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No. 822,988.

PATENTED JUNE 12, 1906.

W. ROSE.

PACKING MACHINE.

APPLICATION FILED JULY 19, 1902.

5 SHEETS—SHEET 1.

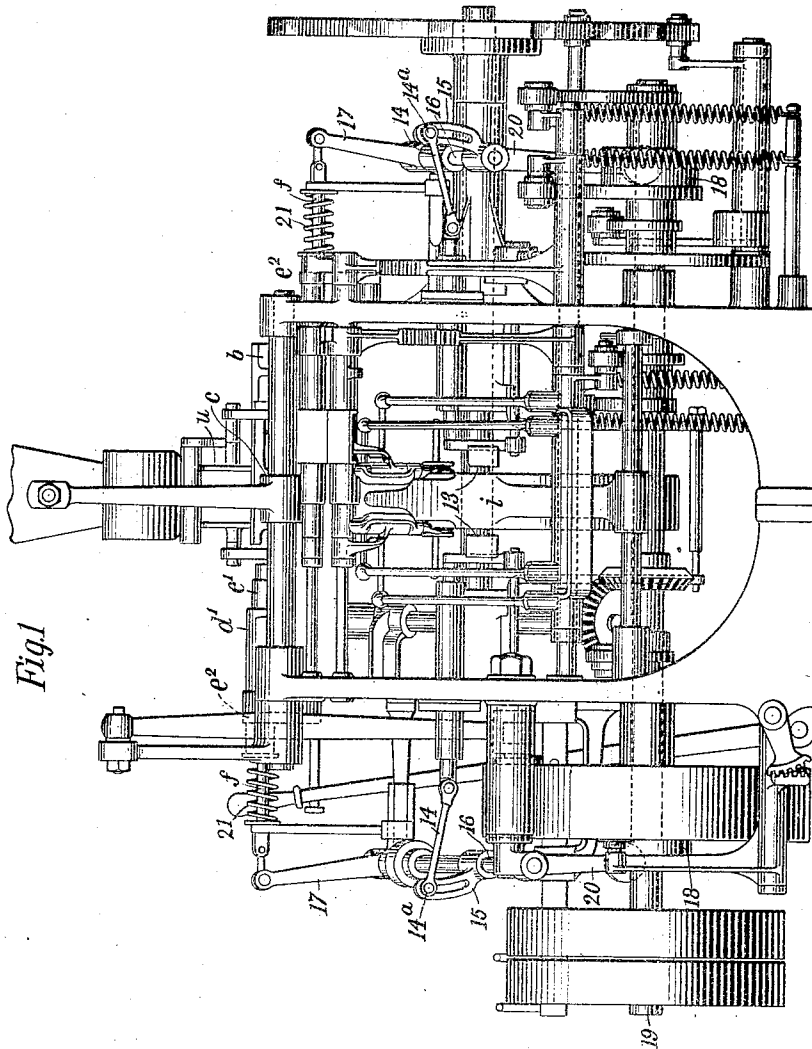


Fig 1

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William Rose Inventor
By
Robert H. Duncan Atty

