Feb. 7, 1928. 1,658,498

N. A. ROSE

HAND SHEARS

Filed June 25, 1925

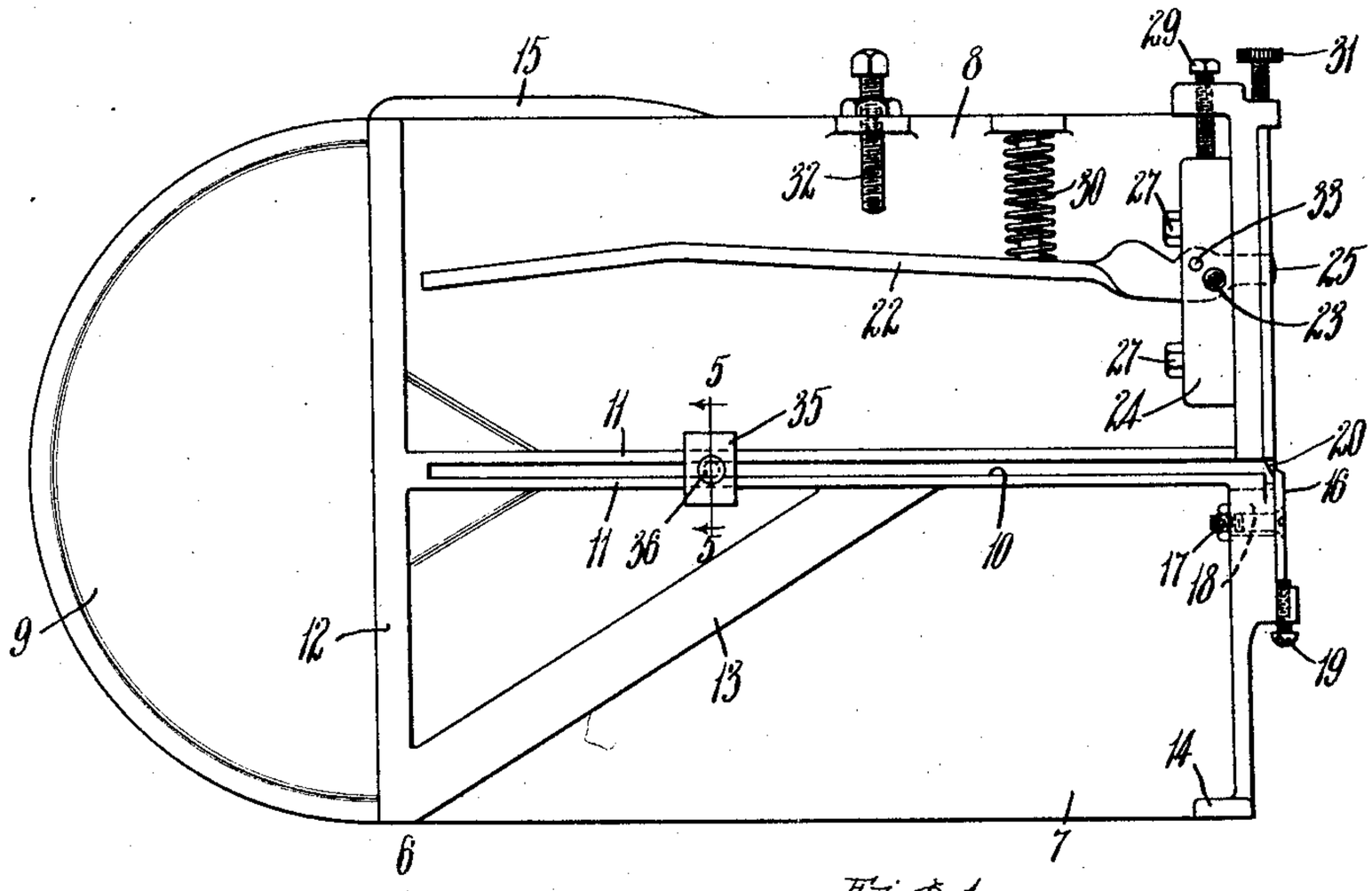

FIG. 1.

