March 15, 1932. N. H. MYERS ET AL 1,850,062

CONTINUOUS STRIP FORMING AND COVERING MACHINE

Filed Sept. 10, 1926 2 Sheets-Sheet 1

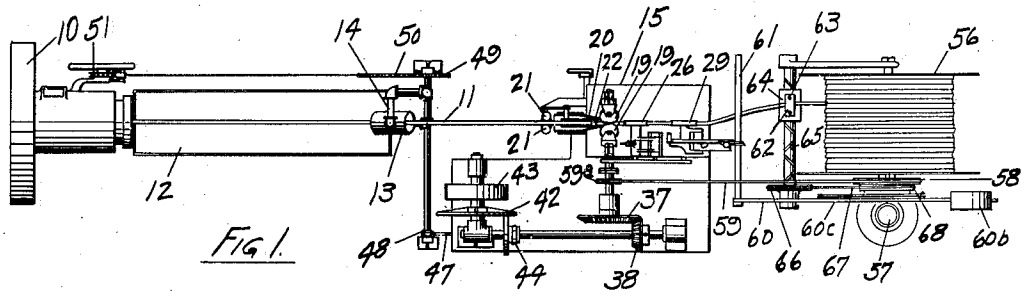


FIG. 1.

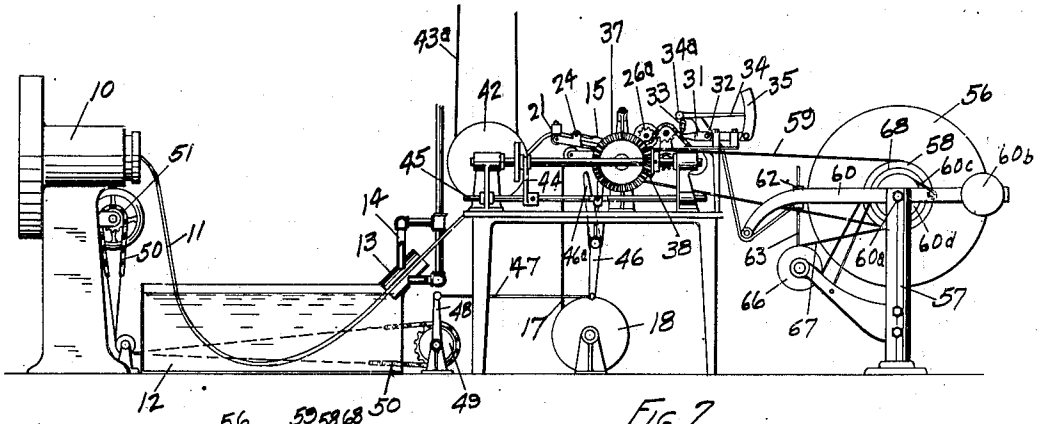


FIG. 2.

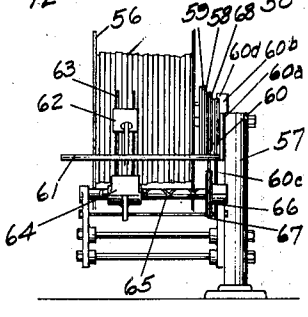


FIG. 3.

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CONTINUOUS STRIP FORMING AND COVERING MACHINE

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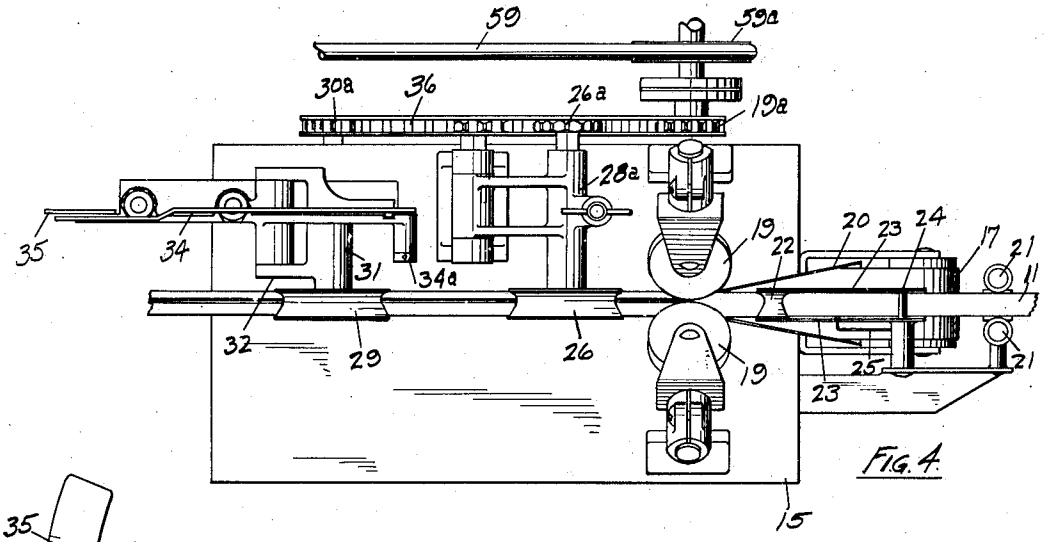


