May 30, 1939. W. F. M. EDWARDS 2,160,201

MANUFACTURE OF FILTER TIP CIGARETTES

Filed Feb. 5, 1935 3 Sheets-Sheet 1

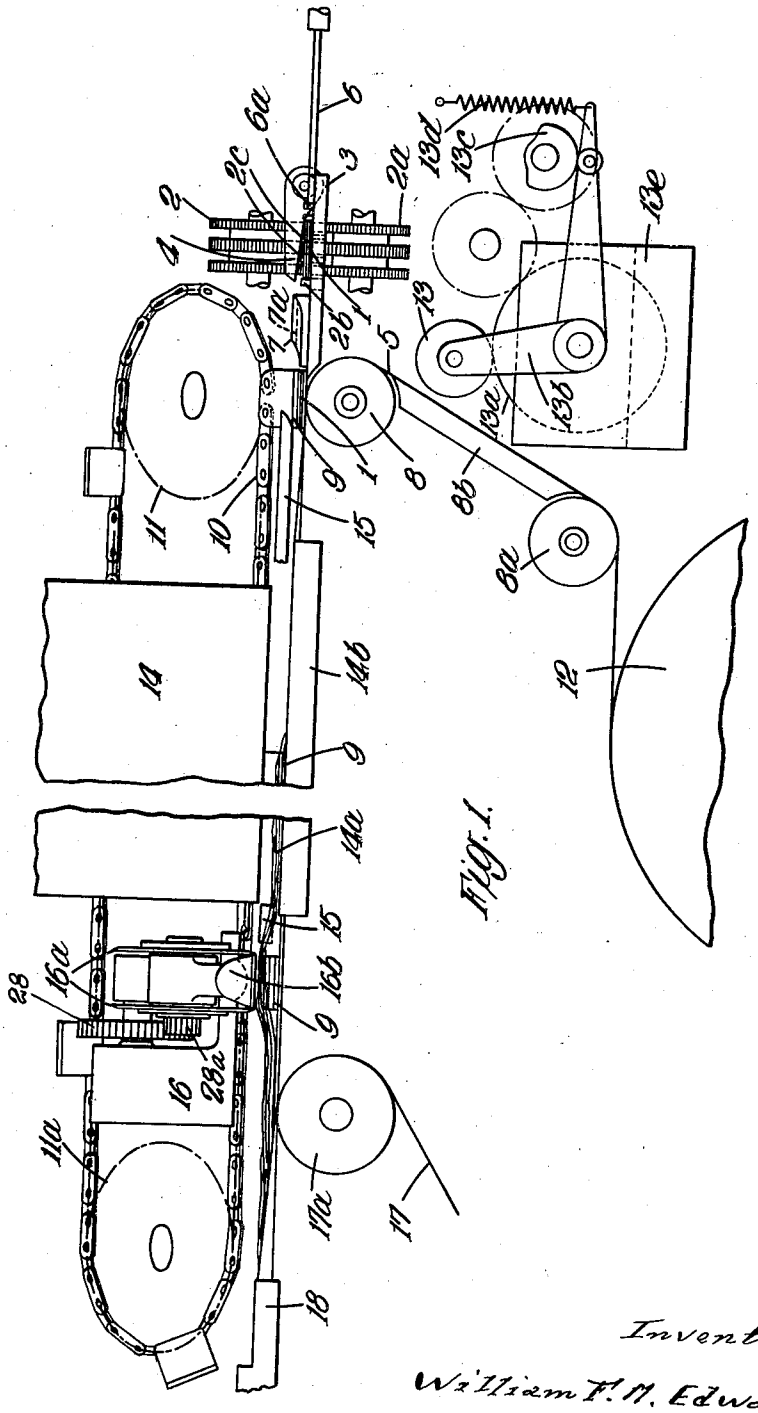


Fig. 1.

