June 29, 1948. D. W. MOLINS 2,444,306

MACHINE FOR MAKING CONTINUOUS RODS

Filed June 28, 1946 2 Sheets-Sheet 1

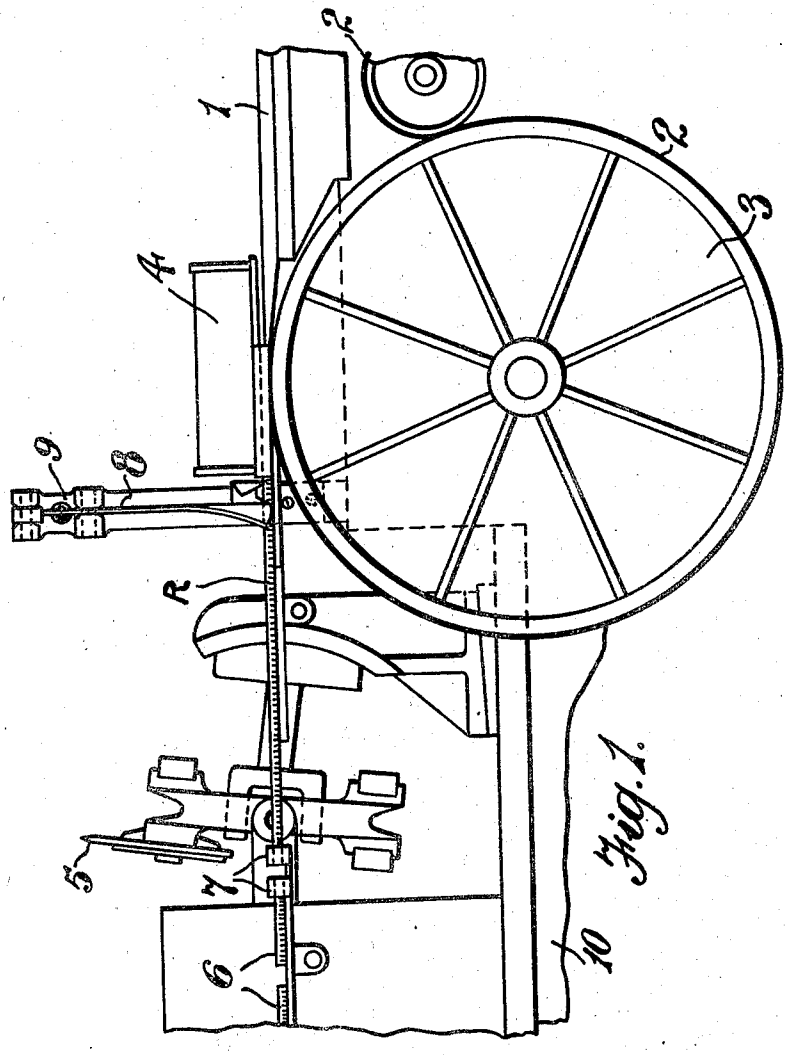


Fig. 1.

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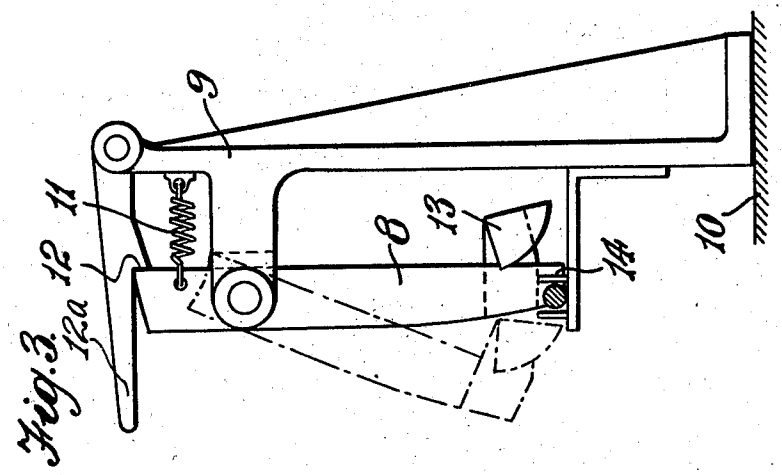


Fig. 3.

