June 23, 1931. P. M. NEJEDLY 1,810,979

CIGARETTE CORK TIPPER

Filed Feb. 7, 1930 2 Sheets-Sheet 1

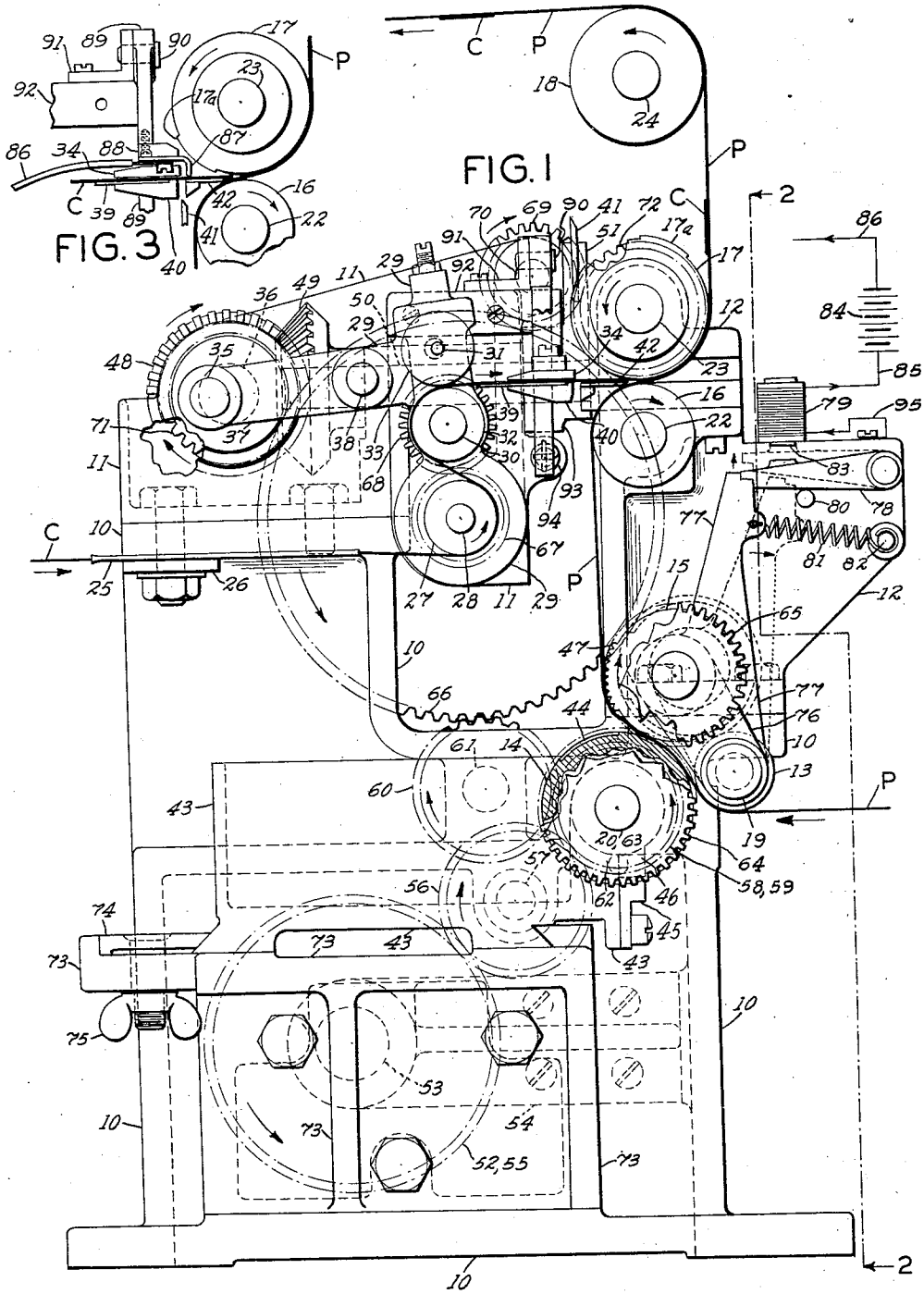


FIG. 1

FIG. 3

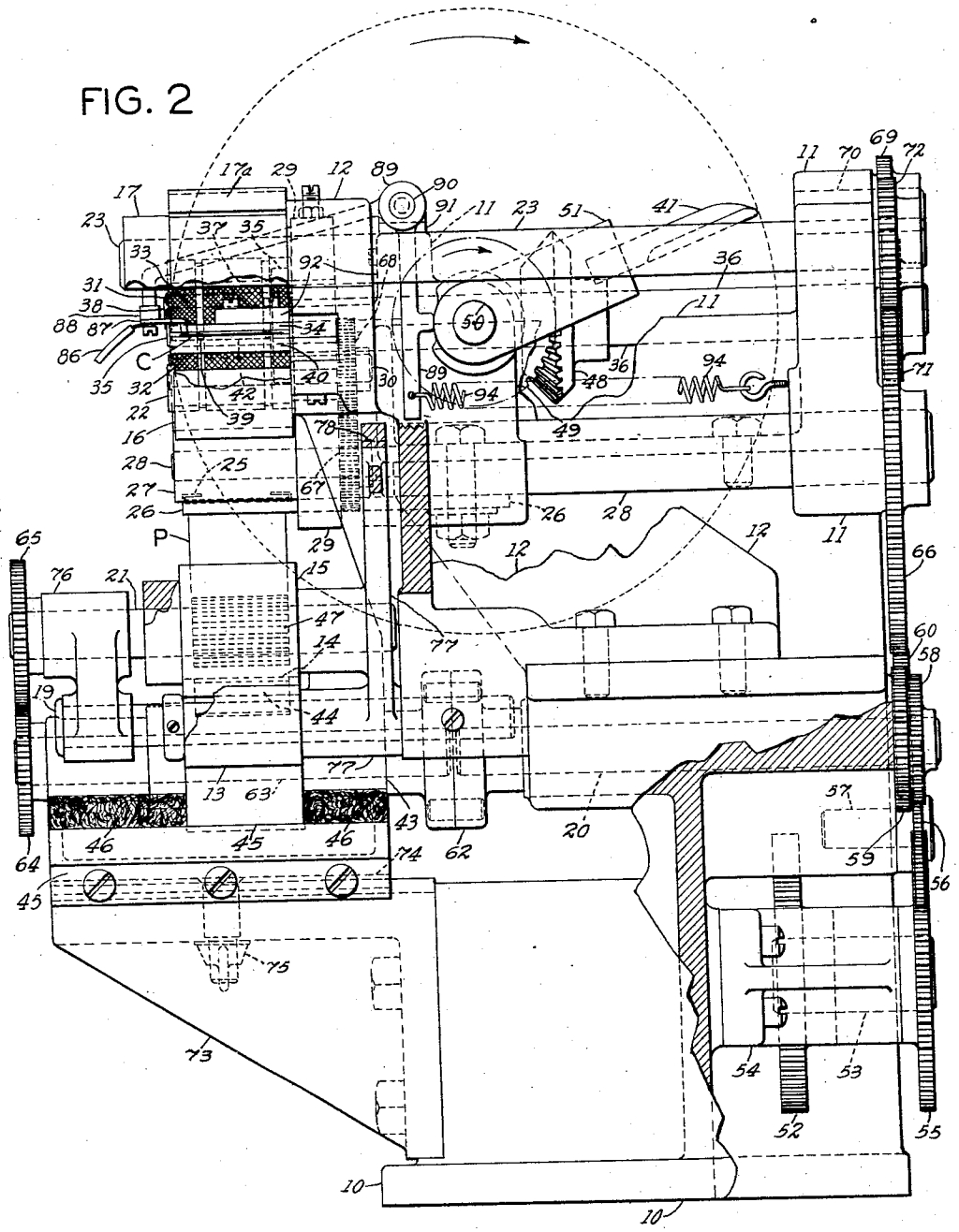
INVENTOR
Peter Martin Nejedly
BY
Sydney B. Prescott
ATTORNEY

June 23, 1931. P. M. NEJEDLY 1,810,979

CIGARETTE CORK TIPPER

Filed Feb. 7, 1930 2 Sheets-Sheet 2

FIG. 2



INVENTOR
Peter Martin Nejedly
BY
Sydney J. Rescott
ATTORNEY

Patented June 23, 1931 1,810,979

UNITED STATES PATENT OFFICE

PETER MARTIN NEJEDLY, OF BROOKLYN, NEW YORK, ASSIGNOR TO AMERICAN MACHINE & FOUNDRY COMPANY, A CORPORATION OF NEW JERSEY

CIGARETTE CORK TIPPER

Application filed February 7, 1930. Serial No. 426,756.

