April 21, 1925. 1,534,596

F. W. LEV

FEEDING DEVICE FOR WRAPPING MACHINES

Original Filed June 2, 1920 3 Sheets-Sheet 1

Fig. 1.

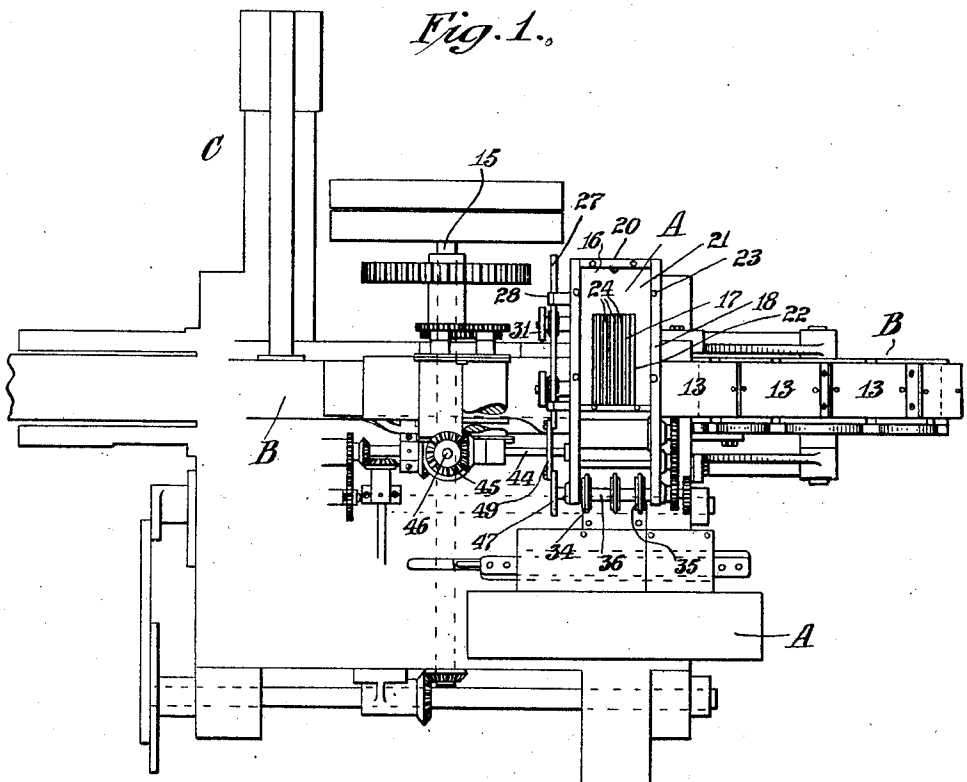
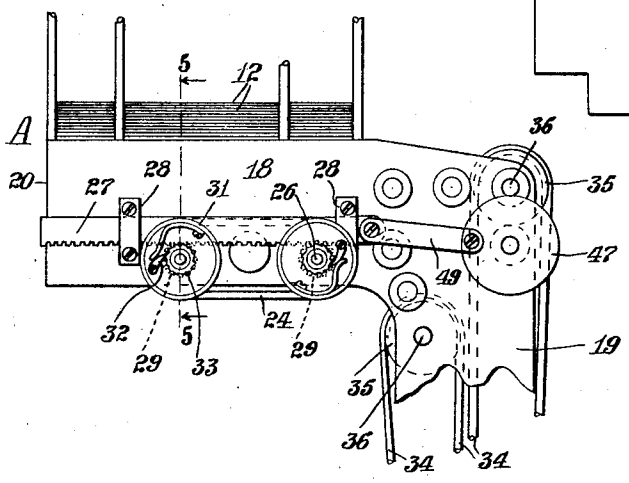


Fig. 4.



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Original Filed June 2, 1920 3 Sheets-Sheet 2

Fig. 2.

