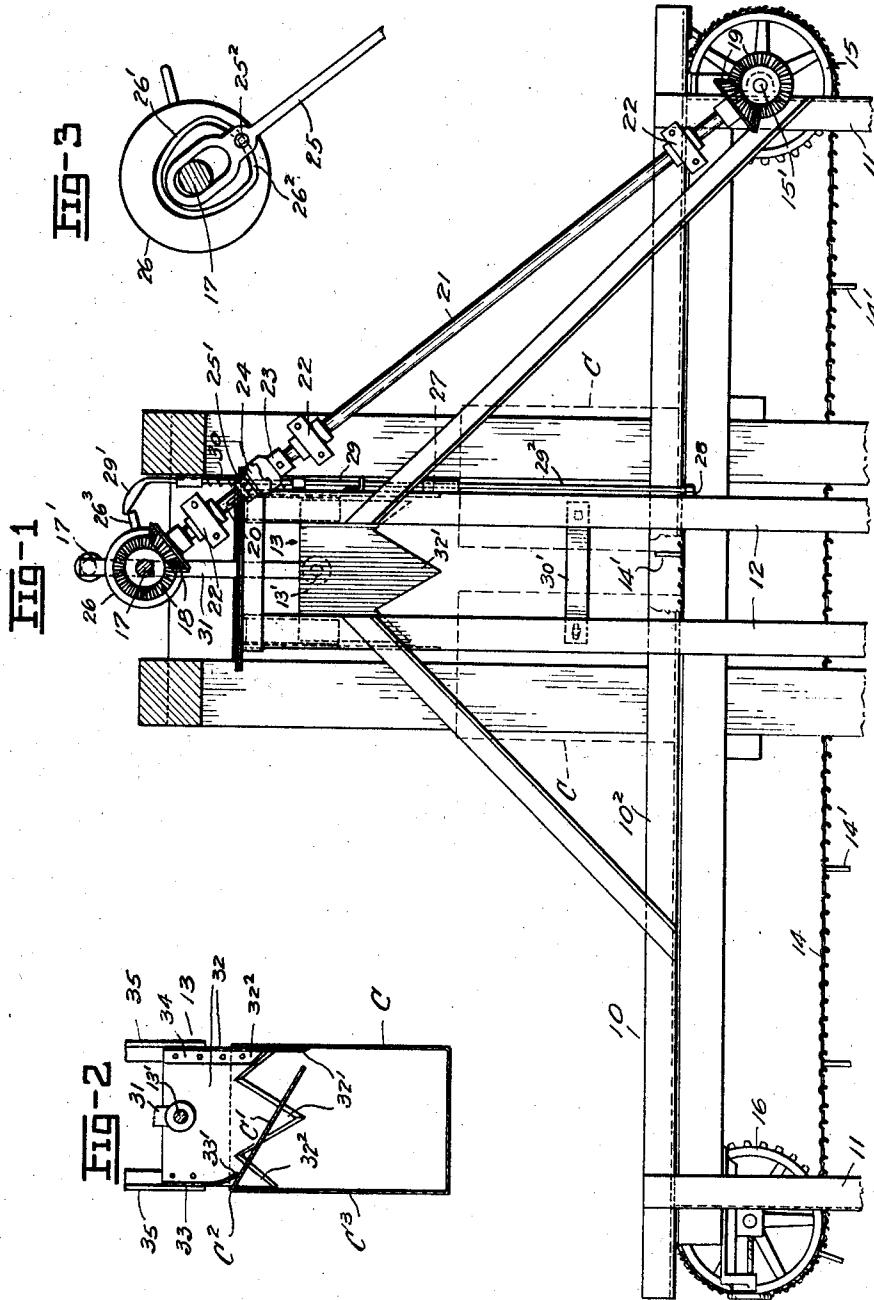


E. B. TRACY.
CAN CUTTER.
APPLICATION FILED OCT. 16, 1919.

1,389,019.

Patented Aug. 30, 1921.