This invention relates to an improved machine for applying covering material, such as cork tips, to wrapper material such as cigarette wrapper paper which may be used in conjunction with continuous rod cigarette machines, its main object being to produce a device suitable for operation at high speed, such as 2,000 cigarettes per minute. A further object of the invention is to provide an intermittently operating means for feeding the covering material and a continuously rotating knife for severing strips of the covering material of suitable length between the periods of feeding movement of the covering material. A still further object is the provision of means in connection with the means for applying adhesive to the wrapper material to automatically stop the application of adhesive to the wrapper material when the covering material feeding means fails to feed. With these and other objects not specifically mentioned in view, the invention consists in certain constructions and combinations of elements which will be hereinafter fully described and then specifically set forth in the claims hereunto appended.

The cork strip, or other covering material, is fed from a reel through rollers rotating in an oscillating arm and passes under a ledger plate where it is cut by a revolving knife, the said arm being timed to swing backwards at the rate of the forward speed during the cutting period, so as to stop the relative motion of the strip during that time without interrupting its actual continuous advance in the feed rollers. While thus held at rest in the cutting position, the forward end of the cork strip, or other covering material, rests on the moving cigarette paper strip, or other wrapping material, passing over an idler roller at this point. The cigarette paper, before reaching this idler roller, is passed between a pair of adhesive applying rollers, one of which has a raised section of V-shaped formation, while the other has a corresponding indentation which carries the adhesive. Once in every revolution, the paper is pressed into the adhesive on the indented surface of the latter roller by the raised portion of the former, thus receiving areas or spots of adhesive such as paste at equal intervals along its length. Above the aforesaid idler roller is mounted a continuously driven feed roller having a raised peripheral portion which makes contact with and engages the cork strip on the idler once in every revolution, so that the separate cut cork tips are pressed upon the previously prepared areas of adhesive and are carried forward with the paper strip.

The improved covering material applying machine is provided with an automatic knockout device which disengages the drive of the adhesive applying rollers and permits the paper strip to pass freely between them, thereby preventing open paste from being carried by the paper onto the guide rollers and others parts of the machine when the cork strip fails to feed. This knockout consists of a cam-operated swinging arm carrying an insulated contact finger connected with the winding of an electromagnet, so timed as to come down upon the cork strip end after each tip length has been fed and to remain in its down position during a portion of the cutting period. When no cork has been fed, this finger makes contact with the metal support plate of the tips, thereby completing the electric circuit through the frame of the machine and energizing the electromagnet which thereupon trips the knockout lever.

In the accompanying drawings:

Fig. 1 is a front elevation of the improved cork tipper;

Fig. 2 is a side elevation of the same, partly shown in section, taken on the line 2—2 of Fig. 1; and

Fig. 3 is a detail of Fig. 1, showing the contact arm of the knockout device.

In carrying the invention into effect, there is provided a machine for applying covering material to a wrapper material, comprising means for feeding and applying adhesive to the wrapper material, means for intermittently feeding a continuous strip of covering material, means for severing suitable lengths of covering material, means for applying the severed strips of covering ma-

terial to the adhesive portions of the wrapper material, and means for stopping the application of adhesive to the wrapper material when the covering material feeding means fails to feed.

In the best constructions, the cutting means comprises a continuously rotating knife operating on the covering material between the periods of feeding movement thereof, and the means for stopping the application of adhesive comprises a knockout device operative on the adhesive applying mechanism and controlled by an electrical device suitably connected to the frame of the machine.