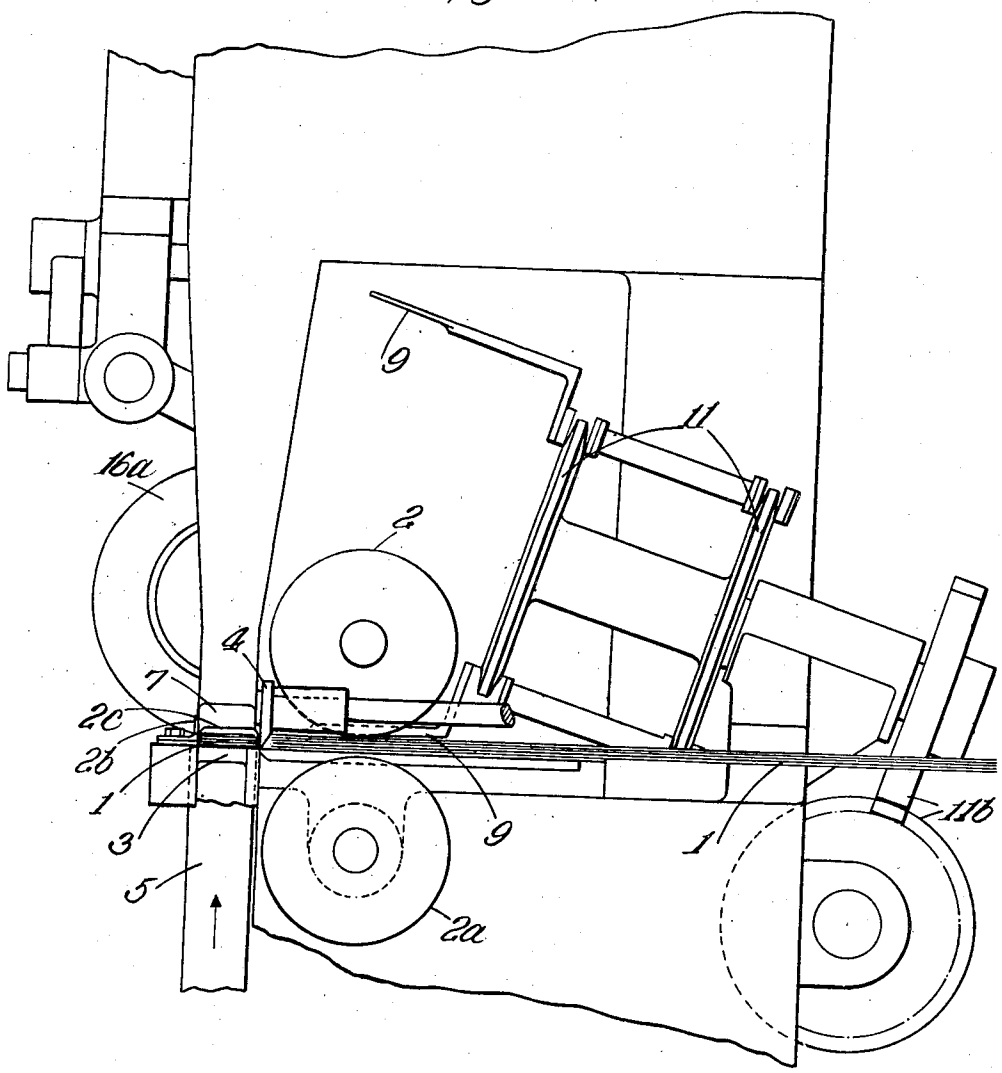
Inventor:
William F. M. Edwards
By Lucius Vaughn
Attorney

May 30, 1939. W. F. M. EDWARDS 2,160,201

MANUFACTURE OF FILTER TIP CIGARETTES

Filed Feb. 5, 1935 3 Sheets-Sheet 2

Fig. 2.



