J. R. BIGNELL.

LABEL CUTTING MACHINE.

APPLICATION FILED JULY 14, 1916.

1,207,477.

Patented Dec. 5, 1916.

4 SHEETS—SHEET 1.

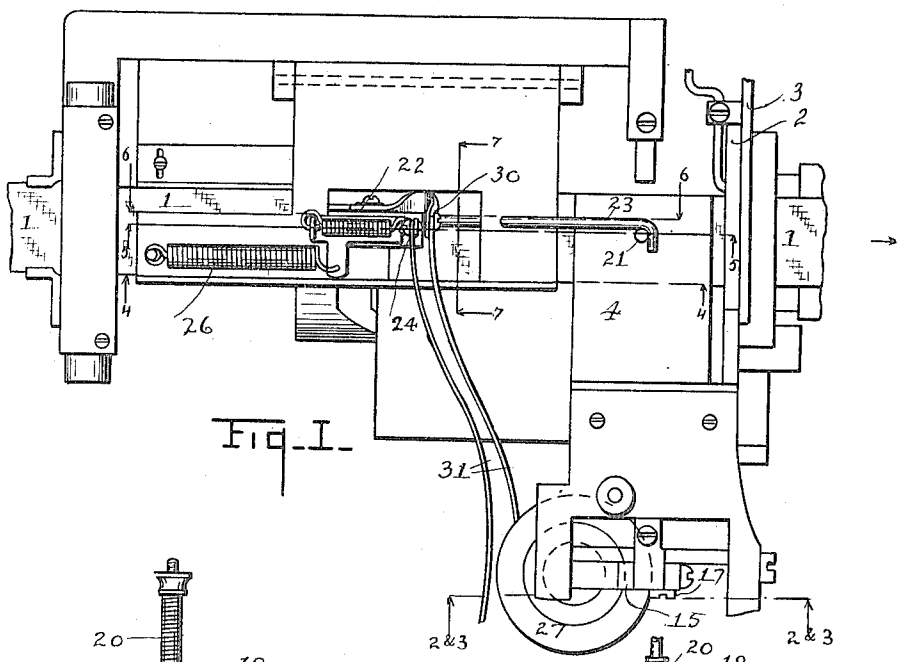


Fig. I.

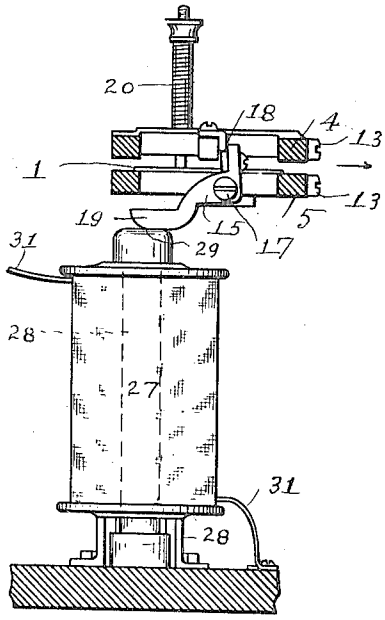


Fig. II.

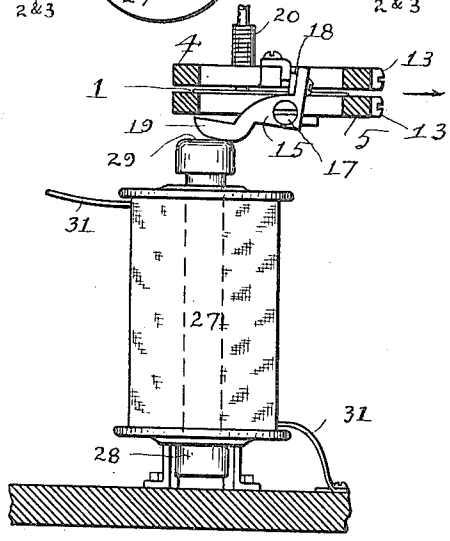


Fig. III.