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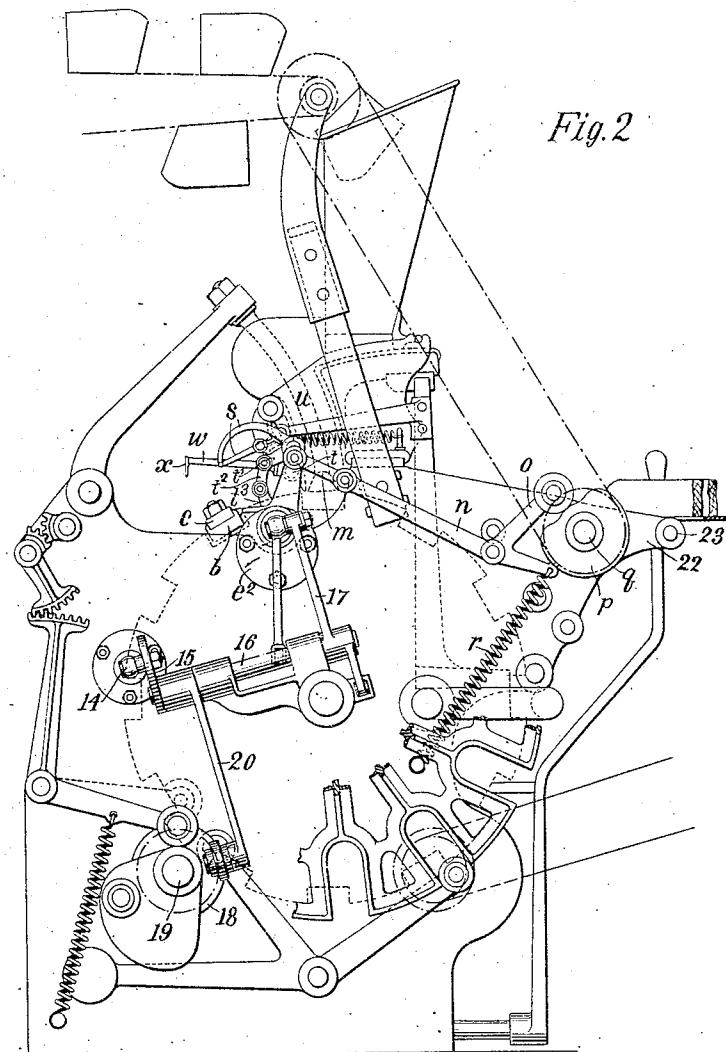
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5 SHEETS—SHEET 2.



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5 SHEETS—SHEET 3.

