Sept. 9, 1952 H. TOTAL 2,609,646

MACHINE FOR MAKING-UP PARCELS AND PACKAGES

Filed May 10, 1949 10 Sheets-Sheet 1

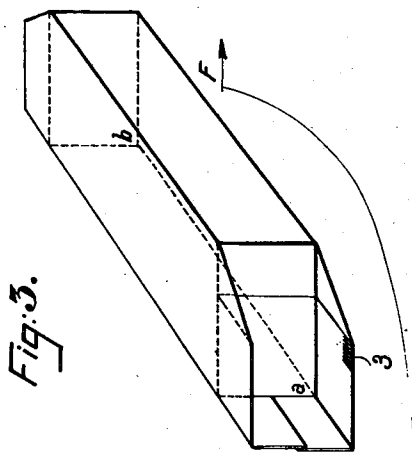


Fig. 3.

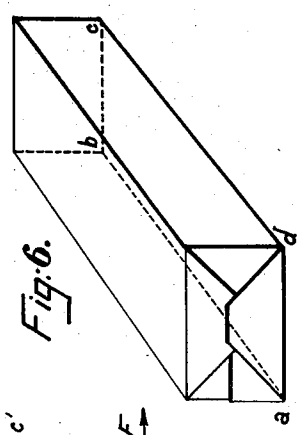


Fig. 6.

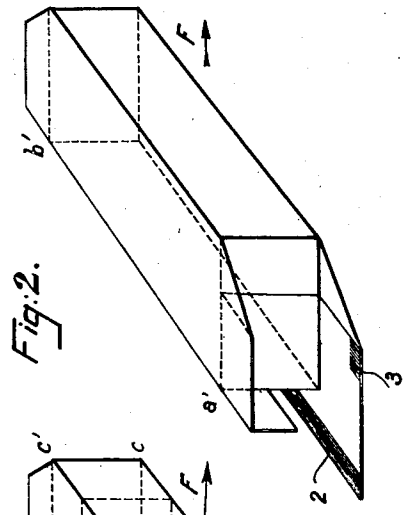


Fig. 2.

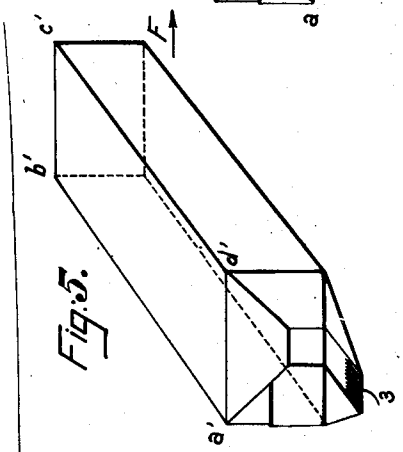


Fig. 5.

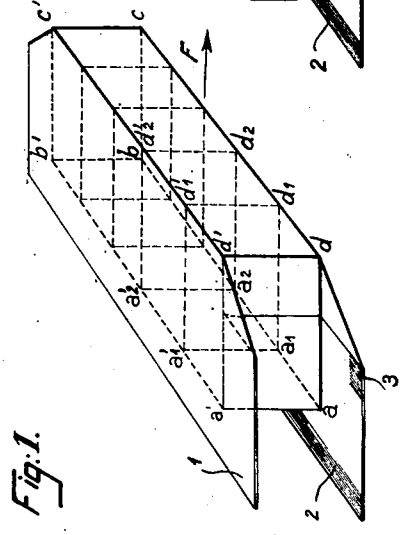


Fig. 1.

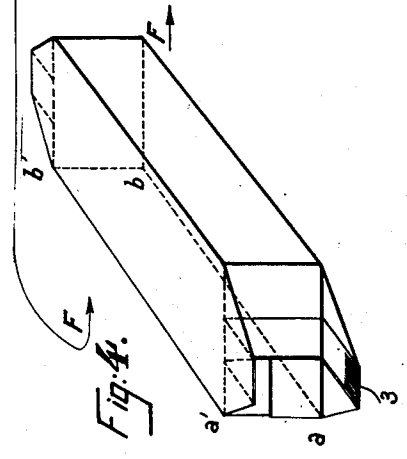


Fig. 4.

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MACHINE FOR MAKING-UP PARCELS AND PACKAGES

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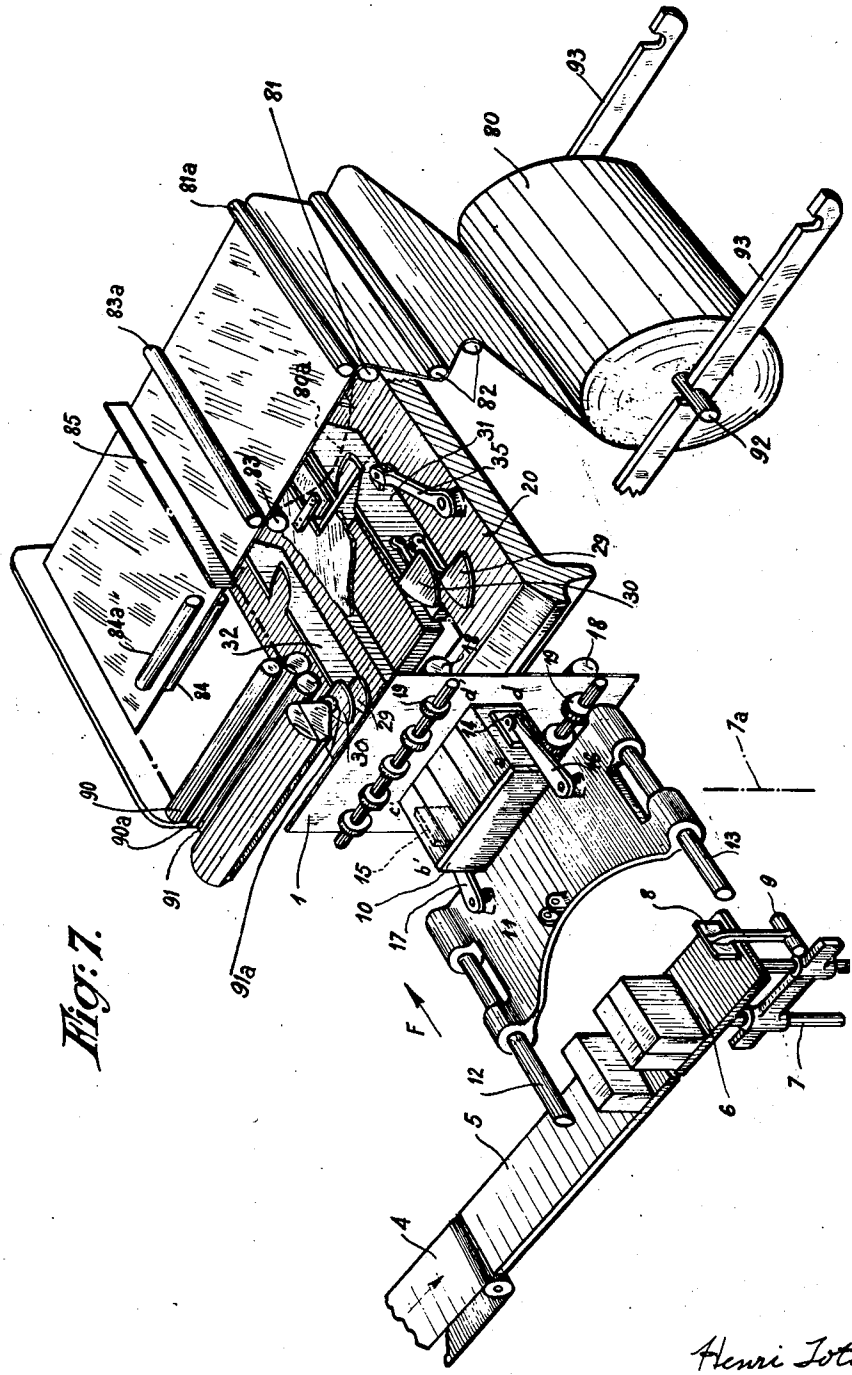


Fig. 7.