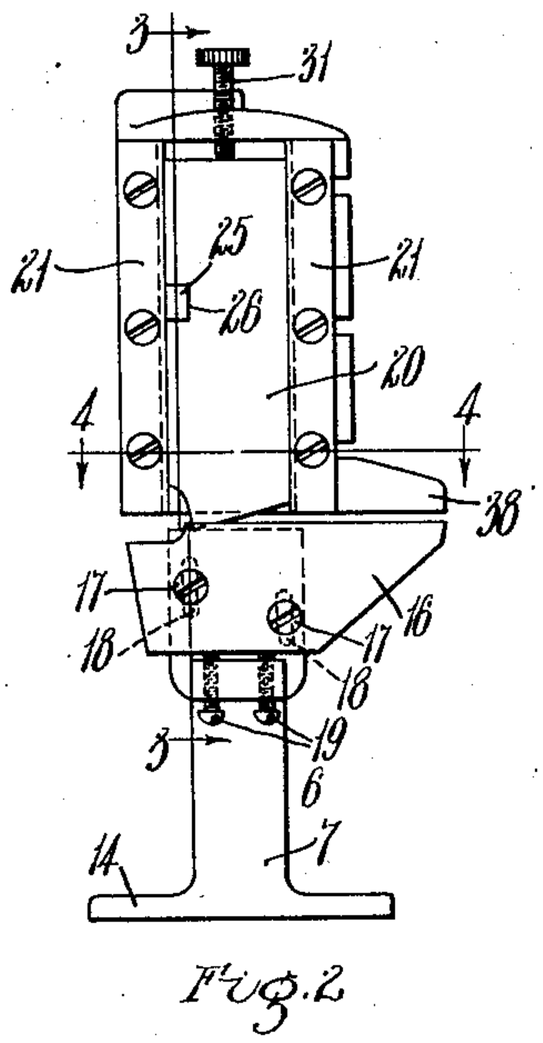

FIG. 2

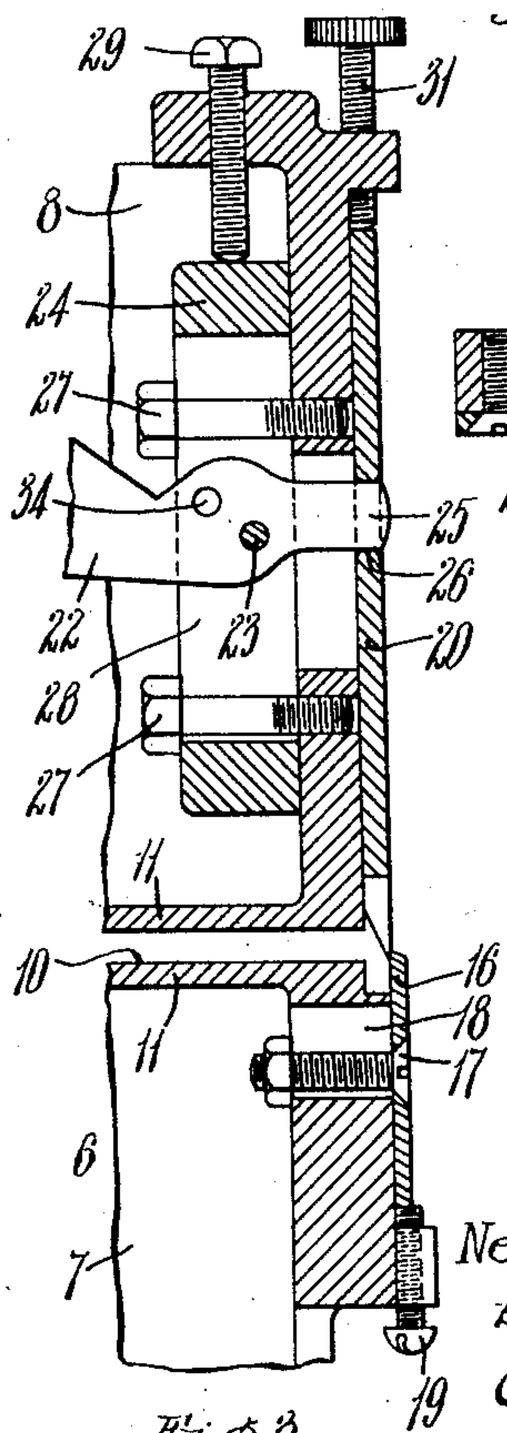

FIG. 3.

