

(No Model.)

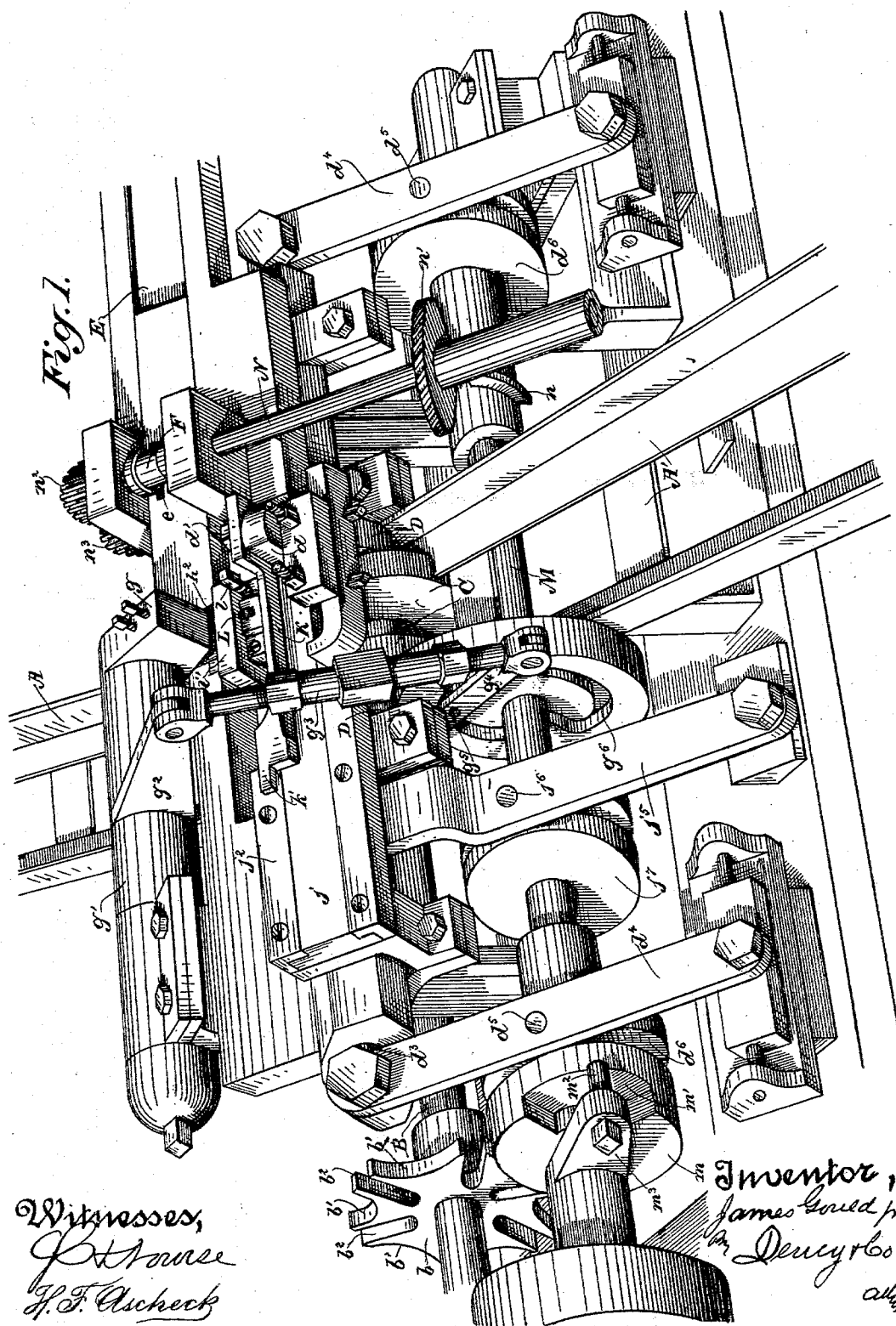
3 Sheets—Sheet 1.

J. GOULD, Jr.

MACHINE FOR MAKING AND FITTING TONGUES OF KEY OPENING CANS.

No. 546,146.

Patented Sept. 10, 1895.



(No Model.)

