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[54] **APPARATUS FOR FORMING PARCELS OF PARALLELIPIPED SHAPE FROM INDIVIDUAL STACKS OF FLATTENED PAPER**

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[51] **Int. Cl.** **B65b 35/36,** B65b 35/52, B65b 57/14

[58] **Field of Search**.....53/159, 161, 62, 198

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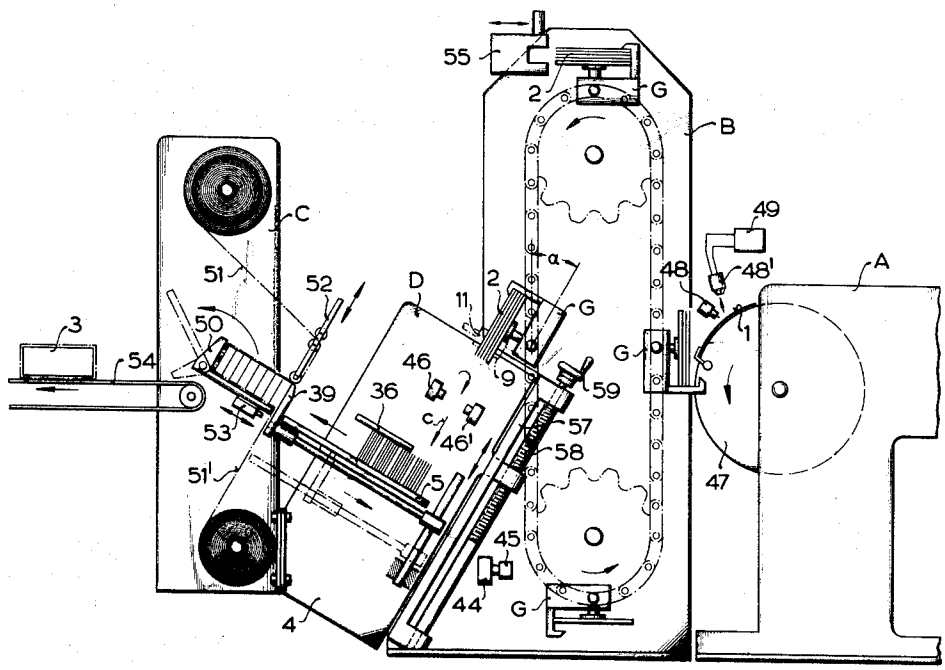
[57] **ABSTRACT**

Parcelling apparatus for installation downstream of a stacking device of paper or plastics bag-making machinery that delivers stacks of flattened bags, the parcelling apparatus having means for engaging successive stacks arriving lengthwise from the stacking device and for swinging the stacks sideways through 90° in alternately opposite directions, means for feeding the swung stacks to and depositing them side-on onto a table which extends normal to the feeding direction, and a reciprocatable pushing device which is adapted to move the deposited stacks to a parcelling station where a plurality of the stacks are juxtaposed preparatory to being packaged.