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MACHINE FOR MAKING-UP PARCELS AND PACKAGES

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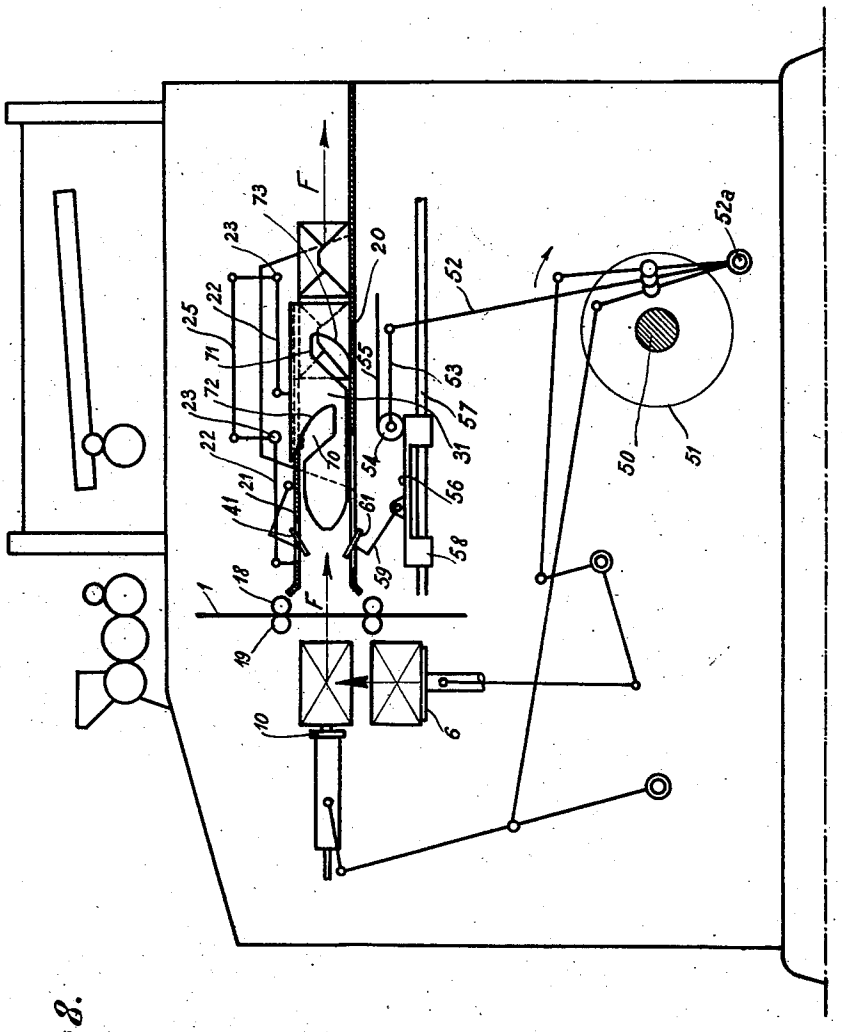


Fig. 8.

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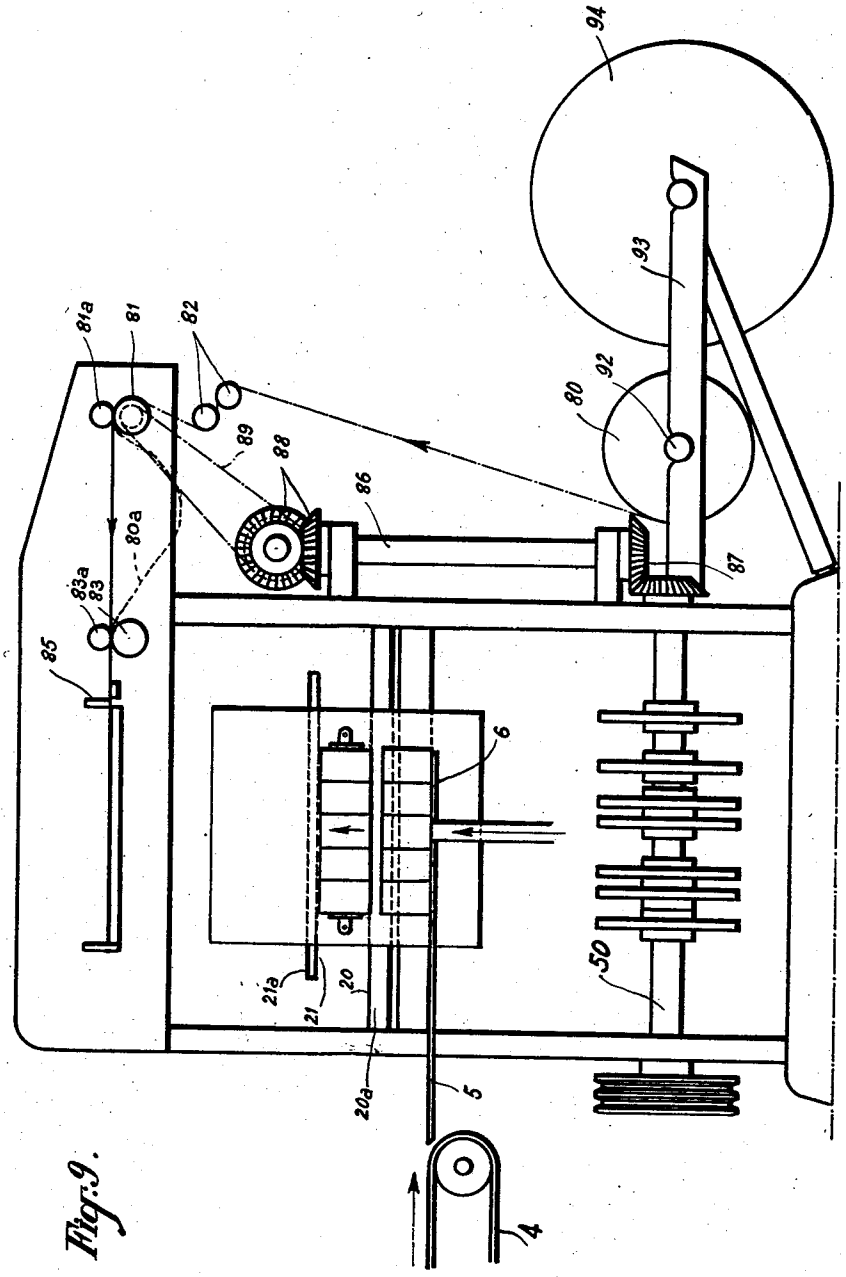


Fig. 9.

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Fig. 10.

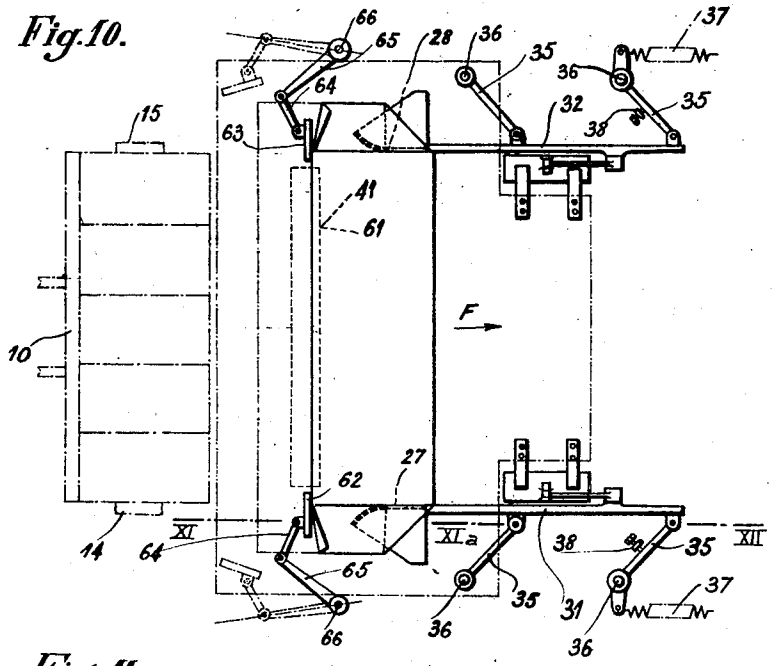


Fig. 11.

