

G. A. RICHARDSON AND A. MERCIER.
 DEVICE FOR SHEARING AND CUTTING METALS.
 APPLICATION FILED AUG. 11, 1919.

1,347,912.

Patented July 27, 1920.
 2 SHEETS—SHEET 1.

Fig. 1.

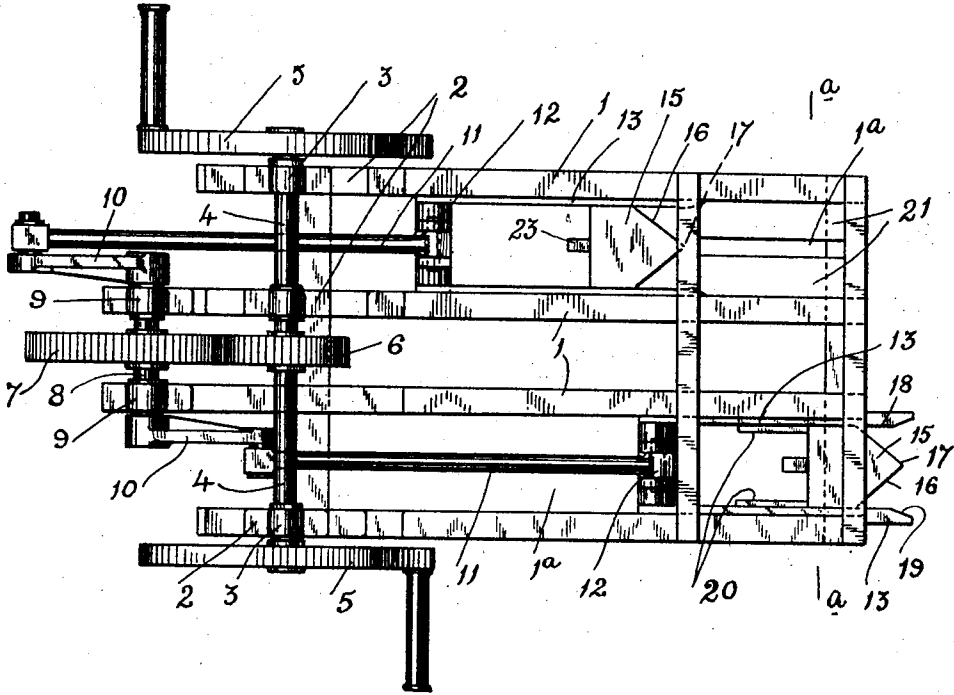
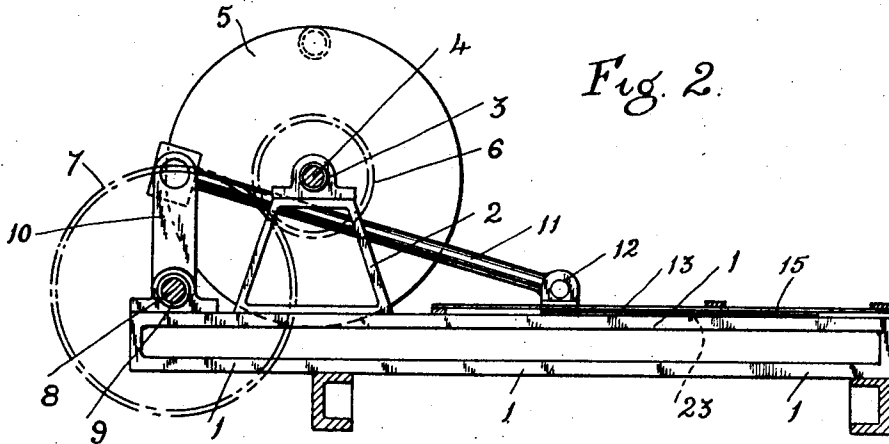


Fig. 2.