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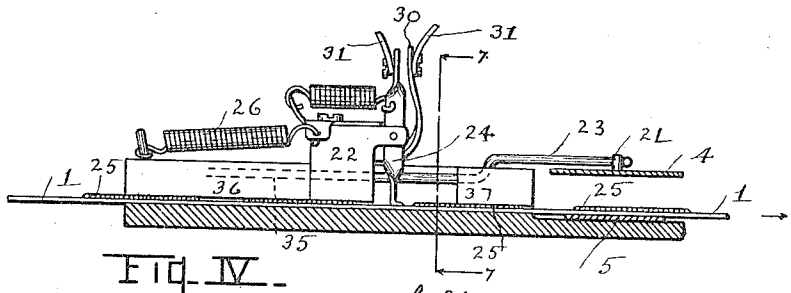


FIG. IV

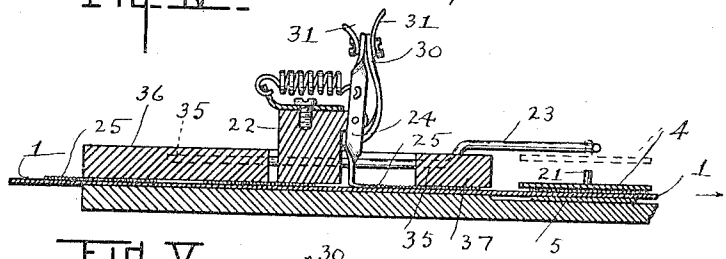


FIG. V

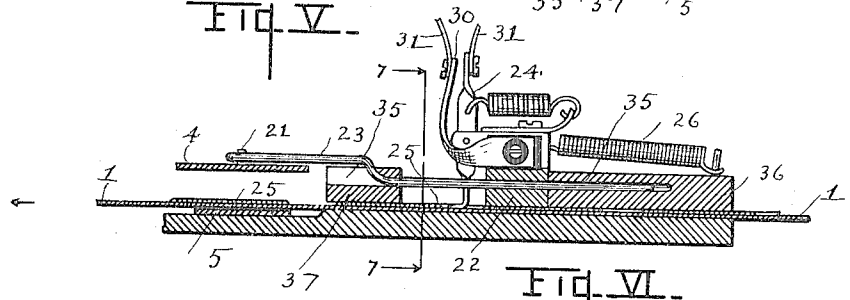


FIG. VI

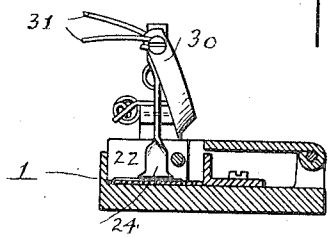


FIG. VII

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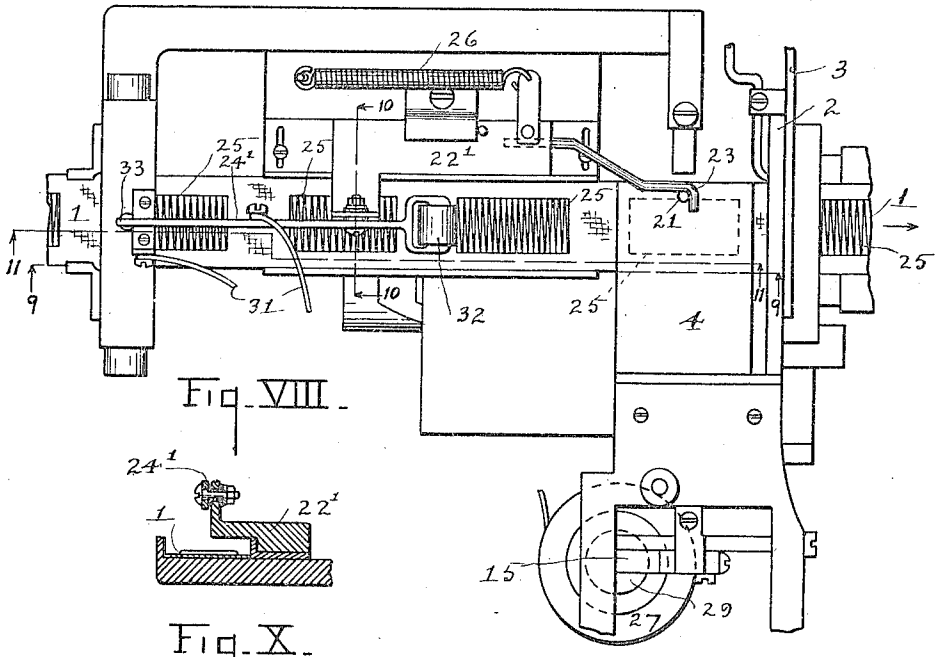