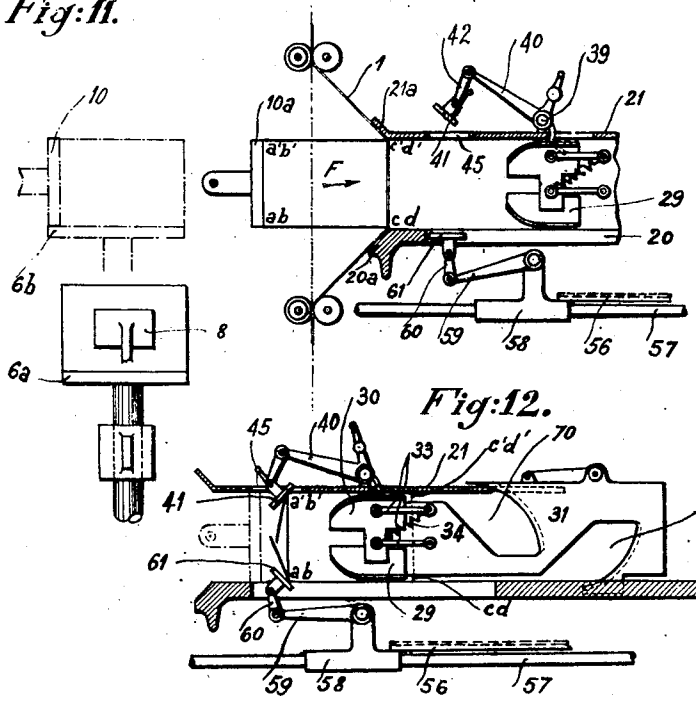


Fig. 12.

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MACHINE FOR MAKING-UP PARCELS AND PACKAGES

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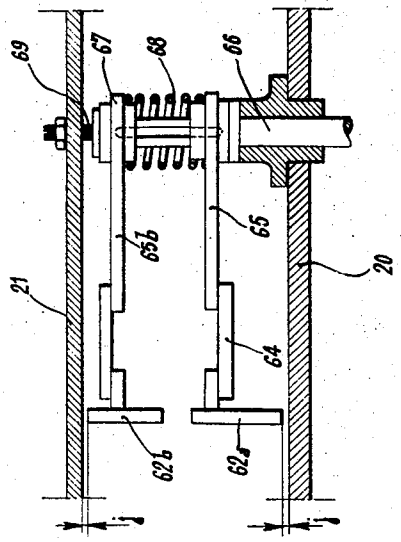
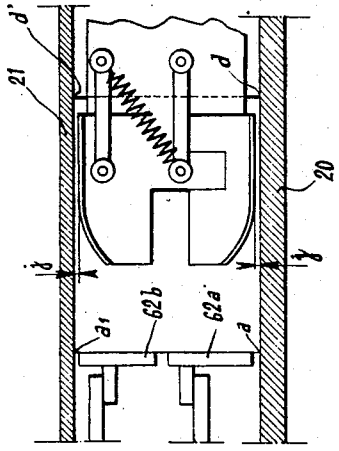


Fig: 16

Fig: 15



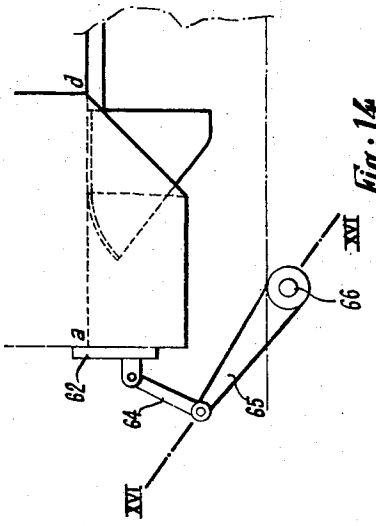


Fig: 14

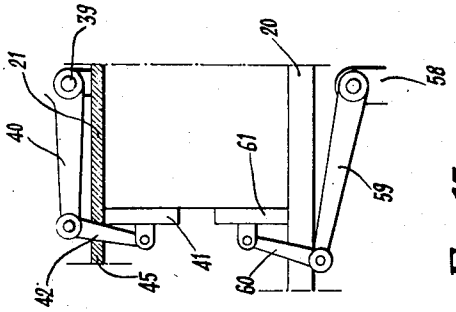


Fig: 13

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MACHINE FOR MAKING-UP PARCELS AND PACKAGES

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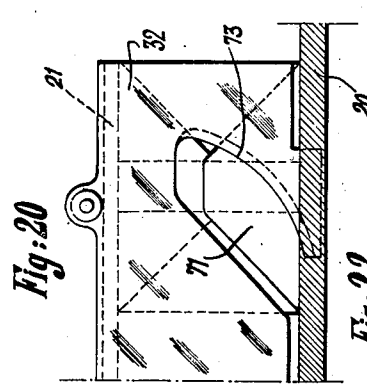