13 Claims, 3 Drawing Figures



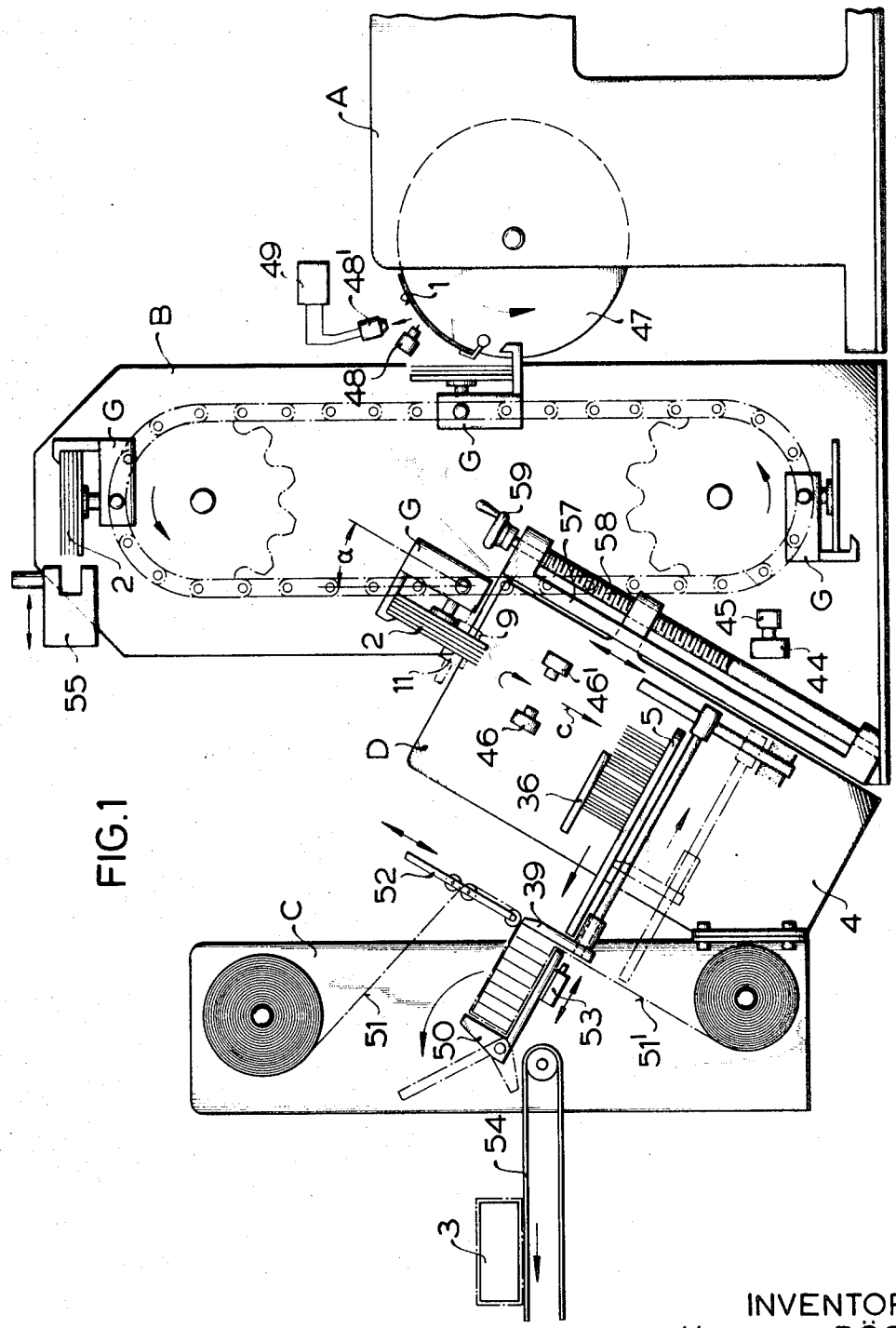


FIG.1

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FIG. 2

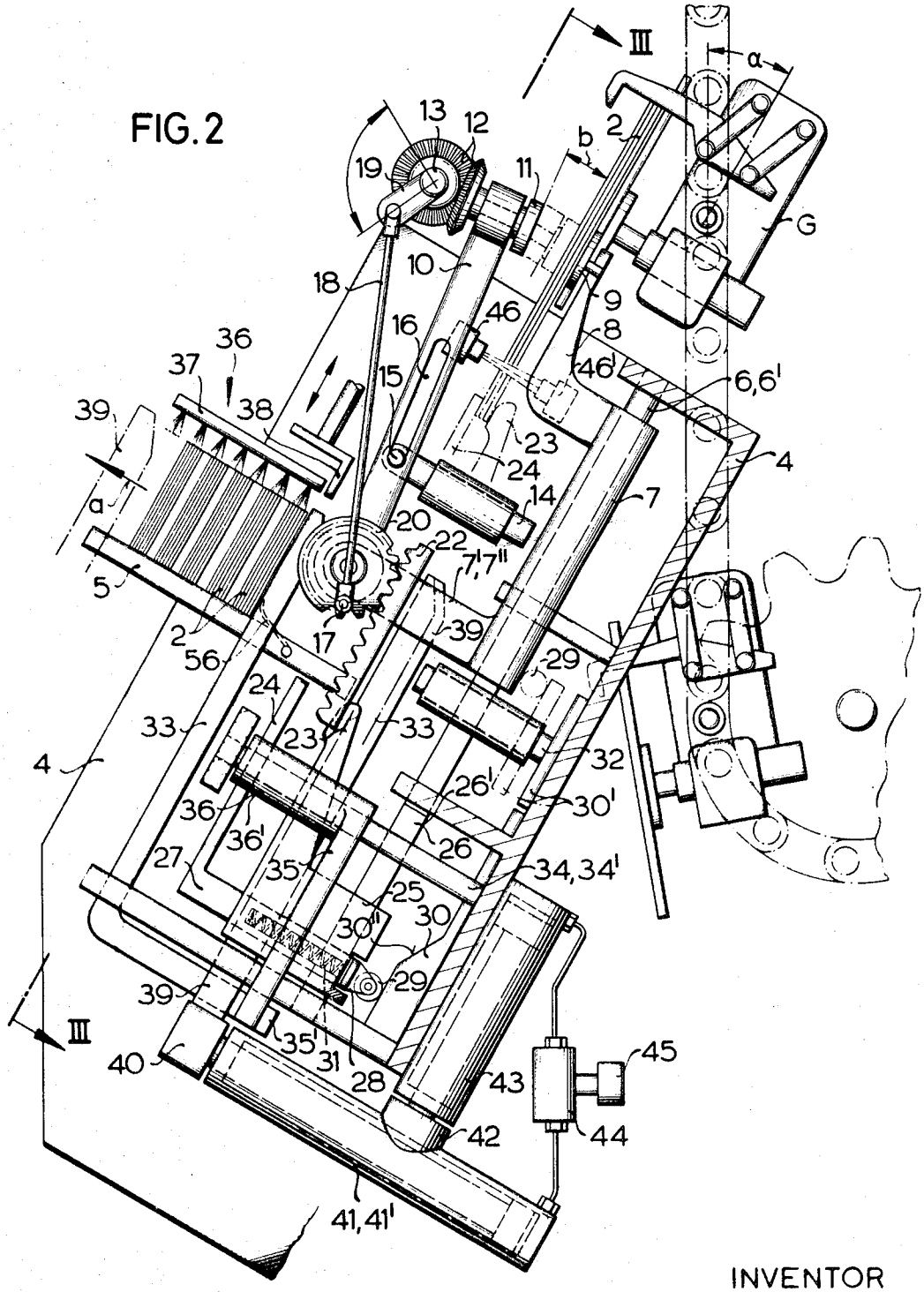

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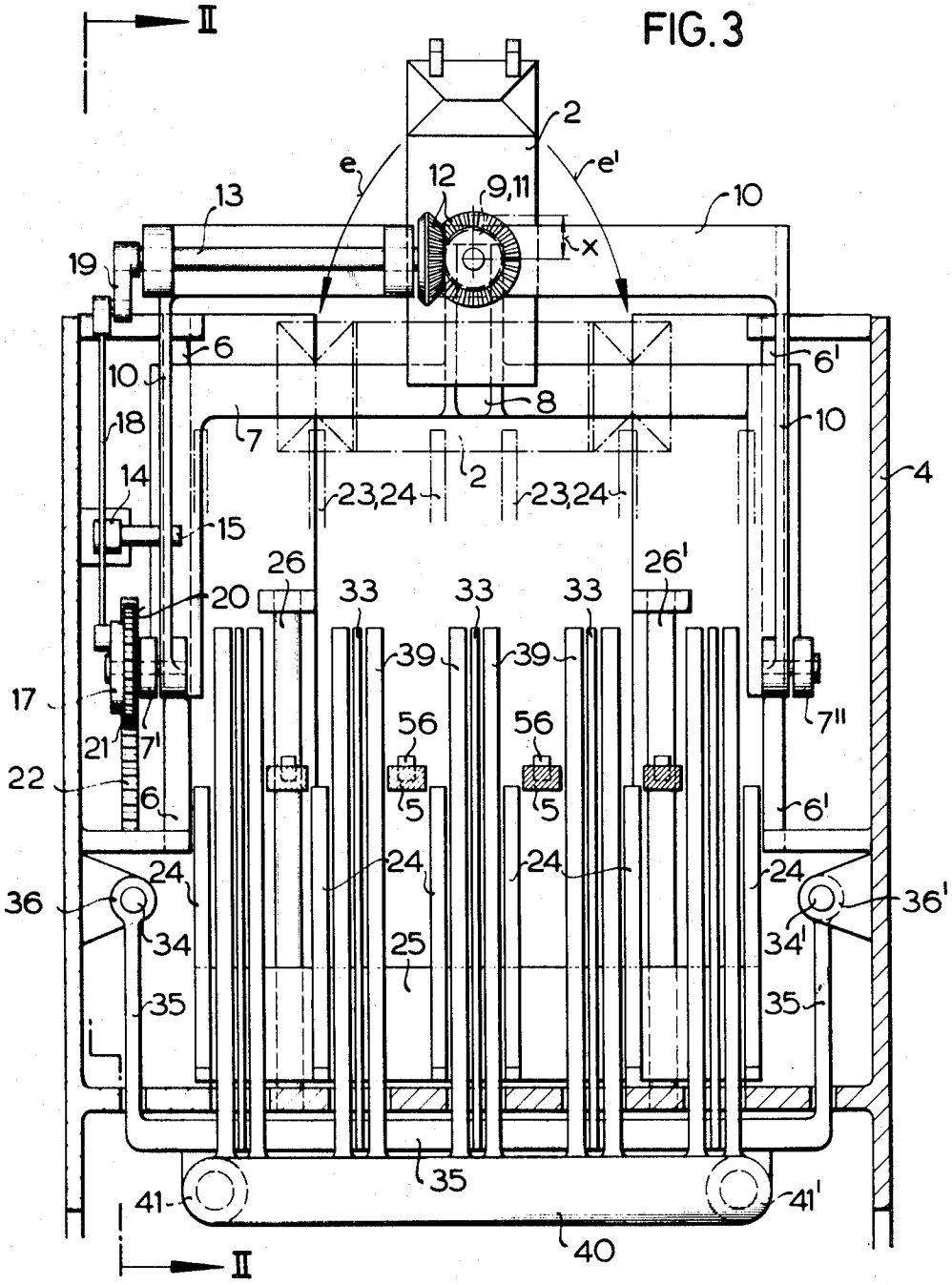
FIG. 3



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APPARATUS FOR FORMING PARCELS OF PARALLELIPIPED SHAPE FROM INDIVIDUAL STACKS OF FLATTENED PAPER

The invention relates to an apparatus for forming parcels of parallelipiped shape from individual stacks of flattened paper or plastics bags, the stacks arriving from a stacking device of bag-making machinery in a direction lengthwise of the bags contained therein.