Fig. VIII.

Fig. X.

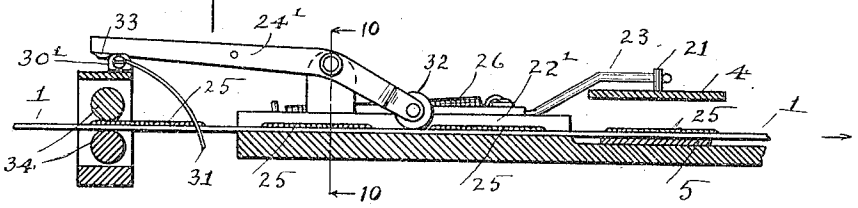


Fig. IX.

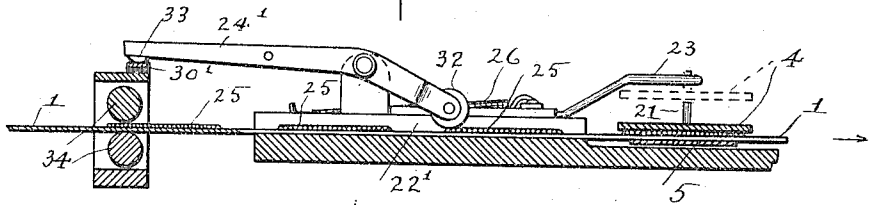


Fig. XI.

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4 SHEETS—SHEET 4.

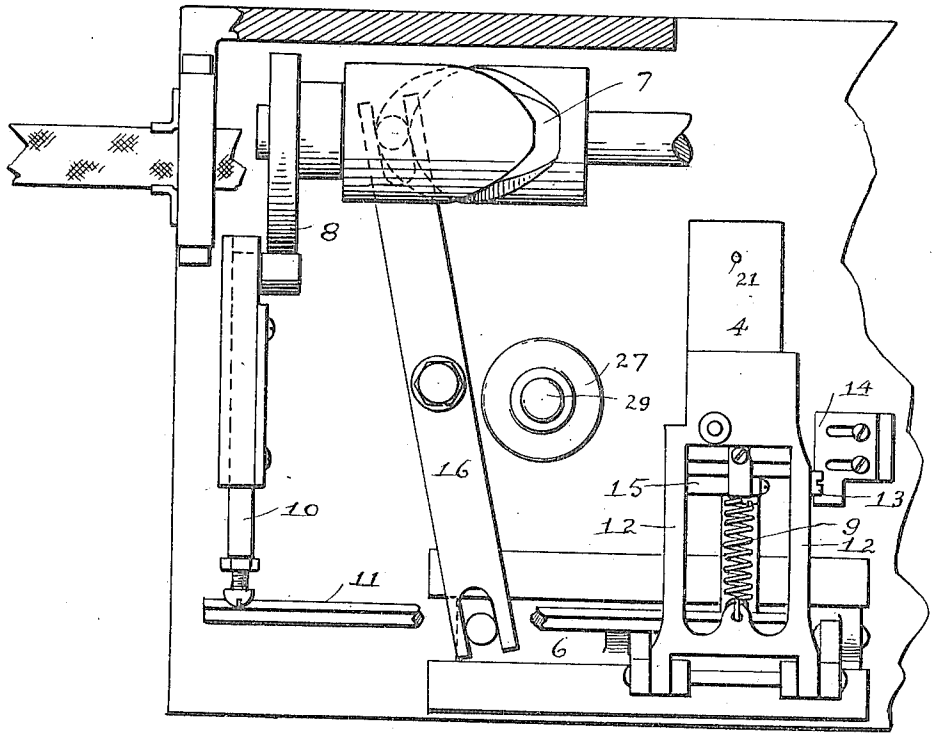


Fig. XII.