Fig:20

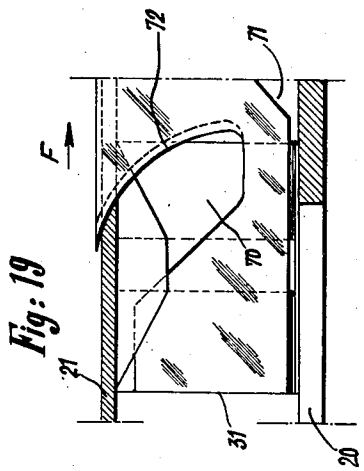


Fig:19

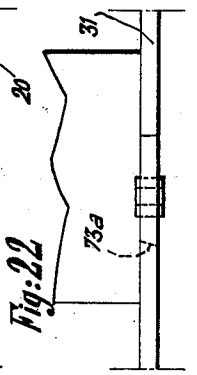


Fig:22

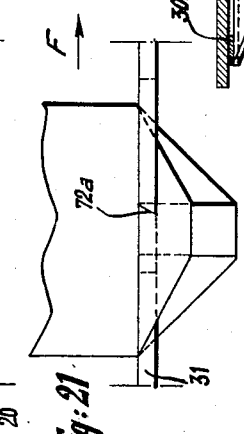


Fig:21

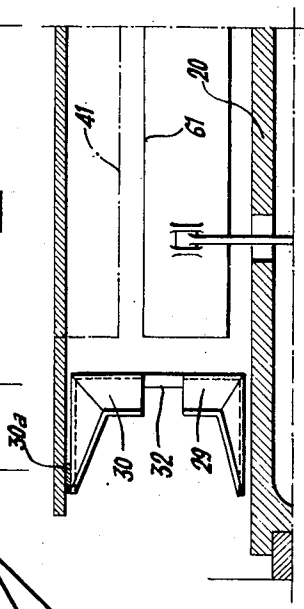


Fig:25

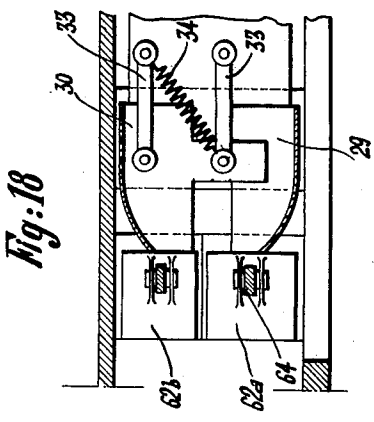


Fig:18

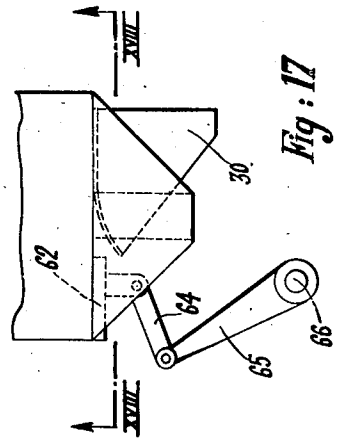


Fig:17

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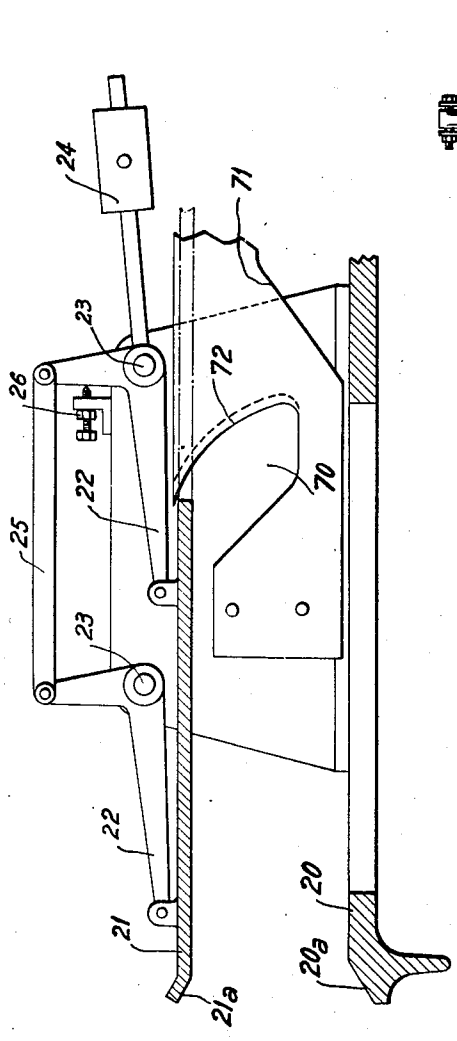


Fig:24.

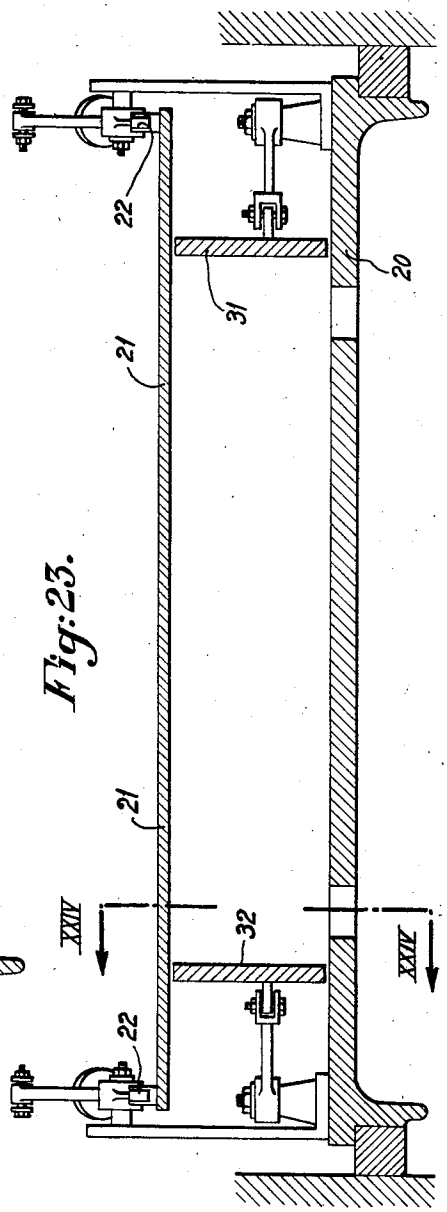


Fig:23.

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MACHINE FOR MAKING-UP PARCELS AND PACKAGES

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Fig. 26

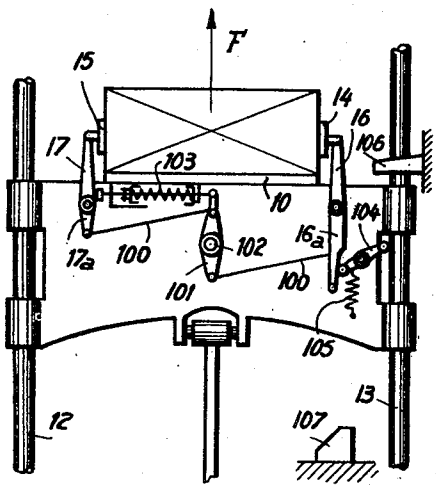


Fig. 27

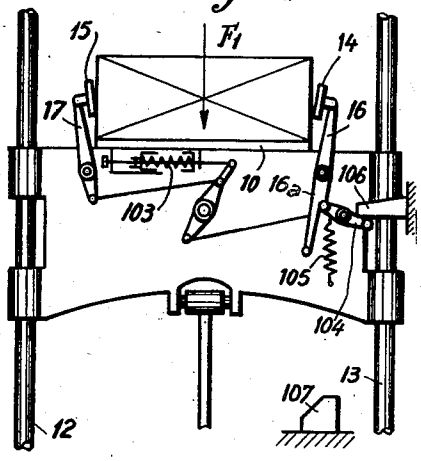


Fig. 28

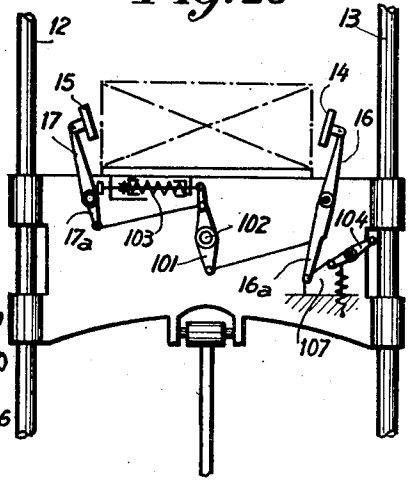


Fig. 33

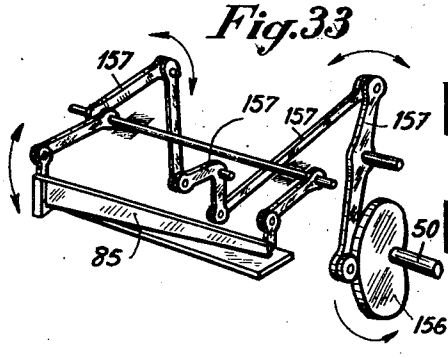
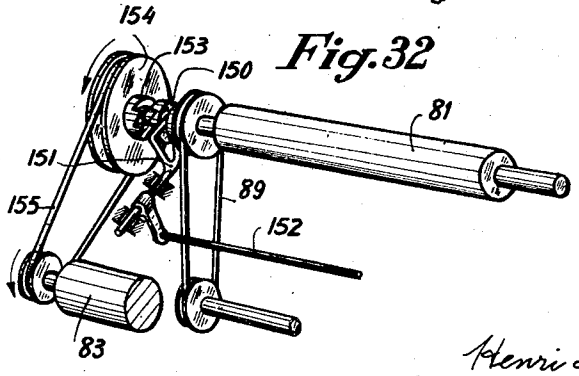