Equipment which collects and stacks a certain number of flattened bags and then conveys the stacks lengthwise of the bags contained therein is for example described in our prior German Pat. application No. P 19 16 130.9. The stacks contain a comparatively small number of bags and, for the purpose of packaging and dispatch, must be combined to form parcels containing numerous stacks. If the individual stacks are simply deposited end-on on a table or the like, taken off and packaged, then the resulting parcels are not of parallelipiped shape because the bases of the bags are usually thicker and build up to form a parcel which is much higher at one end. The parcels are therefore either unstable or, if they are packaged particularly tightly such as with a shrinking film, the parcels will not be of parallelipiped shape.

The invention aims to provide an apparatus which automatically takes the individual stacks of bags from the stacking device of the bag-making machinery and then combines a certain number of these stacks to form parallelipiped parcels which can be packaged either manually or automatically.

According to the invention, apparatus for forming parallelipiped parcels from individual stacks of flattened paper or plastics bags comprises means for successively engaging the stacks which arrive lengthwise of the bags contained therein and for swinging them sideways through 90° in alternately opposite directions, means for feeding the swung stacks to a table which extends substantially perpendicular to the feeding direction and on which the stacks are deposited side-on, and a pushing device which is reciprocatable parallel to the table in sequence with arrival of the stacks at the engaging means and is adapted to move the stacks laterally from the location of their arrival to a parcelling station.

By means of the invention, the individual stacks making up one parcel will have the bases of the bags located at alternately opposite ends so that, if each parcel contains an even number of stacks, the greater thicknesses of the stacks caused by the bases of the bags balance each other out and the resulting parcel will be stable and of parallelipiped shape. By automatically moving each stack that has been deposited side-on on the table from out of the location of its arrival to the parcelling station, it is no longer necessary to remove each stack by hand. The resultant parcel can be withdrawn from the parcelling station by hand or it can be automatically packaged at a downstream packaging station to which the parcels are successively transferred by the fingers of a slide member which is displaceable parallel to the table during transfer of each parcel, at which time the fingers engage through slots in the table and, thereafter, is displaceable perpendicular to the table away from the same until the fingers are withdrawn from the slots. In this way a package parcel of bags that is ready for dispatch can be achieved by a process which is fully automatic from the time that the bag-making machinery is fed with webs of bag-making material.

The engaging and swinging means may comprise rotary plates which can be brought together like the jaws of tongs in sequence with arrival of the stacks to engage the faces of successive stacks and turn them alternately clockwise and anti-clockwise through 90° before they release each stack for feeding to the table. Means for rotating the plates preferably comprise a reciprocatable U-shaped guide member and a U-shaped swing member which is pivoted to the lower end of the guide member at both sides of the table with the web of the U bridging the table so that said web can be swung towards and away from the web of the guide member, the rotary plates being mounted on the respective webs at substantially the perpendicular longitudinal medial plane of the table and at least one of the plates being equipped with a rotary drive. The one rotary plate mounted on the swing member is in this case driven by a thrust crank drive comprising a peripherally serrated crank plate rotatable on a pivotal shaft of the swing member and engaging a stationary rack with is parallel to the reciprocating motion of the guide member and a rocker arm seated on a transmission shaft which is mounted at the web of the swing member and through which the said one rotary plate is turned by an angular gear, the crank and rocker arm radii being such that the said one rotary plate executes one quarter of a revolution during each reciprocating stroke of the guide member. Such a drive facilitates exact control for the rotation of the rotary plates corresponding to the drive of the guide member and hence a sinusoidal course for the rotary speed of the driven rotary plate, thereby ensuring that each stack is carefully handled during its rotation from the end-on to the side-on position.

In order to ensure that successive stacks are turned alternately clockwise and anti-clockwise through 90° so that the thicker ends of the stacks will come to lie at alternately opposite ends of the finished parcel, provision may be made for a free-wheeling device which is operatively connected between the rack and crank plate, wherein the free-wheeling device comprises a peripherally-serrated drive ring which is engaged in the rack and which has a pitch circle diameter of a size so that during each stroke of the guide member the drive ring executes half a revolution, the free-wheeling device being adapted to transmit said half revolution to the crank plate only during the down stroke of the guide member, and wherein the crank and rocker arm radii are such that the transmitted half revolution of the crank plate corresponds to one quarter of a revolution of the said one rotary plate. The effect of the free-wheeling device is therefore that the crank plate always turns in the same direction but executes only half a revolution at a time during each down stroke of the guide member. These half revolutions are transmitted by the crank drive to the driven rotary plate so that the latter turns one quarter of a revolution in alternately opposite directions during each down stroke of the guide member. Accordingly, the individual stacks received by the engaging and swinging means are turned in alternately opposite directions so that they will eventually be deposited side-on onto the table.

The means for feeding the swung stacks to the table preferably comprise reciprocatable grippers which are movable from a lower dead center position below the table to an upper dead center position where they project through recesses in the table and where they are able to receive successive stacks from the engaging and swinging means for depositing on the table as the grippers move to the lower dead center position. It is also preferred that the stacks should arrive at the engaging and swinging means in a downwardly inclined direction, the engaging and swinging means and the feeding means being correspondingly inclined whilst the table is upwardly inclined. Such an arrangement permits the individual stacks to be directly engaged whilst in their accurate longitudinal position and deposited on the table in an accurate side-on position. The inclination of the table prevents the individual stacks from falling over as they are being pushed along the table by the pushing device and subsequently by the slide member.