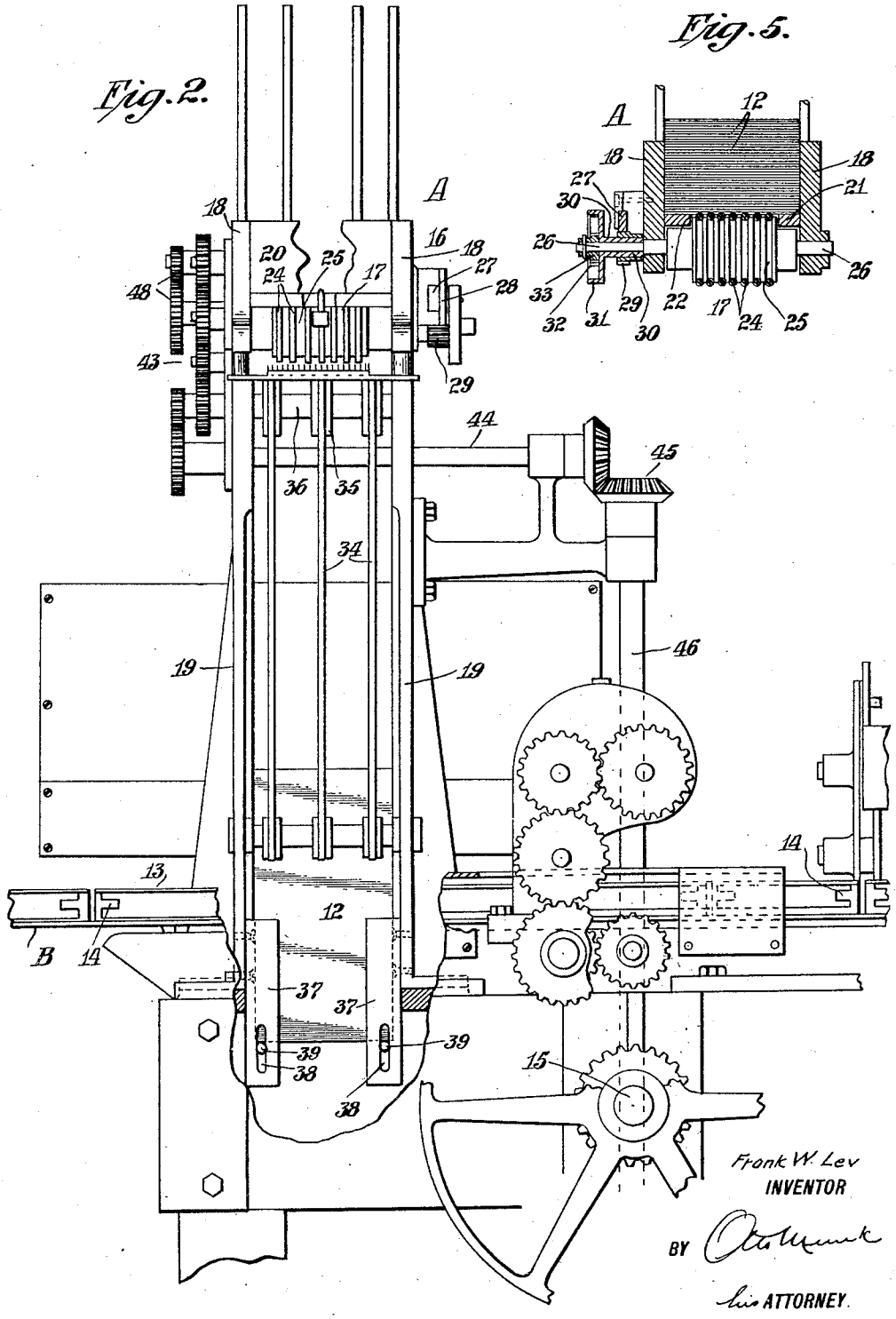


Fig. 5.

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Original Filed June 2, 1920 3 Sheets-Sheet 3

Fig. 3.