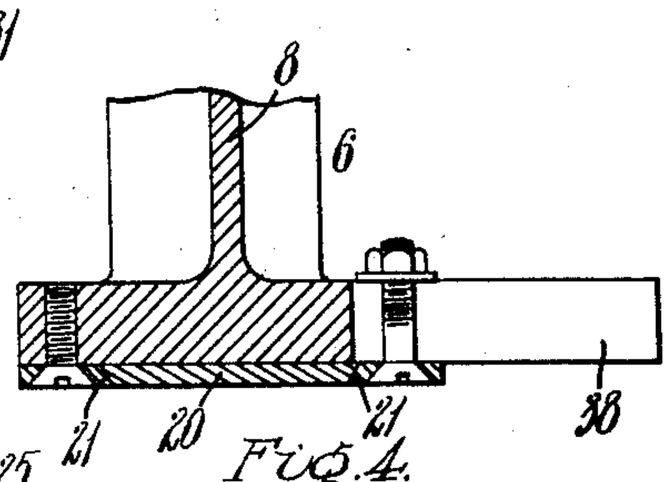

FIG. 4.

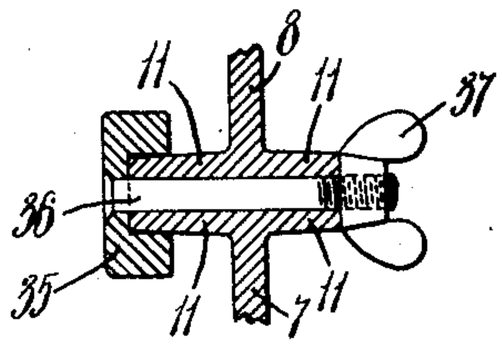

FIG. 5.

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UNITED STATES PATENT OFFICE.

NEWTON AUGUSTUS ROSE, OF WELLESLEY HILLS, MASSACHUSETTS.

HAND SHEARS.

Application filed June 25, 1925. Serial No. 39,599.

This invention relates to an improved hand shears for cutting sheet material, especially sheet metal, and has for its object to provide a portable, hand operated device for cutting sheet metal in strips or comparatively narrow sheets such as are used for flashing and other purposes.

The device of this invention is an improvement upon an invention disclosed by me in my application Serial No. 729,493, filed August 1, 1924, entitled "Hand shears".

The invention consists in a hand shears as set forth in the following specification, and particularly as pointed out in the claims thereof.

Referring to the drawings:—

Figure 1 is a side elevation of the hand shears of my invention.

Fig. 2 is a front elevation of the device as viewed from the right of Fig. 1.

Fig. 3 is an enlarged detail vertical section taken on the line 3—3 of Fig. 2.

Fig. 4 is an enlarged detail horizontal section taken on the line 4—4 of Fig. 2.

Fig. 5 is an enlarged detail vertical section taken on the line 5—5 of Fig. 1.

Like numerals refer to like parts throughout the several views of the drawings.

In the drawings, 6 is a frame embodying therein a lower front portion 7, an upper front portion 8, and a semi-circular rear portion by which the upper and lower portions 8 and 7 respectively are connected together. The upper and lower portions 8 and 7 respectively of the frame 6 are separated by a narrow slot 10 which extends longitudinally of said frame from the front end thereof, and said slot has flanges 11 upon opposite sides thereof and extending for the entire length thereof. The rear portion of the frame is reinforced by a vertical rib 12, and the lower portion 7 of said frame is reinforced by a rib 13, the latter extending from a point adjacent the bottom of the rib 12 forwardly and upwardly and intersecting the flange 11 at a point midway of the slot 10. The frame 6 also has a foot portion 14 formed integral therewith at the forward end thereof and a handle portion 15 formed integral therewith at the top thereof.

A cutter blade 16 is fastened to the front end of the lower portion 7 of the frame 6 at the front thereof by a pair of bolts 17 which extend through slots 18 formed in said frame. The blade 16 extends transversely of the frame 6 and the cutting edge thereof is located adjacent to the lower side of the slot 10. The cutter blade 16 may be adjusted to vary the inclination of the cutting edge thereof by loosening the bolts 17 and manipulating adjusting screws 19, the latter engaging the lower edge of said blade.