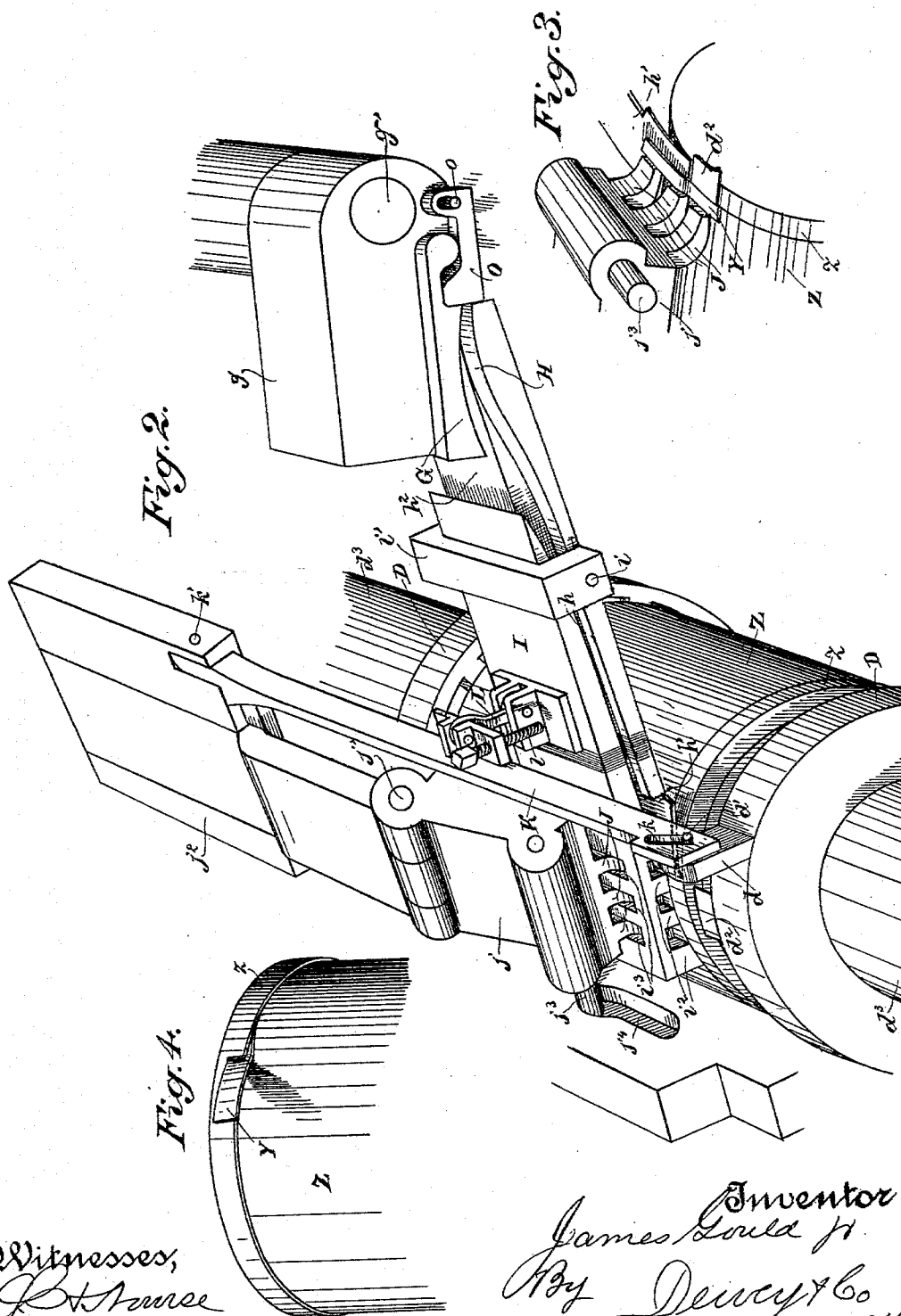
3 Sheets—Sheet 2.

J. GOULD, Jr.

MACHINE FOR MAKING AND FITTING TONGUES OF KEY OPENING CANS.

No. 546,146.

Patented Sept. 10, 1895.



Witnesses,
R. H. Hourse
J. F. Ascheck

Inventor
James Gould Jr.
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(No Model.)

