

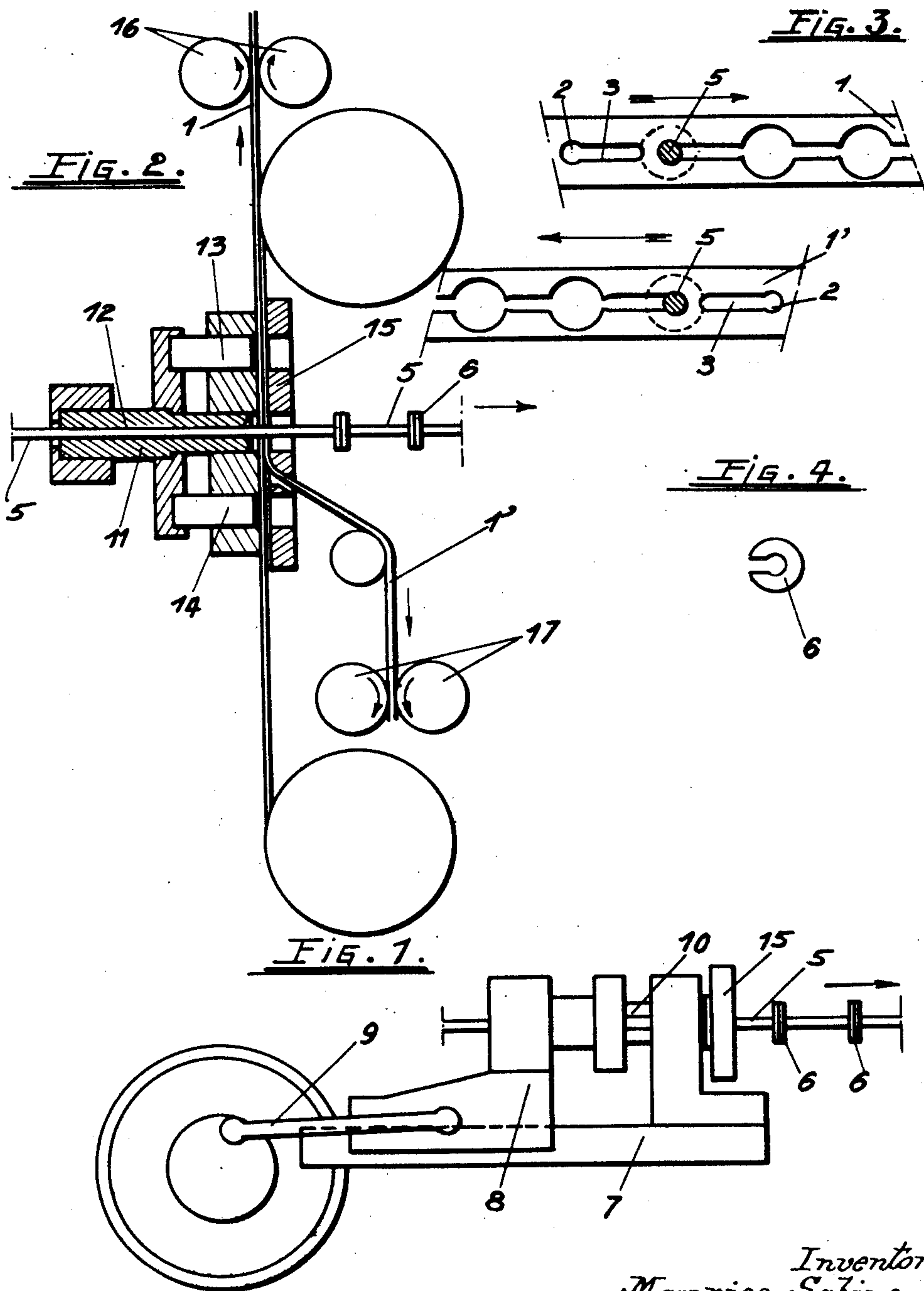
March 6, 1951

M. SABINE
 DEVICE FOR MOUNTING INSULATING WASHERS