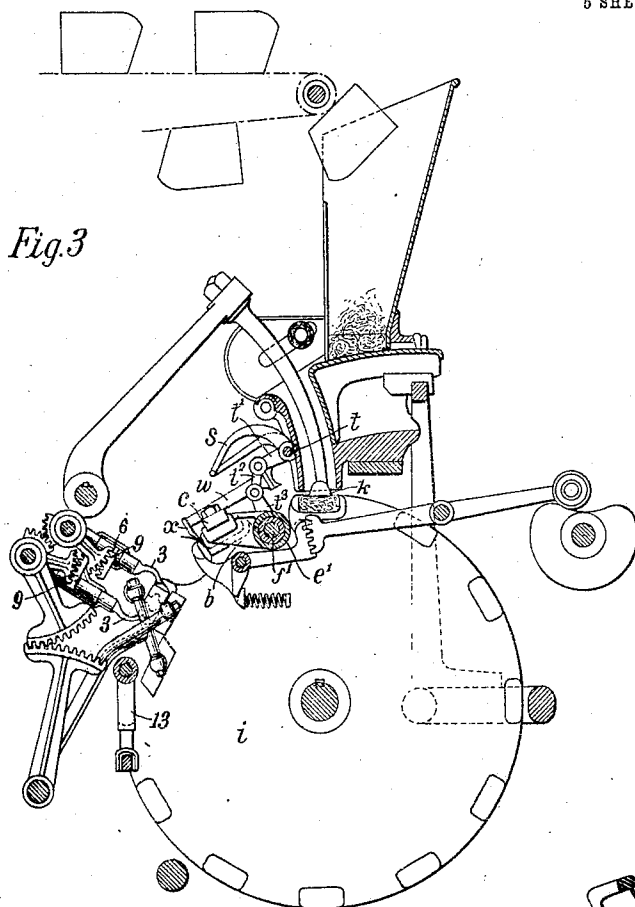


Fig. 3

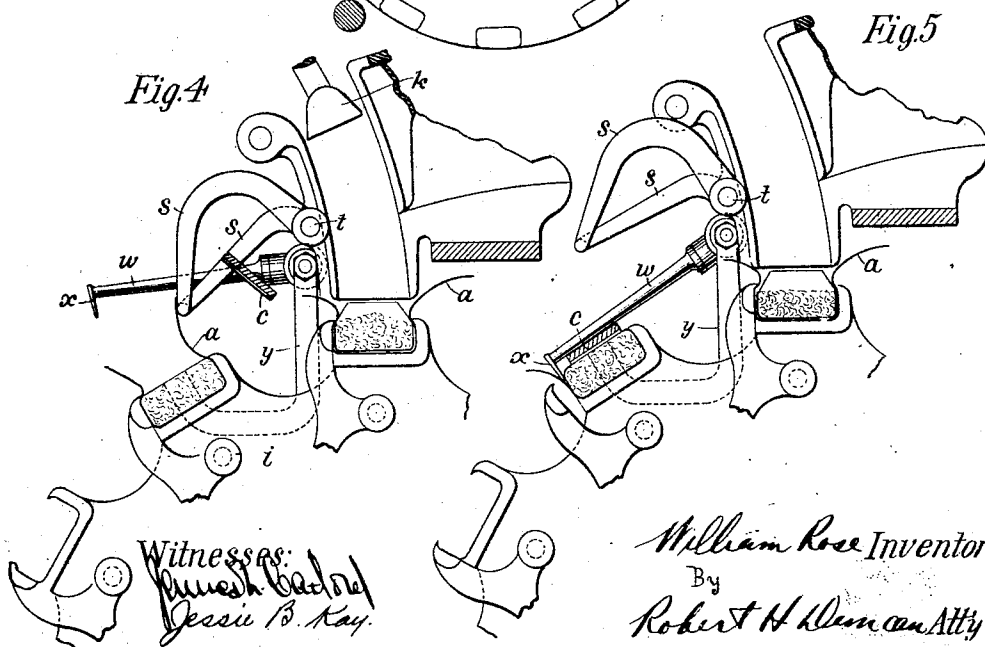


Fig. 4

Fig. 5

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5 SHEETS—SHEET 4.