3 Sheets—Sheet 3.

J. GOULD, Jr.

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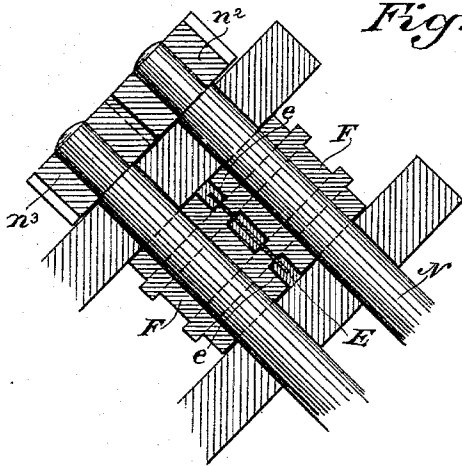


Fig. 5.

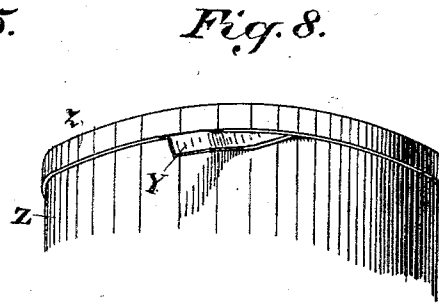


Fig. 8.

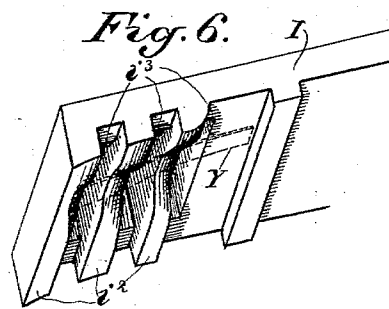


Fig. 6.

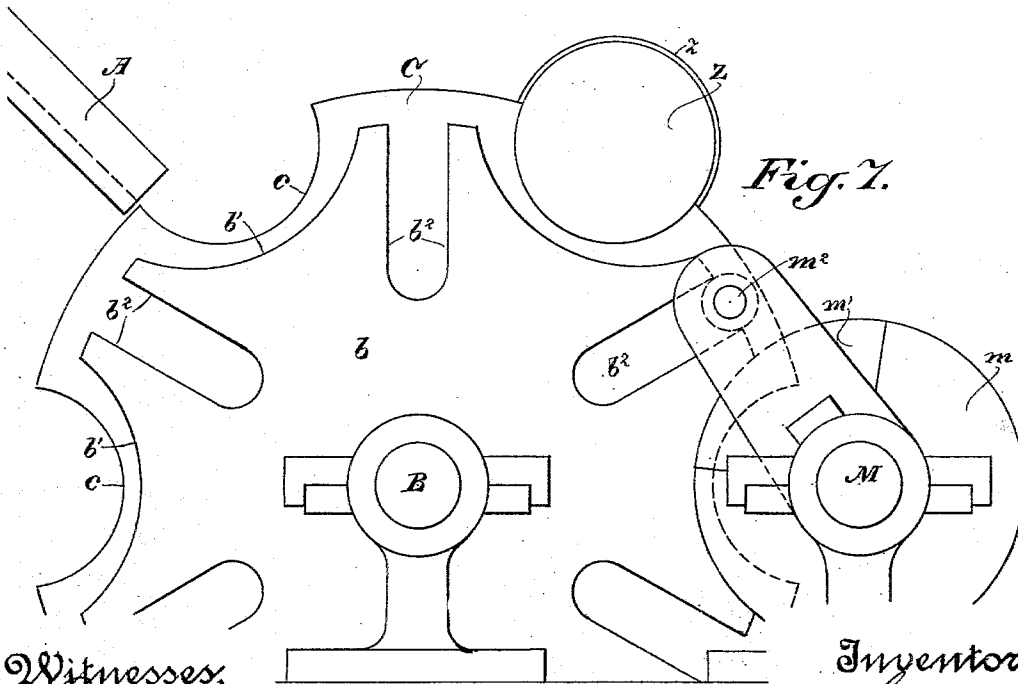


Fig. 7.

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UNITED STATES PATENT OFFICE.

JAMES GOULD, JR., OF BERKELEY, CALIFORNIA.

MACHINE FOR MAKING AND FITTING TONGUES OF KEY-OPENING CANS.

SPECIFICATION forming part of Letters Patent No. 546,146, dated September 10, 1895.

Application filed May 10, 1895. Serial No. 548,824. (No model.)