These various means and parts may be widely varied in construction within the scope of the claims, for the particular machine selected to illustrate the invention is but one of many possible embodiments of the same. The invention, therefore, is not to be restricted to the specific construction shown and described.

Referring to the drawings, the frame 10 carrying the stands 11 and 12 is adapted to be fastened to the frame of a cigarette machine, or other support. The roller 13 mounted on the shaft 19 cooperates with the rollers 14 and 15 mounted on the shafts 20 and 21, respectively, to guide the cigarette paper or other material to be covered or tipped, as indicated at P, upwardly to the cooperating rollers 16 and 17 which are mounted on the shafts 22 and 23, respectively, which conduct it to the roller 18 on the shaft 24 from which the material may be led to the tobacco feed of a cigarette machine, if the device is to be used in connection therewith.

The cork strip or other covering material C, which is supplied from a reel, enters the tipper through a guide 25, fastened to a plate 26, which leads it to a roller 27 turning on shaft 28. On the latter shaft is mounted an arm 29 carrying on studs 30 and 31 the feed rollers 32 and 33 between which the cork strip is led after leaving roller 27, and which feed it to the ledger plate 34. The arm 29 is connected to the eccentric pin 35 on shaft 36 by means of a link 37 attached to it by a pin 38 so that the arm 29 swings back and forth on shaft 28 as shaft 36 revolves, thus periodically stopping the motion of the cork strip at the ledger plate during its backstroke and advancing it at double the feed roller speed during its forward stroke. From rollers 32, 33 the guide wires 39 lead the cork strip through the space between the support 40 and the plate 34, which acts as ledger plate for the rotating knife 41, onto the plate 42 from which the cut "tip" projects into the space between the paper rollers 16 and 17, and thus meets the paper strip P.

The paper strip P, in passing between the rollers 14 and 15, has paste applied to it at properly spaced intervals. For this purpose, the roller 14, which rotates in the paste receptacle 43, has a depression 44 in which a small amount of paste is stored at each revolution, the high portion of the surface being wiped clean by a scraper 45 and side wipers 46, upon its emergence from the paste. Roller 15 has a corresponding raised portion 47 which presses the paper strip into the depression 44 of drum 14, thereby transferring the stored paste to the paper at equally spaced spots.

The feed roller 17 has a raised portion 17*a* which, when cooperating with roller 16 once in every revolution, clamps the cork tip and paper strip between it and roller 16, thereby attaching the tip C to the pasted portion of strip P and advancing the strip so tipped.

To shaft 36, which is supported by stand 11, is attached the bevel gear 48 meshing with bevel gear 49 on shaft 50 to which is fastened the knife holder 51 carrying the knife 41. The shaft 36, as well as all the other operating parts of the improved tipping mechanism, may receive their motion from a gear on the cigarette machine shaft (not shown) which meshes with the gear 52 on shaft 53 in bracket 54 attached to pedestal 10, the latter shaft also carrying the gear 55 meshing with gear 56 on stud 57. The gear 56 drives gear 58 on shaft 20, on which is mounted the gear 59 meshing with gear 60 on stud 61. The shaft 20 carries a coupling 62 which drives shaft 63 and transmits the power to the paste rollers 14 and 15 through the meshing gears 64 and 65, respectively. The gear 60 turns gear 66 on shaft 28 which carries the gear 67 driving gear 68 on stud 30. The large gear 66 turns the pinions 69, on stud 70, and 71 on shaft 36; the gear 69 drives gear 72 on shaft 23 on which is mounted the feed roller 17.

The bracket 73 fastened to the frame 10 forms a slide for the paste receptacle 43 which is held in position by the gib 74 and can be readily removed for cleaning and refilling by loosening the wing-nut 75, the coupling 62 automatically disconnecting and reconnecting the paste drum drive as the receptacle is removed and replaced.

