

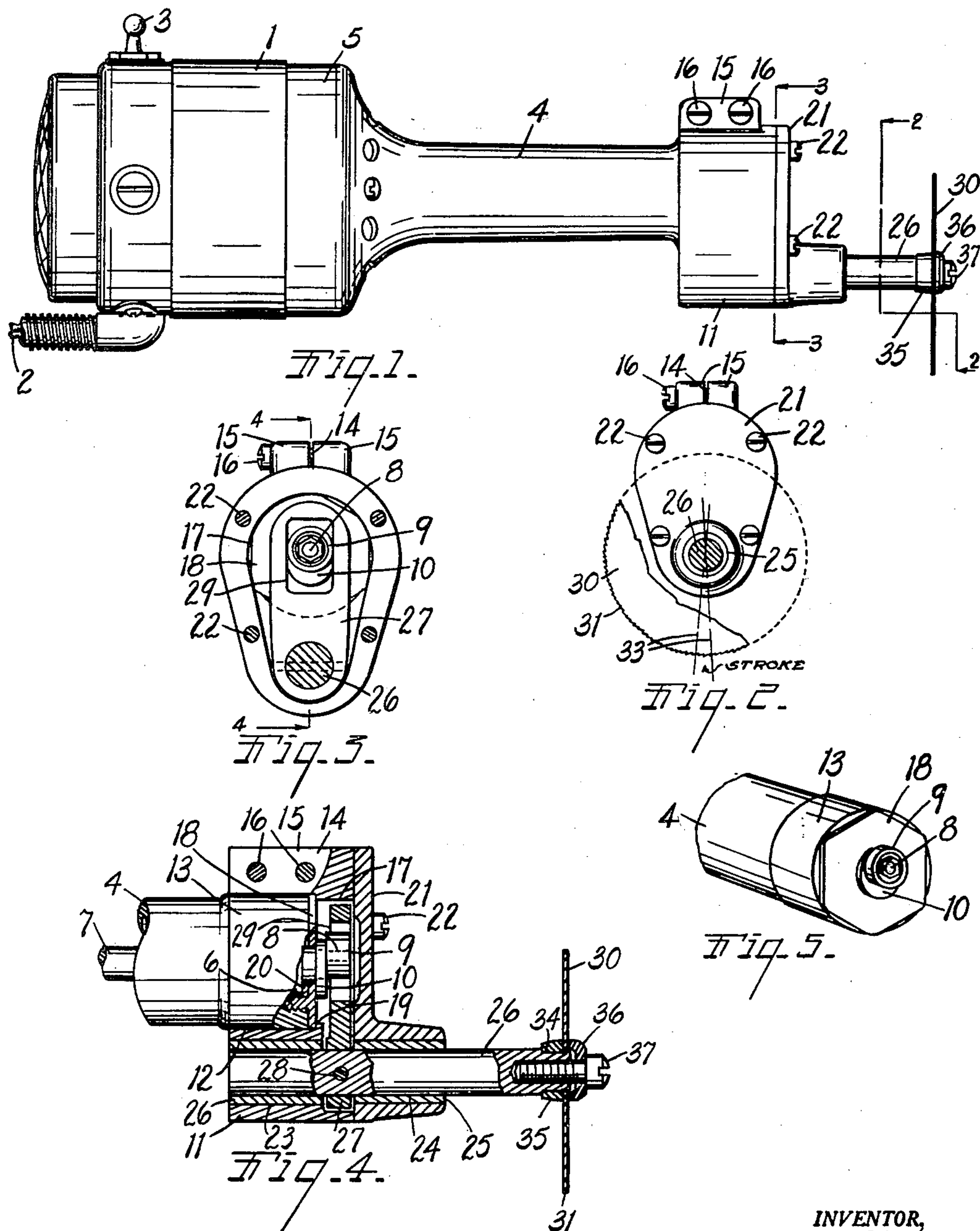
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PLASTER CAST CUTTER

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PLASTER CAST CUTTER

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9 Claims. (Cl. 30—166)

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This invention relates to improvements in plaster cast cutter.

The main objects of this invention are:

First, to provide a cutting implement which is highly efficient for cutting casts and the like and at the same time is not likely to injure a patient or the user or garments or fabric with which it may come in contact.

Second, to provide a cutting implement which has a wide range of uses and which is very convenient to use and is compact and durable.

Objects relating to details and economies of the invention will appear from the description to follow. The invention is defined and pointed out in the claims.

A preferred embodiment of the invention is illustrated in the accompanying drawing, in which:

Fig. 1 is a side elevation of an implement embodying my invention in a desirable form.

Fig. 2 is a fragmentary view in section on line 2—2 of Fig. 1, the cutter being partially broken away and partially shown by dotted lines.