Fig. 6

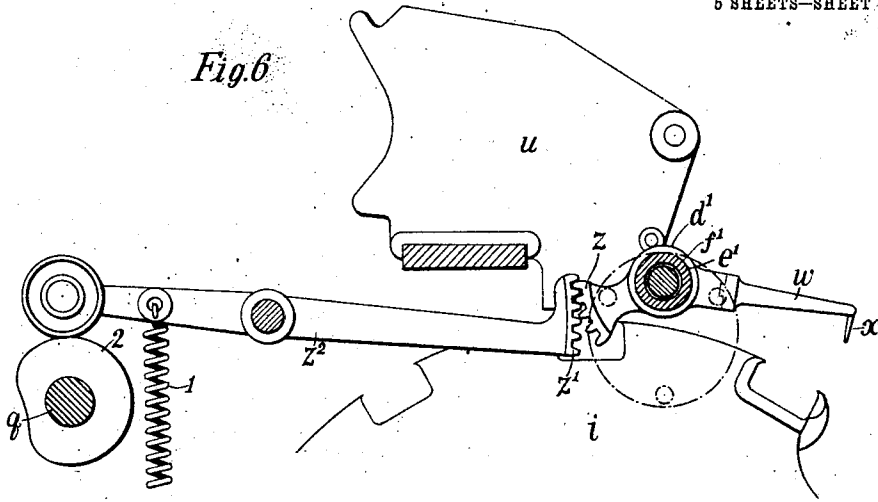


Fig. 7

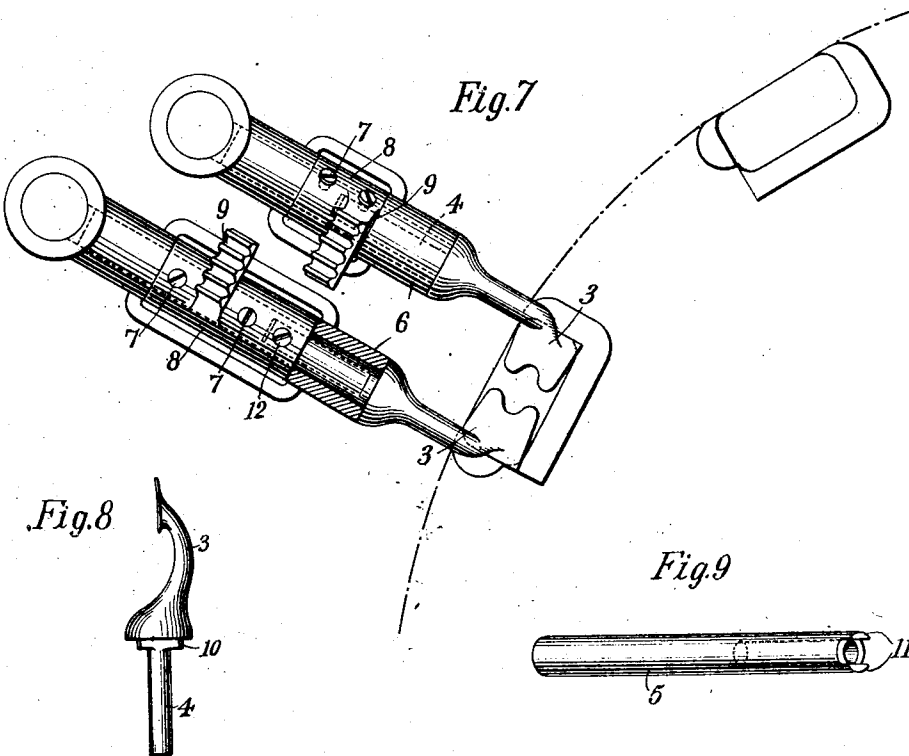


Fig. 8

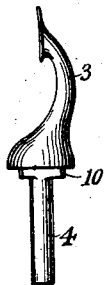


Fig. 9



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APPLICATION FILED JULY 19, 1902.