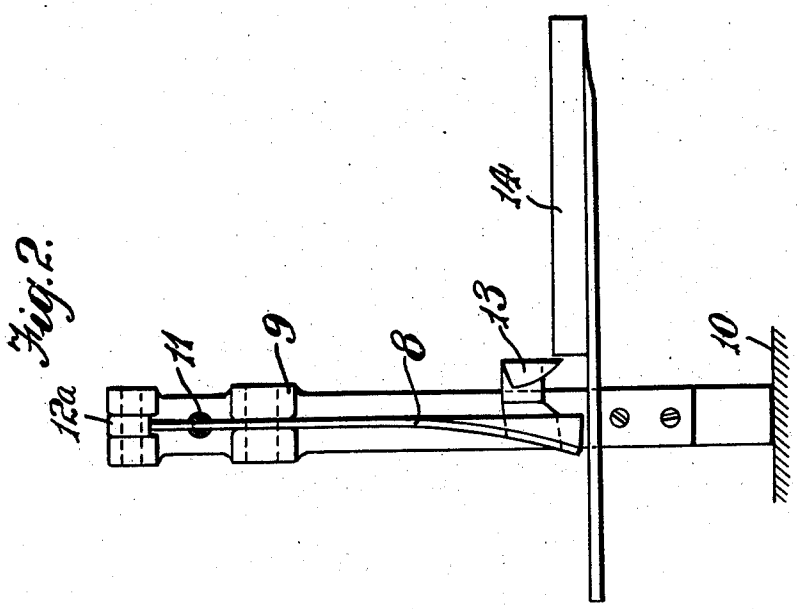


Fig. 2.

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UNITED STATES PATENT OFFICE

2,444,306

MACHINE FOR MAKING CONTINUOUS RODS

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In Great Britain July 3, 1946

3 Claims. (Cl. 131—60)

1

This invention concerns improvements in or relating to machines for making continuous rods (e. g. cigarette rods) and cutting the latter into short lengths. The expression "continuous rod" for the purpose of this specification shall be taken to include continuous cigarette rod, and also composite rod such as is described in United States Patent No. 2,156,600, and a rod such as is made on a machine the subject of United States Patent No. 2,145,528, and any other product similar to the foregoing.

In cigarette making machines of the continuous rod type, a continuously moving cigarette rod is formed and sealed while being conveyed on an endless band, after which it leaves the endless band and is projected across an open space into a tube forming part of the ledger plate mechanism in which the rod is severed into cigarette lengths.

When the machine is started up, the cigarette rod which first issues from the endless band is for a time not of a suitable quality for the production of satisfactory cigarettes, and it is undesirable to allow it to enter the ledger plate mechanism. It is therefore a common practice for the machine operator, when starting up the machine, to guide the cigarette rod away from the entrance to the ledger plate mechanism by deflecting it with his hand. When the machine has been running for some time and the quality of the rod being produced has reached the desired standard, he breaks off the deflected cigarette rod by giving it a sharp tug, and allows the free end of the rod still issuing from the endless band to follow its normal path and enter the ledger plate mechanism.

This operation requires a certain amount of skill, and requires considerable room between the heater and the cut-off to handle the cigarette rod. It is therefore desirable to provide mechanical means for deflecting and subsequently cutting off the cigarette rod, thus allowing the operation to be effected easily and in a relatively small space.

According to the present invention there is provided in a machine for making a continuous rod, mechanism for deflecting the continuous rod as it issues from the forming mechanism, and subsequently cutting off the deflected portion, comprising a deflector-element which is movable between an operative and an inoperative position, and which in its inoperative position is aside the path of the continuous rod and in the operative position is athwart said path to intercept and deflect the continuous rod, and a cutter movable

2

with (e. g. carried by) said deflector-element, the arrangement being such that when the deflector-element moves from the operative to the inoperative position the cutter severs the continuous rod.

