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PAPER FEED CONTROL FOR WRAPPING MACHINES

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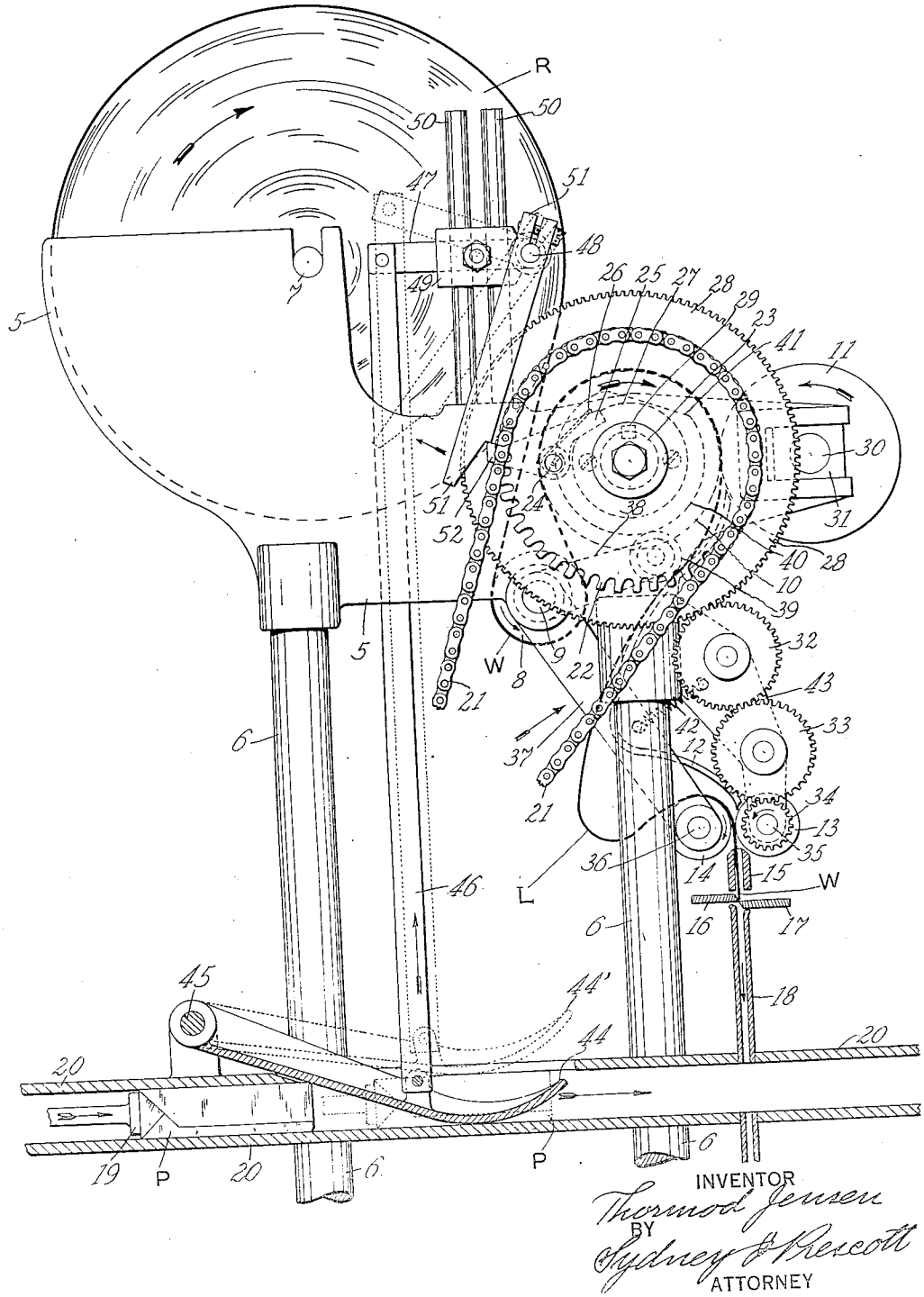

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PAPER FEED CONTROL FOR WRAPPING MACHINES

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This invention relates to feeds for wrapping machines, particularly to continuous feeds for webs of transparent cellulosic materials, paper and the like, its main object being to provide simple and effective means to control the paper feed in such a manner that the latter is stopped in case of a missing package, but automatically started again upon the arrival of the next package, thereby not only saving the paper, but also preventing the surplus paper or other wrapping material from interfering with the operation of the machine. Another object is to provide such means in cooperation with a feed which pulls off paper from a reel continuously yet feeds paper to a wrapping position intermittently. With these and other objects not specifically mentioned in view, the invention consists in certain constructions and combinations which will be hereinafter fully described and then specifically set forth in the claims hereunto appended.