To all whom it may concern:

Be it known that I, JAMES GOULD, Jr., a citizen of the United States, residing at Berkeley, county of Alameda, State of California, have invented an Improvement in Machines for Making and Fitting the Tongues of Key-Opening Cans; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to the general class of can machinery, and particularly to a machine the object of which is to make and fit the small pieces of metal called "tongues" to the flanges of exterior tight-fitting heads of cans, whereby the latter may be opened by means of a key applied to the tongue and by which the flange of the can-head is torn off.

My invention consists in the combination of a presser bearing down on the can-body along the line of the edge of the can-head flange and a pusher for forcing the tongue between said presser and the can-body, whereby it enters under the head-flange.

It consists, also, in connection with the above of a means for feeding and guiding the tongue to and under the presser.

My invention also consists in the combination, in a machine of this character, of means for placing the tongue in a plane intersecting the plane of the head-flange and means for forcing said tongue to intersect said flange.

It also consists in means for holding the tongue and head-flange while the former is caused to tear or cut its way in intersecting said flange, thus inserting a portion of it under the flange and leaving a portion projecting.

My invention also consists, in connection with means for effecting the results above mentioned, of means for properly guiding and directing the metallic tongues to position against the can-head flange, means for feeding the can to position to be held, means for holding and for releasing it after the tongue has been fitted to its head-flange, means for feeding the sheet of tin, means for cutting it off into tongues, and various details of construction, arrangement, and combination, which I shall hereinafter fully describe.

Referring to the accompanying drawings for a more complete explanation of my inven-

tion, Figure 1 is a perspective view of my machine. Fig. 2 is a perspective detail showing the means for holding the can, means for guiding, directing, and limiting the metallic tongue, the means for cutting off said tongue from the sheet of tin, and the means for forcing the tongue into its place in the can-head flange. Fig. 3 is a perspective detail of the pusher-arms, by which the metallic tongue is forced to place, said arms being shown in the act of operating upon the tongue. Fig. 4 is a perspective view of a portion of the can, showing the metallic tongue in place on the head-flange. Fig. 5 is a detail section of the tin-feeding rolls. Fig. 6 is a bottom view of the presser-feet. Fig. 7 is a detail end view showing particularly the can receiving and feeding carrier. Fig. 8 is a view showing the tongue pushed under the head-flange, but not intersecting it.

It will be best at the outset to refer to Fig. 4, in order that the object of the machine may be fully understood. In this figure Z is the can and z is the flange of an exterior fitting head of the can.

Y is the metallic tongue, which is fitted to the can-head flange through a transverse slit therein, as shown, whereby a portion of it lies under the can-head flange and between it and the body, while another portion projects outwardly and is adapted to be taken hold of, usually by a slotted key, so that by being wound upon said key the tongue will start the tearing of the head-flange, by the continuance of which tearing the head will finally be released from the body.

The position of the tongue, as shown in Fig. 4, while I may say it is the best and most practical is not, however, the only position, for in some instances it may not be necessary or desirable to cause the tongue to intersect the flange; but, as shown in Fig. 8, the tongue Y may be forced to place at such an angle that its edge will not cut into or through the flange at all.

The objects of this machine are to make these tongues, such as Y, and then to place them, as is shown in Figs. 4 and 8.

The general frame of the machine is inclined, as is shown in Fig. 1, so that the cans may roll down the feed-chute A by gravity.

Upon the shaft B of the machine is mounted the can carrier or feeder, which consists of two separated disks C, one of which is shown in Fig. 7, each disk having cut out in its periphery the recesses *c*, in which the cans rest. This carrier is intermittently rotated by means I shall hereinafter describe, and is adapted by this rotation to bring one pair of recesses opposite the feed-chute A, in order to receive a can, and then upon the next movement to bring another pair of recesses to receive a succeeding can, while the previous can is carried into the line and path of operation of two oppositely-located reciprocating holding-plungers D, which come up to the heads of the can Z, as is shown in Fig. 2. During the temporary rest of the carrier and these holding-plungers the can is firmly held in place to have the tongue fitted to it.

In the upper portion of one side of the machine, as is shown in Fig. 1, is formed a covered passage-way E, into which the sheet of tin is fed. Through suitable openings *e* in this passage-way, both above and below, operate the flanged feed-rolls F, Figs. 1 and 5, by which the sheet of tin is advanced to position to be cut into widths or strips necessary to form the tongues Y. This cutting is affected by means of an oscillating shear G, (shown in Fig. 2,) operating against the end of the passage-way E and over a flat die H, said die being curved, as shown, to cause the bending of the tongue, and forming a track which, with its continuation *h*, serves to direct the cut-off and bent strip or tongue by gravity down to where the can is being held. The part *h* of the track has secured to it the guide *h'*, which lies directly over the can, overlapping the line of junction of the head and body of said can, as is shown plainly in Fig. 3.