The table is preferably in the form of a grate comprising a plurality of spaced parallel bars, the pushing device, slide member and grippers being in the form of rakes the fingers or prongs of which are engageable through the spaces between the bars.

In one form of the invention, the parcelling station comprises means in the form of brushes for holding the stacks, the brushes being disposed above the table and parallel thereto and permitting entry of the stacks to the parcelling station but preventing the stacks from sliding out again. Reciprocatable holding fingers at the parceling station support the parcel of stacks at its upper edge when the pushing device is withdrawn. The parcelling station is also provided with resilient blocking means which are adapted to be deflected downwardly by each stack reaching the parcelling station and which then spring up to hold the rearmost stack of the parcel at its lower edge. Such blocking means can be in the form of leaf springs.

The movement of the aforementioned slide member may be controlled by a counter having sensing means which count the number of stacks reaching the parcelling station and which actuate a programming device for a drive for the slide member as soon as a predetermined number of stacks as set on the counter has reached the parcelling station.

The parcelling apparatus may comprise a frame which is adjustable along a guide track parallel to the direction in which the stacks are fed to the table. This permits adjustment of the location at which the rotary plates engage each stack arriving from the stacking device and which forms the fulcrum for turning the stack through 90°. For the purpose of rapid and simple adjustment it is therefore not necessary to relocate the individual components of the apparatus when it is supplied with stacks containing bags of different sizes. Adjustability also permits the rotary plates to engage any desired size of stack at approximately half the width of the bag base below the longitudinal center of the stack so that, during rotation of the stacks in alternately opposite directions, the stacks may be laterally offset from one another by the full width of the bag base whereby the stacks become tightly interspersed and closely juxtaposed to form a tight parallelipiped parcel.

The guide track may be an independent foundation or, preferably, a component of the frame of the apparatus so that the apparatus will always be accurately positioned relatively to the upstream stacking device.

Since adjustment of the apparatus along the guide track will also change the elevation of the table relatively to the downstream packaging means, the latter may be connected to the frame of the parcelling apparatus so that it participates in any adjustment of the frame.

An example of the invention will now be described with reference to the accompanying diagrammatic drawings, in which:

FIG. 1 is a side elevation of a production unit which incorporates a parcelling apparatus according to the invention as well as a bag-making machine, a stacking device for the bags and packaging means for the parcels of stacks;

FIG. 2 is an enlarged sectional side elevation of the parcelling apparatus included in the FIG. 1 unit, taken on the line II-II in FIG. 3, and

FIG. 3 is a part-sectional front elevation of the parcelling apparatus taken on the line III—III in FIG. 2.

The automatic production unit for making bags, subsequently forming individual stacks each containing about 25 to 100 bags and parcelling a plurality of such stacks is shown in FIG. 1. It comprises a bag-making machine A which may be of known construction and feeds each bag **1** to a stacking device B. The latter may be in accordance with our prior German Pat. application No. P 19 16 130.9 comprising circulating gripper units G which collect the individual bags **1**, form them into stacks **2** and transport the stacks to packaging apparatus C which may be constructed in accordance with our prior German Pat. application No. P 19 39 069.3. The packaging apparatus is provided to wrap a plurality of the stacks **2** when combined to form a parcel **3**. A parcelling apparatus D according to the present invention is interposed between the apparatuses B and C for taking the individual stacks as they arrive lengthwise from the apparatus B and combining the stacks to form a parcel which can then be wrapped by the packaging apparatus C.

The parcelling apparatus D comprises a frame **4** which includes a table comprising a plurality of spaced parallel bars **5** on which the individual stacks **2** are eventually to be deposited successively to form a parcel which grows in the direction of the arrow *a*. A guide member **7** is reciprocatable along guide rods **6**, **6'** which are fixed to the frame **4** to extend perpendicular to the table **5**. The means for reciprocating the guide member **7** may be of any desired known construction and are not illustrated in the drawings. As shown in FIG. **3**, the guide member **7** is of U-shape. Its two limbs form guide sleeves which slide along the rods **6**, **6'**. At their lower ends, the limbs are provided with flanges **7'**, **7''** which extend to both sides of the table **5**. At the center of its web, the guide member **7** carries an extension **8** which supports an easily rotatable plate **9**. A U-shaped swing member **10** is hinged to the lower flanges **7'**, **7''** of the guide member **7** so that the web of the swing member bridges the table **5**. At the center of this web, there is a second rotary plate **11** which is driven by a transmission shaft **13** on the web of the swing member acting through an angular gear **12**. The swing

member 10 can be swung to and from the guide member 7 in the direction of the arrow *b* by means of a slide 14. The slide 14 has a roller or stud 15 which engages in a longitudinal groove 16 of the swing member. In this way swinging of the swing member in the direction of the arrow *b* is facilitated in any position of the guide member 7 along the guide rods 6, 6'. The arrangement of the two rotary plates 9, 11 on the webs of the guide member 7 and swing member 10 is such that, when the two members are nearest to one another, the rotary plates will be axially aligned in the perpendicular longitudinal medial plane of the table 5.