Fig. 32



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Fig. 29

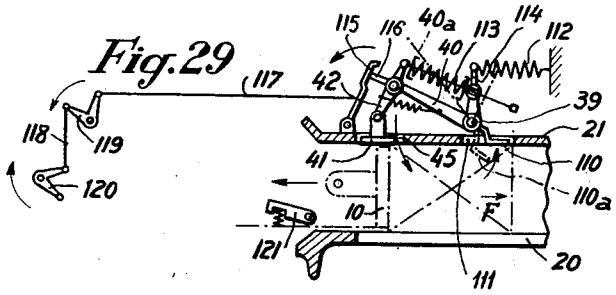


Fig. 30

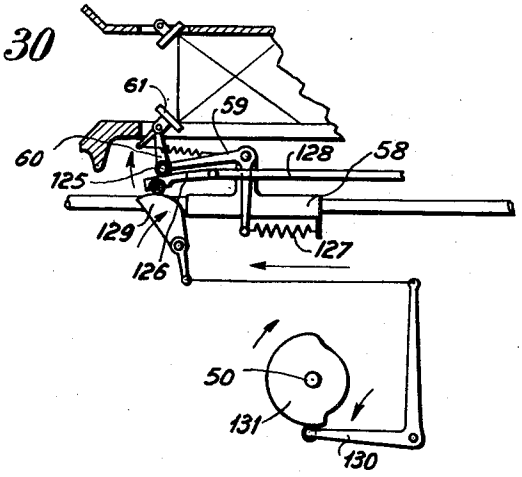
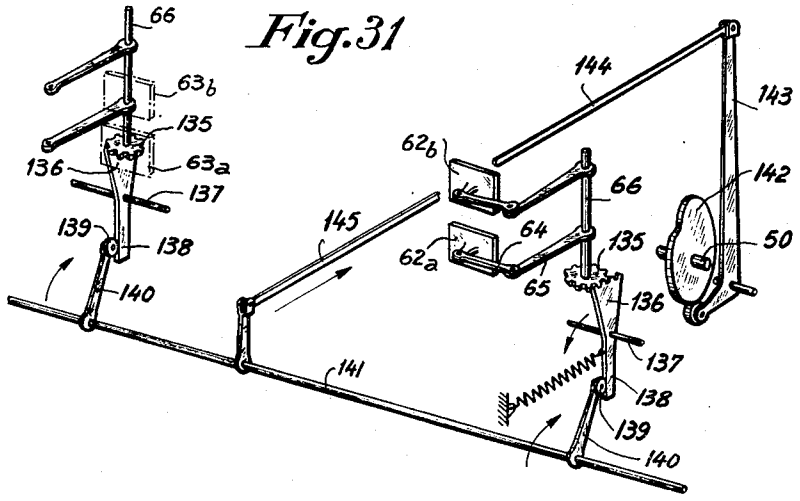


Fig. 31



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Patented Sept. 9, 1952 2,609,646

UNITED STATES PATENT OFFICE

2,609,646

MACHINE FOR MAKING UP PARCELS AND PACKAGES

Henri Total, Paris, France, assignor to Machines Automatiques Bardet (Societe Anonyme), Paris, France, a company of France

Application May 10, 1949, Serial No. 92,479
In France August 10, 1948

5 Claims. (Cl. 53—131)

1

The object of my invention is a machine known as a "bundler," that is to say enabling parcels and packages to be made up with a varying number of parts, such as boxes for instance, that are parallelepipedic in shape as a rule, said parts being arranged against each other in one or several layers, and the collected parts being enclosed in a sheet of paper wound round them and closed by folds that may be stuck.

One of the features of this machine lies in the fact that the parts, collected together according to the number required and constituting when put together a parallelepiped assuming the actual shape desired for the package, are moved with a horizontal motion towards a sheet of paper arranged vertically and suitably stretched; this paper sheet is thus folded into U-shape round the front surface of the package and is engaged at the same time as the latter during its subsequent motion inside a die or mould inside which are formed the final folds of the paper while the package continues its progression in said die.

This die is provided with two horizontal tables between which the package travels; one at least of these tables may yield in a vertical direction to make up for any lack of uniformity in the height of the packages. This mould is provided besides with two edge plates, of which one at least may yield horizontally to make up in the same way for any unevennesses in length of the packages.

The front folds of the paper strip are shaped through the action of the two tables of the die against the progress of the package and the rear folds are shaped by hinged shoes or blocks bearing on the rear surface of the package. Some of these blocks are used at the same time to ensure the continuation of the travel of the package in the mould when the first pusher member has played its part in admitting the package.

Finally the edge plates are provided with oblique sloping surfaces in which are engaged and are guided the side folds of the paper for the folding over of these folds against the end surfaces of the package.

The following disclosure referring to the accompanying drawings given as a non-restrictive example will allow a clearer understanding to be formed as to how the invention may be carried out, while the particular features that make their appearance both in the drawings and the descriptive matter, naturally, form part of the invention. In said drawings:

Figures 1 to 6 are perspective views picturing the sequence of folds shaped one after the other on the sheet of paper for wrapping up the package.

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Figure 7 is a perspective view of the main component parts of the machine.

Figures 8 and 9 are side elevational and end views of the machine; they illustrate in quite a diagrammatic way certain details of the control of the propelling parts of the package and the parts for shaping the folds.

Figure 10 is a plan view of the station for making up the package and of the mould or die.

Figure 11 is a sectional view of the front portion of the mould along the line XI—XIa of Figure 10 and shows the parts at the moment of insertion of the package.

Figure 12 is a fuller vertical section, along line XI—XII of Figure 10 and shows the package engaged in the mould or die.

Figure 13 is a part view illustrating on a larger scale the blocks for shaping the rear folds that may be seen on the left of Figure 12.

Figure 14 is a part view illustrating in the same way on a larger scale the shaping blocks for the rear side folds that may be seen on the left hand side of Figure 10, these blocks being shown in the position corresponding to the beginning of their action.

Figure 15 is a corresponding elevational view.

Figure 16 is a section along the line XVI—XVI of Fig. 14, with the blocks and their levers assumed aligned.

Figure 17 is a view similar to Figure 14 showing one of the blocks after the shaping of the fold.

Figure 18 is a corresponding vertical section along the line XVIII—XVIII of Figure 17.

Figures 19 and 20 illustrate a side elevation of the sloping surfaces of the edges used for the folding back of the tongues, or side folds.

Figures 21 and 22 are corresponding plan views.

Figure 23 is a sectional view of the die through a plane at right angles to the direction of progress of the load.

Figure 24 is a section of Figure 23 along the line XXIV—XXIV.

Figure 25 is a part endwise view of the die.

Figures 26 to 28 show, in various positions, the control of the plates clamping the package at the time of its insertion into the die.

Figures 29, 30 and 31 are detailed views showing respectively the control of the upper block of the die, that of the lower block and that of the side blocks.

Figure 32 illustrates the arrangement ensuring the intermittent feed of certain of the machine parts.

Figure 33 shows the control of the movable blade of the guillotine or trimmer cutting out the paper strip.

Figure 1, shows at a, b, c, d, a', b', c', d', the outline of the package or load to be wrapped up and this package is made up, in the example illustrated, of five parallelepiped-shaped component parts of which the first is at $aa_1dd_1a'a'_1d'd'_1$, the second at $a_1a_2d_1d_2a'_1a'_2d'_1d'_2$, etc.

In the machine, the package assumes a horizontal movement in the direction of the arrow F so as to enter in succession the positions illustrated in Figures 1 to 6. In Figure 1, the front fold of the paper strip 1 has been shaped along the edges $cdc'd'$ and the side front folds along the edges dd' and cc'.

In Figure 2, the rear upper fold has been made along the edge $a'b'$.

In Figure 3, the second rear fold likewise has been shaped along the edge ab, this second fold being stuck to the first by means of paste spread beforehand on the portion 2 illustrated by hatchings. In Figure 4, the rear side folds have been shaped along the edges aa', bb'. In Figure 5, the upper end tongues have been folded over round the edges $a'd'$, $b'c'$. Lastly, in Figure 6 the lower end tongues have been folded in their turn along the edges ad, bc and pasted to the previous tongues by means of paste spread beforehand on the portion 3 illustrated also by hatchings.

