A machine for dispensing pre-cut wipe materials comprises a parallelepiped-shaped housing with a back plate and a cover. A base of the cover is articulated on a connecting pin. A support-container holds a stack of pre-cut material which is in use and can hold a spare stack. A base of the support-container is articulated around the same axis of rotation and the cover internally has a horizontal plate which supports the stack in use after swivelling the cover and support-container to load the spare stack. The support-container fits inside and is dismountably attached to the housing after swivelling into the internal space of the housing, which causes downward displacement of the stack in use, allowing the spare stack to be inserted into the internal space. The stack in use and the spare stack are joined to each other after positioning the spare stack on the other stack.
DISPENSING APPARATUS FOR PRE-CUT WIPING MATERIALS WITH LOADING OF PACK OF MATERIAL

[0001] The invention relates to the technical field of dispensing machines for wipe materials of the hand wipe, toilet paper and general-purpose wipe type.

[0002] The Applicant has worked in this specific field for many years and has filed very many patents, in particular for machines with automatic or semi-automatic cutting which operate simply by the user pulling the end of the strip of material.

[0003] The strip of material can be wound on a reel and it is then necessary to have an automatic cutting device which makes it possible to cut the strip into pieces of a predetermined size while allowing the end of the strip to emerge from the machine so that it can be pulled and cut to size depending on the wipe material. In this configuration, the strip of material is uniform and is not pre-cut when it is manufactured and wound. The Applicant has also fitted mechanical devices into this type of machine which make it possible to insert spare rolls or reels of material which are capable of being moved into a position in which material can be dispensed once the reel which is almost used up is exhausted.

[0004] The Applicant was also interested in designing machines to dispense wipe material pre-folded in an accordion pleat, but with complex configurations and layouts.

[0005] The Applicant has also devised and designed a simplified wipe material dispensing machine which is described in Patent application FR 08.53284. Such a machine is described briefly below in order to make the present invention easier to understand, especially since it is referred to in order to describe the present invention.

[0006] Thus, this dispensing machine for wipe materials is of the type comprising a housing (1) forming a receptacle with a back plate (1a), a lower horizontal wall (1b) and side walls as well as an articulated cover (2) with means of locking. The inner face of the front wall (2a) of the cover is designed with a protruding shape (2b) which has a curved shape. It comprises a device (D) which is articulated relative to the housing and fulfills the functions of loading, guiding and preventing creasing of the pulled pre-cut strip of material so that it can be removed from the lower front part of the machine. This device includes a curved shape (3) capable of fitting in the shape (2a) on the cover when said cover is closed, said shapes (2a-3) being concentric and leaving room (e) for the pulled pre-cut strip of material to pass through. The pre-cut wipe material is wound on a reel or accordion pleated. In the lower part of the machine where the strip of material emerges, there are opposite-facing limit stops either side of the strip of material which ensure separation of a piece of strip relative to the opposite-facing perforation line of the strip.

[0007] All the machines which are mentioned and have been put into service, and also competitors’ machines, are made of a metallic material or made by integrating plastics as the relevant technologies advance. In other words, these machines have always required the production of moulds in order to manufacture their various components (housing, cover, drum) and, more generally, the components which are integral to their design and operation. This type of implementation has substantial disadvantages.

[0008] Also, in the machine described in above-mentioned Patent FR 08.53284, there is provision for the material which is to be dispensed to be placed on a horizontal plate which is attached to the housing of the machine so that it can subsequently be routed around device (D) for loading, guiding and formatting the material, this device being articulated relative to the housing. In other words, material cannot be loaded until the stack of material which is being dispensed has been totally exhausted or when the operator tasked with maintenance inspects the height of the stack of material and removes the small amount of remaining material so that it can be replenished by another stack or a material refill. This inevitably involves wastage. Thus, the machine described in Patent FR 08.53284 is excellent for dispensing pre-cut wipe material but not as suitable when it comes to loading.

[0009] The Applicant’s approach was therefore to take all this data into account when devising a new machine for dispensing pre-cut wipe material with a quick-loading feature involving loading spare material which replaces the stack of material which is being consumed, there being a requirement that this machine is simple in terms of construction and reliability, whereby reducing, if applicable, its manufacturing costs by being made of a material other than a plastic which requires production moulds.