FIG. 4.

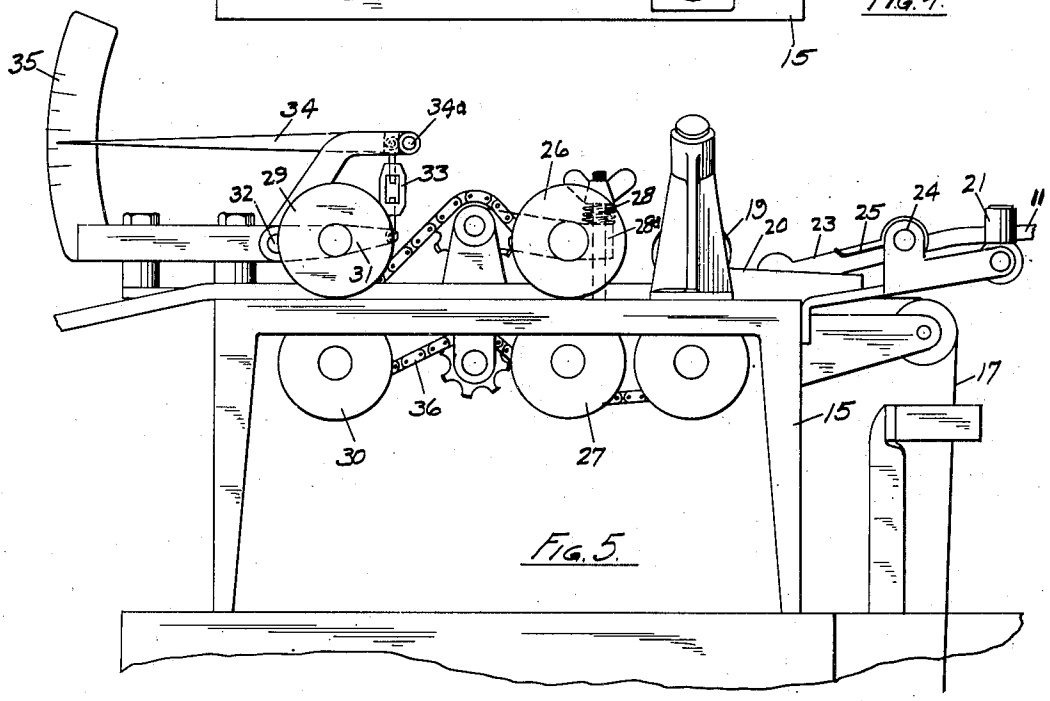


FIG. 5.

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UNITED STATES PATENT OFFICE

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CONTINUOUS STRIP FORMING AND COVERING MACHINE

Application filed September 10, 1926. Serial No. 134,633.

This invention relates to machines for continuously forming strip rubber and covering it with fabric.

The general purpose of the present invention is to provide a machine of this type which is entirely automatic from the forming of the strip to the reeling thereof on drums ready for use in tire-building or other operations.

Various devices are employed in the machine to facilitate quick, inexpensive manufacture of a covered strip of uniform character. Certain of these are capable of other application. Accordingly it is to be understood that the invention is not limited to the specific form shown nor to the specific use set forth.