 ON ELECTRICAL CONDUCTORS

2,544,280

Filed April 30, 1947

2 Sheets-Sheet 1



Inventor
 Maurice Sabine
 by Wilkinson & Mawhinney
 Attorneys

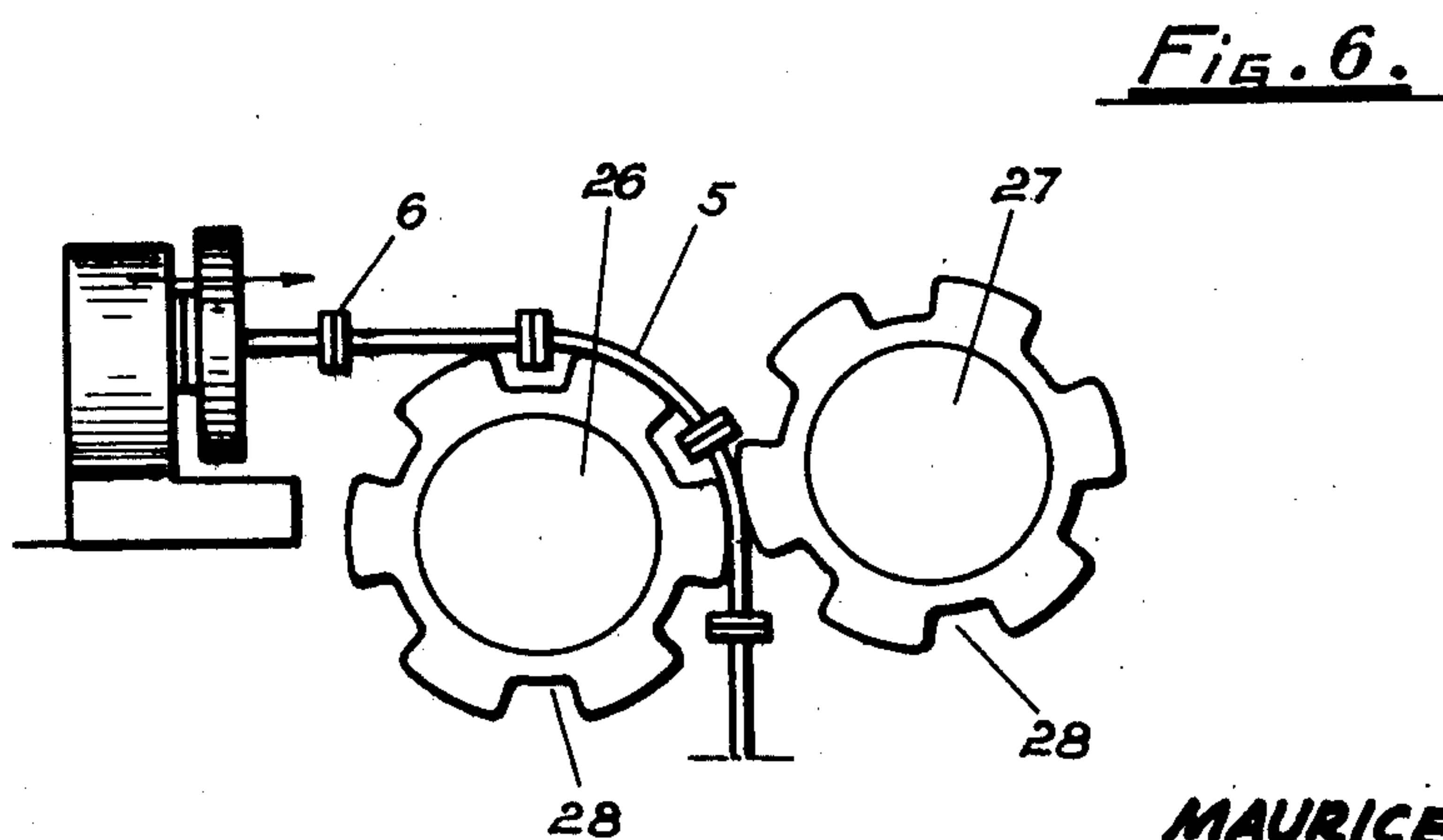