[0010] In other words, the Applicant’s approach was to design a machine for dispensing pre-cut materials which can be made, advantageously and for example, of cardboard for various applications.

[0011] The Applicant’s approach was to think about designing a dispensing machine which, in terms of the material of which it is made, can be treated as a dispensing machine which can be disposed of after use, somewhat like disposable cameras.

[0012] As far as the Applicant (who has specialised in this line of business since 1968 when it obtained its first patents for wipe material dispensing machines) is aware, there have never been any specifications or designs for making dispensing machines out of cardboard, let alone disposable dispensing machines, for the applications in question.

[0013] The invention is therefore of great acuity and importance in terms of recycling, combating pollution and achieving sustainable development.

[0014] The new machine for dispensing pre-cut wipe material has very numerous applications which can be fulfilled by using a single concept but different materials such as plastics or cardboards or similar materials which are appropriate to needs and which meet the requirements for uninterrupted operation and installing spare pre-cut material.

[0015] According to a first aspect, the machine for dispensing pre-cut wipe materials of the type comprising a parallel-shaped shaped housing with a back plate and a cover, the base of which is articulated on a connecting pin and including means of locking, is distinctive in that it comprises a support-container which holds a stack of pre-cut material which is in use and has the capacity to hold a spare stack of material and in that the base of said support-container is articulated relative to the cover and the housing around the same axis of rotation and in that the cover internally has, in its upper part, a horizontal plate which constitutes a support base for the stack of material which is in use after swivelling the cover and the support-container with a view to loading the spare stack of material and in that said support-container is capable of fitting inside and being dismountably attached to the housing after pivoting it into the internal space of the housing, and in that swivelling of the support-container causes downward displacement of the stack of material which is in use; thereby...
allowing the spare stack of material to be inserted into the internal space of said support-container, and in that the stack of material which is in use and the spare stack of material are joined to each other by a means after positioning the spare stack of material on the stack of material which is in use.

[0016] These aspects and others will become apparent from the following description.

[0017] The object of the present invention is described, merely by way of example, in the accompanying drawings in which:

[0018] FIG. 1 is a view of the machine for dispensing pre-cut wipe materials according to the prior art of Patent FR 08.53284.

[0019] FIG. 2 is a perspective view of the machine according to the invention when it is in use.

[0020] FIG. 3 is a perspective view of the machine, as in FIG. 2, when it is opened in order to be loaded with a stack of spare pre-cut material.

[0021] FIG. 4 is a view, as in FIG. 3, of the machine after the spare stack of pre-cut material has been loaded.

[0022] FIG. 5 is a view of the loaded machine, as in FIG. 4.

[0023] FIG. 6 is a cross-sectional view of the machine according to the invention when it is closed.

[0024] FIG. 7 is a cross-sectional view of the machine, as in FIG. 6, when it is opened in order to be loaded by offering up a spare stack of material. In this configuration, the spare stack of material is produced specifically in accordance with one aspect of the invention.

[0025] FIG. 8 is a view, as in FIG. 7, of the machine after the spare stack of material has been loaded and joined to the remaining stack of material.

[0026] FIG. 9 is a view of the machine, as in FIG. 8, after closing it and loading the spare stack of material.

[0027] FIG. 10 is a perspective view of the machine according to the invention when it is in use.

[0028] FIG. 11 is a view of the machine, as in FIG. 10, with its cover part opened.

[0029] FIG. 12 is a view of the machine, as in FIGS. 10 and 11, with its cover part and the support-container holding the stack of material which is in use and the spare stack of material opened.

[0030] FIG. 13 is a bottom view of FIG. 6 showing the limit stops for guiding the wipe material.

[0031] FIG. 14 shows the spare stack of pre-cut material in an arrangement which is specific to the invention prior to loading the machine.

[0032] FIG. 15 is a view according to FIG. 14 showing the joint between the stack of material which is in use and the spare stack of material.

[0033] FIG. 16 shows one embodiment of the means of joining the stack of material which is in use to the spare stack of material in one preferred implementation.

[0034] FIGS. 17, 18 and 19 are schematic views showing the various phases of presenting the spare stack of material and how it is joined to the stack of material which is in use with protrusion and then detachment of the joining means.

