

(No Model.)

2 Sheets—Sheet 1.

H. K. SMITH.

MACHINE FOR CUTTING BLANKS FROM SHEET METAL.

No. 548,893.

Patented Oct. 29, 1895.

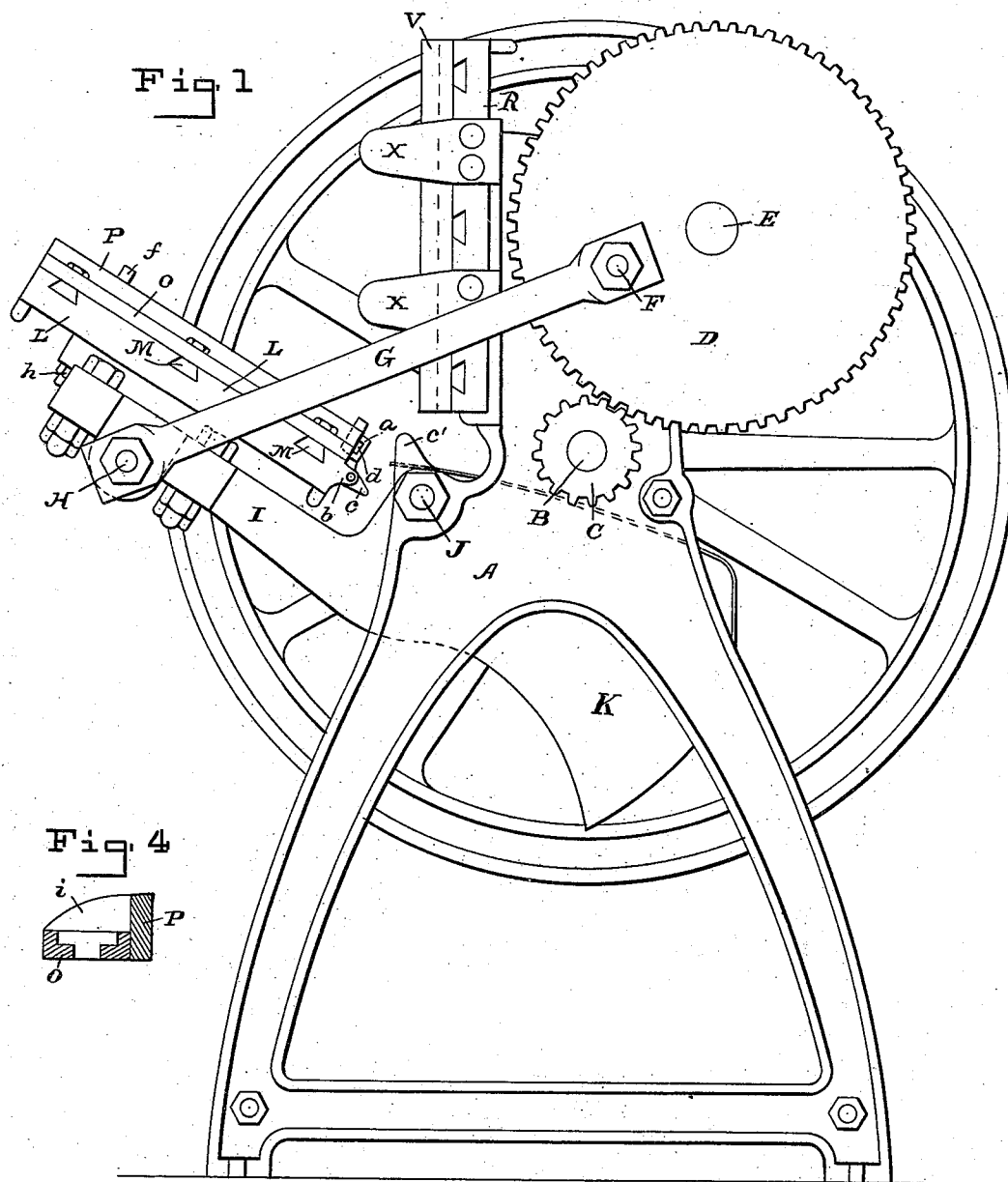
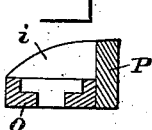


Fig. 4

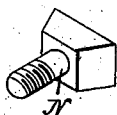


Witnesses:

A. O. Balendreis.

C. R. Weaver

Fig. 5



Inventor.