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Fig. 3

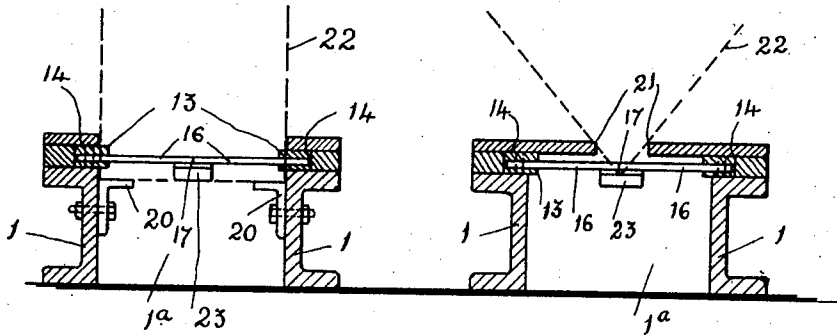


Fig. 4

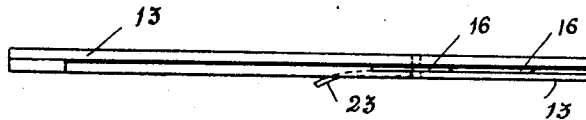
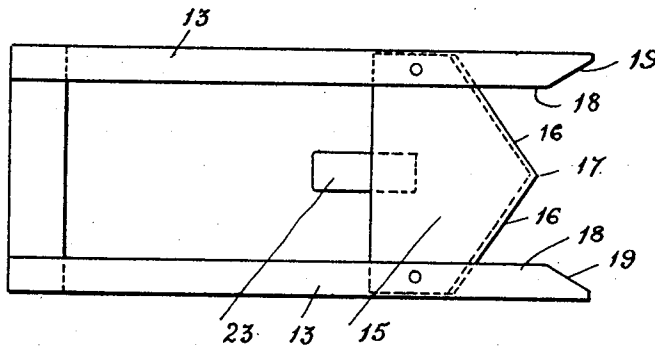


Fig. 5



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UNITED STATES PATENT OFFICE.

GEORGE ARCHIBALD RICHARDSON, OF SOMERSET, AND AMÉDÉE MERCIER, OF
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DEVICE FOR SHEARING AND CUTTING METALS.

1,347,912.

Specification of Letters Patent.

Patented July 27, 1920.

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To all whom it may concern:

Be it known that we, GEORGE ARCHIBALD RICHARDSON and AMÉDÉE MERCIER, subjects of the King of Great Britain, residing at 5 Weston-Super-Mare, Somerset, and Worthing, England, respectively, have invented certain new and useful Improvements in Devices for Shearing and Cutting Metals, of which the following is a specification.

10 The device or apparatus is particularly suitable for converting sheet metal vessels into flat shape and may be adapted for shearing metal of any shape.

Our invention will be clearly understood 15 from the following description aided by the example shown on the annexed drawings in which—

Figure 1 is a plan.

20 Fig. 2 a side sectional view of an apparatus constructed according to our invention.

Fig. 3 a section on the line *a a* of Fig. 1.

Fig. 4 a side view and

Fig. 5 a plan of the knife and carrier.

25 The apparatus constructed according to the drawings consists of a base or frame 1 having two bays or spaces 1^a or there may be more than two and on the frame are positioned brackets 2 having bearings 3 30 carrying a shaft 4 with hand wheels 5 or fly wheels and pulleys for power drive.

On the shaft 4 is secured a gear wheel 6, which meshes with and drives a gear wheel 7 secured on a shaft 8 carried in bearings 9, 9 on the frame 1.

35 On the shaft 8 are also secured two cranks 10, 10 and to the outer end of each crank 10, 10 are fitted connecting rods 11, 11 the other ends of the connecting rods 11, 11 being connected to bearings 12, 12 on frames 13, 13 40 these frames 13, 13 are positioned in runways or grooves 14, 14 formed in between the bays 1^a of the frame 1 so as to be capable of traveling backward and forward in the run-ways on the revolving of the 45 cranks 10, 10 as will be well understood, other means for reciprocating the frames 13, 13 may be employed.