In carrying the invention into effect there is provided in combination with the article runway of a wrapping machine, mechanism having cooperating rolls for feeding wrapping material continuously for the purpose of wrapping the articles, together with coacting pawl driving means for the rolls normally transmitting motion to said rolls, and means for incapacitating the pawl in the absence of a package from the runway to prevent feeding of the material when there is no package provided to be wrapped. In the best constructions, the pawl is mounted for revolution with one of said rolls, and said means include a member which is stationary to the revolving movement of the pawl and which is movable into and out of position to strike the pawl. The various means referred to may be varied widely in construction within the scope of the claims, for the particular device selected to illustrate the invention is but one of many possible concrete embodiments of the same. The invention therefore is not to be restricted to the precise details of the structure shown and described.

In the accompanying drawing in which like characters of reference indicate the same and like parts, the figure shows a side elevation partly in section of a continuous paper feed for wrapping machines equipped with a paper feed control embodying the invention.

Referring to the drawing a frame 5 mounted on supporting rods 6 is held by the main frame of the wrapping machine. Frame 5 supports paper reel R on a rod 7. The paper strip or web W of wrapping material from this reel runs over an idler roller 8, pivoted on shaft 9 also held by frame 5, from which it is led between two feed rollers 10 and 11 normally continuously driven, whence it is guided by guides 12 between the intermittently driven feed rollers 13 and 14 mounted above a paper chute 15. A knife 16 moving along a ledger plate 17 mounted below chute 15 cuts the web W into blanks of the desired length to cover the article or package P to be wrapped. The cut blanks fall through a paper guide 18 into the path of the advancing packages P which are brought forward from a feed magazine by a plunger 19 in an article runway or chute 20.

The paper feed mechanism is actuated from the main drive of the wrapping machine by means of a chain 21 driving a sprocket 22, loosely mounted on shaft 23 supported in bearings of frame 5. Sprocket 22 carries on its inner face a pin 24 on which is pivoted a pawl 25 held by a spring 26 in engagement with a shouldered notch 27*a* in a disk 27 fastened to a gear 28 affixed by means of a key 29 to shaft 23 on which is also mounted the feed roller 10 driving through friction the coacting feed roller 11 mounted on shaft 30. Shaft 30 is adjustably supported in bearings 31 of frame 5.

The intermittent feeding to the paper chute is as follows. A gear 28, on shaft 23 through intermediate gears 32 and 33, drives a gear 34 on shaft 35 on which is mounted the feed roller 13. The feed roller 14 is pivoted on a shaft 36 supported in an arm 37 mounted on the idler shaft 9 to which is fastened a crank 38 having a roller 39 in engagement with the circumference of a cam 40 having a flat portion 41, the cam 40 being mounted on shaft 23. A tension spring 42, attached to one of

the arms 37 and anchored to the supporting bracket 43 of gears 32, 33 and 34, presses the feed roller 14 against feed roller 13 whenever the cam roller 39 arrives at the flat 41 thus feeding the web W intermittently into the chute 15. When cam roller 39 rests against the circular portion of cam 40, feed rollers 13 and 14 are out of engagement and do not feed any paper. During this period, the web W forms a loop L, because the paper is fed continuously from the reel R by the rollers 10 and 11. As soon as feed rollers 13 and 14 are in engagement at the next arrival of roller 39 on flat 41, they take up this loop L and feed the paper in front of the arriving package.