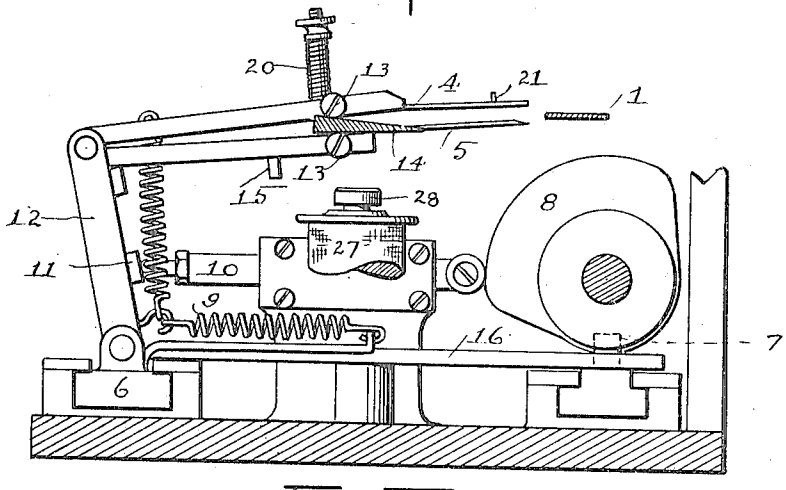


Fig. XIII.

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UNITED STATES PATENT OFFICE.

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LABEL-CUTTING MACHINE.

1,207,477. Specification of Letters Patent. Patented Dec. 5, 1916.

Application filed July 14, 1916. Serial No. 109,250.

To all whom it may concern:

Be it known that I, JAMES R. BIGNELL, a citizen of the United States, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented new and useful Improvements in Label-Cutting Machines, of which the following is a specification.

My present invention relates to label cutting machines; and its object is generally to provide in such machines improved means for feeding the label-strip; and particularly, improved means for closing label-strip feeding jaws upon the label-strip. This, and any other objects appearing hereinafter are attained by, and the invention finds preferable embodiment in, the structure hereinafter described and illustrated by the accompanying drawings, in which:—

Figure I is a plan view of parts of a label cutting machine; Fig. II is a vertical sectional view of label-strip feeding jaws taken on a plane corresponding to line 2 and 3—2 and 3 of Fig. I, and showing a solenoid for releasing the member which holds the jaws open; Fig. III is a like view of the same, showing said member released; Fig. IV is a vertical sectional view of parts of said machine taken on a plane corresponding to line 4—4 of Fig. I; Fig. V is a like view of the same taken on a plane corresponding to line 5—5 of Fig. I; Fig. VI is a like view of the same taken on a plane corresponding to line 6—6 of Fig. I; Fig. VII is a vertical sectional view of a carriage taken on a plane corresponding to line 7—7 of Fig. VI; Fig. VIII is a plan view of parts of a label cutting machine, illustrating a modified construction; Fig. IX is a vertical sectional view of parts of said machine and taken on a plane corresponding to line 9—9 of Fig. VIII; Fig. X is a vertical sectional view of parts shown in Fig. IX taken on a plane corresponding to line 10—10 of Fig. IX; Fig. XI is a vertical sectional view of said machine taken on planes corresponding to line 11—11 of Fig. VIII; Fig. XII is a plan view of means for operatively moving the label-strip feeding jaws; and Fig. XIII is an end elevation of the same viewed from the right-hand side of Fig. XII.