2 SHEETS—SHEET 1.



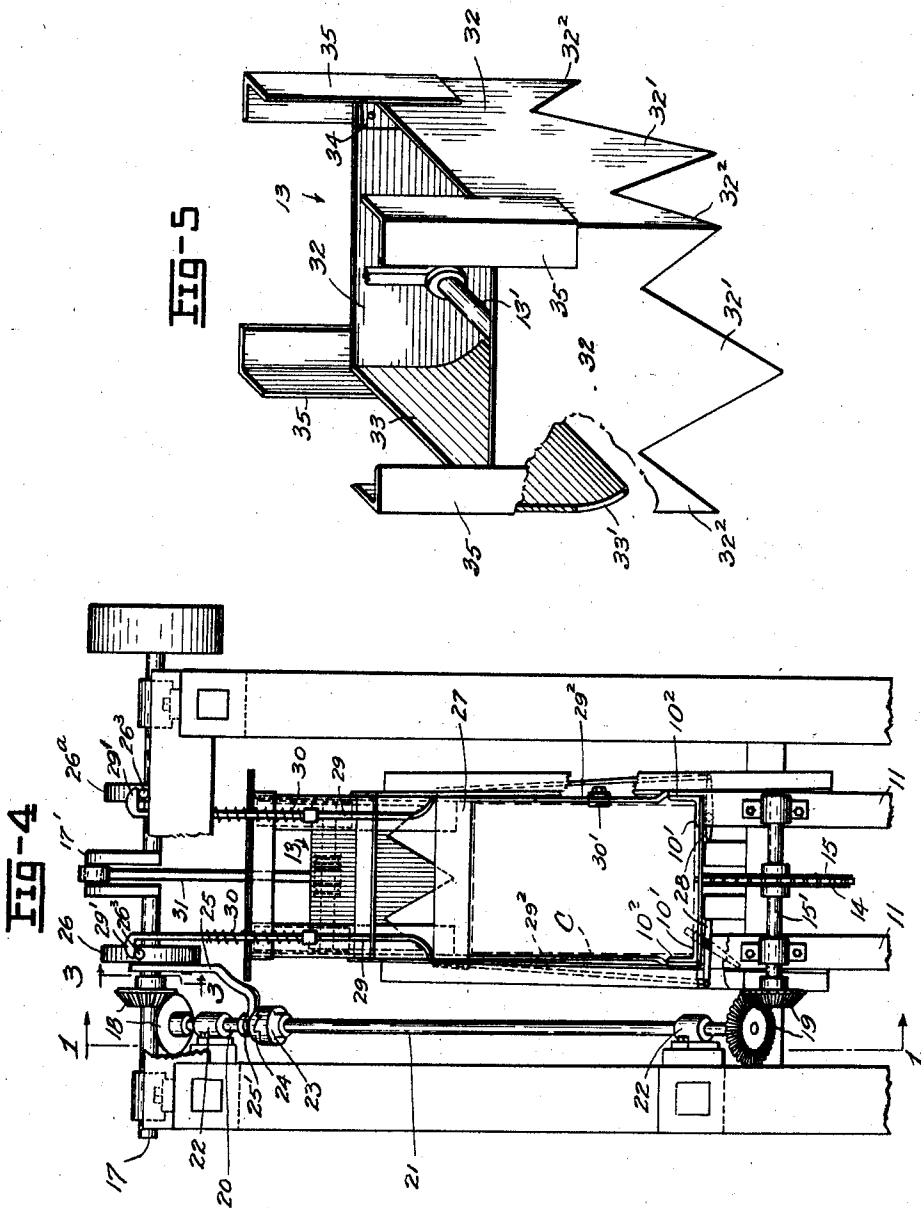
Inventor:
Ernest B. Tracy
By his Attorney
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UNITED STATES PATENT OFFICE.

ERNEST B. TRACY, OF SEATTLE, WASHINGTON.

CAN-CUTTER.

1,389,019.

Specification of Letters Patent. Patented Aug. 30, 1921.

