saw hinged to said housing and adapted for vertical movement, means upon said housing for controlling the extent of said movement, an upstanding blade upon said shoe in front of said saw, an upstanding rib on said shoe at each side of said saw, all as and for the purposes specified.

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