[0035] FIG. 20 is a partial view showing the means of using and deforming the strip of material in an alternative embodiment.

[0036] FIG. 21 is a view, as in FIG. 20, showing the path travelled by the strip in the configuration in question.

[0037] In order that the object of the invention may more readily be understood, the following description is given, merely by way of example, reference being made to the accompanying drawings.

[0038] The machine for dispensing pre-cut wipe materials is referred to in its entirety as (A) and is used to dispense pre-cut strips of accordion-pleated materials. It comprises a housing (10) having a parallelepiped shape with a back plate (10a), side walls (10b) and a lower base (10c) and a cover (11), the base of which is articulated on connecting pin (12), and includes key-type means of locking (13).

[0039] According to the invention, the dispensing machine comprises a support-container (14) holding a stack of pre-cut material which is in use (P) and having the capacity to hold a stack of spare pre-cut material (R) intended to be joined together, the base of said support-container (14) being articulated relative to cover (11) and relative to housing (10) around the same axis of rotation (12). This material support-container (14) has a parallelepiped shape and is capable, after swirling, of fitting inside the internal space of the housing.

For this purpose, said support-container comprises a front wall (14a) which is parallel to the back wall (10a) of the housing when the machine is closed, two side walls (14b) which fit inside the housing, a bottom base (14c) and, above the latter, a horizontal plate (14d) to support the stack of wipe material. The upper parts of the side walls (14b) are internally designed with protruding pins (14) capable of clicking into openings (10b) in the side walls of the housing in order to ensure locking into position. The lower part of these side walls (14b) have openings (14e) through which above-mentioned hinge pins (12) pass. The upper part of support-container (14) has a connecting hand (14c) located opposite wall (14a) so that it faces the back wall (10a) of the housing (10). This connecting hand between side walls (14b) has firstly a cut-out (14f) to allow movement of locking means (12) and secondly a fixed vertical tab which is involved in said locking.

[0040] In addition, back wall (10a) of the housing has a locking projection (10e) designed to be opposite said tab. According to the invention, cover (11) has an upper horizontal wall (11a) on which locking key (13) and also a second horizontal wall or plate (11b) are placed inside, leaving room through which the locking means can pass. This plate (11b) fulfills an important function, namely providing a support base for the stack of material which is in use so that the spare stack of material (R) can be loaded.

[0041] Before describing the operation and loading of the machine, it should be noted that, in one advantageous embodiment, it can be designed with, firstly, on the inner face of the cover and, secondly, on the outer face of front wall (14a) of the support-container with the anti-reverse means described in Patent FR 08.53284. Thus, more especially, the inner face of the cover is devised with a protruding curved shape (11c) designed to help guide and prevent creasing of the material. This shape (11c) surrounds a central cut-out (11d) through which the material emerges from the machine. Also, outer face (14e) of the front wall of the support-container which holds the material is also devised with a curved protruding shape (14e) capable of fitting into the space defined by shape (11c) which is concentric with it and leaves a gap (e) through which the material can move. A cut-out (14f) is made in the centre of said protruding shape (14f). The upper part of the front wall is designed with a convex or rounded shape (14g) having a curved configuration which protrudes slightly
either side of the thickness of the wall (14a). This supports and allows movement of the pre-cut accordion-pleated material.

[0042] As shown in FIG. 13, the lower part of the machine includes opposite-facing positionally adjustable limit stops (16) which define a space through which the pulled strip of material moves. These limit stops (16) are designed with a stub which allows perfect guidance of the emerging material and makes it easier to separate a piece of material starting from the perforation line.

[0043] The way in which such a machine is loaded is now explained below.

[0044] (P) represents the stack of material which is in use and (R) represents the spare stack of material, the reader being reminded that these materials are pre-cut and accordion pleated and therefore capable of being paid out continuously one fold at a time when they are pulled by the operator.

[0045] The machine according to the invention described above is built to allow swivelling of the support-container once the cover has been opened. For further details, see FIGS. 2 to 5, 6 to 9 and 10-12 in particular.

