

Dec. 31, 1935.

P. G. SCHLEMMER

2,026,402

MACHINE FOR CUTTING PAPER OR THE LIKE

Filed Nov. 17, 1933

3 Sheets-Sheet 1

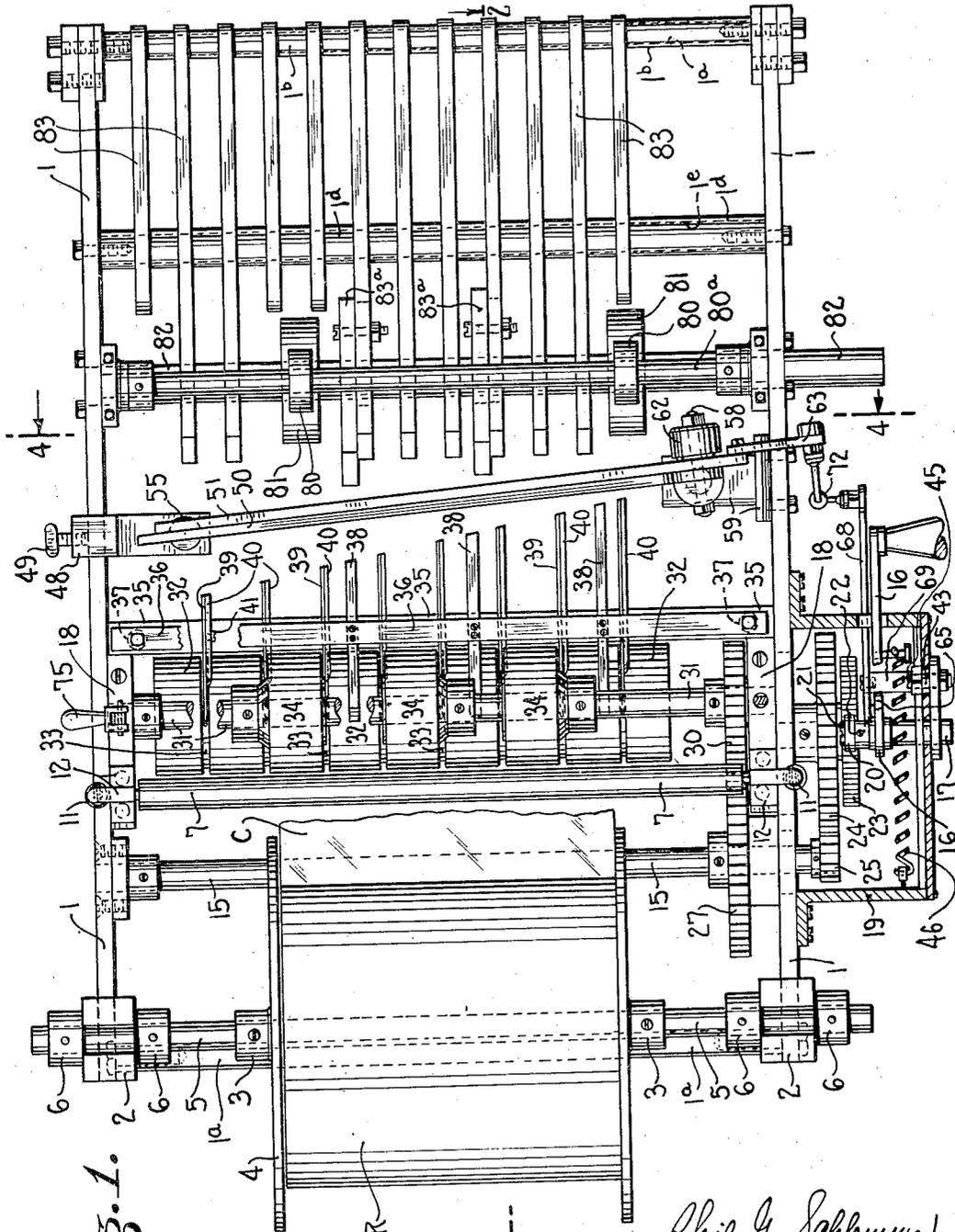


Fig. 1.