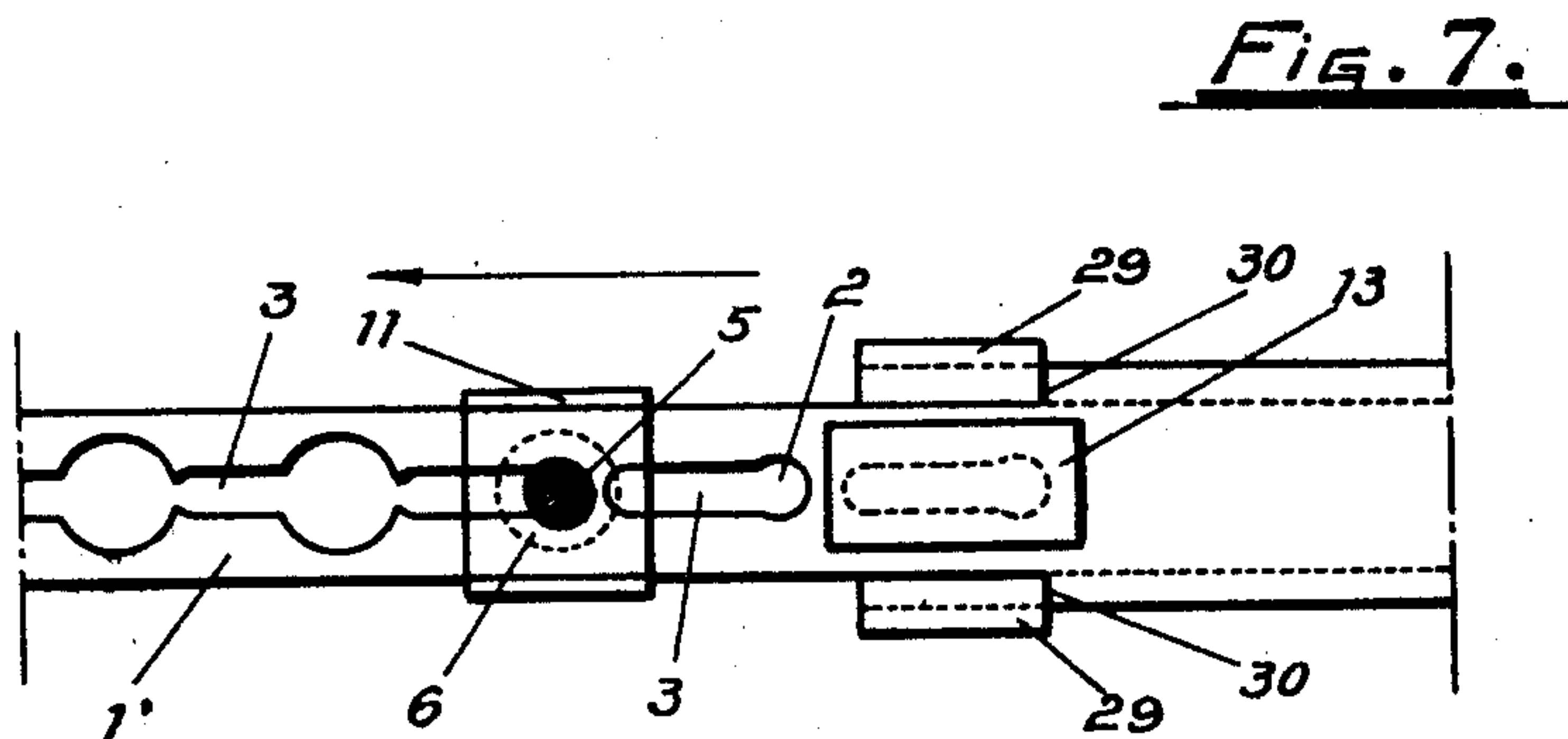
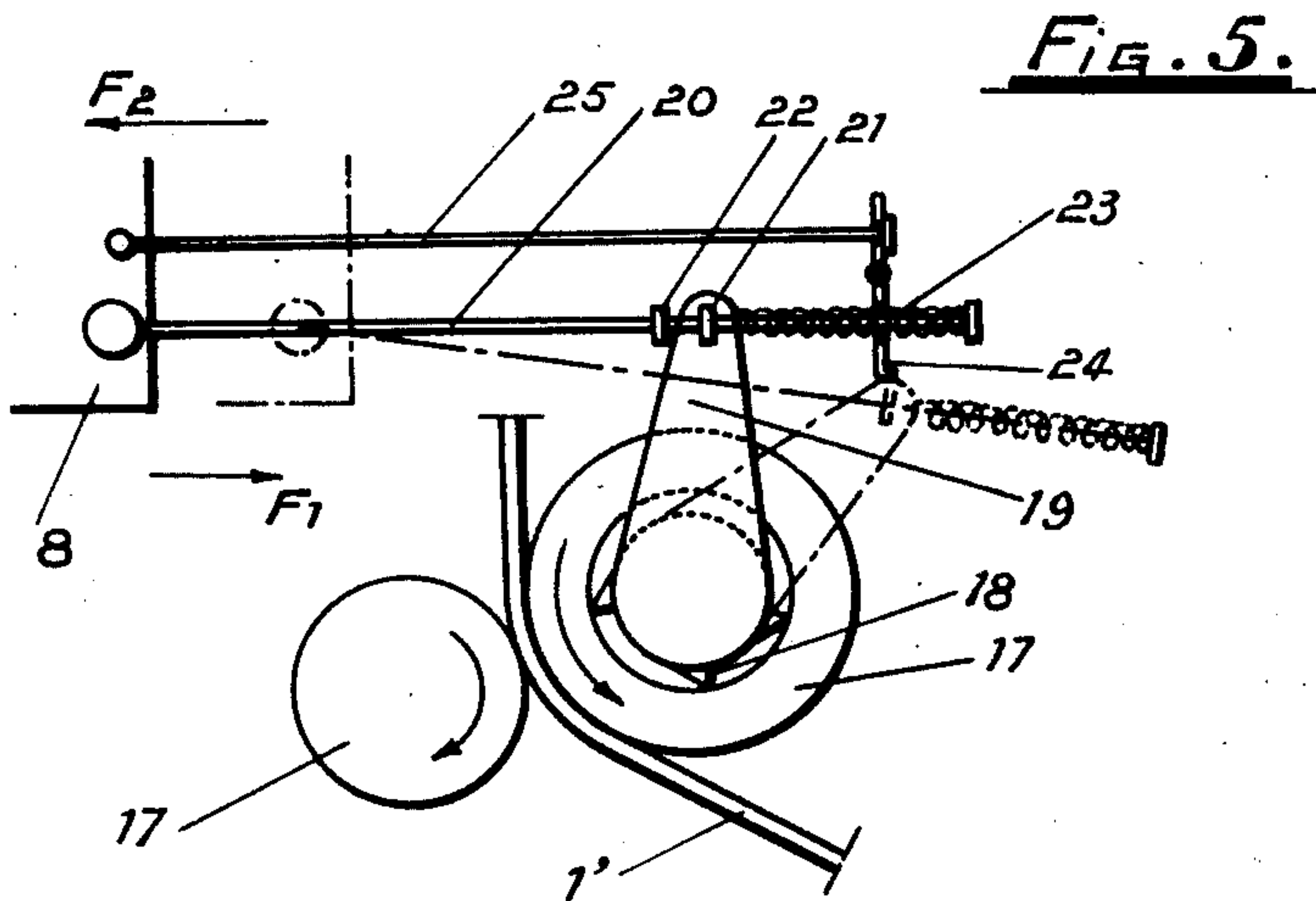
March 6, 1951