[0046] When closed, stack of material which is in use (P) rests on horizontal platform (14d) on support container (14). After opening cover (11) and swivelling it, the support-container is swivelled in order to bring it into the opposite vertical plane. By simply pulling forwards, the operator can unlock said support-container from the housing, protruding pins (14e) thereby being released from openings (10d). Stack of material (P) will therefore also swivel, drop due to gravity and rest on plate (11b). Thus, said stack of material (P) will change its position and support surface. Because this stack (P) is smaller in size due to the material which has already been consumed, it is therefore possible to install a new stack of so-called spare material (R) as shown in FIGS. 3, 4, 7 and 8 inside the internal space of the support-container, therefore resting on existing stack of material (P) which is in use. The subsequent procedure involves then swivelling the support-container in the opposite direction in a reverse movement. By being lifted, the two stacks (P) and (R) will once again change position in the housing support. The spare stack material (R) rests on horizontal plate (14d) of the support-container and the stack of material which is in use (P) will therefore be on top of stack (R) (FIG. 9).

[0047] As shown in FIG. 13, the lower part of the machine includes, around cut-outs (11d-14p), opposite-facing positionally adjustable limit stops (16) which define a space through which the pulled strip of material moves. These limit stops (16) are designed with a stub (16a) which allows perfect guidance of the emerging material and makes it easier to separate a piece of material starting from the perforation line.

[0048] To ensure complete continuity between the stack of material which is in use (P) and the spare stack of material (R) when the material is pulled by the operator, the two stacks (P) and (R) must be joined together by a means of temporary joining so that the last fold (P1) of material in stack (P) and the first fold (R1) of material in stack (R) can be joined. The solution devised by the Applicant is illustrated in FIGS. 14 to 19.

[0049] Each stack of packaged pre-cut accordion-pleated material is designed with its exposed fold which is capable of coming into contact and resting on a stack of material which is in use (P) comprising a special means of joining (15) which has two configurations; one when the stack is being stored before being placed in the machine and another when it is being loaded in the machine. This joining means (15) is of the double-sided tape type and thus comprises an adhesive-coated part (15a) in the form of a pad which is attached to the opposite-facing face of the exposed fold of the packaged stack of (spare) material and a detachable tab (15b) which can be grasped by the operator. The shape of this tab (15b) can be identical to that of the adhesive-coated pad, as shown in FIG. 14 for example, or, preferably, be somewhat longer, as shown in FIG. 16, and protrude and be visible after the two stacks (P) and (R) have been stacked on top of each other. In this case, the tab has a part (15a) which is attached to the adhesive-coated pad and a part (15b) which protrudes, especially from the stack, so that it can be grasped by the operator. The area where this means of joining (15) is located is positioned as appropriately as possible in order to facilitate removal of the tab by the operator. It is used as follows. When the dispensing machine needs to be loaded with a spare stack, after swivelling the cover and the support-container as described earlier, the operator picks up the spare stack of material (R) which is to be loaded. He positions it on the remaining stack (P) of material which is in use and removes tab (15b) by simply pulling. In other words, removing the tab immediately causes adhesive bonding of the spare stack of material (R) which, due to its weight, presses the exposed receiving fold of joining means (15) against the exposed opposite-facing fold of the stack of material which is in use. This bonding ensures complete continuity between the two stacks of material (P) and (R). When the support-container is swivelled in the reverse direction, this adhesion is improved further still due to the ratio of the relative weights of the stacks.

[0050] As shown in the drawings, the bent middle part (15/3) of the tab faces in the opposite direction to the end of the tab (15/4) which protrudes and is grasped by the operator. The dimensional ratio of the length of the adhesive-coated part to the length of the tab is of the order of 1.5 to 2.5 in favour of the tab, the tab being longer so that it can protrude and be visually identified and grasped.

[0051] During operation of the machine, the material can be pulled without any problem when the point at which stacks (P) and (R) are joined is reached. It is obviously preferable to position joining means (15) centrally on the packaged stack of material in order to facilitate operation of the assembly. It is also possible to envisage joining means (15) of the above-mentioned type as needs dictate.