The die H is formed with or secured to a body-plate *h*², Fig. 2, and to this is pivoted at each side at *i* a bail or bracket *i'*, to which is secured one end of a presser-plate I, the other end of which has formed on its under side the presser-feet *i*². These are in the form of parallel separated ribs, the under sides of which, as shown in Fig. 6, are grooved out with a gradually-decreasing depth, whereby the tongue, which in this figure is shown in dotted lines, may pass down under said feet and lie in a plane intersecting the plane of the head-flange—that is to say, one part of it raised above the can-body by the guide *h'* and the other part lying upon the can-body. In this presser-plate are made the slots *i*³, through which extend and operate the pusher-arms J, which are formed with or secured to a sliding plate *j*, which has a hinge-joint at *j'*, and its rear end is mounted and adapted to slide in a fixed bearing *j*² of the main frame of the machine. The head of the sliding plate *j* is guided by a projecting pin *j*³, operating in a groove or way *j*⁴ in the fixed frame of the machine.

K is an arm pivoted at *k'* to a fixed portion *j*² of the main frame. This arm K is connected with the presser-plate I by means of a link L freely pivoted to both parts, whereby it can elevate said plate. It depresses it by means of a contact *l*, shown as a screw for the sake of adjustability, said screw being seated in a lug of the arm K and adapted when pressed downwardly to bear against a lug of the presser-plate I.

Rising from plunger D is a lug *d*, having a pin *d'* playing in an inclined slot *k* of arm K, whereby as the plunger advances to hold the can the arm is depressed.

Secured to the holding-plunger D is a short arm *d*², which projects over the can-head flange when the plunger is set up, as is shown in Fig. 3, and its position is just beyond where the guide *h'* terminates, so that it holds the flange down at the place where the tongue is to be forced to tear said flange.

The tongue Y passing down to position is limited by contact with the outermost presser-foot *i*², Fig. 6, in such a position that its lower end lies opposite the arm *d*² of the holding-plunger, while its upper end still lies upon the guide *h'*. In this position it also rests directly in front of the pusher-arms J, which at this time are retracted. The tongues passing down the runway or tracks *h* are far enough in to slip directly under the presser-feet over the body of the can. The lower half of the tongue rests directly on the body, while the upper half still remains on the guide *h'*, so that when the presser-feet come down they bend the tongue into the shouldered form shown in Fig. 3, and when the pusher-arms operate they press the tongue toward the can-head flange, and the lower half of the tongue is caused to enter under the can-head flange, while the upper half, still guided by the guide *h'*, remains outside the can-head flange, and said tongue thus intersects said flange.

The construction of the driving mechanism and the time of its operation are such that when the holding-plungers D advance to hold the can the arm K will be depressed, and this, through the contact of screw *l*, will force down the presser-plate I, the feet of which will thereby press down upon the can-body between where the tongue is lying and the edge of the head-flange. The plate *j* accompanies it by reason of its hinge at *j'*. The pressure of the feet *i*² on the can-body is a positive one, and said feet serve as a resisting wall to the tongue, which, being now engaged edgewise by the pusher-arms J moving forwardly, is moved bodily sidewise and forced between the presser-feet and the can-body, the latter yielding to the pressure and thus affording a space under the head-flange for the entrance of the tongue. The position of the parts when the tongue reaches the flange is shown in Fig. 3, and by reason of the overlying arm *d*² on the flange and the pressure of the feet *i*²

on the body the bent portion of the tongue finds a line in the flange of weak resistance, and consequently, under continued pressure of the arms, tears its way into said flange, thus intersecting it.

As the holding-plunger retracts and the arm K is thereby lifted, the pressure-plate I is raised and at the same time the sliding plate *j* withdraws. The can is now free and will pass out of the machine by gravity, rolling down the chute or way A', Fig. 1.

The foregoing description, while particularly applicable to the placing of the tongue, as shown in Fig. 4, is also applicable in most part to the disposition of the tongue, as shown in Fig. 8. The only difference in construction to be noted is a change necessary to guide and hold the tongue to and under the presser at a greater angle than that shown in Fig. 4, and the alteration of the line of the front of the pusher-arms to correspond to this angle, whereby the part or end of the tongue to remain outside the head-flange will also remain beyond its edge. These changes being of degree only, and the result being apparent from Fig. 8, I have not deemed it necessary to a perfect understanding of the matter to illustrate them.