Application filed October 16, 1919. Serial No. 331,145.

To all whom it may concern:

Be it known that I, ERNEST B. TRACY, a citizen of the United States, residing at Seattle, in the county of King and State of Washington, have invented certain new and useful Improvements in Can-Cutters, of which the following is a specification.

This invention relates to tin-can cutting machines; and its primary object is the provision of a machine of this character for cutting heads from rectangular oil containing cans to enable the latter to be subsequently bent or pressed into shape and sizes for convenience in packing and shipping. A further object is the provision of means which are rendered effective coincidently with the cutting operation for bending a head into the space between the side walls of a can. A further object is to provide a can cutting machine having means to automatically feed the cans into and out of position in which the can ends are cut and bent.

With these and other objects in view, the invention consists in the novel construction, arrangement and combination of parts as will be hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a view partly in side elevation and partly in longitudinal section of a machine embodying my invention, said section being taken through 1—1 of Fig. 4. Fig. 2 is a detail vertical sectional view of a can and the cutter to illustrate the action of the same and of the bending element. Fig. 3 is a sectional view through 3—3 of Fig. 4. Fig. 4 is an end elevation of the machine with the frame thereof partly broken away. Fig. 5 is a perspective view of the cutter, which is broken away at one corner to illustrate the bending element thereof.

In said drawings, the numerals 10 designate side rails and 11 the legs of a table, to the side rails of which are secured spaced upright bars 12. These bars, desirably, are of the type conventionally known as angle bars which are arranged to afford corner guide ways for a vertically reciprocatory cutter which is indicated as a whole by 13. The side rails 11 of said table are also, desirably, angle bars which are arranged as shown in Fig. 4 to provide horizontal track flanges 10¹ and upright side flanges 10² to respectively support and guide the cans in upright positions as indicated by broken lines C in Figs. 1 and 4.

A conveyer, such as an endless chain 14

passing about driving and driven sprocket wheels 15 and 16 located adjacent to the ends of the table serve through the instrumentality of chain attachments 14¹ to progressively feed the cans through the frame afforded by the bars 12, said conveyer being intermittently driven to cause the successive cans to be at rest within said frame while the aforesaid cutter is moved into and from its operative positions, as will be presently explained. Such intermittent driving of the conveyer is accomplished from a power driven crank shaft 17 located above said frame as by means of pairs 18 and 19 of toothed bevel gears connecting the ends of a two-part intermediate shaft with the power shaft 17 and the shaft 15¹ of sprocket wheel 15.

The parts 20 and 21 of the intermediate shaft above referred to are journaled in axially alined bearing boxes 22 and are separably coupled together by means of a clutch having one of its members 23 rigidly secured to the shaft part 21 and its other member 24 splined to the shaft part 20. When said clutch members are coupled it is apparent that both of said shaft parts are rotated as a single shaft to drive the conveyer; but when the clutch is disengaged the motion of the conveyer is interrupted.

For disengaging the clutch, I provide a link 25 having a forked end 25¹ engaging in a peripheral groove in the clutch member 24 and having a stud 25² taking in a cam groove 26¹ provided in a wheel 26 which is mounted on said power shaft. The cam groove 26¹, as shown in Fig. 3, is formed with a portion 26² arranged concentrically to the wheel axis so that while the stud 25² is in such concentric portion the shiftable clutch member 24 will operatively engage the complementary member 23.

To insure the stopping of a can in position within said frame to be properly acted upon by the aforesaid cutter, I provide a vertically movable gate 27 arranged to be brought downwardly into operative position in front of the can and coöperates with stops 28 operating upwardly into the path of the can's travel.

To actuate said gate and stop, the former is connected to lifting rod 29 having fingers 29¹ engageable by pins 26³ provided respectively on wheels 26 and 26^a and arranged to elevate the gate out of the path of the cans and in opposition to springs 30 which serve

to urge the gate into position to arrest the can. The stops 28, as illustrated, are in the nature of levers which are connected to extensions 29² of the rods so as to act in conjunction with said gate. 30¹ represents a spring connected to the frame bars 12 at one side of the table and coöperates with the bars at the other side thereof to retain a can in position laterally of the frame to have its upper head cut and turned down against a side of the can.