Labels to be attached to garments and the like are usually severed successively from a continuous label-strip, as by label cutting machines, a form of such machines being shown in the drawings. The letters, figures or other designs displayed on such labels are frequently made by embroidering, weaving or embossing the same on the label-strip so that such letters, etc. form a raised portion above the surface of the body portion of the strip. By the present invention, such raised portion is utilized in the operation of the means for operatively closing the feeding jaws upon the label-strip. The utilization of such a raised portion for this purpose is very advantageous, as thereby the severing of the strip into labels in each of which the said letters, etc. are displayed centrally, is effected; it being manifestly desirable that the ends of each label when severed shall have a certain position relatively to the letters, etc. displayed on the label and that this shall be effected automatically by the machine without adjustment or attention on the part of an operator.

In the embodiment of the invention chosen for detailed description herein and for illustration by the drawings, the continuous label-strip 1 displaying the unsevered labels successively, is fed (in the direction of the arrows at the side of certain views) to and beyond the cutting or label severing means, which comprise the fixed shear blade 2 and coöperating movable shear blade 3, and when thus fed the end label is severed by such means. This feeding is effected by the jaws 4 and 5 which claspingly engage the label-strip between them, and are moved in order to accomplish the feeding and to reëngage the label-strip for the next feeding, by suitable mechanism. Preferably the mechanism shown in Figs. XII and XIII is employed (such mechanism, however, forming no part of this invention), viz: a carrier 6 is reciprocated parallelly with the label-strip, by a lever 16 swung by a rotatable cam 7. The open jaws are projected to engage the label-strip by a cam wheel 8 which, in intervals between movements of the lever 16, operates to push outwardly and against the pressure of the spring 9, the plunger 10 abutting on the bar 11 of the swinging arm 12 to which the jaws are pivoted. The jaws are thus given a four-way or rectangular

travel,—two movements in opposite directions at right angles to the label-strip, and two movements in opposite directions parallel with such strip. After a feeding movement of the jaws, they are opened in the next portion of their travel by their laterally-extending members (the screw heads 13) engaging respectively on opposite sides of the fixed wedge 14, whereupon the jaws are held in open position by a releasable member 15 whose operation is hereinafter described.

Inasmuch as the particular means above described for moving the jaws to feed the label-strip forms no part of the present invention, the same will not be described with more detail.

The jaws are held open by the releasable member 15, in form a bell-crank lever, pivoted at 17 to one jaw and having an arm 18 adapted to abut against the other jaw in the jaws' open position, as shown in Fig. II: the other arm 19 of the bell-crank lever is engaged by releasing means hereinafter described and is thereby swung upwardly, causing the arm 18 to swing away from and disengage the other jaw, whereupon means for closing the jaws on the label-strip, as the spring 20, presses the jaws together and clasps such strip between them. Said releasing means and its operation will now be described. In Figs. IV and VI the open jaws are about to begin their movement in the direction which feeds the label-strip to the cutter, such direction being indicated by the arrows at the side of said views. When this movement begins or immediately after, one of the jaws, as by its projecting lug 21, engages a carriage 22 slidably movable relatively to the label-strip, (such engagement being made with the carriage's bar 23) and moves such carriage a short distance but sufficiently to cause a member 24 pivotally mounted on the carriage to engage with a raised portion 25 of the label-strip which is now stationary. The continued movement of the jaws and the carriage swings the member 24 by reason of its engagement with the raised portion 25 of the stationary label-strip, and actuates the means for tripping or releasing the releasable member 15. When the releasable member is thus tripped, the jaws are closed on the label-strip by the spring 20, the lug 21 dropping from its engagement with the bar 23, as shown in Fig. V; and the closed jaws' movement continuing, the label-strip is fed the length of one label to and beyond the cutter, by which the end label is then severed. When the lug 21 releases the bar 23, a suitable spring 26 returns the carriage to its initial position.