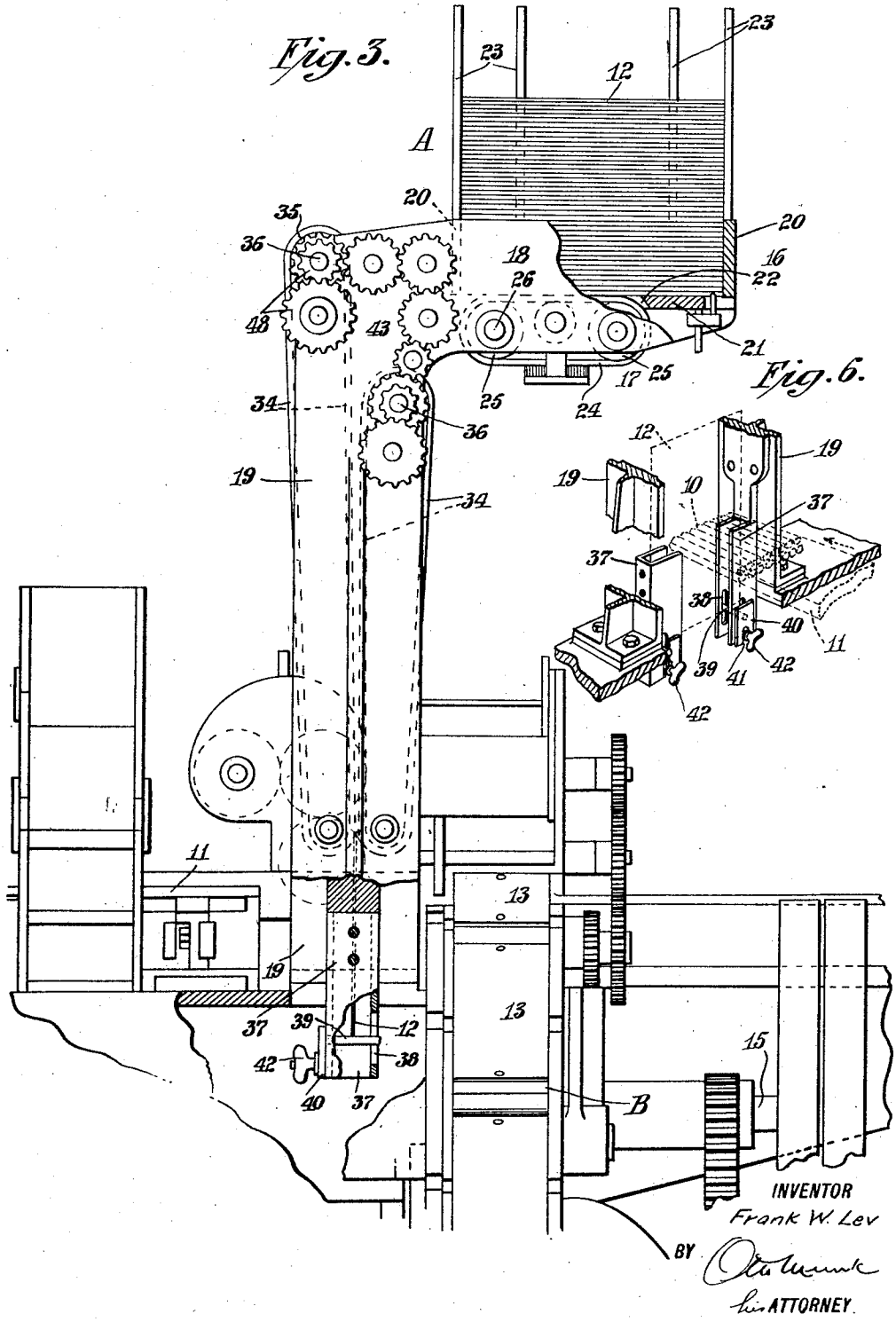


Fig. 6.

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UNITED STATES PATENT OFFICE.

FRANK W. LEV, OF NEW YORK, N. Y., ASSIGNOR TO INTERNATIONAL PACKING MACHINE COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

FEEDING DEVICE FOR WRAPPING MACHINES.

Original application filed June 2, 1920, Serial No. 386,023. Divided and this application filed June 5, 1922. Serial No. 565,974.

To all whom it may concern:

Be it known that I, FRANK W. LEV, a citizen of the United States, residing at New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in a Feeding Device for Wrapping Machines, of which the following is a specification.

This invention relates generally to machinery for wrapping packages of cigarettes and the like, and refers particularly to a feeding device by means of which wrappers or labels may be fed singly and successively from the bottom of a superposed pile and delivered at a station in the machine for subsequent folding about a bundle to be wrapped.