Such cutting and bending operations are accomplished by means of the cutter 13 which is vertically reciprocated in the frame by means of a pitman 31 connecting the crank pin 17¹ of the shaft 17 with a transverse bar member 13¹ of the cutter.

Said cutter consists of three vertical cutting blades 32 and a fourth blade of less depth than the cutting blades and having an upper plane portion 33 and a lower portion 33² which is curved inwardly between the adjacent cutting blades as shown in Figs. 2 and 5.

The cutter blades may be made of a number of plates joined at their meeting edges or they may be formed from a single plate which is bent to provide the various blades, the extremities of such a plate being joined as at 34, Fig. 5. 35 represent reinforcing bars provided at the corners of the cutter and serve as wearing elements in the guides afforded by the frame bars 12.

The lower edges of the blades 32 are serrated to provide in each blade a central tooth 32¹ of an isosceles shape located between acute angle tooth elements 32² which, at the corners remote from the bending blade 33—33¹, join corresponding elements of the adjacent cutting blades 32 to furnish corner teeth of rectangular shapes in horizontal section.

The central teeth 32¹ moreover extend below a plane projected horizontally through the points of the outer teeth 32¹ so that when the cutter is forced down into the work the central part of the head along each of its margins is cut first, then the head is cut at each corner, the central and corner teeth thereupon act mutually to connect the respective cuts whereby the head is severed from the side walls along three edges of the same.

The head C¹, Fig. 2, thus cut by the cutter is connected along one of its edges, as at C², with the can side C³ and when encountered by the bending blade is forced downwardly into the can body, the curved part 33¹ of such blade serving to ride down, so to speak, upon the head to cause it to be brought into juxtaposition with the inner surface of the can side C³.

In operation, cans placed upon the table, at the left-hand side in Fig. 1 are carried by the chain attachments 14¹ into and through

the opening of the frame comprising the bars 12. The spacing of said attachments is such that the conveyer chain when intermittently brought to rest, by the driving shaft 20—21 therefor being rendered temporarily inoperative, will correspondingly cause the cans to be successively presented in position to be acted upon by the cutter as above described.

The cans furthermore are positively arrested upon reaching the referred to position by the gate 27 and stops 28.

The construction and operation of the invention will be understood from the foregoing.

While I have described with some particularity, the preferred embodiment of my invention I do not wish to confine myself thereto, as changes may be made therefrom without departing from the spirit of the invention and within the scope of the appended claims.

What I claim, is—

1. In a machine for cutting heads from square cans, the combination with the machine frame, can feeding devices, a cutter provided with three cutting blades arranged for reciprocatory movements in said frame, and means to operate said cutter whereby cans fed to the latter will through the medium of the cutting blades have a head thereof cut along three of its edges, of means provided on the cutter and rendered operable subsequent to the cutting of a head to bend the same into the can body.

2. In a machine for cutting heads from cans, a reciprocatory cutter having three cutting blades and a head bending blade, said blades being arranged in rectangular relations, said cutting blades serving to cut the head along three of its sides, and said bending blade serving to force the head thus cut by said cutter blades into the can and against one of the side walls thereof.

3. In a machine for cutting heads from cans, a cutter having three cutting blades provided with toothed cutting edges, and a bending blade disposed in rectangular relations with respect to each other, said bending blade terminating at a plane in spaced relations from the cutting blades which are adjacent to said bending blade, means to supply cans to said cutter, and means to reciprocate the cutter whereby a can head is successively cut along three of its edges from the sides of a can and bent down into the can body and into juxtaposition with the fourth side of the can.

Signed at Seattle, Washington, this 30th day of September, 1919.

ERNEST B. TRACY.

Witnesses:

PIERRE BARNES,
ELIZABETH JOHNSON,