5 SHEETS—SHEET 5.

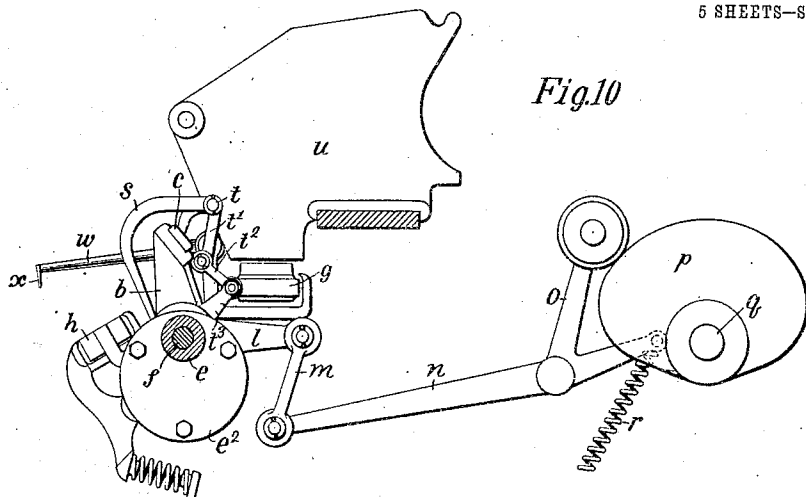


Fig.10

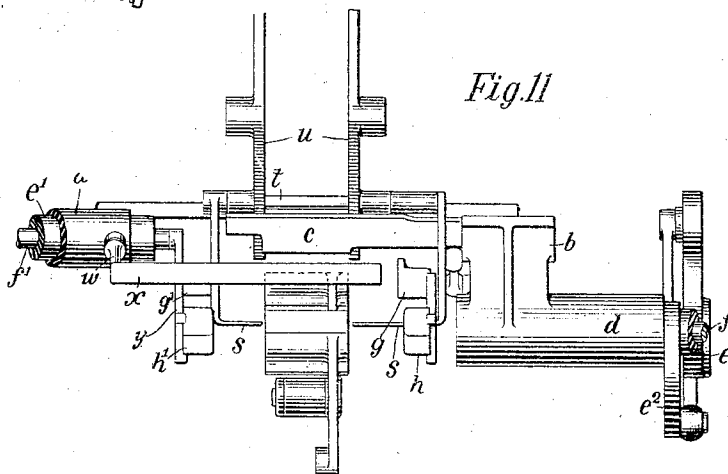


Fig.11

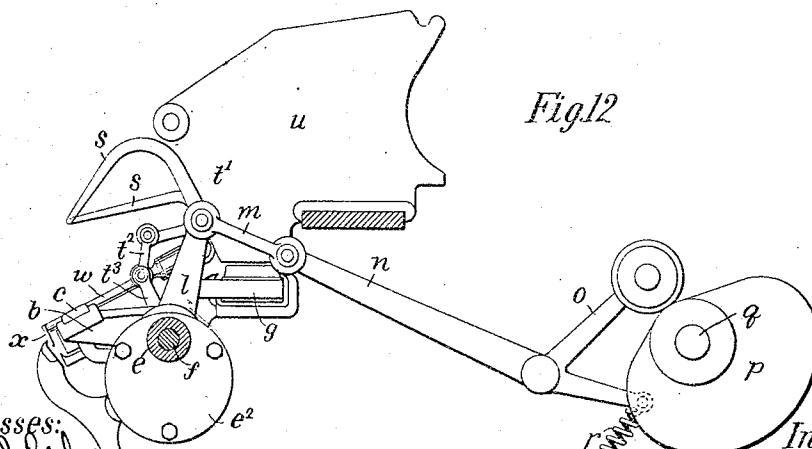


Fig.12

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Invento.
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UNITED STATES PATENT OFFICE.

WILLIAM ROSE, OF GAINSBOROUGH, ENGLAND, ASSIGNOR TO WRIGHT'S
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PACKING-MACHINE.

No. 822,988.

Specification of Letters Patent.

Patented June 12, 1906.

Application filed July 19, 1902. Serial No. 116,171.

To all whom it may concern:

Be it known that I, WILLIAM ROSE, a subject of the King of Great Britain, and a resident of Gainsborough, in the county of Lincoln, England, have invented certain new and useful Improvements in Packing-Machines, of which the following is a specification, reference being had to the accompanying drawings, which form a part of the same.

This invention consists in certain improvements in packing-machines such as are described in my British patent No. 53,643, March 13, 1901, and in my pending application for Letters Patent of the United States, Serial No. 78,492, filed October 12, 1901, and patented on June 7, 1904, as United States Patent No. 762,255.

This invention relates to those parts of these machines by which the first, or longitudinal, folds of the wrapper are effected, and to the devices by which the ends of the packets are indented after the material has been inclosed in the wrappers. In the said machines the inclosing of the material in wrappers is effected in open-ended recesses or molds in the periphery of a mold-wheel which has intermittent rotary motion imparted to it, so that each mold is brought in succession into position to receive first a wrapper and then the material to be inclosed in the said wrapper. The forward and rearward ends of the wrapper project, however, beyond the material and out of the mold ready to be folded down over the top of the material when the mold has been moved to its next position.

I will describe my present invention with reference to the accompanying drawings, of which—

Figure 1 is a side elevation of a machine constructed according to my invention; Fig. 2, a part end view and part transverse section of the same. Fig. 3 is a transverse section of part of the machine. Figs. 4 and 5 show the device for making the longitudinal folds in the wrappers. Fig. 6 shows the mechanism for operating one of the folders for making one of the longitudinal folds in the wrappers. Fig. 7 shows the folders for making the end-folds in the wrappers. Figs. 8 and 9 are detached views of the end folders; and Figs. 10, 11, and 12 show the mechanism for pressing the material before the ends of the wrappers are folded.

The material to be inclosed in wrappers

and the wrappers in which it is inclosed may be fed into position in the manner described in the specification hereinbefore referred to or otherwise. According to my present invention the rearward upstanding end *a*, Figs. 4 and 5, of the wrapper which has been pressed into a mold in the mold-wheel with the material to be inclosed is folded down onto the material by means of a lever *b*, Figs. 1, 3, 10, 11, 12, having a part *c* projecting horizontally therefrom, hereinafter termed the "layer." This lever is secured to or forms a projecting part of a sleeve *d*, mounted on a stationary bushing *e*, projecting from a disk *e*², secured to the main frame of the machine.