1/2

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3 Sheets-Sheet 2

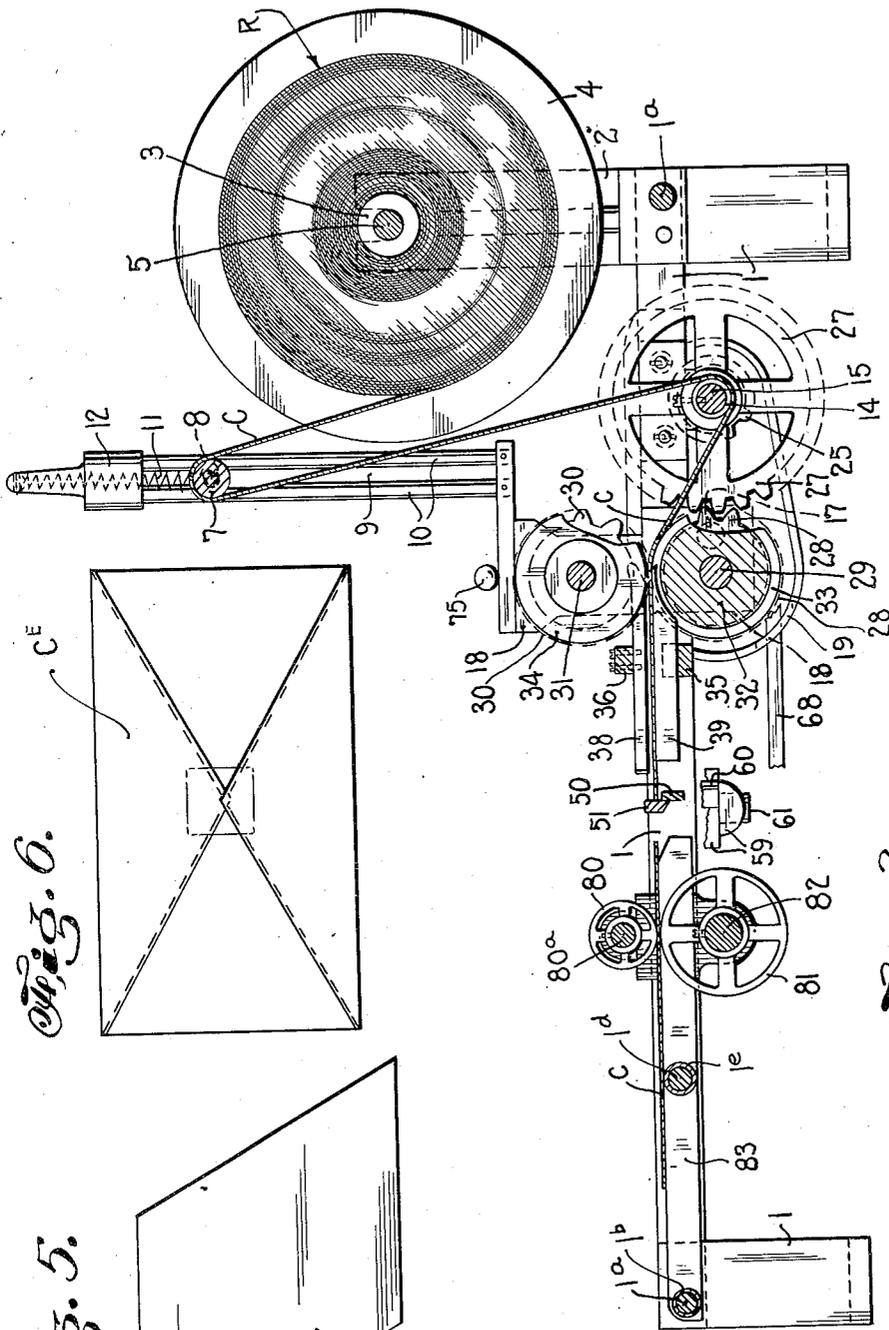


Fig. 6.

Fig. 5.

Fig. 2.

