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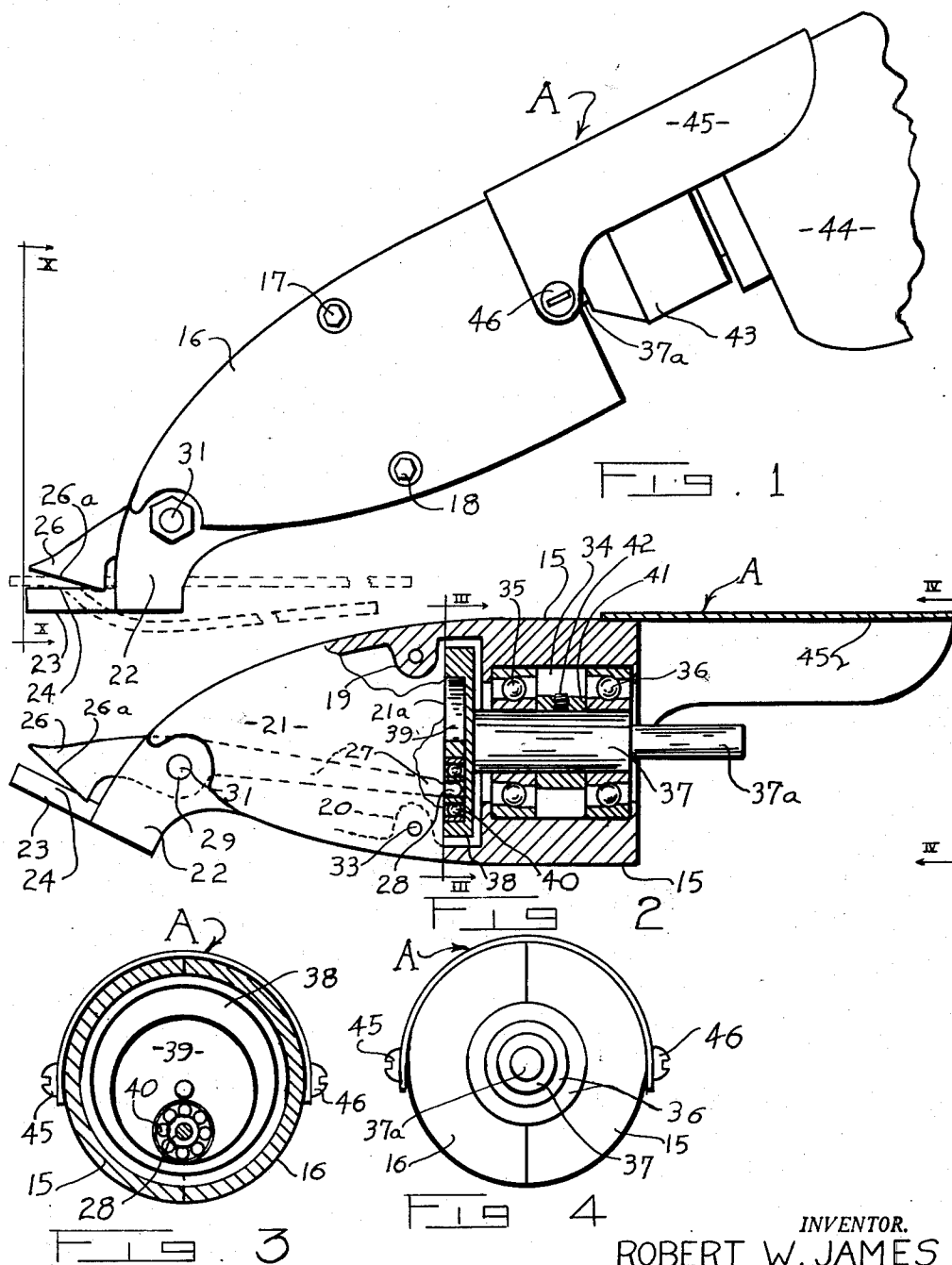
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POWER-DRIVEN HAND SHEET METAL SHEARS