Henry K. Smith

by

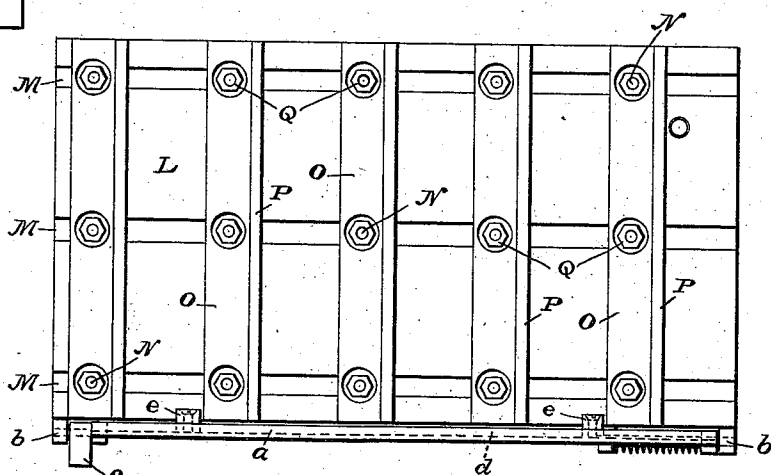
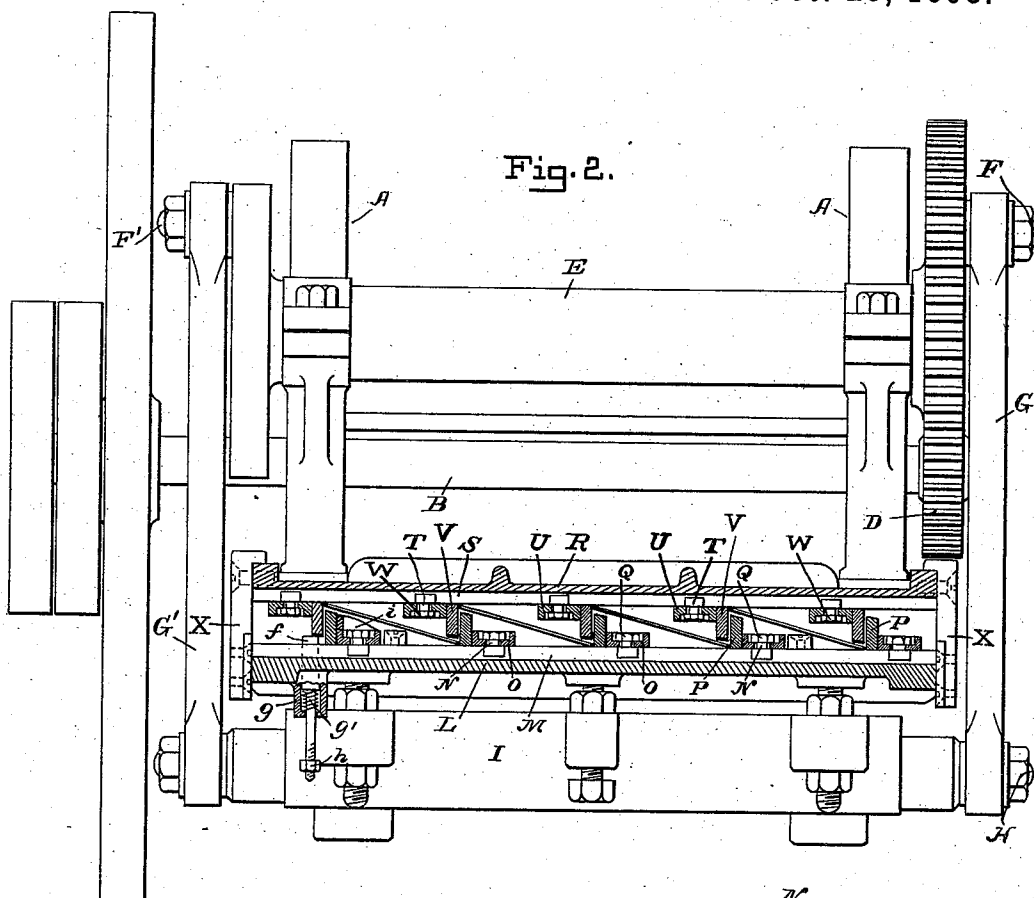
S. J. Brashears

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2 Sheets—Sheet 2.