Pivoting on shaft 19 in stand 12, on which shaft is mounted the paper guide roller 13 and the loose arm 76 supporting one end of shaft 21, is the lever arm 77 carrying the other end of shaft 21 on which is mounted the gear 65 and the paper roller 15. This arm is made to act as a knockout device for the paste feed in case of ending or breakage of the cork strip, by holding it in its working position (with the gear 65 in mesh with 64) by means of a catch 78 controlled by an electromagnet 79. In the working position, with the electromagnet unenergized, the

catch 78 rests on a stop pin 80, and the arm 77 is pulled against a shoulder at its end by a spring 81 attached to post 82 in stand 12. When the electromagnet 79 is energized by the absence of a cork tip, the catch 78 is pulled up against the core 83 of the electromagnet, thereby giving free the end of lever 77 which is then pulled against stop pin 80 by the spring 81, as shown in dotted lines in Fig. 1, thereby lifting the gear 65 out of engagement with gear 64 and stopping the paste feed so that the paper emerging from feed rollers 16 and 17 will carry no free paste to smudge the working parts of the machine.

The electromagnet 79 receives its energy from a line circuit or from a battery 84, one terminal of which is joined by a wire 85 to the magnet winding 79, while the other terminal is connected by a wire 86 with a contact finger 87, Fig. 3, which is attached to an insulating block 88, carried by a periodically swinging bell crank lever 89 pivoted on a pin 90 in lug 91 attached to bracket 92 on stand 11, and which rests on the cork tip C when the bell crank, which is controlled by a cam 93 attached to knife holder 51 on shaft 50, is in its down position. The bell crank is held in engagement with cam 93 by a spring 94 attached to stand 11. When the cork strip feed is continuous, the cork layer upon which rests the finger 87 acts as an insulation and prevents current from flowing into the electromagnet, but when no cork strip is present, the finger 87 contacts with the metal support plate 42 which, through the frame of the machine and through the wire 95, is connected to the winding of magnet 79, thereby completing the circuit and operating the catch. The paper then will pass between rollers 14 and 15 without receiving paste, until the arm 77 is pushed back into working position, thereby allowing the catch 78 to drop back into holding engagement.

In view of the foregoing, a detailed description of the operation of the device is deemed to be unnecessary and is therefore omitted in the interest of brevity.

What is claimed is:

1. In a machine for applying covering material to separated portions of a continuous strip of material, the combination with means for continuously feeding the strip of material and applying adhesive to separated portions thereof, of means for intermittently feeding a continuous strip of covering material, a continuously rotating knife for cutting strips of covering material while it is stationary, and mechanism for applying the severed strips to the adhesive portions of the material.

2. In a machine for applying covering material to separated portions of a continuous strip of material, the combination with means for continuously feeding the strip of material and applying adhesive to separated portions thereof, of means for intermittently feeding a continuous strip of covering material, a continuously rotating knife for cutting strips of covering material while it is stationary, and mechanism for applying the severed strips to the adhesive portions of the material, said means for applying adhesive to the material including a roller having a recess for receiving adhesive and a roller having a raised portion adapted to press the material into said recess.

3. In a machine for applying covering material to separated portions of a continuous strip of material, the combination with means for continuously feeding the strip of material and applying adhesive to separated portions thereof, of means for intermittently feeding a continuous strip of covering material, a continuously rotating knife for cutting strips of covering material while it is stationary, and mechanism for applying the severed strips to the adhesive portions of the material, said means for feeding and applying adhesive to the material including a positively driven adhesive carrying roller, a pivoted frame, a roller mounted in said frame adapted to cooperate with said first roller, and resilient means for urging the frame away from the first roller whereby to separate said rollers.

4. In a machine for applying covering material to separated portions of a continuous strip of material, the combination with means for continuously feeding the strip of material and applying adhesive to separated portions thereof, of means for intermittently feeding a continuous strip of covering material, a continuously rotating knife for cutting strips of covering material while it is stationary, and mechanism for applying the severed strips to the adhesive portions of the material, said means for intermittently feeding the covering material including a pivoted frame, a plurality of feed rollers mounted in said frame, and means for swinging said frame about its pivot.

5. In a machine for applying covering material to separated portions of a continuous strip of material, the combination with means for continuously feeding the strip of material and applying adhesive to separated portions thereof, of means for intermittently feeding a continuous strip of covering material, a continuously rotating knife for cutting strips of covering material while it is stationary, and mechanism for applying the severed strips to the adhesive portions of the material, said means for intermittently feeding the covering material including a plurality of continuously driven feed rollers.