A rotary drive for the plate 11 comprises a thrust crank drive 17, 18, 19 of which a crank plate 17 is rotatable on the pivotal axis of the swing member 10 and a rocker arm 19 is fixed to the transmission shaft 13 and connected to the crank plate by means of a connecting rod 18. A free-wheeling device 20 engages the crank plate 17 (FIG. 2). A drive ring of the free-wheeling device is provided with peripheral teeth 21 which engage in a stationary rack 22. The rack extends parallel to the pair of guide rods 6, 6' and thus parallel to the direction of movement of the guide member 7. The pitch circle diameter of the teeth 21 is such that the drive ring of the free-wheeling device 20 executes half a revolution during each stroke of the guide member 7. The free-wheeling device 20 is so coupled to the crank plate 17 that it transmits this half revolution only during the down stroke of the guide member 7 but in the same direction of rotation. During the up stroke of the guide member the crank plate is stationary. The principal dimensions of the thrust crank drive 17, 18, 19 (that is to say the crank radius or rocker arm radius) are such that each half revolution of the crank plate 17 corresponds to one quarter of a revolution of the rotary plate 11. Since the crank plate 17 turns only during each down stroke of the guide member 7 and all half revolutions take place in the same direction of rotation, the rotary plate 11 will turn alternately clockwise and anti-clockwise through one quarter of the revolution during the down stroke of the guide member 7.

The aforementioned components 6 to 22 form engaging and swinging means resembling tongs which, by an appropriate inclination of the guide rods 6, 6', have their jaws or rotary plates 9, 11 reciprocated to and from the location where the stacks 2 arrive on the gripper units G of the stacking device. The rotary plates 9, 11 engage a stack when the swing member 10 is pivoted in its upper dead center position and transfer it downwardly towards grippers 23, 24, 25 whilst simultaneously turning the stack through 90°. Rotation of the stack takes place alternately clockwise and anti-clockwise as indicated by the arrows *e*, *e'* in FIG. 3 so that the folds in the bases of the bags in the stacks will be located alternately at the left and right-hand sides.

The grippers are provided with rake-like jaws 23, 24 carried by a supporting beam 25. The supporting beam slides on stationary guide bars 26, 26' and is reciprocated to and from the aforementioned engaging and swinging means 6 to 22 by any suitable reciprocating drive (not shown). The arrangement of the grippers 23, 24, 25 is such that in their lower dead center position shown in full lines they are located between the table 5 and in their upper dead center position shown in chain-dotted lines the jaws 23, 24 project through the spaces between the bars of the table 5 and are in the vicinity of the stack that has been swung by the engaging and swinging means 6 to 22. The jaws 23 are fixed to the supporting beam 25 whilst the jaws 24 are displaceable towards the jaws 23 by means of flanges 27 engaged in the supporting beam. At the rear of the supporting beam 25, the jaws 24 are interconnected by a carriage 28. A control roller 29 mounted on the carriage runs along a stationary control rail 30. The control roller 29 of the carriage 28 is pressed by compression springs 31 against the control rail so that the grippers 23, 24, 25 are biassed to their closed position. Adjoining the stationary control rail 30 there is a transversely movable rail section 30' which is fixed to a reciprocatable slide 32.

Towards the end of their down stroke, the grippers 23, 24, 25 are opened by displacing the rail section 30' towards the left and in the upper dead center position they are closed by displacing this rail section towards the right. When closed, the grippers engage the lower longitudinal edge of the stack 2 that is being held by the engaging and swinging means 6 to 22 and transfer it to the table 5 during their downward movement. Shortly before the stack is deposited on the table, the grippers are opened again by a cam portion 30'' of the satisfactory control rail so that the grippers will release the stack before the jaws 23, 24 have continued to move to their lower dead center position below the table.

A pushing device 33 is provided at the right-hand end of the table 5. This device is in the form of a rake having fingers or prongs which engage between the spaces of the bars of the table. The pushing device can move parallel to the table from a right-hand limiting position shown in chain-dotted lines to a left-hand limiting position shown in full lines, and back again. The pushing device is guided along lateral guide rods 34, 34' and is reciprocated by any desired drive (not shown). The pushing device 33 is provided with an upwardly open U-shaped supporting frame 35 having guide sleeves 36, 36' at the ends of its limbs, the guide sleeves sliding on the guide rods 34, 34'. The individual fingers or prongs, which are chamfered at the top, are carried by the web 35' of the frame 35. As shown in FIG. 3, the guide rods 34, 34' are arranged at both sides of the table 5 whilst the web of the U-shaped supporting frame 35 is extended downwardly sufficiently far below the table to ensure that it will not obstruct the downward movement of the grippers 23, 24, 25 to their lower dead center position.