The machine is supplied in a continuous way by any means such as an endless belt of which the end may be seen at 4 in Figure 7, that brings singly the component parts or boxes that have to form the successive packages on to a table 5 at the end of which is placed an elevator tray 6 equal in length to that of the longitudinal edges ab, $a'b'$ of the package; as a matter of fact the tray 6 lies to the right of its position as shown in Figure 7 so that the supporting rod 7 actually assumes the position 7a shown in dot and dash lines. An attendant or intermittent mechanism, not shown, such as for instance a turning arm, shifts on to the elevator tray 6 the boxes placed on the table 5. At the end of the elevator tray 6 is a pedal 8 pivoting round the spindle 9 and constituting a detector. When the tray 6 is full, the end box or component part bears on the pedal 8 and the latter through automatic gearing or an electric time-switch for instance, causes the starting up of the machine for the cycle of making-up for the package of which the component parts now fill the tray 6. This tray is then raised and moves from the position 6a shown in Figure 11 to the position 6b in front of the die.

In this upper position, the tray 6b is in front of a pusher plate 10 carried by a frame 11 that may slide on two fixed guides 12, 13, the actual frame besides being furnished with two clamping plates 14, 15 that are carried by hinged levers 16, 17 and may be clamped against the end surfaces of the package to prevent the latter from falling. When the plates 14, 15 thus clamp the package, the elevator 6 drops again to take up its original position 6a in alignment with the table 5, the package being held through pressure between the clamping plates 14, 15 of the pusher. The latter then begins its travel in the direction of the arrow F and finds at once in front of it the paper sheet 1. The latter is held vertically on each side of the package between smooth rollers 18 that are suitably controlled and that have ensured the positioning of the paper, and rubber-coated rollers 19 that are idle presser rollers.

At this stage of the circuit, the rollers 18 are stopped and unable to turn; they set up consequently a certain resistance to the sliding of the sheet and ensure as a result its tension when the package moved forward by the push-rod is fed to it and urges it forwardly.

The rubber-coated rollers 19 are then driven into rotation by the movement of the sheet. The pusher carries on its movement in the direction F; the sheet is first of all bent as may be seen in Figure 11, on which the pusher member has come from 10 to 16a. The front folds round the longitudinal edges cd, $c'd'$ are started through this movement. The package and the paper sheet then enter the die or mould, whereby the folds cd and $c'd'$ are ended off.

The control of the clamping plates 14 and 15 is carried out so as to ensure their spacing apart and then their bringing together in order to take and clamp the package and to hold it during its transportation while their drawing apart releases the package when the latter has been introduced into the mould.

For this purpose, the levers 16 and 17 carrying the plates 14 and 15 respectively extend at 16a and 17a beyond their pivoting point (Fig. 26) and these extensions are connected together by rods 100 to a rocking-lever 101 pivoting at 102 and subjected to the action of a return spring 103. This spring tends to place this rocking-lever in the position shown in Figure 26, for which the plates 14 and 15 are brought closer to each other, which ensures that the package is kept confined between them.

On the frame 11, carrying the pusher 10, is set to pivot a lever 104 subjected to the action of a spring 105.

At the time of the forward movement of the frame 11 in the direction of the arrow F and towards the end of travel of this frame, that is to say when the package is inserted in the die or mould, the lever 104 comes up against a fixed stop 106. The lever 104 then pivots against the action of the spring 105 (Fig. 27) and acts on the extension 16a of the lever 16 thus causing the angular movement of this lever and consequently of the lever 17. The plates 14 and 15 are thus drawn apart from each other and the package is released. The frame 11 then starts its withdrawing movement as illustrated by arrow F_1 (Figure 27) so as to pick up another package; the lever 104 is then no longer in contact with the stop 106, but the plates 14 and 15 however are kept apart from each other, since the lever 104 remains propped obliquely against the tail end 16a of the lever 16.

When the frame 11 reaches the end of its rear travel, that is to say when a fresh package has been engaged by the tray 6 between the plates 14 and 15, the tail end 16a strikes against a fixed stop 107 (Fig. 27) finished off by a sloping surface, that causes the pivoting of the lever 16. The plates 14 and 15 draw thus apart a little more from each other in order to take the fresh package. The lever 104 thus bears no longer against the extension 16a and under the action of its return spring, returns to its inoperative position. The plates 14 and 15 are finally drawn near each other by the spring 103 in order to clamp the fresh package as soon as the frame 11 starts up again its forward movement in the direction F.

The mould is provided with a lower horizontal table 20 and an upper horizontal table 21 the height of which above the first one is substan-

tially equal to the height of the package, the table 21 being however capable of yielding vertically so as to make up for any lack of uniformity in the height of the packages. The setting of this upper table 21 is illustrated in Figures 23 and 24. It is hinged to the ends of four bent levers, arranged symmetrically in pairs, pivoting round fixed axes 23 and connected together at their free ends by rods 25. The latter constitute with the table 21 parallel motions so that the actual table always keeps parallel to its original position. A counterweight 24 may be added to lessen the action of the weight of the table 21. Lastly, the inoperative position of the table corresponding to the package least in height is defined by a screw stop 26. On their front edge the tables 20, 21 show sloping flaring planes 20*a*, 21*a* which planes produce a widening out entrance simplifying the insertion of the package into the mould.

Since the package is pushed forward at the same time as the paper sheet 1, the folds are shaped round the edges *cd* and *c'd'*. In addition, when the package has performed a portion of its travel between the tables 20, 21, it reaches two shoes or blocks 27, 28 arranged vertically on each side of the package and that fold back the paper round the edges *cc'*, *dd'* (Figure 10) so that the making up stage illustrated in Figure 1 is reached. Each of these shoes 27, 28 is made up of two portions, one 29 at a fixed level, the other 30 capable of a vertical shifting. Each of the portions 29 is fastened to the end of one of the two edge plates 31, 32 of the mould. The other portion 30 is hinged on the corresponding edge plate 31, 32 by means of two small rods 33 constituting a parallel motion. A spring 34 tends to move the portion 30 upwards to press it against the upper table 21. A stop 30*a* restricts the possible shifting of the portion 30 so that there remains between this portion and the table 21 an amount of play of a size similar to that provided between the shoe portion 29 and the lower table 20; this play allows the free passage of the horizontal tongues provided by the paper strip at the end of the package (Figure 1). The portions 29, 30 of each shoe are bent both horizontally and vertically to simplify the insertion of the paper and its folding along the edges *cc'*, *dd'*. The edge plates 31, 32 may yield horizontally, in accordance with the differences in length of the packages. Each of them is set for this purpose on two small rods 35 pivoting round vertical axes 36 carried by the lower table (Figure 10). These small rods 35 constituting parallel motions ensure the parallelism between the plates 31 and 32 and the direction of forward feed of the package. Springs 37 tend to keep between these edge plates a space equal to the minimum length of a package, the inoperative position being defined by screw stops 38. So far the manner, in which the folding stage of Figure 1 has been arrived at, has been disclosed.

The parts that ensure the fashioning of the subsequent folds will now receive attention.

To the upper table 21 are hinged around axes 39 two bent levers 40 arranged symmetrically and carrying a shoe 41 by means of a small rod 42 (Figure 11). When the package arrives at the position shown in Figure 12, the shoe 41 passes through a transverse slot 45 of the upper table 21 and comes to bear on the rear surface of the package while shaping the upper rear fold around the edge *a'b'* (Figure 2).

The working of the shoe 41 will now be given with reference to Figure 29.

One of the levers 40 mentioned above, is finished off at the end opposed to the shoe 41 by an extension ending with a blade 110. Through engagement with the port 111 of the upper table 21, this blade may form a projection inside the mould, as shown in dot and dash lines at 110*a*. In this position, the lever 40 is brought into position 40*a* under the action of the return spring 112.

When the package is moved in the mould between the tables 20 and 21, it produces during its forward travel, a thrust on the blade 110 that thus moves from the position shown in broken lines to that shown in solid lines. This angular movement of the blade involves the pivoting of the lever 40. The shoe 41 is therefore applied on the package and this is brought about by means of the spring 113 inserted between the arm 114 rigid with the lever 40 and the tail end of the lever 42.