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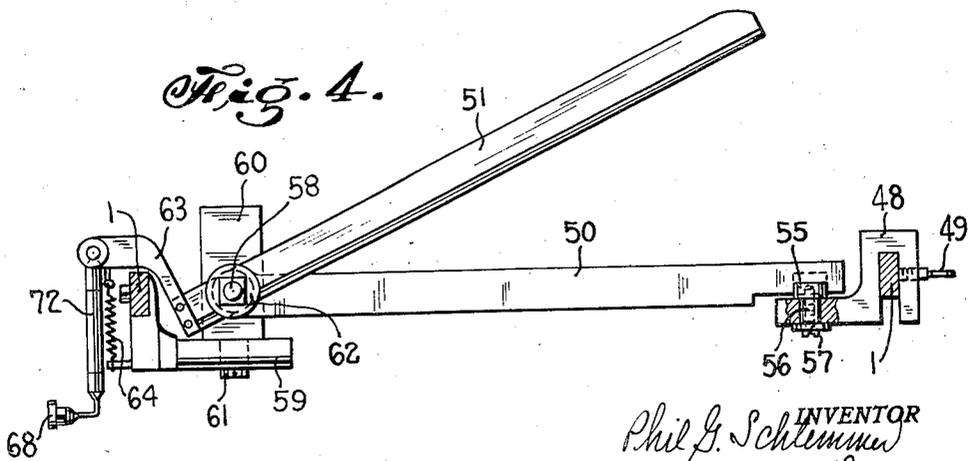
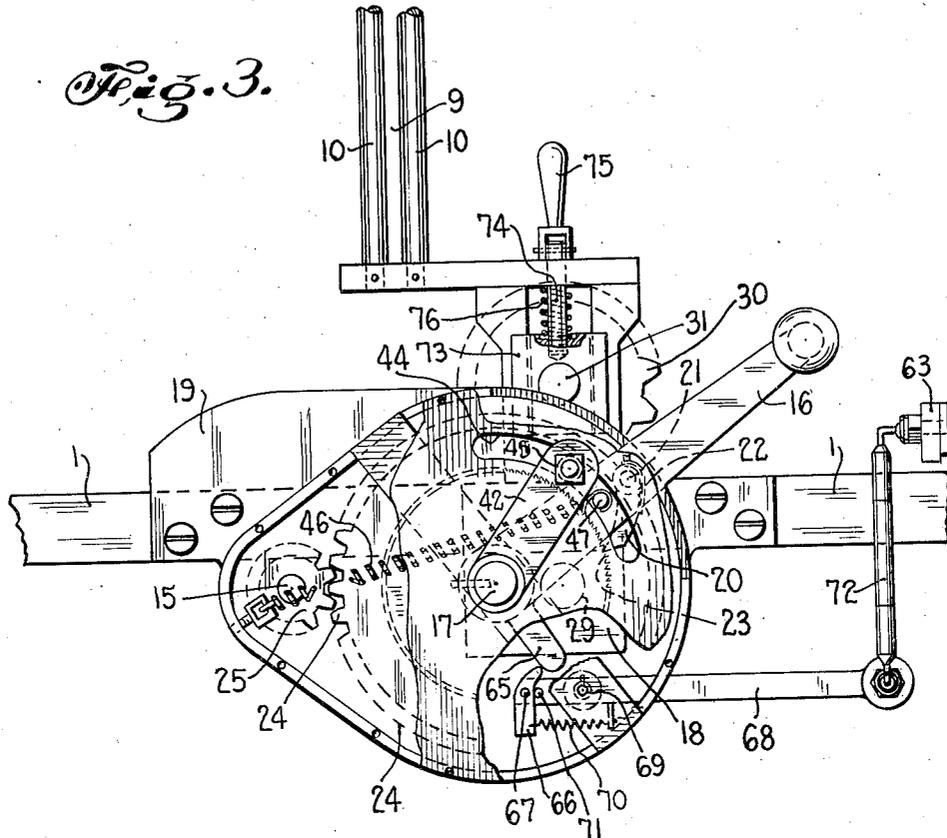
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2,026,402

MACHINE FOR CUTTING PAPER OR THE LIKE

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Application November 17, 1933, Serial No. 698,382

3 Claims. (Cl. 164-42)

My invention relates to a new and improved machine for cutting "Cellophane", paper, or other material which is used for wrapping purposes.

5 One of the objects of my invention is to provide a machine which can cut a ribbon of cellophane or the like, in a direction which is inclined to the longitudinal axis of said ribbon, in order to produce a number of sheets of wrapping material, each said sheet being a parallelogram having oblique angles.

10 Another object of my invention is to produce a machine in which the angle of cutting, relative to the axis of the ribbon of the material, can be varied.

15 Another object of the invention is to provide an automatic and adjustable feed, for feeding the ribbon from a roll thereof.