Fig. 3 is a sectional view on line 3—3 of Fig. 1.

Fig. 4 is a fragmentary view mainly in longitudinal section on line 4—4 of Fig. 3.

Fig. 5 is a fragmentary perspective view with the cutter head removed.

In the embodiment of my invention illustrated in the accompanying drawing, 1 represents the motor casing, 2 the circuit connection thereto and 3 a control switch. The motor casing is provided with a tubular end extension 4 constituting part of one end member of the motor housing 5, this extension being adapted as a hand-hold or grip. At its outer end the extension is provided with a bearing 6 for the motor shaft 7.

The motor shaft is provided with a crank pin or eccentric pin 8 having an anti-friction roller 9 mounted thereon. The shaft is preferably provided with a counter-weight 10 for the crank pin and its roller, the purpose being to minimize vibration by counterbalancing the offset or eccentrically disposed crank pin element.

The cutter head 11 is provided with a bore 12 receiving the end 13 of the extension 4, this end being somewhat enlarged in the embodiment illustrated. The head member has a longitudinal slot 14 providing a pair of ears 15 receiving the clamping screws 16 so that the cutter head is detachably secured upon the housing extension 4. The cutter head is chambered at 17 to receive the crank pin and counterweight, a closure 18 being provided for the end of the housing extension, this closure being polygonal in shape and fitting

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within a recess 19 provided therefor, a sealing disk 20 being arranged on the inner side of this closure member.

The head member is provided with a face plate 21 secured by screws 22. The body of the cutter head and the face plate have aligned bearings 23 and 24 provided with bushings 25 for the cutter shaft 26. This cutter shaft is provided with an arm 27 secured to the shaft by the pin 28 and having a longitudinal slot 29 engaged by the crank pin roller 9. This slot is of such dimensions as to slidably embrace the crank pin roller and fits the same relatively closely so that there is no lost motion and noise resulting from operation.

The cutter 30 is preferably in the form of a disk having a saw-tooth edge 31, the teeth being preferably relatively fine as shown in Fig. 2.

The throw or eccentricity of the crank pin is such that the stroke of the cutter is relatively short. The implement shown in Fig. 1 is a full-size commercial implement and has a stroke of approximately one-eighth of an inch. This is indicated by the lines 33 in Fig. 2.

The end of the cutter shaft is reduced at 34 to receive the clamping sleeve 35, the cutter being arranged at the outside of this sleeve and clamped against it by means of the clamp member 36 and the screw 37 tapped into the end of the shaft.

My improved implement is highly efficient in the cutting of casts or other hard substances but yielding surfaces or materials are not cut or injured thereby in the event the cutter should accidentally contact the skin of a person and it does not cut fabrics or other objects unless they are supported by a fairly rigid backing.

My improved implement has, however, a wide range of uses such for example as cutting bone, plastics, wood and even metal.

I have illustrated and described my invention in a very practical embodiment thereof. I have not attempted to illustrate or describe other embodiments or adaptations as it is believed that this disclosure will enable those skilled in the art to embody or adapt my invention as may be desired.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. An implement for cutting casts and the like comprising a motor provided with a casing having a forwardly projecting tubular end extension adapted as a shaft housing and as a grip and

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provided with a motor shaft bearing at its outer end, a motor shaft disposed within said housing and supported at its outer end in said bearing, an eccentric pin on the end of said shaft provided with an anti-friction roller, said shaft being provided with a counterbalance for said pin and roller, a closure for the outer end of said housing extension disposed on the inner side of said counterbalance and roller, a chambered cutter head mounted on the end of said housing extension, said cutter head being provided with a bearing disposed below said housing extension, a cutter shaft disposed in said bearing in said head and provided with an arm slotted to receive said roller on said pin, a face plate for said cutter head provided with a bearing supporting the cutter shaft at the outer side of said arm, and a toothed cutter secured to the end of said shaft.

2. An implement for cutting casts and the like comprising a motor provided with a casing having a forwardly projecting tubular end extension adapted as a shaft housing and as a grip and provided with a motor shaft bearing at its outer end, a motor shaft disposed within said housing and supported at its outer end in said bearing, an eccentric pin on the end of said shaft provided with an anti-friction roller, said shaft being provided with a counterbalance for said pin and roller, a chambered cutter head mounted on the end of said housing extension, said cutter head being provided with a bearing disposed below said housing extension, a cutter shaft disposed in said bearing in said head and provided with an arm slotted to receive said roller on said pin, a face plate for said cutter head provided with a bearing supporting the cutter shaft at the outer side of said arm, and a toothed cutter secured to the end of said shaft.