[0052] In the context of one version of the invention which specifically concerns the means of guiding the pulled strip of material between shapes (11c) and (14a), FIGS. 20 and 21 show how provision is made for using several alternating shapes of the above-mentioned type to ensure better control of the tension of the paper if it is thick. These Figures show shape (11c), shape (14a), shape (11c) and another shape (14a) which are all concentric and nested in each other.

[0053] The dispensing machine as defined by the invention offers a very large number of advantages. Firstly, its simplicity, with only three components which can be made of any plastic or cardboard material in particular, is emphasised. The way in which it is loaded is straightforward and does not pose any difficulty. Joining the stacks of material (P) and (R) is simple to achieve.

[0054] Also, because the dispensing machine according to the invention comprises only three parts or components (10-11-14), it ensures that material is dispensed in total silence because of the absence of any cutting or drive mechanisms or other components which were previously used.
The machine according to the invention is fully compatible for distributors of all types of material formats having different dimensions because operation only involves the perforation line.

1. A machine for dispensing pre-cut wipe materials, comprising a parallelepiped-shaped housing with a back plate and a cover, a base of the cover being articulated on a connecting pin around an axis of rotation and including means of locking, a support-container which holds a stack of pre-cut material which is in use and has capacity to hold a spare stack of material, a base of said support-container being articulated relative to the cover and the housing around the axis of rotation, and the cover internally has, in an upper part, a horizontal plate which constitutes a support base for the stack of material which is in use after swivelling the cover and the support-container to load the spare stack of material, and said support-container is fitted inside and is dismountably attached to the housing after swivelling into internal space of the housing, and swivelling of the support-container causes downward displacement of the stack of material which is in use, thereby allowing the spare stack of material to be inserted into the internal space of said support-container, and means for joining the stack of material which is in use and the spare stack of material to each other after positioning the spare stack of material on the stack of material which is in use.

2. A machine as claimed in claim 1, wherein the support-container comprises a front wall which is parallel to the back plate of the housing when the machine is closed, two side walls which fit inside the housing, a bottom base and, above the bottom base, the horizontal plate to support the stack of wipe material during operation.

3. A machine as claimed in claim 2, wherein re-entrant side walls of the support-container are provided with protruding pins for locking in position in openings in side walls of the housing.

4. A machine as claimed in claim 2, wherein an upper part of the support-container has a connecting band located opposite wall facing the back plate of the housing, said band having a cut-out to allow movement of the means of locking and a fixed vertical tab involved in said locking.

5. A machine as claimed in claim 1, wherein an inner face of the cover has a protruding shape which allows pre-cutting and prevents creasing of the material, and an outer face of the front wall of the support-container is provided with a curved shape which fits into a space defined by and concentric with the protruding shape and leaves room for the strip of material to pass through.

6. A machine as claimed in claim 5, wherein the protruding shape surrounds a central cut-out and the curved shape surrounds a cut-out, said cut-outs allowing the strip of material to emerge.

7. A machine as claimed in claim 6, with a lower part comprising, around the cut-outs, opposite-facing positionally adjustable limit stops, said limit stops having a stub to guide pulled material out of the machine and makes it easier to separate a piece of strip starting from an adjacent perforation line.

8. A machine as claimed in claim 1, wherein, when the spare stack of material is loaded, said spare stack is attached by its exposed fold facing an exposed fold of the stack of material which is in use by at least one partly detachable joining means in order to allow adhesive bonding of the two stacks by their opposite-facing folds.

9. A machine as claimed in claim 8, wherein the joining means comprises double-sided tape with an adhesive-coated part in the form of a pad attached to the opposite-facing face of the exposed fold of the spare stack of material and a protruding, detachable tab of the receiving stack which can be grasped by an operator.

10. A machine as claimed in claim 9, wherein the tab has a part which is attached to the pad and a part which protrudes from the stack that can be grasped, thus allowing removal of said tab by pulling and secure bonding of the opposite-facing folds of the stacks of material.

11. A machine as claimed in claim 5, comprising several alternating shapes to allow better control of tension of thick material, said shapes being concentric and nested in each other.

12. A machine as claimed in claim 9, wherein the tab has a bent middle part located opposite its end which protrudes from the stack to be grasped by the operator.

13. A machine as claimed in claim 9, wherein a ratio of the length of the tab to the length of the adhesive-coated part is in the range of 1.5 to 2.5.

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