INVENTOR

W. F. M. EDWARDS

By Bonnelycke, Young, Emery & Thompson

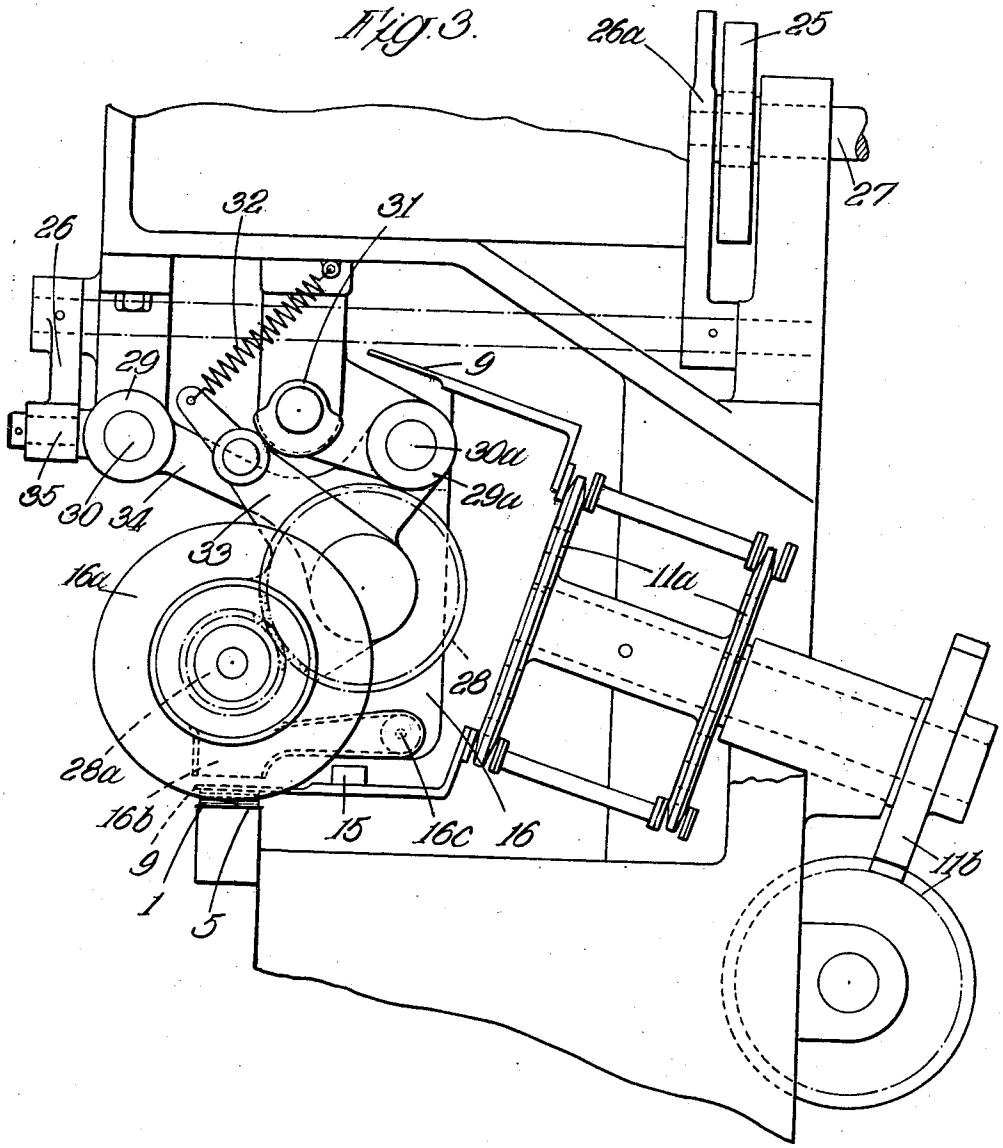
ATTYS.

May 30, 1939. W. F. M. EDWARDS 2,160,201

MANUFACTURE OF FILTER TIP CIGARETTES

Filed Feb. 5, 1935 3 Sheets-Sheet 3

Fig. 3.