In the bushing *e* slides a spindle *f*, which carries two plungers *g* and *h*, which are moved simultaneously inward toward the mold-wheel *i*. One of these two plungers *g* is forced against one end of the material while it is being pressed into the mold by the plunger *k*, the other plunger *h* acting in a similar manner on the material when moved into its next position and while the longitudinal folding of the wrapper is taking place. Similar side plungers *g'* *h'*, Fig. 11, are mounted on or attached to a spindle *f'* on the opposite side of the mold-wheel, and these plungers are operated at the same time as those first named, but in the opposite direction, so as to insure the material being equally acted upon on both sides.

The layer *c* receives an up-and-down motion in an arc to fold the rear end *a* of the wrapper down onto the material. This motion is effected by providing the sleeve *d* with an arm *l*, Figs. 10 and 12, connected by a link *m* to one arm *n* of a bell-crank lever, the other arm *o* of which lever is acted upon (preferably with the intervention of an anti-friction-roller) by a cam *p* on a counter-shaft *q*, a spring *r* keeping the arm in contact with the cam.

To insure that the rearward upstanding end *a* of the wrapper is in such position over the material that the horizontal part *c* of the layer in moving downward will engage it to fold it down, I provide arms *s*, one on each side of the mold-wheel. These arms (hereinafter referred to conjointly as the "lifter") engage one with each side of the wrapper which projects beyond or outside the mold-wheel, so that when the lifter is raised the rear end *a* of the wrapper is bent upward and

forward over the material. The lifter *s* is carried on a spindle *t*, mounted in bearings in the sides of the tobacco-press *u* and connected by links *t'* *t''* to an arm *t'''* on the sleeve *d*, so that as the sleeve is turned, through the cam *p* and bell-crank lever *n* *o*, to cause the layer *c* to descend the lifter *s* will be caused to rise and by engaging the under side of the end *a* of the wrapper raise the said end, as shown in Fig. 4, into position to be engaged by the layer as it descends to properly lay the end *a* onto the material in the mold, as shown in Fig. 5.

Projecting from a sleeve *d'*, turning on a stationary bushing *e'* on the spindle *f'* at the opposite side of the mold-wheel, is an arm *w*, provided at its outer end with a blade *x*, which is hereinafter termed a "beak," by which the portion of the end *a* of the wrapper which when laid onto the material overlaps the material is folded down the side of the material in the mold, as hereinafter described. The spindle *f'* is not in the same axial line, but is situated at a higher level than the spindle *f*, carrying the layer *c*, and the side plungers *g' h'* are consequently attached to a plate *y*, depending from the end of the said spindle *f'*, as shown in Fig. 11, so as to properly engage the molds.

The sleeve *d'*, carrying the beak *x*, is provided with a toothed quadrant *z*, (see Fig. 6,) in gear with a similar toothed quadrant *z'*, forming part of one end of a lever *z''*, the other end of which lever is by means of a spring 1 kept in contact with a cam 2 on the counter-shaft *g*, preferably with the intervention of an antifriction-roller.

The beak *x* extends across the mold-wheel and, as hereinbefore stated, is employed for folding into the molds that part of the wrapper which extends beyond the material to be packed after the layer has folded it down into the material, the molds having one of the sides opened in the manner described in the specification hereinbefore referred to to permit of this being done.

The method of folding the forward up-standing end and also the ends of the wrapper which project beyond the sides of the mold-wheel is similar to that described in my former patent. In order to permit of the folders which fold in the sides of the projecting ends of the wrappers being removed without disarranging the gearing by which they are operated, I provide each folding-blade 3 with a stem 4, as shown in Figs. 7 and 8, which fits in a socket formed axially in a rod 5, mounted in bearings in a frame 6, such as is described in the patent referred to, on which rod is fixed by a screw 7 a collar 8, provided with a toothed segment 9, by which the rod is turned in its bearings. On the stem 4 of the folding-blade is a projection 10 to engage with projections 11 on the end of the rod 5 to insure the block turning with the

said rod, and the stem is prevented from moving longitudinally in the socket by a screw 12, passing through the collar 8 into engagement with the said stem.