The present application is a division of my co-pending application, Serial No. 386,023, filed June 2, 1920.

The principal objects of the invention are to provide an improved mechanism of this character, which will operate efficiently to automatically withdraw wrappers or labels one at a time from the bottom of a superposed pile; and in which the wrappers or labels are intermittently conveyed and deposited at a certain station in the machine proper.

A further object of the invention is to provide a reciprocating mechanism cooperating with a ratchet and pawl device to intermittently advance a series of feeding-out conveyors in one direction only.

The invention is fully described in the following specification and clearly set forth in the appended claims, and illustratively exemplified in the accompanying drawings, in which Figure 1 is a top plan view of a wrapping machine showing the wrapper magazine and feeding-out conveyors; Figure 2 is an end elevational view of the magazine looking towards the feed mechanism and showing parts broken away to more clearly disclose the adjustable wrapper support at the delivery end of the wrapper feed; Figure 3 is a side elevational view of the magazine and feeding-out conveyor mechanism, parts being broken away to show otherwise hidden mechanism; Figure 4 is a broken side elevational view of the wrapper magazine; Figure 5 is a sectional view of the wrapper magazine and feeding-out conveyor on the lines 5—5 of Figure 4; and Figure 6 is a perspective view of a portion of the magazine supporting members showing the adjustable registering arrangement.

In Figure 1 of the drawing I have illustrated the general assembly of a wrapping machine substantially in accordance with my said prior application, such assembly consisting of a combination of related elements, by means of which articles such as cigarettes or the like are first bundled and thereafter each bundle is wrapped in a single cover or label.

The articles to be wrapped, in this case cigarettes, are contained in a hopper A of any approved form, from which two rows of cigarettes are ejected and subsequently arranged by means of well known mechanism into a bundle 10, as indicated in dotted lines in Figure 6.

The bundle thus formed, while held between guides, not shown, is engaged by a plunger 11 and advanced against a previously positioned wrapper 12. Continued movement of the plunger 11 and bundle 10 causes the wrapper to double over the forward end of the bundle and to carry the doubled wrapper into one of a series of folding boxes 13.

The folding boxes consist of open ended compartments mounted on an endless conveyor carrier B and positioned to receive the packages advanced by the plunger. The compartments are provided with corner folders 14 designed to turn in the overhanging portions of the double wrapper 12, as a preliminary step in completing the closure of the bundle 10.

The carrier or endless conveyor B is intermittently advanced to carry the folding boxes to and past the different folding instruments, by means of which the sides of the wrapper are folded into place. The mechanism for operating the conveyor B is not shown in the drawings, but consists generally of a suitable Geneva gear mechanism operated through a gear train from the main drive shaft 15 of the wrapping machine proper.

As a final step in completing the folding of the wrapper about the bundle, and securing the final folds by means of suitable paste applying apparatus, the doubled wrapper is ejected from the folding box 13 past additional folding instruments and delivered from the machine at C.

Referring particularly to the magazine and feeding mechanism, shown in Figures 2 to 5 inclusive, 16 denotes a magazine from which the wrapper or labels are automatically fed by means of a feeding-out conveyor mechanism 17. The magazine comprises two parallel longitudinal walls 18 having downwardly projecting portions 19 at their delivery ends secured to the bed of the machine proper. The walls 18 are separated from each other the width of a wrapper 12 and at their opposite ends are secured to end walls 20. The rectangular frame thus formed is provided with a bottom plate 21 having a cut-out portion 22 adjacent the delivery end of the walls. Secured at their lower ends to the upper edges of the walls 18 and 20 are a plurality of upstanding guide pins 23, the opposite free ends of which project well above the walls so as to receive and support a pile of wrappers 12, shown particularly in Figures 3 and 5. The cut-out portion 22 of the bottom wall 21 extends well into the interior of the plate and is provided to receive the upper runs of a plurality of feeding-out friction belts 24, the said upper runs being on a plane slightly above the upper face of the plate, so as to engage the lowermost wrapper in the magazine. The belts 24 are supported on pulleys 25 which are carried by shafts 26 mounted in the opposite walls 18 and an intermittent feeding operation is provided by intermittently rotating these shafts in a feeding-out direction, i. e. towards the delivery end of the device.