MACHINE FOR CUTTING BLANKS FROM SHEET METAL.

Patented Oct. 29, 1895.



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Fig. 3.

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UNITED STATES PATENT OFFICE.

HENRY K. SMITH, OF BALTIMORE, MARYLAND.

MACHINE FOR CUTTING BLANKS FROM SHEET METAL.

SPECIFICATION forming part of Letters Patent No. 548,893, dated October 29, 1895.

Application filed March 22, 1894. Serial No. 504,668. (No model.)

To all whom it may concern:

Be it known that I, HENRY K. SMITH, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Machines for Cutting Blanks from Sheet Metal; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to machines for cutting sheets of tin into blanks for the bodies of cans.

The object of my invention is to furnish an invention of this class which will by one operation cut up a whole sheet of tin into such blanks, the parts of the machine to be removable for the purpose of renewal or repair and adjustable to suit the size of the blanks to be cut.

With this object in view my invention consists in the improved construction, arrangement, and combination of parts hereinafter fully described, and afterward specifically pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a view in side elevation of a machine made in accordance with my invention. Fig. 2 is a horizontal section through the two platens on a plane passing through one of the adjusting and securing bolts of each knife. Fig. 3 is a face view of the movable platens. Fig. 4 is a detail view of one of the knives detached. Fig. 5 is a detail view of one of the adjusting-bolts detached.

Like letters of reference mark the same parts wherever they occur in the various figures of the drawings.

Referring to the drawings by letter, A is the frame of the machine, in which is journaled a transverse shaft B, which may be driven from any approved power. On this shaft at one end and at one side of the frame is mounted a pinion or small gear-wheel C, which engages with and rotates a gear-wheel D, mounted on a suitable shaft E, journaled in the frame of the machine above the shaft B. The gear-wheel D also serves as a crank-plate and has a wrist-pin F on which is mounted one end of a pitman G, the opposite end of which is journaled on a shaft H, passing through an

oscillating frame I, whereby said frame is reciprocated. The shaft H extends beyond the opposite side of the frame and has on its opposite end another pitman G', connecting with a crank-pin F' on the corresponding end of the shaft E. The frame I is mounted on a shaft J, which is fixed in the main frame A. The end of the frame I beyond its pivot is provided with a suitable counterbalancing-weight K, either attached to or forming part of frame I, as may be deemed advisable.

Secured to the inside, or it may be formed as part of the frame I, is a platen L, which is provided with parallel, transverse, dovetail, or undercut grooves M in which are adjustably placed the heads of bolts N, said bolts projecting out of the grooves, passing through flanges O of knives P, and being secured by nuts Q.

Opposite to platen L on the main frame of the machine is a similarly-formed platen R, having parallel, transverse, dovetail, or undercut grooves S, in which are placed the heads of bolts T, which pass through flanges U of knives V and are secured by nuts W.

The two platens with their grooves, bolts, nuts, and knives, are counterparts of each other in both construction and adjustment, with the single exception that the knives are oppositely placed, so that the flanges on one platen lie to the right of the knives, while on the other they lie to the left.

By means of the construction described the knives can be quickly and accurately adjusted in their positions with relation to each other on the same platen and to those of the opposite platen, so that the size of the blanks can be accurately adjusted and the knives be made absolutely accurate in their conjoint action with those of the opposite platen. Any knife or any number of them may also be quickly removed for sharpening or renewal.

The platen R is provided at each end with a pair of lugs X, between which the platen L moves to prevent sidewise displacement.