M. SABINE
DEVICE FOR MOUNTING INSULATING WASHERS
ON ELECTRICAL CONDUCTORS

2,544,280

Filed April 30, 1947

2 Sheets-Sheet 2



INVENTOR

MAURICE SABINE

by *Wilkinson & Maurer*
Attys.

UNITED STATES PATENT OFFICE

2,544,280

DEVICE FOR MOUNTING INSULATING
WASHERS ON ELECTRICAL CON-
DUCTORS

Maurice Sabine, Conflans-Sainte-Honorine,
France, assignor to Lignes Telegraphiques
et Telephoniques, Seine-et-Oise, France,
a joint-stock company of France

Application April 30, 1947, Serial No. 744,824
In France October 30, 1946

2 Claims. (Cl. 164—13)

1

My invention relates to a device for enabling split insulating washers to be cut out as they are mounted on an electric conductor which is fed through the device. This arrangement makes it possible, in particular, to supply a machine for manufacturing coaxial cables operating in a continuous manner.

According to a particularly advantageous embodiment of the device according to my invention, the electric conductor is fed through the axial passage of a main punch which is adapted to cut out, round the conductor, a washer from a strip of insulating material which moves, step by step, at right angles to the conductor, owing to the fact that preparatory slots are punched beforehand by auxiliary punches in the axis of the strip and successively straddle the conductor.

Other characteristics and advantages of the present invention will become apparent from the ensuing description taken in conjunction with the accompanying drawing which shows diagrammatically and merely by way of example, one embodiment of my invention. In this drawing:

Fig. 1 is a diagrammatic general view of the device according to the invention.

Fig. 2 is a detail view in horizontal section, on a larger scale, of the cutting tool provided with the strips of insulating material.

Fig. 3 is a detail view showing the various punching operations effected on the strips which have been shown displaced with respect to one another for the sake of the clarity of the drawing, but which are, in reality, located on top of one another.

Fig. 4 shows a washer after it has been completed.

Figure 5 is a detail view, drawn to a larger scale, showing a suitable device for driving step by step the strips of insulating material.

Figure 6 is a detail view showing a suitable device adapted to drive the electric conductor.

Figure 7 is a detail view showing a device for gauging the insulating strips.

According to the embodiment which has been illustrated by way of example in the drawing, it has been assumed that the device is operating with two strips of washers to be cut out, moving in opposite directions. It is, however, quite obvious that said device can operate in the same conditions with only one strip or with more than two strips, the multiple strips being in that case given a suitable angular displacement. The device according to the invention essentially comprises a framework 7 along which a press-head 8 is adapted to slide by the action of an ec-

2

centric 9 which imparts a reciprocating movement thereto. The press-head 8 supports a cutting tool 10 which essentially comprises (see Fig. 2): a central punch 11 provided with an axial passage 12 through which the conductor 5 can slide loosely; two lateral preparatory punches 13 and 14 for the two strips 1 and 1' and finally a die of appropriate shape 15.

The two strips 1 and 1' are fed into the cutting tool 10 in opposite directions to one another by the respective action of two groups of feed rollers 16 and 17 which are intermittently driven in the direction of the arrows and at such proper timing that the feed occurs only at the time when punches 11, 13 and 14 are out of engagement with the strips 1 and 1'.