This intermittent feeding movement is imparted to the shafts 26 from a reciprocating rack 27 slidably mounted in guides 28 on the outer face of one of the side walls 18 of the magazine and engaging with gears 29 carried by sleeves 30 loosely mounted on the shafts 26. The sleeves 30 are further provided with flanged disks 31, supporting spring pressed pawls 32 in engagement with ratchets 33 keyed to the ends of the shafts 26. The pawl and ratchet mechanism just referred to is arranged with respect to the pulleys 25 so as to operate the conveyor shafts 26 only in one direction, i. e. the feeding-out direction or toward the right in Figure 4.

The wrappers as they are separated from the pile by the conveyor belts 24 are advanced by the latter to engage with a plurality of vertically disposed conveyor belts 34 supported at their upper portions by suitable pulleys 35, the latter being provided with bearing pins 36 journaled in the opposite walls 18. These conveyor belts 34 comprise two parallel sections, the outermost of which extends substantially above the horizontal plane at which the wrappers are advanced by the conveyor belts 24, so as to receive the said wrapper 12 and turn its forward end in a downwardly direction. The second section has its uppermost pulleys 35 disposed on a plane below the level of the path over which the advancing wrapper traverses, and as the belts of the two sections travel in opposite directions the wrapper having engaged the outermost belt is first led downwardly and then between the belts of the two sections. The belts of the vertical conveyors 34 may be constantly driven and extend down far enough to drop the wrappers accurately in a pair of guide channels 37 which project towards each other from the opposite faces of the projecting portions 19 of the walls 18, as shown in Figure 6. The lower ends of the guide channels 37 are provided with longitudinal slots 38 adapted to receive stop pins 39, the latter being adjustable therein and mounted in plates 40. The plates 40 are adjustably held closely adjacent the outside faces of the channel pieces 37 and are provided with slots 41 at their lower ends to receive the stems of thumb screws 42 adjustable in and carried by the channel guides 37.

Power is imparted to the feed belts 24 and 34 through a constantly driven train of gears 43 which receive their power from shaft 44 through bevel gearing 45 and an upright shaft 46 connected by gearing with the main drive or power shaft 15. In the drawings I have illustrated this constant drive as being utilized to effect the reciprocating movement of the feeding-out rack 27; the connections for this purpose, as best shown in Figures 3 and 4, comprising a crank disk 47 driven by gears 48 from the upper pulley for the outermost section of the conveyors 34 and connected by a pivoted link 49 with the end of the rack 27. With this construction the rack 27 is continually reciprocated back and forth and through the rack and pawl arrangement previously described, the connection thus made will operate the wrapper-separating and feeding-out devices only on the outward strokes of the rack.

The wrappers, after having descended with the belts 34 are released and fall between the channel guides 37 where they are supported in upright position. They are then registered in front of the pockets of the folding boxes 13 by engagement with the adjustable stop pins 39. The adjustability of these registering devices enables the feeding section of the machine to be adapted to different sizes or styles of wrappers or labels and the independent adjustment of the two stops performs the important function of permitting the wrappers to be tilted if necessary before being doubled about the packages so as to produce any desired effect.

Having fully described the several parts of my invention and set forth their general

operation what I claim and desire to secure by Letters Patent is:

In a mechanism for feeding individual blanks from a pile of blanks in the magazine of a wrapping machine, the combination with parallel shafts disposed transversely of said magazine and adjacent opposite ends thereof, a plurality of closely spaced pulleys fixed to said shafts, separator belts, said belts presenting a plurality of closely spaced independent supporting surfaces for said pulleys at the bottom of the magazine to receive the pile of blanks and to separate the lowermost blank from the pile, a toothed rack slidably mounted longitudinally of said magazine, a pawl and ratchet mechanism for each shaft for permitting rotation in one direction only, a pinion carried by each ratchet mechanism and in constant mesh with the teeth of said rack, and a reciprocating pitman connection pivotally connected at one end to said rack for intermittently advancing the conveyor.

In testimony whereof I affix my signature.

FRANK W. LEV.