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F. RUDOLPHI.
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ROTARY SLITTING MACHINE FOR CUTTING SHEET METAL CAN BODY BLANKS.
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2 SHEETS—SHEET 1.

Fig. 1

Fig. 2

Witnesses:
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ROTARY SLITTING-MACHINE FOR CUTTING SHEET-METAL CAN-BODY BLANKS.

Application filed March 6, 1904. Serial No. 106,760.

To all whom it may concern:

Be it known that I, FRANK RUDOLPHI, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Rotary Slitting-Machines for Cutting Sheet-Metal Can-Body Blanks, of which the following is a specification.

My invention relates to improvements in rotary slitting-machines for cutting sheet-metal can-body blanks or other blanks. The object of my invention is to provide a rotary slitting-machine for cutting metal sheets into can-body or other blanks of a simple, efficient, and durable construction, by means of which the sheets may be square, rapidly, and accurately passed between rotary slitters and subdivided into can-body or other blanks without any tendency to cause the sheets to buckle or pass askew between the cutters, and by means of which the bur or turned edge produced by each pair of rotary cutters or slitters may be turned both the same way on each blank or in opposite directions at the opposite edges of each blank, and in which the cutters may be readily adjusted.

My invention consists in the means I employ to practically accomplish this object or result as herein shown and described—that is to say, in the novel construction of parts and devices and in the novel combinations of parts and devices herein shown and described.

In the accompanying drawings, forming a part of this specification, Figure 1 is a rear elevation of a rotary slitting-machine embodying my invention. Fig. 2 is a vertical section on line 2 of Fig. 1. Fig. 3 is a detail front elevation, partly in vertical section, showing the cutters arranged for turning the burs in opposite directions on the opposite edges of each blank. Fig. 4 is a similar view showing the cutters arranged for turning the burs in the same direction on both edges of each blank. Fig. 5 is a detailed vertical section showing the spring gage or stop for squaring the sheet with the cutters, and Fig. 6 is a detail rear elevation of the same.

In the drawings, A represents the frame of the machine. B B' are the shafts, to which the rotary cutting-disks C C' and feed-rollers D D' are secured. Each of the upper feed-rollers D is provided with a rubber or elastic ring d, fitting in an annular groove d', to give the feed-rollers an elastic grip on the sheet and cause the same to feed straight and true between the several pairs of rotary slitters.

Each of the lower feed-rollers D' is provided with a reversible metallic tread-ring d', having a shouldered or raised bearing-face d' at one end, adapted to oppose the elastic bearing-ring d' on the upper roller D. Each of the opposing cutting-disks C C' has a beveled peripheral face c and cutting edge c', the two cutting edges of each pair of upper and lower disks C C' opposing each other. Each of the disks C C' are removably secured to their respective rollers D D', so that by reversing each cutting-disk either of its two opposite faces may be placed adjacent to its roller. Each of the rollers D D' is provided with an annular shoulder or recess d' to receive its cutting-disk C or C'.

The cutting-disks C C' are each removably secured to their respective rollers D D' by 75 screws d'. The metallic tread-rings d' on the rollers D' are removably and reversibly secured thereto by screws d', the heads d' of which fit in shouldered recesses d', with which the tread d' is provided at its opposite ends or edges to enable the tread-ring to be reversed, so as to bring the bearing-face d' opposite the elastic bearing-ring d on the upper roller D whether the cutting-disks C C' be arranged as shown in Fig. 3 or in the reverse arrangement shown in Fig. 4. The rollers D D' are adjustable fixed to the shafts B B' in different positions, as may be required, by set-pins d' and tight-fitting friction-plugs d'', having cam-faces d'' bearing against the pins d' and furnished with square heads d'' for turning the same.

F is the feed-table, the same being furnished with a reciprocating feed-slide F', which is connected by a link f with an arm f' on a rock-shaft f'', having an arm f', connected by a link f'' with a crank-arm f''' on the shaft B of the upper cutter C and roller D.

G is an inclined guard-plate having a curved foot g, under which the sheet is pushed over the feed-table F into the bite of the feed-rollers D D' and cutting-disks C C', the inner edge of the feed-table and of this inclined guard G projecting toward and near the rollers and cutters. To square the front edge of the sheet with the cutters and cause the sheet to feed truly and properly into the cutters and feed-rollers with its front edge parallel
to the axes of the cutter-shafts B B'. I provide
the inclined guard-plate G with a plurality of
pivotal spring-actuated sheet-squaring guards
or devices g, the same being pivoted or
hinged at g' to ears or lugs g' on the inclined
guard-plate G, and yieldingly held in position
by springs g". The forward movement
of the sheet itself lifts or pushes the pivotal
spring-actuated squaring-guard g' out of the
way as the sheet passes into the bite of the
feed-rollers D D' and cutters C C'. The
hinged sheet-squaring gages or devices g" stop
or retard the sheet as it is fed forward by
the feed-gage F' and causes the rear edge of
the sheet to bear snugly and squarely against
the feed-gage F' at the time it enters the bite
of the rollers D D' and cutters C C'.

By combining with the shafts and feed-roll-
ers thereon reversible cutting-disks removably
secured thereto and reversible tread-rings re-
versibly secured to the rollers on one of the
shafts I am not only enabled to turn the burs
both in the same direction or in opposite direc-
tions, as may be desired, but I am also enabled
to subdivide the sheet into narrow strips or
blanks by the rotary cutters, as in the arrange-
ment shown in Fig. 4. The narrow space be-
tween adjacent slits or cuts only equals the
thickness of one cutting-disk and its roller.

As in my invention the rollers on one shaft
are furnished with metallic tread-rings, while
those on the other shaft are furnished with rub-
er or elastic tread-rings, the bearing-surface
of the metal tread-rings may be always main-
tained on a level or proper relation with the
cutting edge of the cutting-disks, and conse-
quently all danger of buckling the sheet or
casing it to pass askew, incident to the use
of elastic tread-rings on both upper and lower
rollers, is avoided, while at the same time I
secure the requisite elastic grip on the sheet
by reason of the rubber tread-rings on the
rollers of one shaft.

I claim—
1. In a rotary sheet-metal-slitting machine
the combination with upper and lower rotat-
ing shafts, of rollers and cutting-disks on said
shafts, the rollers on one of said shafts hav-
ing elastic bearing-rings, and the rollers on
the other shaft having reversible metal tread-
rings, substantially as specified.

2. In a rotary sheet-metal-slitting machine
the combination with upper and lower rotat-
ing shafts, of rollers and cut-disks on said
shafts, the rollers on one of said shafts hav-
ing elastic bearing-rings, and the rollers on
the other shaft having reversible metal tread-
rings furnished each with a raised bearing-
face, substantially as specified.

3. In a rotary sheet-metal-slitting machine
the combination with a pair of shafts, of roll-
ers having elastic bearing-rings on one of said
shafts, rollers having removable and reversi-
able tread-rings on the other shaft, and reversi-
ble cutting-disks removably secured to said
rollers on said shafts, whereby the burs may
be turned the same way, or turned in oppo-
site directions, as desired, substantially as
specified.

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