Mounted at the lower edge of the movable platen L is an adjustable movable gage, consisting of a rock-bar *a*, extending lengthwise of the said platen and having its ends journaled in ears *b*, projecting therefrom. This bar at one end has a trip projection *c*,

which engages a cam c' on the main frame of the machine, whereby the bar is oscillated when the knives of one platen engage those of the opposite platen. A dovetail groove d extends throughout the entire length of the bar a , and in it are the heads of bolts which carry the adjustable gage-blocks e , which during the normal position of the bar a (see Fig. 1) have position between two adjacent cutters of the movable platen and at same time extend somewhat above the cutting-edge, so as to form a bottom stop for the sheet when placed in the machine, and yet when the sheet has been cut to be retracted from out of the pathway of the blanks and allow them to pass out freely. A stop gage-pin f , also mounted in the movable platen and projecting from its face, forms a side gage for the sheet. This pin f has position in a socket g , in which is placed a coil-spring g' , the function of which is to keep the pin normally forced out, but when the knives of the two platens pass one another to allow the pin to be forced back and into the socket. Upon the opposite end of the pin, which is reduced and threaded, is a nut h to limit the outward movement of the pin.

The knife or cutter next adjoining the spring gage-pin just described is of slightly-different construction, the angular space between the blade and flange being filled in so as to form an incline, as at i , reaching from the edge of the flange to the edge of the blade of the knife or cutter, the purpose of which is to cause the sheet when being fed into the machine toward the gage-pin to pass readily over the blade, against which it might otherwise catch.

In operating my invention the knives are first accurately adjusted, when sheets of metal may be placed between the stationary and movable platens. By the operation of the gearing, as hereinbefore described, the movable platen is oscillated, bringing it up toward the fixed platen, the stroke being so regulated that the knife-edges will pass each other in proper relation. By this one movement the whole sheet of metal is cut into proper-sized blanks, which then drop out of the machine. The lower portions of the knives being nearest the pivot of the lever carrying the movable platen will begin to cut first, thus giving a continued shear cut until the operation is completed, whereby the strain is gradually applied and much less power required.

The counterbalance-weight makes the machine work more regularly and easier.

Having thus fully described the construction and operation of my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a machine for cutting blanks from sheet metal, the main frame, a stationary

platen mounted on said frame and having a series of parallel knife blades projected from one side, opposite guide lugs fitted to opposite ends of the stationary platen and projected beyond the plane of said knife blades, and an oscillating platen pivotally mounted within the main frame and carrying a series of parallel knife blades working in opposition to those of the stationary platen, substantially as set forth.

2. In a machine of the class described, the combination of the stationary and movable platens carrying a series of opposing knife blades projected from one side, one of said platens being provided with an offstanding socket, a stop gage pin arranged to work in said socket and at one side of the side knife blade of the platen having the socket, said gage pin being provided with a reduced threaded extremity extended through one end of said socket, a spring arranged in said socket and engaging with said gage pin, and a limiting nut mounted on the reduced threaded extremity of the gage pin, substantially as set forth.

3. In a machine of the class described, the combination with the fixed and movable platens carrying opposing cutting knives, of an automatically-tripped rock bar mounted at the lower edge of the movable platen and carrying gage blocks for the sheet metal blank, substantially as set forth.

4. In a machine of the class described the combination of the frame having a cam projection, the fixed and movable platens carrying opposing cutting knives, an automatically tripped rock bar pivotally mounted at the lower edge of the movable platen and provided at one end with a trip projection adapted to engage with the cam projection of the frame, and gage blocks adjustably mounted on said rock bar, substantially as set forth.

5. In combination the main frame of the machine, its platen and adjustable knives, the toothed face plate, the wrist pin thereon, the frame or lever pivoted to the main frame, its counterweight, the oscillating platen, its adjustable knives, and the pitman connecting the oscillating frame with the face plate on the main frame, all substantially as and for the purposes set forth.

6. In a machine for cutting blanks from sheet metal, a platen carrying a series of knives, a stop at the side to guide the sheet, and an incline reaching from the platen to the edge of the side knife upon which the sheet may ride to prevent striking the knife as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY K. SMITH.

Witnesses:

S. BRASHEARS,
A. O. BABENDREIER.