INVENTOR

W. F. M. EDWARDS

By

Bärnbycke, Young, Emery & Thompson

ATTYS.

Patented May 30, 1939

2,160,201

UNITED STATES PATENT OFFICE

2,160,201

MANUFACTURE OF FILTER TIP CIGARETTES

William Frederick Maitland Edwards, London, England, assignor to Filter Tips Limited, London, England, a British company

Application February 5, 1935, Serial No. 5,115
In Great Britain February 12, 1934

2 Claims. (Cl. 131—39)

This invention relates to the manufacture of cigarettes and is particularly concerned with the manufacture of filter tip cigarettes.

It has been found that, for the manufacture of filter tip cigarettes, the most suitable and effective material consists of or comprises crepe paper. Such paper is, however, unobtainable in continuous lengths with the creping running longitudinally and the present invention provides a simple and effective method whereby crepe paper which is creped in the usual manner transversely of its length may be formed into wads or fillings of circular cross-section while moving axially in relation to the direction of creping of the material.

According to the present invention there is provided, in the manufacture of filter tip cigarettes, a method of producing a compact filter tip filling comprising transversely cutting strips from a length of multi-layer crepe paper, feeding said cut strips at spaced intervals onto a traveling continuous paper strip, positioning a tobacco intercepting element over said cut strips and moving the same along with said traveling paper strip, depositing tobacco on said traveling paper strip, cutting the deposited tobacco at the ends of said intercepting element, and removing the tobacco from said intercepting means. The traveling paper strip may then be wrapped about the alternate lengths of tobacco and cut strips of crepe paper.

The filter tip material may be applied to the paper strip in a plurality of cut layers arranged in flat formation, or the strip of material, after being cut transversely from a length thereof, may be folded or bunched to a more or less circular or other suitable cross-section prior to application on the paper strip.

By the present invention the necessity for providing separate mechanism for forming the filter tip material to a circular cross-section may be avoided.

The invention is hereinafter described by way of example with reference to the accompanying diagrammatic drawings, in which:

Figure 1 is a view in side elevation illustrating one embodiment of the invention as applied to the production of filter tip cigarettes on the continuous rod principle;

Fig. 2 is an end elevation of the apparatus illustrated in Fig. 1, viewed from the right-hand side, and with the plunger 6, hereinafter to be described, removed for the sake of clearness; and

Fig. 3 is an end elevation of the cutting means illustrated in Figure 1 and hereinafter to be described, and of the means for reciprocating said cutting means, viewed from the right-hand side.

In carrying the invention into effect according to one embodiment and with reference to Figures 1 and 2 of the accompanying diagrammatic drawings, strip material 1 consisting, for example, of several layers of crepe paper with or without intervening layers of absorbent or other desired material, is fed from a supply spool (not shown) by means of intermittently driven grooved rollers 2, 2a on to a table 3, the material being guided by lateral guides 2b and upper guides 2c so as to pass beneath a knife 4 which operates to cut strips transversely from the length of the material, it being understood that in the strips cut off the creping will extend longitudinally of the strips. The strips preferably are double the desired length of filter tip and are of a width less than the width of the paper strip 5. The strips 1 of filter tip material as they are cut off by the cutter 4 are fed lengthwise by the plunger 6 into a guide 7, the plunger 6 having a grooved head 6a which is adapted to slide in corresponding grooves 7a in the guide 7. The strips 1 are fed through the guide 7 on to the paper strip 5 passing over a roller 8, which strip 5 is led from a supply spool 12 over a roller 8a and guide 8b and is previously pasted or coated with adhesive at the desired positions by means of an intermittently operating pasting device. Such pasting device may consist, for example, of a roller 13 co-operating with a roller 13a partially immersed in adhesive in a container 13e, the roller 13 being carried by an arm 13b operated by a cam 13c and a return spring 13d. The strips 1 are confined and held upon the paper strip by means of blades 9 carried by an endless chain 10 or the like passing around sprockets 11, 11a driven by gearing 11b (Figures 2 and 3) and guiding means 15 may be provided to maintain the pressure of the blades 9 on the strips 1. Conveniently the sprockets 11, 11a are arranged at an angle so that the blades 9 may move into engagement with the strips 1 with a downward motion and after passing around the sprocket 11a return in a path which may be disposed clear of the tobacco feed hopper 14 and other parts. The paper strip 5 moves on a guide 14b beneath the tobacco feed hopper 14 from which the tobacco filler 14a is deposited. The tobacco intercepted by the blades 9 is subsequently removed by suction through a flexible tube 16c (Fig. 3) extending from a bearing member 16 and terminating in a suction nozzle 16b mounted intermediate duplicate cutters 16a car-