The pushing device 33 has the function of pushing towards the left-hand side each of the stacks 2 that has been deposited on the table 5 by the grippers 23, 24, 25 until the stack is out of the range of movement of the grippers. As successive stacks are pushed towards the left, they build up to form a parcel at a parcelling station 36. The parcelling station is equipped with brushes 37 which extend parallel to the table 5 and which resiliently hold the individual stacks with their bristles. At the upper inlet end to the parcelling station, reciprocatable holding fingers 38 are provided which, in their upper position as shown in FIG. 2, permit successive stacks to be introduced to the parcelling station whilst in their lower position they hold the upper edge of the rearmost stack and thereby prevent it from falling over on the inclined table 5 after the pushing

device 33 has commenced its return movement. Since the lower edge of the last stack introduced to the parcelling station at any one time tends to spring back after the return stroke of the pushing device 33, the bars of the table 5 are provided with blocking members 56 in the form of leaf springs which are deflected downwardly as each stack is introduced to the parcelling station and then spring up behind the stack to hold the parcel at its lower edge.

To eject a parcel containing a predetermined number of stacks 2, a slide member 39, 40 is provided. This slide member resembles the shape of a rake, as do the grippers 23, 24, 25 and the pushing device 33. The prongs or fingers 39 of the rake-like slide member are mounted on a common cross-bar 40 below the table 5. They extend upwardly through the bars of the table next to and between the fingers of the grippers and the pushing device and, in the position shown in full lines in FIG. 1 extend beyond the surface of the table. The cross-bar 40 is engaged by the piston rods of pressure cylinders 41, 41' which reciprocate the slide member 39, 40 in a direction parallel to the table 5 up to the position shown in chain-dotted lines in FIG. 2, and then back again. The pressure cylinders 41, 41' are parallel to the table and connected to a transverse yoke 42 which can be reciprocated by means of a further pressure cylinder 43. The stroke of the pressure cylinder 43 is such that the slide member 39, 40 is moved downwardly to below the table 5. All the pressure cylinders are controlled by a programming device 44 such that the slide member 39, 40, starting from the position shown in FIG. 1, is first of all moved parallel to and above the table surface into the position shown in chain-dotted lines by means of the pressure cylinders 41, 41', whereupon the pressure cylinder 43 is effective to move the slide member downwardly perpendicular to the table until its fingers 39 are located below the table. In this position of the slide member, the pressure cylinders 41, 41' execute their return stroke and the pressure cylinder 43 then returns the slide member upwardly to its starting position.

The aforementioned displacement of the slide member 39, 40 is controlled by a counter 45 which receives impulses from a photoelectric senser 46, 46' (FIGS. 1 and 2) which counts the number of stacks 2 that have been fed to the parcelling apparatus and actuates the programming device 44 as soon as a predetermined number of stacks has set on the counter is located at the parcelling station 36.

As indicated in FIG. 1, the parcelling apparatus D has its frame 4 mounted on an inclined guide track 57 to be adjustable in the same direction *c* as that in which the stacks are fed to the table 5 by the engaging and swinging means 6 to 22. Adjustment is effected by a hand wheel 59 for turning a screw 58 engaged in a nut carried by the frame 4. It is therefore possible to vary the location at which the rotary plates 9, 11 engage a stack supplied by the gripper unit G of the stacking device, for example whenever the lengths of the bags made by the machine A is altered. For any particular size of stack, adjustment of the position of the apparatus D also permits the rotary plates 9, 11 to engage the stack at about half the width *x* (FIG. 3) of the bag base beneath the longitudinal center of the bag base so that the individual stacks 2 become laterally offset from one another by a complete bag width after they have been turned through 90° as indicated in chain-dotted lines in FIG. 3.

The guide track 57 is a component of the stacking device B. It extends to both sides of the circulating gripper units G.

The packaging apparatus C for wrapping each parcel 3 of stacks 2 has its frame connected to the frame 4 of the parcelling apparatus D. It is therefore displaced together with the apparatus D whenever the latter is adjusted along the guide track 57.

The bag-making machine A (FIG. 1) feeds bags 1 by means of a discharge cylinder 47 lengthwise to the gripper units G of the stacking device B whilst the gripper units are stationary. The number of bags fed to each gripper unit is sensed by photoelectric cells 48, 48' and counted by a counter 49 which switches on a drive for circulating the gripper units as soon as a predetermined number of bags to which it has been set has been counted. The gripper units G are then transported to convey the stacks held thereby to position above the hereinbefore described parcelling apparatus D. At this position each gripper unit is pivoted through an angle α. The apparatus D now receives a stack 2 of bags lengthwise, turns it through 90° and deposits it side-on onto the table 5 and from there to the parcelling station 36. The number of stacks to be combined to form a parcel is set on the counter 45 and is counted by the sensers 46, 46'. As soon as the predetermined number of stacks is located at the parcelling station, the counter actuates the programming device 44 for the slide member 39, 40. The slide member now executes the aforementioned movements so that the parcel is pushed directly into the packaging apparatus C and compressed against an abutment 50. As the parcel is pushed to the packaging apparatus C, it carries with it a web 51, 51' of packaging material which covers three of its sides. As the slide member 39, 40 is withdrawn downwardly on its way back to the starting position of FIG. 2, its place is taken by a slide member 52 which takes the web of packaging material 51 wit— it to cover the fourth side of the compressed parcel which is therefore now surrounded by a sleeve of packaging material whose ends can be interconnected by a welding and severing apparatus 53 which cooperates with the slide member 52. The packaged parcel 3 is discharged onto a conveyor belt 54 by rotating the abutment 50.