As soon as the rear upper edge of the package has come sufficiently to the front of the shoe 41, the latter pivots around its hinge axis at the end of the lever 42 and while retaining its pressure on the package enters the vertical position shown in Figure 13, the result of which is a perfect folding of the paper sheet.

As soon as the package, as a consequence of its forward movement in the direction of the arrow F, has released the blade 110, the latter will return, under the action of the return spring 112, into the position shown at 110*a* in Figure 29.

The assembly thus disclosed may be finished off by a locking mechanism intended to keep the shoe 41 substantially in the position shown in Figure 29, during the withdrawal of the pusher 10, and to release it when the latter has come to the end of its rear travel.

For this purpose, the assembly disclosed above is finished off by a lever 115 showing a recess in which is engaged the end 116 of the lever 40. This lever 115 is connected by a linkage 117, 118 including the bell-crank 119 with a lever 120 that may be moved angularly through the action of a stop 121 rigid with the pusher 10.

When this stop meets the lever 120 towards the end of the return travel of the pusher 10, the lever 115 is drawn back and frees the lever 40 that is then brought back into the position 40*a* shown in dot and dash lines in Figure 29.

When, at the beginning of the operations, the pedal 8 has been actuated by the parts arranged on the elevator tray 6 and has begun the operative cycle of the machine, a gearing has started rotating the main shaft 50 carrying a number of cams, as may be seen in Figures 8 and 9. One of the latter, the cam 51, causes the pivoting of a lever 52 around a fixed hinge connection 52*a*. This lever 52 draws, through a hinged lever 53, a pinion 54 running on a fixed rack 55. The pinion 54 engages with a rack 56 fastened on a carriage 58 moving on two parallel guides 57. Since the rack 55 is stationary as has been stated, the translational movement of the carriage therefore is double that of the pinion 54. To the carriage 58 are hinged the rods 59 (see also Figures 11 and 12) connected by a small rod 60 to a shoe 61 extending, as in the case of the shoe 41, over the greater portion of the width of the mould (Figures 10 and 25).

When the package is stationary in the position shown in Figure 12, that is to say just before the sliding of the carriage 58, the shoe 61 is moved angularly around its hinge axis on the small rod 60, and moves thus from the position illustrated

in Figure 11 to that shown in Figure 12. This rotary movement of the shoe starts the lower fold around the edge *ab*. Lastly, the shoe 61 is completely raised and is thus brought to press against the rear surface of the package while perfecting the lower rear fold and the pasting of this fold by the paste spread on at 21, which corresponds to the folding stage illustrated in Figure 3.

In Figures 11 and 12, the various control parts for the shoe 61 have been shown diagrammatically.

Referring to Figure 30, it will be seen that each of the rods 59 mentioned above is provided with a roller 125 kept pressed against a sloping surface 126, through the action of a spring 127.

The sloping surface 126 is hinged at the end of a fixed roller-track 128 and is supported by a cam 129 connected by a suitable linkage to a lever 130. This lever 130 is controlled by a cam 131 keyed on the main shaft 59 of the machine.

The angular movement of the cam 129 causes the lifting of the sloping surface 126 and consequently the vertical movement of the shoe 61 that impinges against the package and passes from the position shown in Figure 11 to that shown in Figures 12 and 30 to complete the lower rear fold as has been explained.

When the carriage 58 begins to move, the roller 125 by rolling on the sloping surface 126 then on the roller-track 128 keeps the shoe in its raised position, which enables the latter to ensure the drawing of the package during the remainder of the travel of the package through the mould.

The shoes 62 and 63, that, up to now, were in their inoperative position shown in dotted lines in Figure 10, then come into action.

These shoes 62 and 63 are each carried by a rod 64 pivoting on a rod 65 fixed rigidly with a driving spindle 66. The spindles 66 are driven in rotation and consequently the shoes 62 and 63 are pressed against the rear surface of the package. The point at which the shoes are pressed on the package is offset in relation to their hinging on the small rods 64, so that these shoes, when they are pressed on the package, pivot round the edges *aa'*, *bb'* of the latter by moving from the position shown in Figures 10 and 14 to that denoted by Figures 17 and 18. In this pivoting movement, the shoes 62 and 63 fold back the paper sheet round the edges *aa'* and *bb'* thus forming the rear side folds (Figure 4).

In actual fact, each of the shoes 62 and 63 is double and is formed by two superimposed parts such as 62*a* and 62*b* (Figures 15, 16 and 31).

The lower part of each of the shoes (part 62*a* for shoe 62) is set so as to leave between it and the lower table 20 a slight play *j* allowing the passing of the lower end tongue that the paper shows at the folding stage of Figure 4.

The upper part 62*b* is set on the spindle 66 so that it may accompany the upper table 21 in its possible vertical movements while preserving between the upper edge of the part 62*b* and the table the play *j* necessary for allowing the passage of the upper end tongue piece.

For this purpose, the rod 65*b* controlling the part 62*b* of the shoe (Figure 16) is fixed rigidly with a sleeve 67 that may slide without turning on the spindle 66. This sleeve is subjected to the action of a spring 68 tending to draw it away from the lower table and a stop 69 fixed rigidly with the upper table restricts the travel of this sleeve while thus defining the amount of the play *j*.

Each of the spindles 66 (Fig. 31) is fixed rigidly with a bevel pinion 135 engaging with a toothed segment 136. This segment may pivot at 137 and is furnished with an extension 138 on which bears and may roll a roller 139 carried by a lever 140. The two levers 140 are keyed on a common spindle 141 that may be moved angularly by the action of a cam 142 keyed on the control shaft 50 of the machine. This cam acts on the lever 143 connected by the rod 144 to a lever 145 keyed to the shaft 141. Under these conditions, it will be readily understood that the cam 142 causes during its rotation the pivoting of the shoes 62, 63.

The package, pushed by the shoe 61 driven itself, as described already, by the slide 58, engages between the edge plates 31 and 32 (Figures 7 and 10). The latter are each furnished with two cut-out parts 70 and 71, the first of these notches emerging on the upper edge of the plates while the second emerges on the lower edge. The edges 72 and 73, respectively, of these notches are shaped so as to form a sloping surface of which the cut is bevel shaped, as may be seen at 72*a* and 73*a*, more especially in Figures 21 and 22, and these edges are designed so that the sharp end of the edge 72 lies above the upper table 21, while the sharp end of the edge 73 is arranged below the lower table.

At the time of the forward movement of the package, the upper end tongues go into the opening 70, and under the action of the bevelled surface 72, they are folded back against the extreme ends of the package by pivoting round the edges *a'd'* and *b'c'* respectively. The folding is then at the stage illustrated by Figure 5.

Then the lower end tongues go in their turn into the opening 71 and, under the action of the bevelled surface 73, they pivot round the edges *ad* and *bc* respectively; they are also folded back against the extreme ends against which they are held by the action of the plates 31 and 32, which ensures the pasting of the tongue pieces by the gummed part 3. The folding is completely finished (Figure 6) and the package continues being drawn by the slide 58 and is led to the rear end of the table 20 from where it will be removed by any suitable means.

With the package released out of the mould, the cam 51 causes the angular displacement of the lever 52 that returns the pinion 54 to its original position illustrated in Figure 8.

The slide 58 then returns to the rear part of the mould and the shoe 61 is collapsed so as to leave free the upper surface of the table 20 (position illustrated in Figure 11).

The shoe 41 has resumed its inoperative position as soon as the package has stopped acting on the end of the control lever acting on the lever 40.

A new paper sheet 1 is engaged and held stretched between the rollers 18 and 19. A new package is then brought by the push-rod 10 and the cycle as disclosed is repeated.

The paper sheets 1 intended for the fashioning of the packages are delivered from a paper strip unwinding from a reel 80 (Figures 7 and 9).

It is well known that the reeled paper has a greater strength in the longitudinal direction of the wound strip than in the lateral direction of this strip.

The paper feeding device of the machine disclosed enables the sheet to be directed so that its longitudinal direction lies in the direction of the length of the package along which the sheet is subjected to the greatest strain.