ried by a reciprocating device not shown in Fig. 1, and hereinafter to be described with reference to Fig. 3. After the removal of tobacco from the intercepting means the filler, consisting of alternate lengths of tobacco and of filter tip material carried on the paper strip **5**, passes into engagement with a wrapping belt **17** led over a roller **17***a* and is carried thereby through the garniture **18** or other rod-forming means. The continuous rod produced is subsequently cut off so that the double length filter tips and double length tobacco fillings are bisected.

Referring now to Fig. 3, the duplicate cutting blades **16***a* are driven by means of a coaxially mounted gear wheel **28***a* engaging with a gear wheel **28** carried upon a shaft slidably mounted for axial relative movement in the bearing member **16** and the double-armed bracket **34**. The duplicate cutting blades **16***a* are rotatably mounted in the lower arm of a bell-crank lever **33** pivoted coaxially with the gear wheel **28** on the bracket **34**. A spring **32** under tension engages the upper arm of the bell-crank lever and urges the lever into the position in which the cutting blades are inoperative. A rotatable cam **31** bears against the upper arm of the lever **33** or a projection thereof, and upon rotation periodically rocks the lever about its pivot so as to bring the cutting blades into the operative position shown. The bracket **34** is supported by pins **30**, **30***a* attached to the upper ends of its two arms and slidably mounted in guides **29**, **29***a*. The pin **29** is connected through a link **35** to the arm **26** of a double-armed lever **26**, **26***a* which is caused to reciprocate by means of a cam **25**, driven by a shaft **27**, bearing against a projection of the arm **26***a*. The motion so produced is transmitted via the arm **26**, the link **35**, the pin **30**, the bracket **34** and the bell-crank lever **33** and causes axial oscillation of the cutting blades **16***a*.

It will be understood that the invention is not limited to the particular embodiments hereinbefore described. For example, the strips **1** of material after being cut off by the cutter **4** may be pre-formed by any suitable means to a more or less circular or other desired cross-section prior to application on to the paper strip and in such cases it may be possible to dispense with the use of the wrapping belt **17**. British Patents Nos. 404,711 and 404,712 disclose means suitable for the consolidation of the strips.

What I claim is:

1. In the manufacture of filter tip cigarettes, the method of producing a compact filter tip filling comprising transversely cutting strips from a length of multilayer crepe paper, feeding said cut strips at spaced intervals onto a traveling continuous paper strip, positioning a tobacco intercepting element over said cut strips and moving the same along with said traveling paper strip, depositing tobacco on said traveling paper strip, cutting the deposited tobacco at the ends of said intercepting element, and removing the tobacco from said intercepting means.

2. In the manufacture of filter tip cigarettes, the method of producing a compact filter tip filling comprising transversely cutting strips from a length of multilayer crepe paper, feeding said cut strips at spaced intervals onto a traveling continuous paper strip, positioning a tobacco intercepting element over said cut strips and moving the same along with said traveling paper strip, depositing tobacco on said traveling paper strip, cutting the deposited tobacco at the ends of said intercepting element, removing the tobacco from said intercepting means, and wrapping the travelling paper strip about the alternate lengths of tobacco and cut strips of crepe paper.

WILLIAM FREDERICK
MAITLAND EDWARDS.