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2 SHEETS—SHEET 1



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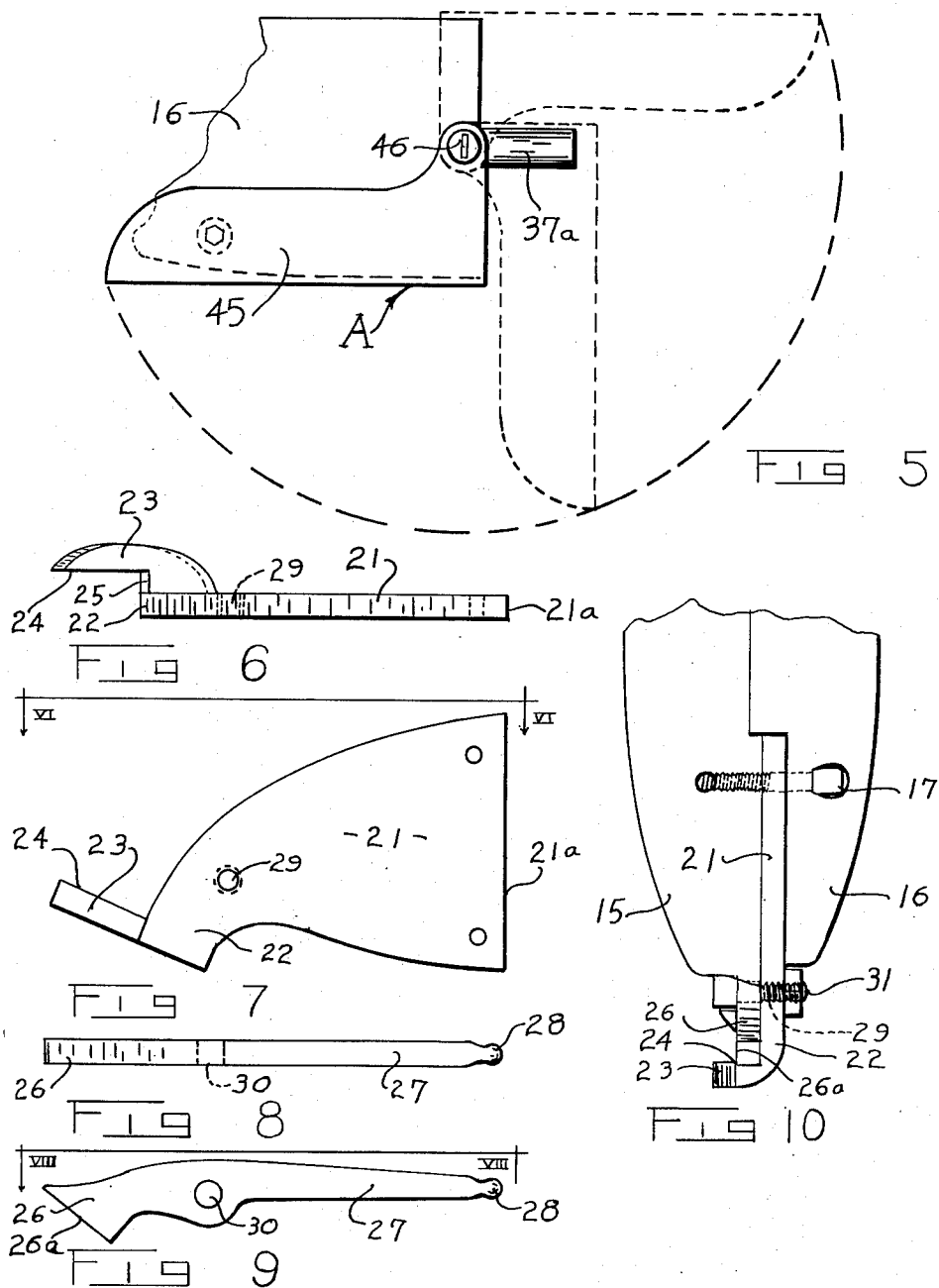
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2 SHEETS—SHEET 2



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POWER-DRIVEN HAND SHEET METAL
SHEARS

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3 Claims. (Cl. 30—228)

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My invention relates to an improvement in power driven hand sheet metal clippers. An object of my invention is to provide a tool of the kind mentioned that may be demountably mounted in a chuck of any standard type of hand drill motor which will furnish the power to operate the clipper and the drill motor may be held in the workman's hand and the clipper thereby be guided to clip or cut the sheet of metal along any predetermined line.