A cutter blade 20 is mounted to be reciprocated in ways 21 provided at the front end of the upper portion 8 of the frame 6, said cutter blade being actuated by a hand lever 22 pivoted at 23 to a bracket 24 fast to said frame, an end 25 of said lever 22 projecting into a slot 26 provided in the cutter blade 20. The bracket 24 is adjustably secured to the frame 6 by screws 27 which pass through a slot 28 provided in said bracket. A screw 29 mounted in the frame 6 engages the upper end of the bracket 24.

A spring 30 is interposed between the hand lever 22 and a projecting portion of the frame 6, and said spring acts to force the free end of the lever 22 downwardly and the cutter blade 20 upwardly, the upward movement of said blade 20 being limited by a stop screw 31, with which the upper portion of said blade engages. Another stop screw 32 is also provided for the purpose of limiting the upward movement of the free end of the hand lever 22 thereby limiting the extent to which the cutter 20 may be moved downwardly.

The leverage of the hand lever 22 may be varied slightly by removing the pivotal screw 23 from the position in which it is located in Figs. 1 and 3, and inserting said screw through a hole 33 provided in the bracket 24 and through a hole 34 provided in said lever 22.

In order to prevent the portions 7 and 8 of the frame 6 from spreading at the slot 10 during the cutting operation, a member 35 is provided, said member being slidably mounted upon the flanges 11 engaging the upper surface of the upper flange and the under surface of the lower flange. The member 35 is securely clamped in position upon said flanges by a stud 36 and thumb nut 37, said stud extending through the slot 10 and the thumb nut engaging the opposite edges of the flanges 11 from that upon which the member 35 is mounted. The member 35 is also utilized as a stop to limit the extent to which the sheet material may project into the slot 10 when it is desired that a stop shall be provided for this purpose.

An arm 38 formed integral with the upper portion 8 of the frame 6 projects laterally from said frame and longitudinally of the cutting edges of the blades 16 and 20, the lower face of said arm being approximately flush with the upper side of the slot 10, and said arm constitutes a stripper and prevents the sheet metal from moving upwardly or curling when the cutter blade 20 is moved upwardly.

The object of the stop screw 31 is to compensate for any change in the relative position of the cutting edge of the blade 20 relatively to the cutting edge of the blade 16 caused by the grinding and sharpening of said blades, it being evident that the cutting edges of the two blades may always be located in the same relative positions when the blade 20 is in its uppermost position by adjusting said stop screw 31.

The general operation of the shears hereinbefore specifically described is as follows:—Assuming the parts to be in the relative positions illustrated in Figs. 1 and 2, a piece of sheet material is inserted between the cutting edges of the blades 16 and 20, said sheet material projecting into a slot 10 to an extent equal to the width of the strip which it is desired to cut from the main piece of sheet material, and the member 35 may be utilized as a stop to limit the extent to which said sheet material may be inserted within said slot if it is so desired.

The user of the device grips the handle 15 and hand lever 22 with one hand and causes the free end of said lever 22 to move toward the handle portion 15 of the frame 6. The hand lever 22 thus being tipped upon its pivot 23 causes the blade 20 to move downwardly and co-act with the blade 16, the sheet material being severed for a length approximately equal to the cutting edges of said blades. Upon releasing the pressure from the lever 22 the same will be carried back to its initial position as illustrated in Fig. 1 by the spring 30, thus causing the cutter blade 20 to move upwardly until the upper end thereof abuts against the lower extremity of the stop screw 31.

This operation is then repeated, the shears being advanced relatively to the material, or the material being advanced relatively to the shears as may be desired until a piece of said material has been severed from the remainder. During these successive cutting operations it will be seen that when the cutter blade 20 is moved upwardly, the portion of the material being severed cannot follow said blade upwardly on account of the stripper arm 38 which bears against that portion of the material which is being severed from the main piece of sheet material.

During the cutting operation any tendency for the upper and lower portions 8 and 7 respectively of the frame 6 to spring apart at the slot 10 will be effectively prevented by the member 35, the latter being positioned as desired upon the flanges 11.

I claim:—

1. A hand shears comprising, in combination, a frame having a handle portion formed thereon and provided with a slot extending longitudinally thereof from the front end thereof, said frame embodying therein a flange upon each side of said slot, a cutter blade fast to the front of said frame and extending transversely thereof adjacent to the end of said slot, a cutter blade slidably mounted at the front of said frame, means to impart a reciprocatory motion to said slidable blade whereby a piece of sheet material interposed between said blades and projecting into said slot may be severed, and means engaging said flanges and preventing said frame from springing during the cutting operation.

