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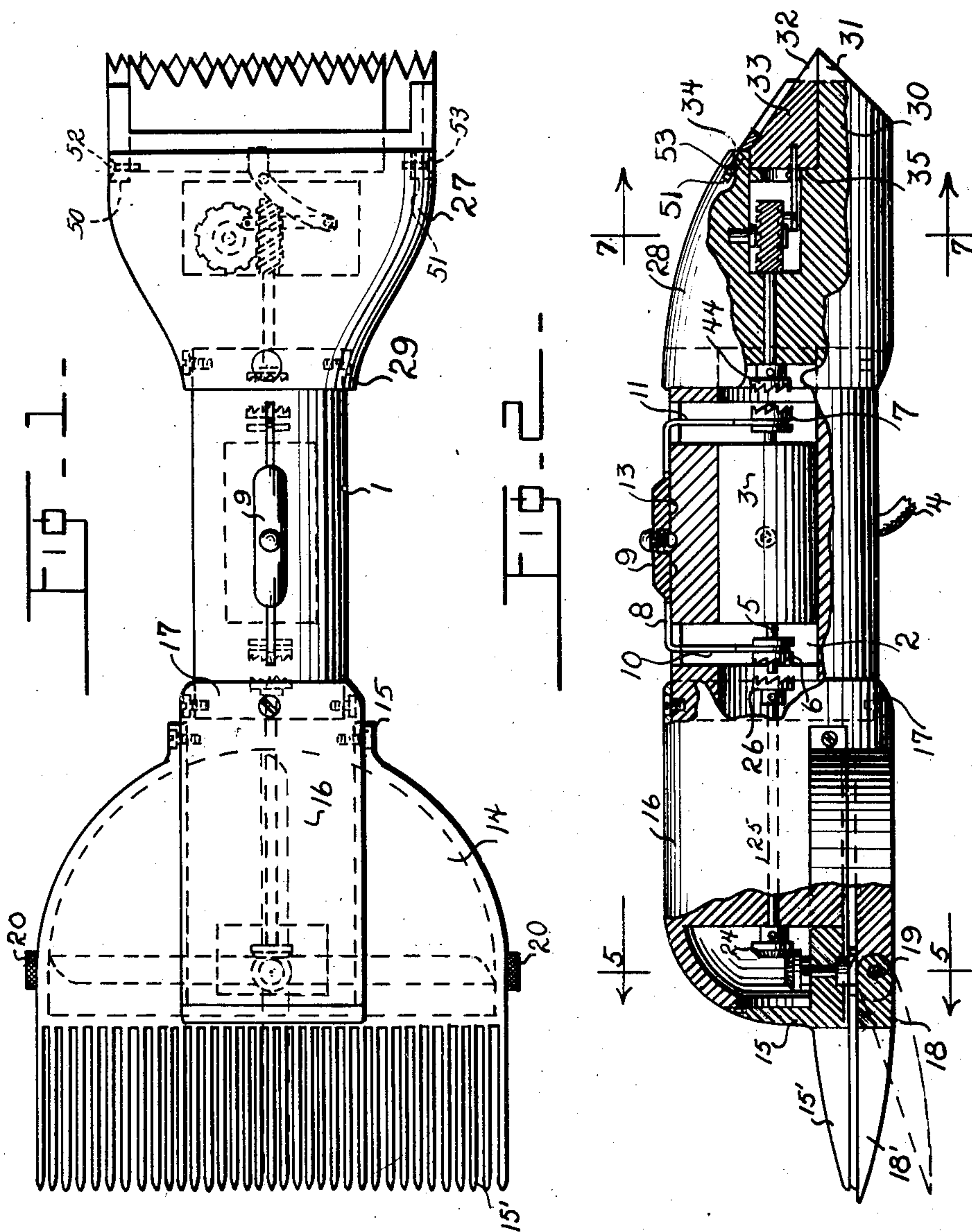
J. SUTCH

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COMBINATION HAIR CUTTING MACHINE