With this object in view, the reel 80 is ar-

ranged crosswise in relation to the machine as shown in Figures 7 and 9. The strip, drawn by the roller 81 on which it is pressed by the pressing roller 81a, passes over two rollers 82 used for eliminating any buckling of the paper ensuing from its winding. The diameter and rotary speed of the roller 81 are fixed so as to deliver the paper length required to cover the package in the direction of its length, consideration being taken of the lateral tongue pieces that are folded back on the ends of the package. The roller 81 receives its movement from the shaft 50 by means of the transmission 86 provided with two pairs of bevel pinions 87 and 88 and a chain or belt 89.

It is then drawn along by the rollers 83, 83a and it passes under the blade 85 of a guillotine or trimmer.

The roller 83 and the pressing roller 83a are provided for drawing the sheet in an intermittent way; this intermittent forward movement of the sheet is required, as it is compulsory to stop the paper in order that the blade 85, by coming down, may cut the paper and thus form the sheet 1 intended to enclose a package.

This intermittent forward advance and the control of the blade 85 are achieved in the following way:

The continuous rotation of the roller 81 is ensured by the chain or belt 89 (Figures 9 and 32). On the spindle of the roller 81 is slidingly set in the usual way a ratchet wheel 150 that may be moved along the spindle by a fork 151 controlled by a leverage 152. This leverage leads to a lever subjected to the action of a cam (not shown) keyed on the main shaft 50. When the fork 151 is worked, the ratchet wheel 150 engages through its teeth, the teeth on a hub 153 fixed rigidly with the pulley 154 (or with a chain wheel) ensuring, by means of a belt (or of a chain) 155 the driving of the roller 83 during the suitable period as defined by the contour of the cam. A cam 156, also keyed on the shaft 50, is provided to ensure the working, at the right moment, of the blade of the guillotine (Figure 33). This cam is connected, by a suitable system of rods 157, to a spindle 158 on which are keyed the arms 159 carrying the blade 85.

During the stoppage of the rollers 83 and 83a, the paper sheet unwound by the rollers 81 and 81a forms a loop at 80a between the rollers 81, 81a and the rollers 83, 83a, this loop then being taken up at the time of the restarting of the rollers 83, 83a.

On leaving the guillotine, the sheet is supported by a horizontal table provided with two rollers 84, 84a, also assuming an intermittent movement and driven for this purpose by control means connected with the transmission gear 86.

The rotation of the rollers 84, 84a brings the paper sheet between two rollers 90, 90a and these also assume an intermittent movement.

Then the sheet goes between the rollers 91 and 91a of a standard mechanism ensuring the gumming of the paper.

The roller 91 is subjected to the action of a cam that presses the gumming roller on the paper sheet at the places where the gum has to be applied.

Finally, the paper sheet comes between the rollers 18 and 19, as previously stated.

The reel 80 is carried by a horizontal spindle 92 (Figures 7 and 9) resting on a support 93 integral with the machine.

The support 93 is provided with two sets of bearings to take the spindle 92; use may be made of the second set to take a spare reel 94.

It is obvious that many modifications may be brought to the fashioning machine that has been disclosed, more particularly by substitution of equivalent technical means, without on this account unduly widening the scope of my invention as claimed in accompanying claims.

What I claim is:

1. A machine for making up packages comprising a carrier for a number of package elements, means for holding vertically a sheet of wrapping paper in front of said carrier, means for urging the carrier with the package elements against the sheet of paper for urging same into U-formation over the front, upper and lower sides of the associated package elements, a die member inside which the package elements and associated sheet of paper are shifted, and including two horizontal tables defining vertically the passage afforded for the package and two vertical edge-plates to either side of the location of the package between said horizontal tables, the input end of said edge plates being spaced by a clearance from the lower and the upper table to afford a passage for the horizontal upper and lower lateral folded tongues of the sheet of paper, the rear part of said edge plates being provided with elongated notches extending respectively into the upper edge and into the lower edge of the corresponding edge plate, said notches having an edge arranged at a large acute angle to the horizontal and extending behind said clearance for engaging said tongues through said notches, one of which edge plates at least is adapted to yield in the direction perpendicular to its surface in accordance with the corresponding length of the package engaged between the edge plates, a parallel motion constraining said yielding edge plate to remain always during its movements perpendicular to the said direction and means for forming the subsequent folds of the paper over the package inside said die.

2. A machine for wrapping packages comprising a carrier for the package to be wrapped, means for holding vertically a sheet of wrapping paper in front of said carrier, means for urging the carrier with the package against the sheet of paper for urging same into U-formation over the front, upper and lower sides of the package, a die member inside which the package and associated sheet of paper are shifted, and including two horizontal tables defining vertically the passage afforded for the package and two vertical edge-plates to either side of the location of the package between said horizontal tables, double guiding members superposed at the input end of each edge plate including a lower part rigid with the corresponding edge plate and lying with a certain clearance above the lower table and an upper part, a parallel motion pivotally securing said upper part to said edge plate, a stop limiting the path travelled vertically by said upper part to constrain it to leave a clearance between it and the upper table and means for forming the subsequent folds of the paper over the package inside said die.

3. A machine for wrapping packages comprising a carrier for the package to be wrapped, means for holding vertically a sheet of wrapping paper in front of said carrier, a die member inside which the package and associated sheet of paper are shifted, and including two horizontal tables defining vertically the passage afforded for the package and two vertical edge-

plates to either side of the location of the package between said horizontal tables, the tables of the die being provided with ports, a pusher member adapted to urge the package and the sheet into the die, to constrain the latter to engage the front upper and lower faces of the package, shoes adapted to engage the package through the ports in the die for producing the rear horizontal folds on the upper and lower surfaces of the package and to provide for the continuation of the movement of the package inside the die at the end of the stroke of the pusher member and further shoes associated with the die and adapted to bear against the rear vertical edges of the package and to pivot round said edges to form the rear vertical folds of the package, said last mentioned shoes including two superposed parts separated through a clearance respectively from the upper and lower table, a pivot for the upper shoe part abutting against the upper table and a spring urging said pivot to follow the movements of said table while retaining the same clearance between said upper shoe part and said upper table.

4. A machine for wrapping packages comprising a carrier for the package to be wrapped, means for holding vertically a sheet of wrapping paper in front of said carrier, means for urging the carrier with the package against the sheet of paper for urging same into U-formation over the front, upper and lower sides of the package, a die member inside which the package and associated sheet of paper are shifted, and including two horizontal tables defining vertically the passage afforded for the package and two vertical edge-plates to either side of the location of the package between said horizontal tables, double guiding members superposed at the input end of each edge plate including a lower part rigid with the corresponding edge plate and lying with a certain clearance above the lower table and an upper part, a pivoting link connecting said upper part to said edge plate, a stop limiting the path travelled vertically by said upper part to constrain it to leave a clearance between it and the upper table and means for forming the subsequent folds of the paper over the package inside said die.

5. A machine for wrapping packages comprising a carrier for the package to be wrapped,

means for holding a sheet of wrapping paper in front of said carrier, means for urging the carrier with the package against the sheet of paper for urging same into U-formation over the package, a die member inside which the package and associated sheet of paper are shifted by last mentioned means, said die member including a stationary table and a spaced movable table defining therebetween the passage afforded for the package, means for movably supporting said movable table and for guiding same perpendicularly to its plane when said table is urged by the incoming package, said die member further including two edge-plates perpendicular to said tables to either side of the location of the package between said tables, a clearance being provided between said edge plates and the stationary table to afford a passage for unfolded portions of the sheet of paper, a guiding member at the input end of each edge plate, a pivoting link connecting said guiding member to the corresponding edge plate, resilient means urging said member towards the movable table, a stop secured to said movable table for limiting the path travelled vertically by said guiding member to constrain it to leave a clearance between it and the movable table for unfolded portions of the sheet of paper, and means for forming the subsequent folds of the paper over the package inside said die.

HENRI TOTAL.

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