20 Other objects of my invention will be set forth in the following description and drawings which illustrate a preferred embodiment thereof, it being understood that the above general statement of the objects of my invention is intended merely to generally explain the same and not to limit it in any manner.

25 Fig. 1 is a plan view of a machine which embodies my invention.

Fig. 2 is a sectional view on the line 2-2 of Fig. 1.

30 Fig. 3 is a detail front elevation of the mechanism for feeding the material from the roll or spool thereof.

Fig. 4 is a sectional view on the line 4-4 of Fig. 1.

35 Fig. 5 is a plan view of a blank or section which has been cut from the strip of material.

Fig. 6 is a view showing how the blank of Fig. 5 has been folded in order to enclose any object such as a handkerchief, hosiery, or the like.

40 Referring to Figs. 1 and 2, the machine is supported upon a rectangular frame 1 having tie-rods 1a. At one end of said frame uprights 2 are provided. A roll of material R is suitably wound upon the mandrel 3 of a spool having flanges 4. 45 The mandrel 3 is hollow and a shaft 5 extends through said mandrel and said shaft 5 and said mandrel 3 are suitably connected to each other so that they turn in unison. The shaft 5 is supported in bearings which are provided at the tops 50 of the uprights 2.

The shaft 5 is provided with collars 6, in order to prevent any longitudinal shifting of said shaft 5 in its bearings. The spool is therefore freely turnable so that the "Cellophane" or other ribbon material can be withdrawn therefrom.

Referring to Fig. 2, the "Cellophane" C (or other material) is led over a guide rod 7, having integral end pins 8 which can slide up and down in grooves 9, which are provided in uprights 10. Springs 11 have their lower ends connected to 5 said integral pins 8.

The uprights 10 are provided with caps 12, and the upper ends of the springs 11 are connected to the tops of said caps 12. The guide rod 7 is therefore yieldably held in the position shown in 10 Fig. 2, so that if pressure is exerted upon the material C, said guide rod 7 can move below the position indicated in Fig. 2.

Likewise if the tension on the material is diminished, said guide rod 7 can slide upwardly 15 from the position shown in Fig. 2. The material C passes around a roller 14, which is loosely mounted upon the shaft 15, so that the roller 14 can turn freely, relative to said shaft 15. If desired, roller 14 can be fixed to shaft 15, so that 20 they turn in unison.

The strip is now engaged and forwardly fed by means of feeding mechanism.

25 Referring to Fig. 1 and Fig. 3, an actuating arm 16 is mounted upon a jack-shaft 17, which has a suitable bearing 18 which is connected to the frame 1 of the machine. The shaft 17 also extends through a gear housing 19.

30 As shown in Fig. 3 a pawl 20 is pivotally connected to the arm 16 at 21 and the usual spring 22 is provided for holding the tip of said pawl in contact with the ratchet teeth of a ratchet wheel 23.

35 As shown in Fig. 1 said ratchet wheel 23 is also mounted upon the shaft 17. The arm 16 is loosely mounted upon the shaft 17, so that the backward or counterclockwise turning movement of the arm 16, will not produce a corresponding backward movement of the shaft 17. A gear 24 40 is either integral with, or is suitably connected to the ratchet wheel 23, so that the gear 24 and the ratchet wheel 23 turn in unison.

45 Referring to Fig. 3, the gear 24 meshes with a smaller gear 25, which is mounted upon the shaft 15 and said shaft 15 has suitable bearings fastened to the frame of the machine.

50 As shown in Fig. 1, the shaft 15 has a gear 27. As shown in Fig. 2 this gear 27 meshes with a smaller gear 28 which is mounted upon the shaft 29. The gear 28 meshes with a gear 30, which is mounted upon the shaft 31.

The shaft 29 is provided with a feed roll 32, which can be made of steel or any other suitable metal, and said feed roll 30 is provided with a suitable number of grooves 33.

In this particular embodiment there are eight of such grooves 33, but the number can be varied.

The shaft 31 has a suitable number of upper feed rolls 34.

5 In the particular embodiment shown there are three such upper feed rolls 34, said rolls being spaced from each other. The feed rolls are fastened to their respective shafts, so as to turn in unison therewith.

10 A transverse bar 35 is connected to the frame 1 of the machine. A bar 36 is supported above said bar 35, by means of spacing blocks 37 which are provided at the ends of said bar 35. Suitable fastening means pass through the ends of the bars 36 and 35 and through said spacing blocks 37.