A further object of the invention is to provide a tool of the kind mentioned that while cutting the sheet of metal will allow the sheets of metal on both sides of the point of cutting to lie close to, or rest on the table top or surface on which the sheet is lying. This is a feature of importance since it makes for more accuracy of cutting as well as amplifying the handling of the material during the operation of cutting.

A still further object of the invention is to provide a device of the kind mentioned that is inexpensive, compact, light in weight and therefore easy to handle and use. These and other objects will be more fully explained as this description progresses.

Now referring to the accompanying drawings in which similar numerals of reference designate the same parts throughout the several figures of the drawings:

Fig. 1 is a side view of the clipper and is shown with the clipper being held in the chuck of a drill motor.

Fig. 2 is a vertical longitudinal sectional view of the clipper and having parts broken away for convenience of illustration.

Fig. 3 is a detail cross sectional view of the clipper, the view being as seen from the line III—III in Fig. 2 and looking in the direction of the arrows.

Fig. 4 is a rear view of the clipper, the view being as seen from the line IV—IV in Fig. 2 and looking in the direction of the arrows.

Fig. 5 is a side view of the rear portion of the clipper and showing the stabilizer guard element in its folded position.

Fig. 6 is a top plan view of the stationary clipper element, the view being as seen from the line VI—VI in Fig. 7, and looking in the direction of the arrows.

Fig. 7 is a side view of the stationary clipper element.

Fig. 8 is a top plan view of the rockable cutter element, the view being as seen from the line VII—VIII in Fig. 9 and looking in the direction of the arrows.

Fig. 9 is a detail side view of the rockable clipper element.

Fig. 10 is a front view of the front portion of the clipper device.

In the drawings the device is shown as having

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a hollow paraboloid shaped body portion that is divided into two halves 15 and 16 that are rigidly held together by means of cap screws 17 and 18 that slidably pass through inwardly projecting boss or ear-like elements in one of the paraboloid halves 16 and are threaded into corresponding boss or ear-like elements 19 and 20 in the other paraboloid half 15 to form the paraboloid housing 15—16.

Positioned within the apex portion of the paraboloid and between the two halves 15 and 16 thereof is a combination lever guide plate and shear blade element which consists of a guide plate 21 that convergingly curves to merge into a shear blade supporting leg formation 22 the lower end of which is bent side ways and then projects forwardly to form a shear blade 23 having a straight shear edge 24 that is positioned a spaced distance 25 away from the adjacent surface of the guide plate 21.

The machine is provided with an integrally formed rockable shear blade 26 having a shear edge 26a thereon and operating lever 27 therefor. The inner end of the operating lever 27 has a ball formation 28 integrally formed thereon for purposes that will later be made obvious.

The plate and leg element 21—22 is provided with a hole 29 that is located about midway the depth of the leg 22 substantially at the point where the edge curves of the guide plate 21 merge into the formation of the leg 22. The wall bounding the hole 29 is threaded to receive a pivot bolt as will later be described.

The shear blade and operating lever element 26—27 is also provided with a hole 30 there-through at a point located substantially where the lever portion 27 merges into the shear blade formation 26.

A pivot bolt 31 is slidably passed through the hole 30 in the shear blade and lever element 26—25 and is threaded into the hole 29 in the leg and guide plate 22—21 to slidably hold the lever element 27 against the adjacent face of the guide plate 21 with the end of the lever 27 and ball 28 thereon projecting beyond the rear edge 21a of the plate 21, there being a lock nut 32 threaded on the pivot bolt 31 to lock the pivot bolt 31 in its adjusted position as will be readily understood. The corners of the rear end of the guide plate 21 are provided with a hole there-through, such as at 33 which, when the plate 21 is placed between the housing halves 15 and 16, will register with the holes through the loss element 19 and 20 of the housing elements 15 and 16.

The rear portion of the paraboloid housing 15—16 is provided with an internal annular channel 34 in which is seated two spaced apart anti-friction bearing assemblages 35 and 36 in which is revolvably carried a shaft 37 the rear end of which is reduced in diameter and projects rear-

wardly from the paraboloid housing as a drive pin 37a. The other end of the shaft 37 is provided with a disk 38 that is rigidly fixed, or preferably integrally formed thereon and is revoluble in close proximity to, or against the rear end of the guide plate 21.

The front face of the disk 38 has an eccentrically positioned groove 39 therein relative to the center axis of the shaft 37. In the groove 39 is revolubly positioned a ball bearing assemblage 40 in which is seated the ball 28 on the end of the lever arm 27.