6. In a machine for applying covering material to separated portions of a continuous strip of material, the combination with

means for continuously feeding the strip of material and applying adhesive to separated portions thereof, of means for intermittently feeding a continuous strip of covering material, a continuously rotating knife for cutting strips of covering material while it is stationary, and mechanism for applying the severed strips to the adhesive portions of the material, said mechanism including an idler roller and a positively driven feed roller cooperating therewith.

7. In a machine for applying covering material to separated portions of a continuous strip of material, the combination with means for continuously feeding the strip of material and applying adhesive to separated portions thereof, of means for intermittently feeding a continuous strip of covering material, a continuously rotating knife for cutting strips of covering material while it is stationary, and mechanism for applying the severed strips to the adhesive portions of the material, said mechanism including a support for the material and a roller having an enlarged portion for pressing the severed strips on the adhesive portions of the material.

8. In a machine for applying tips to wrapper material, the combination with means for applying adhesive to the wrapper material, of means for intermittently feeding a strip of tip material, a rotating knife for cutting tips while the tip material is stationary, and mechanism for applying the severed tips to the wrapper material.

9. In a machine for applying tips to cigarette wrapper material, the combination with means for applying adhesive to the wrapper material, of means for feeding a strip of tip material, cutting means for severing tips from the tip material, mechanism for applying the severed tips to the wrapper material, and mechanism for causing the application of adhesive to the wrapper material to stop when the tip material feeding means fails to feed.

10. In a machine for applying tips to cigarette wrapper material, the combination with means for applying adhesive to the wrapper material, of means for feeding a strip of tip material, and mechanism for causing the application of adhesive to the wrapper material to stop when the tip material feeding means fails to feed.

11. In a machine for applying cork tips to cigarette wrapper material, the combination with means for applying adhesive to the wrapper material, of means for feeding a strip of cork, means for cutting tips from the cork strip, a support for the severed cork tips, and mechanism for causing the application of adhesive to the wrapper material to stop when the cork strip feeding means fails to feed.

12. In a machine for applying cork tips to cigarette wrapper material, the combination with means for applying adhesive to the wrapper material, of means for feeding a strip of cork, means for cutting tips from the cork strip, a support for the severed cork tips, and mechanism for causing the application of adhesive to the wrapper material to stop when the cork strip feeding means fails to feed, said mechanism including a stop, an electromagnet, an electrical circuit connected to said tip support, and a cam controlled contact constructed and arranged to touch said tip support and close the circuit and energize said magnet to actuate said stop when the cork strip feeding means fails to feed.

13. In a machine for applying cork tips to cigarette wrapper material, the combination with an adhesive carrying roller, a pivoted frame disposed adjacent said roller, resilient means urging said frame away from said roller, a roller mounted in said frame and adapted to cooperate with said first roller, and a stop urging the frame toward the first roller.

14. In a machine for applying cork tips to cigarette wrapper material, the combination with means for feeding the wrapper material, of means for feeding a strip of cork, means for cutting tips from the cork strip, and means for applying the severed tips to the wrapper material, said wrapper feeding means including an adhesive carrying roller, a pivoted frame disposed adjacent said roller, resilient means urging said frame away from said roller, a roller mounted in said frame and adapted to cooperate with said first roller, and a stop urging the frame toward the first roller.

15. In a machine for applying covering material to separated portions of a continuous strip of material, means for feeding and applying adhesive to the material comprising a positively driven adhesive carrying roller, a pivoted frame, a roller mounted in said frame adapted to cooperate with said first roller, and resilient means for urging the frame away from the first roller whereby to separate said rollers.

16. In a machine for applying tips to cigarette wrapper material, a tip support, a stop, an electromagnet constructed and arranged to actuate said stop, an electrical circuit connected to said tip support, and a cam controlled contact constructed and arranged to touch said tip support and close said circuit and energize said electromagnet to actuate said stop.

In testimony whereof, I have signed my name to this specification.

PETER MARTIN NEJEDLY.