The motions of the several parts are derived from the main shaft M, Fig. 1.

The feeding mechanism for the sheets of tin is driven from a worm-flange *n* on the shaft M, meshing with the worm *n'* on the shaft N of the upper feed-roll F, said shaft N having on its end a pinion *n''* meshing with a pinion *n'''* on the shaft of the lower feed-roll.

The shear G is connected with a head *g* on a shaft *g'*, having a crank-arm *g''*, to which is connected a link *g'''*, said link being connected at its lower end to an arm *g''''*, having upon it a stud *g'''''*, which plays in the groove of a cam *g''''''* on the shaft M.

The feeding-carrier C for the cans is intermittently rotated by means of a disk *b* on the shaft B, Fig. 1. This disk has its periphery made up of a series of curved portions *b'* with intervening slots *b''*.

Upon the shaft M is a disk *m*, having in one portion a recess *m'*, and into the plane of this portion projects a pin *m''* on a crank-arm *m'''* on the shaft M.

When the curved portions *b'* of the disk *b* fit the periphery of the disk *m*, the disk *b* is at rest, but when the shaft M is turned far enough to cause its pin *m''* to come into engagement with one of the slots *b''* of the disk *b*, said disk *b* will then be turned, its motion being permitted by reason of the recess *m'* in the disk M coming opposite one of the curved portions *b'* of the disk *b*.

The can-holding plungers D are operated by means of their sliding stems *d''* being connected with pivoted levers *d'''*, having studs *d''''* operating in cam-grooves of the disks *d'''''* on the shaft M.

In order to provide against the contingency

of the small tongue or strip of tin which is cut from the main sheet not starting down the inclined die H there is, as is shown in Fig. 2, connected at *o* with the shear-head *g* a tripping-arm O. The connection at *o* is a loose one and is off the center of the shear-head, so that by the oscillation of the latter the arm O is pushed forward and drawn back. Its time of projection is after the cutting off of the tongue from the sheet of tin, and the end of said arm coming in contact with said cut-off strip will push it forwardly and thereby give it the momentum or start necessary to prevent its sticking.

The sliding plate *j* of the pusher-arms J is operated by a pivoted lever *j''*, having a stud *j'''* engaging a cam *j''''* on the shaft M.

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

1. In a machine for fitting the tongues to the head flanges of key opening cans, the combination of means for placing the tongue in a plane intersecting the plane of the head flange, and means for forcing said tongue to intersect said flange.

2. In a machine for fitting the tongues to the head flanges of key opening cans, the combination of means for placing the tongue flat-wise in a plane intersecting the plane of the head flange, and means for forcing said tongue edgewise to intersect said flange.

3. In a machine for fitting the tongues to the head flanges of key opening cans, the combination of means for holding the can against end thrust, means for placing the tongue in a plane intersecting the plane of the head flange, and means for forcing said tongue to intersect said flange.

4. In a machine for fitting the tongues to the head flanges of key opening cans, the combination of means for placing the tongue flat-wise beyond the edge of the head flange, one portion lying on the body and the other portion held above it, pressers acting on the body between the tongue and head flange edge, and means for forcing said tongue edge-wise between the pressers and body and to intersect said flange.

5. In a machine for fitting the tongues to the head flanges of key opening cans, the combination of means for supporting the can and holding it against end thrust, means for placing the tongue flat-wise beyond the edge of the head flange, one portion lying on the body and the other portion held above it, pressers acting on the body between the tongue and head flange edge, and means for forcing said tongue edge-wise between the pressers and body and to intersect said flange.

6. In a machine for fitting the tongues to the head flanges of key opening cans, the combination of means for supporting the can and holding it against end thrust, guides for directing the tongue to place, means for holding said tongue with one portion on the can

body, and the other portion raised above it, pressers acting on the body between the tongue and head flange edge, and means for forcing said tongue edge-wise between the pressers and body and to intersect said flange.

7. In a machine for making and fitting the tongues to the head flanges of key opening cans, the combination of means for supporting and holding the can, means for feeding a sheet of tin and cutting it into tongues, means for directing the tongue to place, means for holding said tongue with one portion on the can body, and the other portion raised above it, pressers acting on the body between the tongue and head flange edge, and means for forcing said tongue edge-wise between the pressers and body and to intersect said flange.