2. A hand shears comprising, in combination, a frame having a handle portion formed thereon and provided with a slot extending longitudinally thereof from the front end thereof, said frame embodying therein a flange upon each side of said slot, a cutter blade fast to the front of said frame and extending transversely thereof adjacent to the end of said slot, a cutter blade slidably mounted at the front of said frame, means to impart a reciprocatory motion to said slidable blade whereby a piece of sheet material interposed between said blades and projecting into said slot may be severed, a member slidably mounted upon said flanges and preventing said frame from springing at said slot during the cutting operation, and means to clamp said member to said flanges.

3. A hand shears comprising, in combination, a frame embodying therein upper and lower portions connected together at the rear thereof and having a slot therebetween extending longitudinally thereof from the front end thereof, said frame also embodying therein a flange upon each side of said slot and a handle portion at the top thereof, a cutter blade fast to the front of said frame and extending transversely thereof adjacent to the end of said slot, a cutter blade slidably mounted at the front of said frame, a bracket adjustably mounted upon said frame, and manually actuated means upon said bracket to impart a reciprocatory motion to said slidable blade whereby a piece of sheet material interposed between said blades and projecting into said slot may be severed by said cutter blades.

4. A hand shears comprising, in combination, a frame embodying therein upper and lower portions connected together at the rear thereof and having a slot therebetween extending longitudinally thereof from the front end thereof, said frame also embodying therein a flange upon each side of

said slot and a handle portion at the top thereof, a cutter blade fast to the front of said frame and extending transversely thereof adjacent to the end of said slot, a cutter blade slidably mounted at the front of said frame, a bracket adjustably mounted upon said frame, a lever pivoted to said bracket and adapted to engage said last-named cutter blade whereby a reciprocatory motion may be imparted thereto to sever material interposed between said blades, and means slidably mounted upon said flanges and preventing said frame from springing during the cutting operation.

5. A hand shears comprising, in combination, a frame embodying therein upper and lower portions connected together at the rear thereof and having a slot therebetween extending longitudinally thereof from the front end thereof, said frame also embodying therein a flange upon each side of said slot and a handle portion at the top thereof, a cutter blade fast to the front of said frame and extending transversely thereof adjacent to the end of said slot, a cutter blade slidably mounted at the front of said frame, a bracket adjustably mounted upon said frame, a lever pivoted to said bracket and adapted to engage said last-named cutter blade whereby a reciprocatory motion may be imparted thereto to sever material interposed between said blades, a spring acting against said lever to force the slidable cutter blade away from said first-named cutter blade, a stop screw on said frame against which said slidable cutter blade is adapted to abut in moving upwardly, and means slidably mounted upon said flanges and preventing said frame from springing during the cutting operation.

6. A hand shears comprising, in combination, a frame embodying therein upper and lower portions connected together at the rear thereof and having a slot therebetween extending longitudinally thereof from the front end thereof, said frame also embodying therein a flange upon each side of said slot and a handle portion at the top thereof, a cutter blade fast to the front of said frame and extending transversely thereof adjacent to the end of said slot, means to adjust said cutter blade upon said frame, a cutter blade slidably mounted at the front of said frame, a bracket slidably mounted upon said frame, a hand lever pivoted to said bracket and engaging said slidable cutter blade whereby a reciprocatory motion may be imparted to the latter to sever material interposed between said blades, a spring acting against said lever to force said slidable cutter blade away from said first-mentioned cutter blade, a stop screw on said frame against which said slidable cutter blade is adapted to abut when moved upwardly, a stop also to limit the upward movement of the free end of said hand lever, a member slidably mounted upon said flanges and preventing said frame from springing at said slot during the cutting operation, and means to clamp said member to said flanges.

7. In a hand shears a frame, a cutter blade slidably mounted upon said frame, a bracket adjustably mounted upon said frame, a pivot member detachably mounted in said bracket, and a lever mounted upon said pivot and engaging said cutter blade to impart a reciprocatory motion thereto, said bracket and lever being provided with sets of co-operating holes therein, whereby said pivot member may be positioned to vary the leverage of said lever.

In testimony whereof I have hereunto set my hand.

NEWTON AUGUSTUS ROSE.