50 Each of the moving frames 13 carries a knife 15 the knives being formed with the cutting edges 16, 16 at an angle to the point 17 and the knives 15 are so arranged in the frames 13 that a part of the frame projects forward in front of the cutting edges of the knives as at 18, Fig. 5, and act as guides to

the metal being cut and which traveling 55 with the knives give a shearing action on the metal by reason of the shape of the cutting edges of the knives and projecting frames 18, the edges of the frames 13 being preferably beveled as at 19. 60

Guides 20 and 21 may be attached at various points in the bays 1^a for supporting the vessels being cut or guides may be attached to the knives for a similar purpose. 65

In use and for cutting up a sheet metal 65 vessel say an empty petrol tin the top is first removed by placing the tin in one of the bays 1^a when the knife is clear of the bay and resting same on the guides 20 which may be adjusted in height to suit the depth 70 of cut to clear the bead or edging of the tin as shown in dotted lines 22 Fig. 3, the frame 13 and knife 15 then travel forward, the point 17 of the knife 15 entering the wall of the tin and cutting the entering wall 75 and the side walls by a shearing or scissor action due to the angle of the cutting edges 16 and projecting frames 18 which traveling with the knife cut the metal without bending it, on the return of the knife the bot- 80 tom of the tin may be engaged by a spring plate or catch 23 on the knife or frame which draws the bottom of the tin back with it until free of the guides 20 when it drops through a hole or space in the frame 1 into 85 a receptacle under the apparatus.

The tin is then reversed and a repeat operation cuts off the top leaving the tin without top or bottom, the tin is then positioned in the guides 21 cornerwise as will be understood from the dotted lines Fig. 3 and 90 the knife in traveling forward will remove the corner of the tin, each corner in turn being cut off and will result in the tin being cut into a top, a bottom and four flat sheets 95 (sides).

Other forms of guides or rests may be employed to support other shaped vessels and flat sheet metal may be simply held without supports. The action of the cutting 100 edges of the knives which are so arranged that the frames in which the knives are carried act as guides and enable flat sheet metal, hollow sheet metal, cylinders, squares, cubes and the like to be cut at any angle 105 without bending. Sheet metal whether flat or otherwise may be cut either from side to side or edge to edge.

What we do claim as our invention and desire to secure by Letters Patent, is:—

1. An apparatus for shearing or cutting metals comprising a frame, and a reciprocating frame carrying an angled edged cutting knife within the frame, said reciprocating frame having extensions constituting a support for the article to be cut, means for reciprocating the angled edged knife frame, and guides or brackets for supporting the vessel or article to be cut.

2. An apparatus for shearing or cutting metal, consisting of a frame or base having run-ways or grooves, frames including slidable work-supporting members and carrying knives adapted to reciprocate in such run-ways, each of said knives being formed with cutting edges at an angle to each other, the knives being positioned so that the work-supporting side members of the frame project beyond said cutting edges, and means for reciprocating said frames, substantially as and for the purpose set forth.

3. In apparatus of the class described, a base, a pair of parallel grooves in said base, a sliding frame adapted to reciprocate in said grooves, an angle-edged knife mounted in said frame, said knife being so positioned in the frame that the frame projects beyond

the cutting edge of the knife, thereby providing work-supporting fingers, a bearing mounted on said frame, a connecting rod attached to said bearing, means for actuating said connecting rod, and work-supporting guides mounted on said base.

4. In apparatus of the class described, a base, a pair of parallel grooves in said base, a sliding frame mounted in and adapted to reciprocate in said groove, a cutting knife mounted in said frame, said knife being so positioned in the frame that the frame projects beyond the cutting edge of the knife, thereby providing work-supporting fingers, a spring catch on said knife adjacent one edge thereof, said catch being adapted to engage the work after the shearing operation has been completed, a bearing mounted on the frame, a connecting rod attached to said bearing, and means for actuating said connecting rod.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

GEORGE ARCHIBALD RICHARDSON.
AMÉDÉE MERCIER.

Witnesses:

CLAIR COLE,
GRACE TOWNSEND.