Filed June 17, 1946

2 Sheets-Sheet 1



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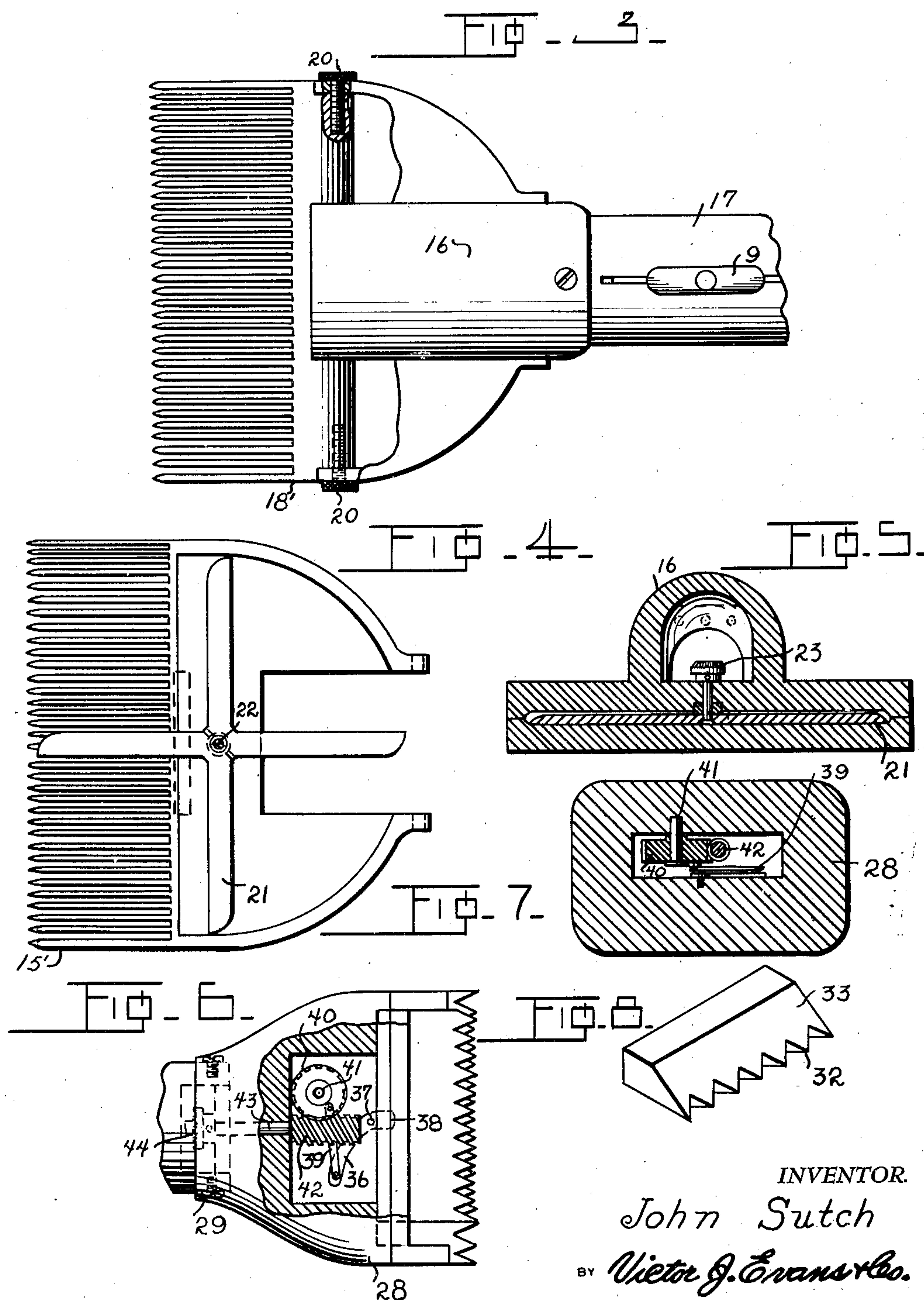
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## UNITED STATES PATENT OFFICE

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## COMBINATION HAIRCUTTING MACHINE

John Sutch, Seattle, Wash.

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3 Claims. (Cl. 30—197)

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My present invention relates generally to improvements in power operated and manually controlled hair-cutting implements or instruments, and more specifically to a combination hair cutter of the electrically operated type that is especially designed for selective use in clipping the hair for close cuts, as well as for trimming the hair for longer cuts.

The primary object of the invention is the provision of an implement of this character that is composed of a minimum number of parts that are compactly arranged and combined to insure simplicity in operation and facile manipulation of the selective cutters, under control of a single control head or button. In carrying out my invention I utilize an implement having a reciprocating cutter or clipper and a rotary cutter or shearing arrangement, together with a single operating motor, and a single manual control for selective operation of the two cutters.