The means for tripping the releasable member 15 actuated as above set forth, comprises in the construction shown, an electric circuit in which is electro-magnetic apparatus adapted to engage and raise the arm 19 of said member. Preferably such apparatus is a solenoid 27, having a plunger 28 which, when the circuit is closed, rises and engages at its upper end 29 the arm 19 of said member and lifts it, thus permitting the jaws to close. The circuit is closed in the construction shown in Figs. I, IV, V, VI and VII by a circuit closer, comprising as one member the pivotally mounted member 24 and the other member 30 fixed on the carriage, the movement of the carriage, when the member 24 engages a raised portion of the label, causing the members 24 and 30 of the circuit closer to contact with each other. The wiring leading from the circuit closer to the solenoid is indicated at 31. In the modified construction shown in Figs. VIII, IX, X and XI, the pivotally mounted member 24^1 on the carriage 22^1 engages the raised portion 25 of the label-strip, but not abuttingly against its edge. Provided with a roller 32 which rides up and on such raised portion, the pivotally mounted member 24^1 is swung slightly so that its opposite extremity 33, forming one contact point of a circuit closer, contacts with the other member 30^1 of the circuit closer.

Rollers 34 between which the label-strip passes in entering the machine may be provided to supply a sufficient brake to hold the label-strip against tendency to move under the engagement of the pivoted member 24 or 24^1 with a raised portion 25, nevertheless permitting the label-strip to be fed by the jaws. The carriage's bar 23 in its sliding movement is guided in slide bearings 35 in the blocks 36 and 37.

The invention being intended to be defined solely by the claims, is not to be limited to or by details of construction shown or described.

I claim:

1. In a machine of the character described; label-strip feeding jaws; means for closing the jaws on the label-strip; a releasable member for holding the jaws open; an electric circuit; electro-magnetic apparatus in the circuit for releasing said member to permit the jaws to close; and means, operable by its movement relatively to, and its engagement with, a raised portion of the label-strip, for closing the circuit.

2. In a machine of the character described; label-strip feeding jaws; means for closing the jaws on the label-strip; a releasable member for holding the jaws open; an electric circuit; electro-magnetic apparatus in the circuit for releasing said member to permit the jaws to close; a carriage movable relatively to the label-strip; means for moving the carriage by the movement of the jaws; and a circuit closer comprising a member, mounted on the carriage and

adapted to engage, by the carriage's movement, with a raised portion of the label-strip, to close the circuit.

3. In a machine of the character described; label-strip feeding jaws; means for closing the jaws on the label-strip; a releasable member for holding the jaws open; an electric circuit; electro-magnetic apparatus in the circuit for releasing said member to permit the jaws to close; a carriage movable relatively to the label-strip; means for moving the carriage by the movement of the jaws; and a circuit closer comprising a member pivotally mounted on the carriage and having a roller adapted to contact with and ride on a raised portion of the label-strip by the carriage's movement, to close the circuit.

4. In a machine of the character described; label-strip feeding jaws, spring-pressed toward each other; a member pivoted on one jaw and adapted to engage the other jaw to hold the jaws open; an electric circuit; a solenoid in the circuit having a plunger adapted to trip said member to permit the jaws to close; a carriage movable relatively to the label-strip; means for moving the carriage by the movement of the jaws in their feeding direction and comprising mutually engaging members carried respectively by the carriage and one jaw; and a circuit closer comprising a member, pivoted on the carriage and adapted to engage by the carriage's movement with a raised portion of the label-strip.

5. In a machine of the character described; label-strip feeding jaws; means for closing the jaws on the label-strip; a releasable member for holding the jaws open; means for releasing said member to permit the jaws to close; and means operable by its movement relatively to and its engagement with a raised portion of the label-strip, for actuating the operation of the means for releasing said member.

6. In a machine of the character described; label-strip feeding jaws; means for closing the jaws on the label-strip; a releasable member for holding the jaws open; an electric circuit; electro-magnetic apparatus in the circuit for releasing said member to permit the jaws to close; a carriage movable relatively to the label-strip; means for moving the carriage by the movement of the jaws; and a circuit closer comprising a member pivotally mounted on the carriage and adapted to contact with and ride on a raised portion of the label-strip by the carriage's movement, to close the circuit.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses, this 12th day of July 1916.

JAMES R. BIGNELL.

Witnesses:
CYRUS W. RICE,
GANSON TAGGART.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."