8. In a machine for fitting the tongues to the head flanges of key opening cans, the combination of means for feeding the headed cans, means for receiving and conveying them successively to position, means for holding them in position against end thrust, guides for directing the tongue to place, means for holding said tongue with one portion on the can body and the other portion raised above it, pressers acting on the body between the tongue and head flange edge, and means for forcing said tongue edge-wise between the pressers and body and to intersect said flange.

9. A machine for making and fitting the tongues to the head flanges of key opening cans, comprising a means for feeding the headed cans, means for receiving and conveying them successively to position, means for holding them in position against end thrust, means for feeding a sheet of tin and cutting it into tongues, means for directing the tongue to place, means for holding said tongue with one portion on the can body and the other portion raised above it, pressers acting on the body between the tongue and head flange edge, and means for forcing said tongue edge-wise between the pressers and body and to intersect said flange.

10. In a machine for fitting the tongues to the head flanges of key-opening cans, the combination with means for holding the can, of the guide track for holding one end of the tongue above the can body, an arm for holding the head flange against outward pressure, and a reciprocating pusher for operating against the edge of the tongue to force it to intersect the can head flange where relieved of the holding arm.

11. In a machine for fitting the tongues to the head flanges of key-opening cans, the combination with means for holding the can, of the guide track for holding one end of the tongue above the can body, an arm for holding the head flange against outward pressure, a presser acting upon the can body near the head flange, and a reciprocating pusher for operating against the edge of the tongue to force it between the presser and can body and

to intersect the can head flange where relieved of the holding arm.

12. In a machine for fitting the tongues to the head flanges of key opening cans, the combination of the sliding pusher arm, the swinging presser plate through which the pusher arms play, the reciprocating can holding plungers, and a connection between the presser plate and one of the plungers adapted by the reciprocation of the plunger to depress and elevate the presser foot-plate.

13. In a machine for fitting the tongues to the head flanges of key opening cans, the combination of the sliding pusher arm, the swinging presser plate through which the pusher arms play, the reciprocating can holding plungers, and a connection between the presser plate and one of the plungers adapted by the reciprocation of the plunger to depress and elevate the presser plate, consisting of the swinging arm with its inclined slot in which a pin of the said plunger plays, the link connecting the two plates and the contact screw thereof.

14. In a machine for fitting the tongues to the head flanges of key-opening cans, the combination of the opposing holder plungers, one of which has an arm for holding the head flange against outward pressure, a guide track for holding one end of the tongue above the can body, a presser acting on the can body between the tongue and head flange and a pusher operating against the edge of the tongue to force it between the presser and can body and to intersect the can head flange where relieved of the holding arm.

15. In a machine for making and fitting the tongues to the head flanges of key-opening cans, the combination of a passage-way for the tin sheet, a shear for cutting off the tongues from the projecting sheet, and the curved die by which the tongues are bent preparatory to being directed to place on the can.

16. In a machine for making and fitting the tongues to the head flanges of key opening cans, the combination of the rocking head, the shear carried thereby, for cutting the tongues from the sheet and the arm carried by the head for starting the tongues on their track.

17. In a machine for fitting the tongues to the head flanges of key-opening cans, the combination of a presser adapted to bear down on the can body along the line of the edge of the can head flange, and a pusher adapted to force the tongue between said presser and the can body, whereby a portion or part of said tongue enters under the head flange.

18. In a machine for fitting the tongues to the head flanges of key-opening cans, the combination of a presser adapted to bear down on the can body along the line of the edge of the can head flange, a pusher adapted to force the tongue between said presser and the can body, whereby a portion or part of said tongue enters under the head flange, and means for

feeding and guiding the tongue to and under the presser.

19. In a machine for fitting the tongues to the head flanges of key-opening cans, the combination of a presser adapted to bear down on the can body along the line of the edge of the can head flange, a pusher adapted to force the tongue between said presser and the can body, whereby a portion or part of said tongue enters under the head flange, means for feed-

ing and guiding the tongue to and under the presser, and means for holding the can against end thrust.

In witness whereof I have hereunto set my hand.

JAMES GOULD, JR.

Witnesses:

WM. F. BOOTH,
S. H. NOURSE.