The invention consists in certain novel combinations and arrangements of parts involving the actuation and operation of the selective cutters as will hereinafter be more fully set forth and claimed. In the accompanying drawings I have illustrated one complete example of the physical embodiment of my invention wherein these parts are combined and arranged according to one mode I have thus far devised for the practical application of the principles of my invention, but it will be understood that changes and alterations may be made in these exemplifying drawings and mechanical structures, within the scope of my appended claims, without departing from the principles of the invention.

Figure 1 is a top plan view of a hair cutting implement in which my invention is embodied; and Figure 2 is a side view of the implement, with parts in section for convenience of illustration.

Figure 3 is an enlarged plan view at the hair-trimming end of the implement showing an adjustable hinged comb or toothed jaw for co-action with the rotary cutter; and Figure 4 is a complementary bottom plan view showing a fixed comb, or toothed jaw, together with the rotary cutter.

Figure 5 is a transverse sectional view at line 5—5 of Fig. 2 showing the actuating mechanism of the rotary cutter.

Figure 6 is a horizontal sectional view showing the actuating mechanism for the reciprocating cutter or clipper.

Figure 7 is a transverse sectional view at line 7—7 of Fig. 2 illustrating the reciprocating cutter and its actuating means; and

Figure 8 is a perspective view of the reciprocating

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cating cutter bar, or beveled-tooth jaw of the clipper.

In the preferred form of my invention as disclosed in the drawings, the instrument is shaped and of convenient size for facile manipulation in one hand, and the housing parts are fashioned of molded plastic material, or other suitable material that is light in weight and adapted for the purposes. The housing includes a central cylindrical hollow body 1 forming a portion of the handle for the instrument, with an interior chamber 2 in which an electric motor 3 is mounted, and the motor is provided with the necessary cord or cable 4 for current supply to operate the instrument, including the rotary cutter or shears, and the reciprocating clipper.

The central shaft 5 of the motor projects from the opposite ends of the motor to accommodate two movable and separate clutch members 6 and 7 that are slidable on the shaft for selective use in driving the tonsorial appliances. For selective control of these appliances by shifting the driving members 6 and 7 of the clutches, a clutch-shifting yoke 8 is mounted on the central body portion 1 and provided with an exterior presser head or shifting button 9, and the two forked arms 10 and 11 of the yoke that project into the motor chamber 2 co-act with the respective drive members 6 and 7.

The presser head or button 9 is provided with a spring detent 12 that is shown in Fig. 2 as resiliently held in a central, neutral, socket which forms one of a set of three sockets 13 that are alined in the exterior surface of the body 1, beneath the head. The yoke may be shifted to the right, or to the left in Fig. 2 for engaging the transmission mechanism of the clipper, or the transmission mechanism of the rotary shears, respectively.

The rotary shearing cutter at the left end of the instrument in Figs. 1 and 2 is mounted in a flat, semi-circular casing 14, which is fashioned with a fixed upper jaw 15 having a set of teeth 15' projecting therefrom in the form of a comb, and the jaw is secured, as by screws, to a gearing housing 16 that terminates in an inner annular attaching flange 17 which fits over one end of the cylindrical body 1 and is firmly secured thereto as by screws.

For joint use with the fixed jaw and shearing teeth I employ a complementary hinged jaw or guard 18 having comb teeth 18' which jaw is pivoted transversely of the casing on pin 19, and clamping nuts 20 on the projecting threaded ends of this pin are utilized to clamp the hinged jaw in fixed relation to the stationary jaw. As indi-



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cated by dotted lines in Fig. 2, after the nuts are loosened, the hinged jaw may be dropped to position so that its teeth, and the teeth of the stationary jaw, may be readily accessible for cleansing, or for other purposes.

Within the casing 14, and between the stationary jaw and the hinged jaw, a rotary cutter is mounted and provided with cutters or blades that pass between the two sets of teeth and co-act therewith for shearing off the hairs, under guidance of the combing action of the teeth. As best seen in Figs. 4 and 5 the rotary cutter is here shown as having four diametrically arranged cutting blades each indicated by the number 21, and the hub of the cutter is mounted upon a short shaft 22 journaled in bearings of the casing. The short cutter shaft projects into the interior of the housing 16, and a bevel gear 23 is fixed on this projecting end for co-action with a second bevel gear 24 mounted upon a clutch shaft 25. The clutch shaft 25 is journaled in bearings in the housing 16, and it extends longitudinally of the instrument toward the motor shaft with which it is aligned. On the inner end of the clutch shaft a driven clutch member 26 is mounted and disposed in position for engagement by the movable clutch member 6 of the driving shaft or motor shaft 5.