The deflector-element may be spring-urged towards its inoperative position, and the mechanism may include a catch whereby the deflector-element on being moved into the operative position is held there against the force of the spring. The catch may be adapted to be released by a trigger or any other suitable device.

Mechanism made in accordance with the invention will now be described by way of example with reference to the accompanying drawings in which:

Figure 1 shows a front elevation of part of a continuous rod cigarette making machine embodying the invention.

Figure 2 is a front elevation of the deflecting and cutting mechanism shown in Figure 1, drawn to a larger scale.

Figure 3 is a side elevation of Figure 2.

Referring to Figure 1, 1 is part of the forming mechanism and 2 is an endless tape on which the rod R is formed. The tape passes round a tape drum 3 and above this is a heater 4 which dries the adhesive of the seam of the rod. To the left of the view is shown a cut-off mechanism 5 which divides the rod into separate cigarettes 6 the rod passing at that position through a tube or like 7 usually termed a ledger plate.

In the space between the tape drum and the ledger plate, a deflector-element 8 is movably mounted and pivoted on a bracket 9 fixed to the machine bed 10. The deflector-element, which is formed by a plate twisted as shown in Figure 2, is adapted to move between an operative position in which it lies athwart the path of the cigarette rod as shown in full lines in Figure 3, and an inoperative position (shown by broken lines in Figure 3) in which it is aside said path so as to be clear of the rod. In the operative position the deflector-plate intercepts and deflects the cigarette rod from its path the twist of the plate causing the rod to bend outwards from its normal path so as to prevent it from entering the ledger plate 7.

The deflector-plate is urged by a spring 11 towards the inoperative position, and a manually controllable catch device 12 operated by a trigger 12a is provided to hold the deflector-plate in the operative position. At the edge of the deflector-plate nearest the endless band is a knife 13 which, when the deflector-plate is in the operative posi-

tion, is directed towards the path of the cigarette rod and is on the opposite side of the rod to that on which the plate 8 lies when in the inoperative position. Thus when the catch 12 is released, the deflector-plate springs forward to the inoperative position, and on moving to that position, the knife severs the cigarette rod, and moving rapidly forward allows the cigarette rod to pass behind the deflector-plate and into the ledger plate mechanism.

A counter-edge may be provided for supporting the rod whilst being severed by the knife and in the drawings this edge is provided by the end of a guide trough 14.

The machine is started up with the deflector in the operative position and as soon as the operator is satisfied with the quality of the rod he trips the catch 12, by means of the trigger 12*a*, the rod is cut and thereafter passes into the ledger plate 7.

It is, of course, desirable that the deflector element should be so arranged on the machine bed as to move from the operative to the inoperative position with a component of movement in the direction of movement of the rod so that no check to the forward movement of the rod occurs during the break-off. In the drawings, the deflector is not shown so mounted, for the sake of simplicity, and the actual angle of movement of the knife and the actual setting angle of the knife blade relative to the rod, will depend upon the relative speed of knife 13 and the rod.

What I claim as my invention and desire to secure by Letters Patent is:

1. In a machine for making a continuous rod, forming mechanism for forming the continuous rod, and deflecting mechanism for deflecting the continuous rod as it issues from the said forming mechanism, and subsequently cutting off the deflected portion, comprising a movable deflector-element mounted for movement between an operative and an inoperative position, and which in its inoperative position is aside the path of the continuous rod and in the operative position is athwart said path to intercept and deflect the continuous rod, a cutter mounted for movement with said deflector-element across the path of the continuous rod, and means to move the said deflector-element toward the inoperative position, the arrangement being such that when the deflector-element moves from the operative to the inoperative position the cutter severs the continuous rod.

2. Mechanism as claimed in claim 1, wherein the means to move the deflector-element towards its inoperative position comprises a spring, and the mechanism includes a catch whereby the deflector-element on being moved into the operative position is held there against the force of the spring.

3. Mechanism as claimed in claim 2, including a trigger device, wherein the catch is adapted to be released by said trigger device.

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