After the longitudinal and end folds of the wrapper have been made the mold-wheel is moved round into its next position, where the ends of the packet are indented, (by what I term "punchers,") so as to secure the wrapper without the use of adhesive matter. According to my present invention I attach each puncher 13, Fig. 1, by a link or connecting-rod 14 to a slotted lever 15, (which is preferably curved,) so that by altering the position of the end 14^a of the link or connecting-rod 14 on the slotted lever 15 the punchers can be moved to a greater or less distance, and consequently indent the ends of the packets to a greater or lesser extent, as required, or the end of the connecting-rod or link 14 can be arranged in such position in the slotted lever 15 as to prevent the punchers from indenting the packets when they are not required to be indented.

The slotted levers 15 are mounted on spindles 16, which also carry the levers 17 for operating the plungers *g* and *h* and *g' h'* before referred to. Each spindle 16 is turned in its bearings to force the punchers or plungers inward by a cam 18 on the main shaft 19 of the machine and acting on an arm 20, secured on the spindle or shaft 16. The said plungers *g h g' h'* and also the punchers 13 are moved out of operative position—that is, away from the wheel—by springs 21, surrounding the spindle *ff'* and acting in opposition to the aforesaid cams 18.

On each side frame of the machine is a projecting boss-22, in which is secured a rod or spindle 23, against which the lever-handle for operating the belt-shifter slides, the said rod or spindle being utilized for supporting the forward end of the counter or trough along which the paper for forming the wrappers is fed to the machine.

Many modifications may be made by those familiar with this art without departing from the spirit of this invention. Parts of this device may be employed without using all of the same, and, furthermore, parts of the device may be used in connection with other devices. I do not, therefore, wish to be limited to the disclosure which I have made in this case; but

What I claim as new, and what I desire to secure by Letters Patent, is set forth in the appended claims:

1. In a packing-machine, an intermittently-operated mold-wheel, means to press a wrapper and material into the molds in said wheel, a lifter pivoted in the frame of the machine comprising two inwardly-projecting arms to engage the upstanding end of the wrapper, an oscillating sleeve, a layer on said sleeve to engage the raised edge of said

wrapper and to lay the same upon the material in the mold and a lever on said sleeve linked to said lifter to cause said lifter and said layer to operate together.

5 2. In a packing - machine, an intermittently-operated mold-wheel, means to press a wrapper and material into the molds in said wheel, an oscillating lifter and a rotary layer and connections between said lifter and said
10 layer to operate the same successively to raise the upstanding end of said wrapper and to lay the same upon the material in the mold.

15 3. In a packing - machine, an intermittently-operated mold-wheel, means to press a wrapper and material into the molds in said mold-wheel, a lifter and a layer connected to operate successively to raise the upstanding
20 end of said wrapper and to lay the same upon the material in the mold, means to form the folds in said wrapper comprising two folder-shafts, frames mounted upon said shafts, rods revolubly mounted in said frames, fold-

ers having stems which fit in said rods and means to rotate said folders in said frames. 25

4. In a packing machine, an intermittently-operated mold-wheel, plungers to enter the molds in said wheel from either side of the same, means to press a wrapper and material into said molds, means to form the
30 folds in said wrapper to inclose said material and punchers to enter said molds to indent said folded wrapper and secure the folds of the same.

5. In a packing - machine, an intermittently-operated mold-wheel, means to press a wrapper and material into the molds of said mold-wheel, a lifter and a layer connected to
35 operate successively to raise the upstanding end of said wrapper and lay the same upon the material in said mold and means to fold
40 said wrapper about said material.

WILLIAM ROSE.

Witnesses:

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