3. An implement for cutting casts and the like comprising a motor provided with a casing having a forwardly projecting tubular end extension adapted as a shaft housing and as a grip and provided with a motor shaft bearing at its outer end, a motor shaft disposed within said housing and supported at its outer end in said bearing, an eccentric pin on the end of said shaft provided with an anti-friction roller, a chambered cutter head mounted on the end of said housing extension, said cutter head being provided with a bearing disposed below said housing extension, a cutter shaft disposed in said bearing in said head and provided with an arm slotted to receive said roller on said pin, a face plate for said cutter head provided with a bearing supporting the cutter shaft at the outer side of said arm, and a toothed cutter secured to the end of said shaft.

4. An implement for cutting casts and the like comprising a motor provided with a casing having a forwardly projecting tubular end extension adapted as a shaft housing and as a grip and provided with a motor shaft bearing at its outer end, a motor shaft disposed within said housing and supported at its outer end in said bearing, an eccentric pin on the end of said shaft provided with an anti-friction roller, a chambered cutter head having a bore receiving the end of said housing extension, said head being split at one side of said bore and provided with clamping screws whereby it is clamped upon said extension, said cutter head being provided with a bearing disposed below said housing extension, a cutter shaft disposed in said bearing in said head and provided with an arm slotted to receive said roller on said pin, a face plate for said cutter head pro-

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vided with a bearing supporting the cutter shaft at the outer side of said arm, and a toothed cutter secured to the end of said shaft.

5. An implement for cutting casts and the like comprising a motor provided with a casing having a forwardly projecting tubular end extension adapted as a shaft housing and as a grip and provided with a motor shaft bearing at its outer end, a motor shaft disposed within said housing and supported at its outer end in said bearing, an eccentric pin on the end of said shaft provided with an anti-friction roller, said shaft being provided with a counterbalance for said pin and roller, a chambered cutter head mounted on the end of said housing extension and provided with a cutter shaft bearing, an oscillating cutter shaft disposed in said bearing and provided with an arm slotted to receive said roller on said pin, the width of the slot being such as to provide a relatively close fit for said roller while permitting free rotation thereof and free movement longitudinally of the slot, and a toothed cutter on and oscillated by said shaft, the eccentricity of said crank pin being such that the cutter is actuated with a relatively short oscillating stroke.

6. An implement for cutting casts and the like comprising a motor provided with a casing having a forwardly projecting tubular end extension adapted as a shaft housing and as a grip and provided with a motor shaft bearing at its outer end, a motor shaft disposed within said housing and supported at its outer end in said bearing, an eccentric pin on the end of said shaft provided with an anti-friction roller, said shaft being provided with a counterbalance for said pin and roller, a chambered cutter head mounted on the end of said housing extension and provided with a cutter shaft bearing, an oscillating cutter shaft disposed in said bearing and provided with an arm slotted to receive said roller on said pin, and a toothed cutter on and oscillated by said shaft.

7. An implement for cutting casts and the like comprising a motor provided with a casing having a forwardly projecting tubular end extension adapted as a shaft housing and as a grip and provided with a motor shaft bearing at its outer end, a motor shaft disposed within said housing and supported at its outer end in said bearing, an oscillating crank pin on the end of said shaft, a chambered cutter head on the end of said housing extension provided with a bearing disposed below said housing extension, a cutter shaft disposed in said bearing in said head and provided with an arm coacting with said pin, and a toothed cutter on and oscillated by said shaft, the eccentricity of said crank pin being such that the cutter is actuated with a relatively short oscillating stroke of the order of one-eighth of an inch.

8. An implement for cutting casts and the like comprising a motor provided with a casing having a forwardly projecting tubular end extension adapted as a shaft housing and as a grip and provided with a motor shaft bearing at its outer end, a motor shaft disposed within said housing and supported at its outer end in said bearing, a crank pin on the end of said shaft, a chambered cutter head on the end of said housing extension provided with a bearing disposed below said housing extension, an oscillating cutter shaft disposed in said bearing in said head and provided with an arm coacting with said pin, and a toothed cutter on and oscillated by said shaft, the eccentricity of said crank pin being such that the cut-

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ter is actuated with a relatively short oscillating stroke.

9. An implement for cutting casts and the like comprising an elongated casing constituting a housing and hand grip, a rotary actuating shaft disposed longitudinally of said casing, a rockshaft disposed parallel to said rotary shaft and having a bearing at one end thereof fixedly associated relative to said casing and having the opposite end free projecting substantially beyond one end of said casing, means connected to said rotary shaft for oscillating said rockshaft, a cutter fixedly connected to the free end of said rockshaft, said cutter having cutter teeth disposed in an arcuate path about said rockshaft and in a

plane substantially at right angles to said rotary and rockshafts.

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