By manipulation of the clutch button or head 9 as before described, clutch members 6 and 26 may be engaged for transmission of power from the motor to the rotary shears for hair-trimming operations, and of course the clutch members may be disengaged, when desired, by shifting the clutch button or head back to neutral position.

At the opposite end of the instrument, the reciprocating cutter or clipper mechanism is mounted in a casing 27 that is fashioned with a wide, flat, formation, and an integral gear housing 28 that terminates in an inner annular attaching flange 29 fitted over one end of the cylindrical body 1, and attached thereto by means of screws.

The casing 27 is formed with a beveled jaw 30 that is fixed, and this jaw is provided with integral teeth 31 having sharpened cutting edges for co-action with the teeth 32 of a reciprocating jaw 33; the teeth 32 also having acute cutting edges for co-action with the cutting edges of the fixed set of teeth 31.

The reciprocating jaw or cutter bar 33 slides smoothly across the face of the jaw 30, and is retained against displacement by means of a front overhanging flange 34 and a transversely extending shoulder 35 of the casing 27. The flange 34 is positioned between ends 50 and 51, and secured in the casing by screws 52 and 53.

For reciprocating the cutter 33 suitable means are employed for translating rotary motion from the motor shaft into reciprocating or oscillating motion of the cutter, and for this purpose an operating lever 36 may be pivoted at 37 within the casing 27, with the short arm 38 of the lever co-acting with a socket of the reciprocating bar as indicated in Fig. 6. A link 39 pivotally connects the operating lever with a crank-pinion 40 that is journaled on a short stud shaft 41 within the casing, and this crank pinion is rotated by a worm gear 42 that turns with the gear shaft 43 journaled in bearings of the casing. The worm gear-shaft 43 forms a clutch shaft that extends longitudinally of instrument in axial alinement with the motor shaft and the clutch shaft of the rotary shears, and at its inner end this clutch shaft 43 is provided with a driven clutch member mounted in

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position for engagement by the movable drive clutch member.

The operation of the clipper mechanism is controlled by use of the clutch button or head 9, which is shifted to the right in Fig. 2 to cause engagement of the clipper clutch members 7 and 44, for transmission of power and motion from the motor to the clipper; and by shifting the control button or head into neutral position, the clipper is rendered inoperative.

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

1. A hair clipper comprising a cylindrical handle having a motor therein, a substantially semi-circular housing detachably mounted on one end of the handle with the flat side thereof perpendicular to the axis of the handle and with the handle extending from the semi-circular section thereof, a guard having comb teeth positioned across the straight side of the housing with the teeth extending therefrom, means hinging the guard to the lower side of the housing, a rotative cutter having radially disposed cutting blades rotatably mounted in the housing and positioned above the guard, a vertical spindle on which the cutter is mounted, and means rotating the cutter through the spindle from the motor in the handle.

2. In a hair clipper, the combination, which comprises, a cylindrical handle having a motor therein, a substantially semi-circular housing mounted on one end of the handle with the flat side thereof perpendicular to and extending from the handle, a guard having comb teeth positioned across the straight side of the housing with the teeth extending therefrom, means hinging the guard to the lower side of the housing, means clamping the guard in selected adjusted positions, a rotative cutter having radially disposed cutting blades rotatably mounted in the housing and positioned above the guard, and means rotating the cutter by the motor in the handle.

3. In a hair clipper, the combination, which comprises, an elongated handle having a motor therein, a cutter housing removably mounted at one end of the handle, said housing having a flat side with comb teeth extending therefrom, a rotative cutter with radially disposed blades positioned below the comb and adapted to coact therewith, a vertically disposed spindle on which the cutter is mounted, means rotating the spindle and cutter from the motor in the handle, a guard having comb teeth positioned below the cutter with the teeth thereof below the teeth of the housing, means hinging the guard in the housing with the hinge positioned below the spindle, and means clamping the guard in selected adjusted positions.

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