15 Upper guide bars 38 are connected to the underside of the transverse bar 35, by any suitable fastening means, in order to prevent the strip of material from moving upwardly, after said strip of material passes the gripping portions of the feed rollers. Some of these upper guide bars 38 have their ends located in the spaces between the upper feed rolls 34.

20 Likewise and as shown in Fig. 1, one of said upper guide bars 38 is located between the frame 1 and the adjacent upper feed roll 34. Lower guide bars 39 are located in slots of the lower lateral bar 35, and the tapered ends of said lower guide bars 39 extend into the slots 33 of the lower feed roll.

25 Referring to Fig. 1 said lower guide bars 39 are provided with slidable members 40, which can be adjustably connected to said members 39 by means of set screws 41. The members 39 are fixed in the slots of the bar 35 and the sliding adjustment of the members 40 in effect increases the length of said lower guide bars 39.

30 In order to adjustably limit the counterclockwise movement of the arm 16, the jack-shaft 17 is provided with an arm 42 which is turnable relative to said shaft 17. The arm 42 is provided with a pin 43 which slides in the slot 44, which is provided in one wall of the housing 19.

35 As shown in Fig. 1, the shank of the pin 43 has a threaded portion and this threaded portion is provided with a nut 45, so that the arm 42 can be adjusted and the arm can then be clamped against the wall of the housing 19.

40 The inner end of said pin 43 is sufficiently long so as to intersect the path of movement of the arm 16.

45 A tension spring 46 has one end connected to the housing 19, and the other end is connected to the arm 16 at 47, so that said tension spring 46 automatically turns the arm 16 in the reverse direction, until said reverse movement is stopped by the pin 43.

50 Referring to Fig. 1, a cutter support 48 is adjustably clamped to a portion of the frame 1, by means of a set screw 49. The cutting device comprises a lower cutting member 50 and an upper cutting member 51. The lower member 50 has one end fitting into a slot which is provided in the head of the pin 55. Said pin has a hollow shank 56 which passes through the support 48.

55 A washer is located upon the exterior of said hollow shank, and a clamping screw 57 has its shank entering the internally threaded hollow shank 56 of the pin 55. Hence when the clamping screw 57 is turned, it clamps the pin 55 to the mount 48.

60 Upon loosening the clamping screw 57, the member 55 can be turned so that the lower blade

50 can be held at any suitable angle to the direction of the movement of the strip. The upper blade 51 and the lower blade 50 are connected by a pivot member 58.

65 As shown in Fig. 4, the frame 1 of the machine is provided with an inwardly extending bracket or arm 59. The pivot member 58 is supported by an arm 60, having a reduced end 61, which is turnably located in a suitable opening of the arm 59.

70 The pivot pin 58 has a housing 62 connected thereto, and said housing is provided with balls or other suitable anti-friction members which are laterally pressed against the upper blade 51. The upper blade 51 has an arm 63 rigidly connected thereto.

75 A tension spring 64 is connected to said arm 63 and to a pin which is connected to the arm 59, so that said spring 64 normally holds the upper blade 51 in the position shown in Fig. 4.

80 The arm 16 is provided with an extension 65, which may be integral therewith.

85 As shown in Fig. 3, said arm 65 abuts the pawl 66, which is pivotally connected at 67 to the lever 68, which is pivotally connected at 69 to an arm 25 of the housing 19. A compression spring 70 presses the pawl 66 against a stop pin 71. The lever 68 is connected by means of a link 72, to the arm 63 of the upper blade 51.

90 The link 72 may be connected to the arm 63 and to the lever 68, by means of ball-and-socket or other universal-joint connection, in order to prevent binding.

95 When the lever 16 is turned in the clockwise direction to feed the material, its extension 65 turns the pawl 66 in the counter-clockwise direction, so that the extension 65 passes beyond said pawl 66, and the pawl 66 is then turned back by spring 70 until it again abuts the stop pin 70. Hence the lever 68 is not operated when the arm 16 is turned in the clockwise or feeding direction.

100 During the reverse movement of the arm 16, the extension 65 bears against the upper inclined surface of the pawl 66, thus causing the lever 68 to be turned in the counter-clockwise direction, thereby upwardly moving the link 72 so that the upper blade 51 is downwardly turned in order to cut the sheet of material. The extension 65 can thus move back to the position shown in Fig. 3 and the tension spring 64 then 50 raises the upper blade 51 to the position shown in Fig. 4.