A sleeve 41 is snugly fit on the shaft 37 and is positioned between the inner races of the bearing assemblage 35 and 36 and serves as a spacer therefor. The sleeve 41 is rigidly fixed on the shaft 37 by means of a set screw 42 that is threaded through the sleeve 41 and bears against the shaft 37.

The drive pin 37a is receivable in the chuck 43 of a power unit, preferably an electric drill motor 44.

The paraboloid housing is provided with a combination stabilizer and guide element A that is pivotally attached to the rear end of the paraboloid housing 15-16 at the rear end thereof and is mounted by screws 45 and 46 that are positioned diametrically across the housing 15-16. The stabilizer A is provided with a curved tongue portion 45 which when placed in its rearwardly extending position will fit around and rest on the curved side of the power unit 44 and as the power unit 44 is held in the hand of the workman, the tongue 45 may be solidly held in its position against the power unit 44 to assist in the stabilization of the paraboloid housing 15-16 and shear during the operation of cutting.

When the device is not in use and is removed from the chuck 43 the stabilizer A may be rocked to its folded position against the paraboloid housing 15-16 as shown in Fig. 5.

To prepare the device for use the stabilizer may be turned to its rearward position whereupon the drive pin 37a may be inserted in the chuck 43 and the stabilizer leg 45 resting on the power unit 44 as shown in Fig. 1, whereupon the chuck 43 may be tightened on the pin 37a and the device is ready for use.

As the power unit revolves the chuck 43, the pin 37a, shaft 37 and disk 38 is revolved whereupon the eccentric groove 39 is revolved and imparts a reciprocatory or rocking motion to the lever 27 and the shear blade 26 which shears against the edge of the shear blade 23 so that as a piece of sheet material is placed between the two shear blades 23 and 26, the sheet material will be cut in repeated strokes as the workman moves the device along.

Due to the particular design and relative positioning of the blades 23 and 26 and their supports it is easy to guide the cutter along any straight or irregular line along which the object is to be cut.

While the device as shown and described is probably the preferred form of the device, it is to be understood that such modifications of the device may be employed as lie within the scope of the appended claims without departing from the spirit and intention of the inventor. Now having fully shown and described my invention, what I claim is:

1. In a power driven hand sheet metal shear device of the kind described; said device com-

prising the combination of a one piece blade and support therefor in which the shear blade is positioned substantially ninety degrees to the support and the shearing edge of the shear blade lies in advance of the support and in a plane spaced away from and parallel to the support, a hollow handle, a one piece shear blade and rocking lever therefor, said shear blade and rocking lever being pivotally carried on said support, the shearing edge of said last named shear blade being disposed forwardly of said support and in shearing relation to the shearing edge of the first said shear blade and secured to said support in a position to hold shearing edges of the two shear blades in shearing relation one against the other, a drive shaft, a disk rigidly carried on said drive shaft and a groove in one face of the disk, said groove being positioned eccentric to the said drive shaft, said drive shaft being revolubly carried in the hollow of said handle, said disk being positioned within the hollow of the handle and immediately adjacent the rear end of the said shear blade support, the rear end of the shear blade rocking lever being positioned in said eccentric positioned groove, whereby the revolving eccentric movement of the groove will impart a rocking movement to the shear blade and rocking arm to rock the cutting edge of said last mentioned shear blade.

2. In a power driven shear device, the combination as defined in claim 1, said combination being further characterized by the rear end of said rocking lever having an anti-friction bearing thereon that is operable in the said eccentrically positioned groove for ease of operating the device.

3. In a power driven shear device, the combination as defined in claim 1, the rear end of said drive shaft projecting from the rear of the said handle and being receivable in a rotatable chuck of a power driving unit, a combination guard and stabilizer and handle extension element, said combination guard and stabilizer and handle extension element extending partially around the rear portion of the handle element and extending therefrom to, and engageably resting on, the power unit to stabilize the shear device relative to the power unit, said combination guard and stabilizer and handle extension being pivotally carried on axially aligned pivotal mountings carried by the said handle, the center axis of the aligned pivotal mountings intersecting the center axis of the drive shaft and handle of the device, said handle extension being rockable over the end of the drive shaft to a position against the opposite part of the handle for compacting the device for storage and transportation purposes.

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