To this end, in each group of rollers 16 and 17, one of the rollers (see Fig. 5) is driven intermittently in the direction of the arrow, by means of a ratchet device 18 in its turn subjected to the action of a control lever 19. A rod 20 pivoting at one of its ends on the movable head 8 can slide in a guide fork 21 of the lever 19. This rod 20 is provided with a stop 22 and, on its free end, with a spring 23. It will at once be seen that when the press-head 8 moves in the direction of the arrow F₁, that is, when the punches come into contact with the strips 1 and 1', the rod 20, through its stop 22, pushes the lever 19 into the extreme position shown in dotted lines where it is engaged by a catch 24. During this phase, the rollers 17, and consequently the strip 1', remain stationary. When the member 8 starts moving in the direction of the arrow F₂, the rod 20 slides in the fork 21 and the spring 23 is compressed owing to the fact that the lever 19 remains locked on its catch 24. When the member 8 is retracted to such an extent that the punches are no longer in contact with the strips, the catch 24 is automatically actuated by the free end of a retracting rod 25 which is pivoted at its other end on the member 8. When the catch is thus liberated, the spring 23 is released and urges the lever 19, whereby the strip 1' is fed forward.

The device operates as follows:

The conductor 5 having been engaged in the axial passage 12 of the central punch 11 passes through (see Fig. 3) the two strips 1 and 1', in the circular portions 2 of the slots 3 which have been previously cut out by the preparatory lateral punches 13 and 14. The conductor 5 is driven in the direction of the arrow under the action of a suitable tractive device, for example that shown in Figure 6 which is composed of tractive rollers 26 and 27 between which passes the conductor 5,

3

notches being provided in said rollers for the passage of the washers 6.

When the central punch 11, to which a reciprocating motion is imparted by the press-head 8, moves forwards, it cuts out a washer 6 from each strip 1 and 1', round the conductor 5, and pushes them through the die 15. Said washers are then carried along by the conductor on which they are fixed.

During this same period, the lateral preparatory punches 13 and 14 cut out from each of the strips 1 and 1' a slot 3 with a circular head 2 (see Fig. 3). It is obvious that during this cutting out period, the strips remain locked in the cutting tool 10. They start their movement again, in opposite directions to one another, by the action of the rollers 16 and 17, as soon as the punches, which are moved backwards by the press-head 8, have disengaged the strips. This movement of the strips continues until the instant when the conductor 5, which is engaged in the slots 3 which have just been formed by the lateral punches, abuts against the respective bottoms of said slots. The same conditions then obtain again as at the beginning of the cycle which has just been described.

It is obvious that the invention has only been described and illustrated in an explanatory and in no way limitative manner and that modifications of detail can be made therein in accordance with its spirit.

Thus, in particular, it is possible to provide a device (see Fig. 7) for cutting away the sides of the strips 1 or 1' which are initially made too wide, said device essentially consisting of two additional gauging punches 29 which cut out the excess width of the strip and form a shoulder 30 thereon on each side. The movement of the strip is thus limited by the punches engaging said shoulders. In this manner, any undesired side

4

pressure of the strips on the conductor is avoided.

I claim:

1. A device for placing split insulating washers in position on an electric conductor, which comprises a main punch provided with an axial passage, means for feeding the electric conductor inside said passage, means for feeding step by step, at right angles to the conductor, a strip of insulating material provided with preparatory axial slots which successively straddle the conductor, an auxiliary punch for cutting out the preparatory axial slots, which is displaced relatively to the main punch such a distance that when said main punch cuts out a washer from the strip, the opening made thereby joins the leading end of the next preparatory axial slot, and means for actuating said punches during the time when the strip of insulating material is stationary.

2. A device for placing split-insulating washers in position on an electric conductor, which comprises a main punch provided with an axial passage, means for feeding the electric conductor inside said passage, means for feeding step by step, at right angles to the conductor, a plurality of strips of insulating material which are provided with preparatory axial slots which successively and at the same instant for each strip straddle the conductor, auxiliary punches for cutting out said preparatory axial slots, said auxiliary punches being displaced relatively to the main punch such a distance that when said main punch cuts out contiguous washers from said strips, the openings made thereby join the leading ends of the next preparatory axial slots, and means for actuating said punches during the time when the strips of insulating material are stationary.

MAURICE SABINE

No references cited.