If desired, the individual stacks 2 can, before being parcelled, be stapled together by means of a stapler 55 provided as part of the stacking device B.

I claim:

1. Apparatus for forming parallelipiped parcels from individual stacks of flattened bags, comprising means for delivering stacks of flattened bags in which the bags are arranged lengthwise to said apparatus, means for successively engaging the stacks and for turning the stacks sideways through an angle of 90° alternately clockwise and counterclockwise, said engaging and turning means comprising rotary plates mounted to be brought together like the jaws of tongs in sequence with the arrival of the stacks to engage the faces of successive stacks, said engaging and turning means further comprising a reciprocable U-shaped guide member and a U-shaped swing member which is pivoted to the lower

end of the guide member at both sides of a table with the web of the U bridging the table so that the web of the swing member can be swung toward and away from the web of the guide member, the rotary plates being mounted on the respective webs at substantially the perpendicular longitudinal medial plane of the table, said engaging and turning means further comprising means for rotating at least one of said rotary plates, means for feeding the turned stacks from the engaging and turning means to the table and depositing the stacks on the table on their sides, said table extending substantially perpendicular to the feeding direction and having a plurality of slots therein, a pushing device mounted for reciprocable movement parallel to the table in sequence with the arrival of the stacks at the engaging means and adapted to move the stacks laterally from their arrival location to a parcelling station, automatic packaging means for the parcels downstream of the parcelling station, and a slide member having fingers for transferring each parcel to the packaging means, said slide member being displaceable parallel to the table during transfer of each parcel such that the fingers engage the parcel through the slots in the table and are then displaceable perpendicular to and away from the table until the fingers are withdrawn from the slots.

2. Apparatus according to claim 1, wherein the means for rotating at least one of the rotary plates is rotatably connected to the rotary plate mounted on the swing member and is a thrust crank drive comprising a peripherally serrated crank plate rotatably mounted on a pivotal shaft of the swing member, a stationary rack engaging the crank plate and mounted parallel to the reciprocating motion of the guide member, a rocker arm connected to a transmission shaft mounted at the web of the swing member, and an angular gear connected to the transmission shaft for rotating the crank plate, the crank plate and rocker arm radii being such that the said rotary plate executes one quarter of a revolution during each reciprocating stroke of the guide member.

3. Apparatus according to claim 2 including a free-wheeling device operatively connected between the rack and crank plate, wherein the free-wheeling device comprises a peripherally serrated drive ring which is engaged in the rack and which has a pitch circle diameter of a size so that during each stroke of the guide member the drive ring executes half a revolution, the free-wheeling device being adapted to transmit said half revolution to the crank plate only during the down stroke of the guide member, and wherein the crank and rocker arm radii are such the transmitted half revolution of the crank plate corresponds to one quarter of a revolution of the said one rotary plate.

4. Apparatus according to claim 1, wherein the means for feeding the turned stacks to the table comprise reciprocable grippers mounted for movement from a lower dead center position below the table to an upper dead center position where they project through the slots in the table and where they are adapted to receive successive stacks from the engaging and turning means for depositing the stacks on the table as the grippers move to the lower dead center position.

5. Apparatus according to claim 4, wherein the table is in the form of a grate comprising a plurality of spaced parallel bars, the pushing device, slide member and grippers are in the form of rakes the fingers or prongs of which are engageable through the spaces between the bars.

6. Apparatus according to claim 1, wherein the parcelling station comprises means in the form of brushes for holding the stacks, the brushes being disposed above the table and parallel thereto and permitting entry of the stacks to the parcelling station but preventing the stacks from sliding out again.

7. Apparatus according to claim 1 including a reciprocal holding finger at the parcelling station for supporting the parcel of stacks at its upper edge when the pushing device is withdrawn.

8. Apparatus according to claim 1, wherein the parcelling station is provided with resilient blocking means which are adapted to be deflected downwardly by each stack reaching the parcelling station and which then spring up to hold the parcel at its lower edge.

9. Apparatus according to claim 1, wherein the movement of the slide member is controlled by a counter having sensing means which count the number of stacks reaching the parcelling station and which actuate a programming device for a drive for the slide member as soon as a predetermined number of stacks as set on the counter has reached the parcelling station.

10. Apparatus according to claim 1 including a frame which is adjustable along a guide track parallel to the direction in which the stacks are fed to the table.

11. Apparatus according to claim 10, wherein the guide track is a component of the frame of an upstream stacking device.

12. Apparatus according to claim 1, wherein the stacks are delivered to the engaging and turning means in a downwardly inclined direction, the engaging and turning means and the feeding means being correspondingly downwardly inclined and the table being upwardly inclined.

13. Apparatus according to claim 10 wherein the automatic packaging means for the parcels is connected to the frame.

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