105 Hence, after each intermittent feeding movement of the material, the same is automatically cut along a line which is inclined to the direction of feed, and said inclination can be adjusted.

110 In order to regulate the pressure of the feed rollers against the strip of material, the shaft 31 of the upper rollers 34, is mounted in bearings 73 60 which are vertically slidable in suitable guides provided in the bearing 18. Each said bearing 73 is provided with a pin 74 whose lower end is threaded so that said lower end engages an internally threaded recess of said bearing 73. Each pin 74 is slidably mounted in an opening of the respective member 18, and each said pin 74 can be upwardly moved by turning a handle member 75, which abuts the adjacent wall of the member 18.

75 A compression spring 76 is provided around each pin 74, and said compression spring downwardly forces the respective member 73.

115 When the handle 75 is in the vertical position shown in Fig. 3, the bearing 73 is in its highest 75

position. When the handle 75 is in the horizontal position shown in Fig. 1, said member 73 is in its lowest position.

5 The severed pieces of cellophane or other material are fed away from the cutting mechanism by pairs of additional feed rolls 80 and 81. The feed rolls 81 are mounted upon a shaft 82 which can be driven by a belt or by any other suitable means. The severed pieces of material are
10 guided upon rods 83, until they come to the front end of the machine.

While I have shown a hand-operated arm 16, it is obvious that this arm could be automatically turned back and forth.

15 The rods 83 are provided with collar spacers 1b and 1d, which are mounted on the transverse rods 1a and 1e.

The feed rolls 80 are mounted upon a shaft 80a.

20 The rods 83 may have longitudinally adjustable extensions 83a.

Fig. 6 shows how folds or flaps C^E are formed in the blank which is shown in Fig. 5, so as to make a rectangular package.

25 It will be noted that the strip of material is free from support at the place where the cutting mechanism operates, that the feed rolls 33 and 34 push the material towards the cutting mechanism, and the feed rolls 80 and 81 pull the severed strips of material away from the cutting
30 mechanism.

As the material is pushed forwardly by the feed rolls 34 and 32, said material is engaged between the feed rolls 80 and 81, before the cutting mechanism is operated.

35 The feed rolls 80 and 81 are intermittently operated by any suitable mechanism, in order to forwardly feed the severed strips of material.

40 I have shown a preferred embodiment of my invention, but it is clear that numerous changes and omissions can be made without departing from the spirit of my invention.

I claim:

45 1. In a device of the type described, superposed feed rolls which are mounted upon superposed

shafts, gears connecting said shafts so that they turn in opposite directions, a ratchet wheel, connecting gear means which connect said ratchet wheel to one of said gears, a pivoted arm having a pawl which is adapted to intermittently turn
5 said ratchet wheel in the same direction when said arm is turned to and fro, said feed rolls being operative to intermittently feed a strip of material, and cutting mechanism which is operable in a direction which is inclined to the line of feed. 10

2. In a device of the type described, superposed feed rolls which are mounted upon superposed shafts, gears connecting said shafts so that they turn in opposite directions, a ratchet wheel, a connecting gear which connects said ratchet
15 wheel to one of said gears, a pivoted arm having a pawl which is adapted to intermittently turn said ratchet wheel in the same direction when said arm is turned to and fro, said feed rolls being operative to intermittently feed a strip of mate-
20 rial, and cutting mechanism which is operable in a direction which is inclined to the line of feed, and additional feed mechanism which is adapted to engage and forwardly feed the severed strips of material. 25

3. In a device of the type described, first superposed feed rolls which are mounted upon superposed shafts, gears connecting said shafts so that they turn in opposite directions, a ratchet wheel, connecting gear means which connect said
30 ratchet wheel to one of said gears, a pivoted arm having a pawl which is adapted to intermittently turn said ratchet wheel in the same direction when said arm is turned to and fro, said feed rolls being operative to intermittently feed a
35 strip of material, cutting mechanism which is operable in a direction which is inclined to the line of feed, second and intermittently operated and superposed feed rolls to which the material is fed by the first feed rolls to be gripped by the
40 second feed rolls prior to each cutting operation, and tension means adapted to exert tension upon said material in advance of said feed rolls.