In order to prevent machine stoppage to clear the machine and waste of material particularly in case no package arrives when the rollers 13 and 14 are ready to feed, the main drive from shaft 23 is stopped by means of a feeler lever 44 placed in the package runway 20. Lever 44 is pivoted on a stud 45 supported by runway 20 and through a link 46 is connected to a crank 47 mounted on a shaft 48 supported by a lug 49 adjustably fastened to rods 50 on frame 5. To shaft 48 is clamped a trip lever 51 reaching into the path of a nose 52 of the revolving pawl 25 on sprocket 22. When a package P is passing through chute 20, the lever 44 is raised by the same into the dotted position 44′, thereby causing trip lever 51 to swing aside in the direction of the arrow shown, thus clearing the path of the nose 52 so that the pawl 25 will then normally remain in engagement with the latch disk 27 of gear 28 and drives the same, but in case the package which would normally lift the lever 44 is missing, the trip lever 51 will remain in the path of nose 52 and will knock pawl 25 out of engagement with the shouldered notch 27*a* in the disk 27 thus stopping gear 28 for one revolution of the sprocket. Pawl 25 always revolving with sprocket 22 will, due to the action of spring 26, again engage on its next revolution with the notched disk 27 provided a package has arrived in the meantime and has raised the trip lever 51, otherwise the latter will again disengage pawl 25 and thereby keep the paper feed from operating until a package finally arrives.

Thus a simple and rugged mechanism has been provided for stopping wrapper feeding when there is no package, in machines of this general type.

What is claimed is:

1. The combination with an article runway for wrapping machines, of mechanism for pulling paper off a reel continuously, means for intermittently feeding the paper pulled off into the path of an article in said runway, said means being connected to said mechanism to operate only when the mechanism operates and devices coacting with said runway and said mechanism to render said mechanism and means inoperative in the absence of an article in the runway.

2. The combination with an article runway for wrapping machines, of mechanism for pulling paper off a reel continuously, means for intermittently feeding the paper pulled off into the path of an article in said runway, said means being connected to said mechanism to operate only when the mechanism operates and devices coacting with said runway and said mechanism to render said mechanism and means inoperative in the absence of an article in the runway, said mechanism and means including coacting devices for forming a loop in the wrapping material to handle the differential between the paper material pulled off and that fed.

3. The combination with an article runway for wrapping machines, of mechanism for pulling paper off a reel continuously, means for intermittently feeding the paper pulled off into the path of an article in said runway, said means being connected to said mechanism to operate only when the mechanism operates and devices coacting with said runway and said mechanism to render said mechanism and means inoperative in the absence of an article in the runway, said mechanism including a frame, a rod carrying the reel of paper and supported by said frame, a pair of shafts rotatably mounted in said frame, feed rollers on said shafts cooperating to pull the paper from the reel continuously, a driven sprocket and a gear on one of said shafts, said sprocket being loosely mounted on the shaft and said gear being fixed thereon, a notched disk fixed on said gear, and a pawl pivoted on said sprocket and adapted to engage the notch in said disk, and said means including a third feed roller driven from said gear, an arm, a feed roller mounted on said arm, and a cam fixed on the shaft carrying said sprocket and connected to said arm for swinging it to intermittently press the roller mounted thereon against the third feed roller to intermittently feed the paper.

4. The combination with an article runway for wrapping machines, of mechanism for pulling paper off a reel continuously, means for intermittently feeding the paper pulled off into the path of an article in said runway, said means being connected to said mechanism to operate only when the mechanism operates and devices coacting with said runway and said mechanism to render said mechanism and means inoperative in the absence of an article in the runway, said mechanism including a frame, a rod carrying the reel of paper and supported by said frame, a pair of shafts rotatably mounted in said frame, feed rollers on said shafts cooperating to pull the paper from the reel continuously, a driven sprocket and a gear on one of said shafts, said sprocket being

loosely mounted on said shaft and said gear being fixed thereon, a notched disk fixed on said gear, and a spring pressed pawl pivoted on said sprocket and adapted to engage the notch in said disk, and said devices including a feeler engaging the packages in said runway, a trip lever adapted to engage said pawl to disengage it from said disk, and connections between said feeler and trip lever to move the latter out of engagement with said pawl when said feeler engages a package.

5. The combination with the article runway of a wrapping machine, of mechanism for continuously pulling off a web of wrapping material from a reel of wrapping material, means for intermittently feeding the leading end of the web into the path of articles in said runway, a device arranged to engage the articles in said runway and operating to render said means and mechanism inoperative when said device fails to engage an article in the runway.

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

THORMOD JENSEN.