Of the accompanying drawings:

Figure 1 is a plan of apparatus embodying the invention;

Figure 2 is a side elevation thereof;

Figure 3 is an end elevation of the reeling device;

Figure 4 is a detail plan of the covering device; and

Figure 5 is a detail side elevation thereof.

Referring to the drawings, 10 represents a die-expressing or "tubing" machine from which rubber may be extruded in a known manner, issuing therefrom as a strip 11, herein shown of the cross-section of a tire bead. The strip 11 issues into a tank 12 containing a cooling liquid, such as water, and passes therefrom through a drier 13 into which blasts of air are delivered by pipes 14.

From the drier the stock 11 passes to the covering device 15 in which it is covered with fabric 17 drawn from a reel 18, a series of rollers 19, 19 being arranged to envelop the strip 11 with the fabric 17. The fabric is guided to rollers 19 and folded so as to be operated on by rollers 19 by means of a folding trough 20. The strip 11 is guided onto the fabric 17 in trough 20 between rollers 21, 21 and roller 22 spaced therefrom and adapted to be urged thereon from above by being journaled on arms 23, 23 pivoted at 24 and urged downwardly by a spring clip 25.

Cooperating pressure rollers 26 and 27 are arranged to press the covering fabric 17 into intimate contact with the strip 11, roller 26 being urged toward roller 27 by means of a spring 28 acting upon an arm 28^a upon which roller 26 is journaled.

Rollers 29 and 30 are arranged to receive the covered stock therebetween, roller 29 being journaled upon an arm 31 pivoted at 32 and connected by a turn-buckle 33 to an indicator arm 34 pivoted at 34^a. Indicator arm 34 moves over a scale 35 and indicates variations in thickness of the stock issuing from device 15.

Lower roller 19 and rollers 26, 27 and 30 are driven by a common drive chain trained over sprockets 19^a, 26^a, 27^a and 30^a respectively connected to said rollers. Sprocket 19^a is driven by a gear 37 meshed with a gear 38 operable through a variable speed drive 42 by a pulley 43 driven by a belt 43^a, the latter being driven by any suitable source of power.

The variable speed drive 42 is operable by a shifting arm 44 on a reciprocable rod 45 adapted to be reciprocated by a lever 46 operable either by a hand lever 46^a on device 15 or through a flexible connector cable 47, arm 48, a sprocket 49 for operating arm 48, chain 50 trained over sprocket 48, and sprocket 51 for driving chain 50, by a handwheel journaled on the stand of extruding machine 10.

From the device 15 the stock passes into a level-wind reeling mechanism, including reel 56 mounted on a stand 57 and arranged to be driven by a pulley 58 over which passes a drive belt 59 driven by a pulley 59^a on the shaft of sprocket 19^a. The level-wind mechanism includes a control rod 61 mounted on a control arm 60, and adapted to bear on the stock to provide a loop or festoon therein.

The control arm 60 is pivoted at 60^a and has a counterweight 60^b thereon. It is connected to a brake band 60^c arranged about a drum 60^d on the reel shaft to retard the reel when the amount of material in the loop or festoon decreases. The guiding slide 62 of the level-wind mechanism is arranged to be vertically slidable on posts 63 carried by a follower 64 operable back and forth along the level-wind cam 65 so that the guide will be elevated as the stock builds upon the reel to properly feed the stock thereon. The cam 65 may be

driven by a pulley 66 and belt 67, the latter being driven by a pulley 68 on the shaft of reel 56.

It will appear from the foregoing that the stock is continuously formed and covered in an effective manner, the thickness of the stock being indicated by the apparatus and enabling an operative at a single station to so regulate the relative speeds of the several parts of the apparatus as to produce stock of uniform character.

Modifications of the invention may be resorted to without departing from the spirit thereof or the scope of the appended claims.

What is claimed is:

1. In apparatus of the class described, means for forming strip material from a hot, plastic stock, means for continuously cooling the strip material comprising a tank for containing a cooling liquid through which the material may be passed and a drier comprising a tube through which stock may be continuously conducted from the tank, and means for directing one or more blasts of air into the tube.

2. In apparatus of the class described, means for forming rubber stock while hot, means for applying a cooling liquid thereto, a drier comprising a tube through which stock may be continuously conducted from the second means, and means for directing one or more blasts of air into the tube.

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