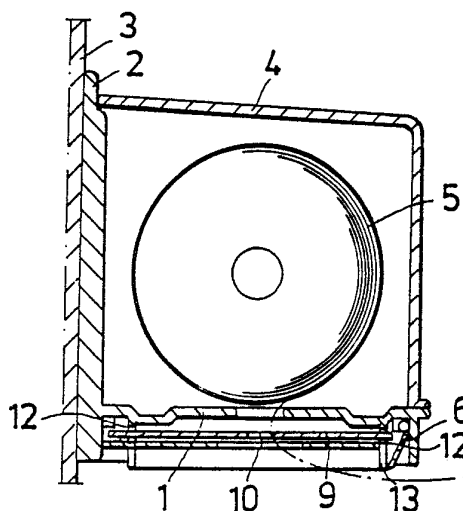




INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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(54) Title: PAPER DISPENSER**(57) Abstract**

A paper dispenser is furnished with one or more turnable or tiltable tearing off means (6), equipped with zagged edges (7). When inactive the edge (7) is held by a spring (8) or by force of gravity in an innocuous position. As a drawing force is applied to the paper web coming out of the dispenser, the tearing off means (6) is turned or tilted so that the zags of the edge (7) get in contact with the paper web. Since that is torn off the zagged edge (7) returns to its shielded position. The tearing off means (6) can be directly actuated by the paper web, or via an intermediate element (9).

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Paper dispenser

The invention is directed to a paper dispenser and more particularly to means for partitioning a paper web drawn out of the dispenser. As this partitioning means is formed with a zagged edge it is of importance to have the edge covered when inactive, to prevent from hand injuries to a person grasping at the paper web.

Paper dispensers of many shapes are known, and since long ago, designers have been engaged in finding a kind of means effective in partitioning a paper web, but not injuring the user's hand. In case of round paper dispensers, where the paper web is drawn out of the centre hole of a paper roll standing at its one end on a shelf, constituting the bottom of the dispenser and having a through-hole, there has been applied a circumferential zagged edge. Due to SE-C-389086 this solution distantiates the edge from where the end of the paper web should be grasped. As a piece of paper has been torn off, the end of the paper web will be hanging down from the dispenser long enough to be safely within reach beside the zagged edge.

In SE-B-430464 is set forth the necessity to have a kind of protective collar outside the tearing off rim.

One object of the present invention is to offer a tearing off edge for a paper dispenser workable irrespectively of whether the paper web is fed in plain from the periphery of a roll, or twisted from the centre hole of a roll. Furthermore, the edge will be kept in a shielded or covered position when not active in cutting the paper web. To reach these and other advantages the invention has been given the features made obvious by the patent claims. Consequently, the edge, being zagged for easily departing in desired pieces even twisted paper web drawn out of the centre hole of a paper roll, is turnable or tiltable from its covered

position into an active position. This movement is automatically achieved by drawing the paper web out of the dispenser. By this operation when using an embodiment with the tearing off edge furnished along one border of a flat bar, along its other border hinged to the bottom or the housing of the dispenser, an intermediate element being displaced by the paper web and thereby presses the edge out to its active position. In this way the edge comes forward and gets in contact with the paper web, which can then be torn off in a desired length. After that the bar turns by the aid of a spring, or due to the force of gravity, back to its rest state with the edge covered. One way to use this force of gravity is to have an arm or lever, if necessary with a weight on, coupled to the bar; another is to have a weight placed on the hinge opposite to the bar itself.

In another embodiment of the invention the edge is secured to one side end of one of the flanges of a tiltable bar in cross-section of L-, V- or T-shape. As has been explained hereinbefore, to avoid injuries to a user of the dispenser, the tearing off edge lies covered when inactive. In this case the paper web when drawn out of the dispenser touches a free flange or extremity of the bar and tilt this so that the edge comes forward from its covered position and gets in contact with the web. The tilting movement can be achieved in direct contact between the paper web and a part of the bar. However, in some cases it is preferred to insert an intermediate element to be horizontally displaced by the paper web, and thereby transmitting the force necessary to tilt the bar. By making the intermediate element wedge-shaped a vertical movement of the tearing off edge can be brought about. As the paper web has been torn off, the edge returns to its covered position, either due to the distribution of weight within the cross-section of the bar, or by way of a spring.

The embodiments of the dispenser now described might be using only single tearing off means. However, for the person skilled in the art it is obvious to provide e.g. a vertically on a wall arranged paper dispenser with more edge means. This is applicable to paper dispensers from which the paper web is fed out of the centre hole of the roll, because when the roll is wound off peripherially one edge is enough.

In using two or more edge elements of any of the kinds described, it is considered an advantage to place an intermediate element under the outlet of the paper dispenser. This element is "free-flowing" in the sense that when pulling the paper web in any direction, the intermediate element moves in the same direction and actuates one tearing off edge means, so that the edge gets in contact with the paper web, making it possible to tear off a desired piece thereof.

The expression "free-flowing" with respect to the intermediate element comprehends that it does not offer any resistance to the edge means in their return to the covered position, neither as the return movement is carried out due to gravity force, nor when a spring is involved.

One way to attain the "free-flowing" of the intermediate element is to have the walls of the housing of the paper dispenser extending beneath the bottom of the dispenser, and having the intermediate element slidably moving in recesses in a so formed flange.

A preferred embodiment of the invention will be described with reference to the accompanying drawings. These show in

Fig. 1 in vertical section a paper dispenser attached to a wall and with a horizontally placed paper roll the web of which is drawn from its periphery,

Fig. 2 in perspective a tearing off means with zags formed at the edge of the one flange of a L-shaped bar,

Fig. 3 a bottom plan view of a paper dispenser without its bottom cover and illustrating a flat intermediate element for actuating the tearing off means,

Figs. 4-7 examples of in cross-section L-, V-, T- and I-shaped tearing off means,

Fig. 8 fragmentary in vertical section a top feeding out dispenser with a tearing off means designed with a lever (rest position) and

Fig. 9 the same as in Fig. 8, but with the edge in active position.

A paper dispenser is constituted of a bottom 1 preferably integrated with a wall bracket 2 mounted to a vertical wall 3, and of a housing 4. Within the housing 4 hangs horizontally a paper roll 5, in parallel to the bottom 1. The paper dispenser could be in a form close to a cylinder, but it is considered an advantage to have at least the bottom 1 in an essentially squared shape. By that configuration of the bottom 1 at least one straight tearing off means 6 is mounted adjacent an edge of the bottom 1.

To facilitate the use of the paper dispenser this has been equipped with tearing off means 6 along three sides of the bottom 1. By this arrangement it is possible to draw out the paper web in any desired direction, and to have it cut off by the tearing off means 6.

In order to reliably cut the paper web coming out twisted of the centre hole of a paper roll standing on the bottom 1, the tearing off means has been designed with a zagged edge 7.

To have the zags out of touch when the edge not is needed for a tearing off operation, the whole tearing off means 6 is turned or tilted into a position, where the edge 7 is covered. The retrogradation of the tearing off means 6 from its active position is carried out by a spring 8. This spring keeps the tearing off means 6 in its rest state.

For the actuation of the tearing off means 6 into its active position the paper dispenser is furnished with a flat element 9 placed beneath the bottom 1. This flat element 9 has a polygonal shape and a central hole 10. The hole 10 is by preference round, and of a diameter smaller than the diameter of the hole in the bottom 1, through which the paper web proceeds. The flat element 9 can be moved horizontally, and the movement is caused by drawing the paper web to one side of the hole in the bottom 1. As the paper web passes the hole 10 in the flat element 9, the latter hole is aligned with that of the bottom 1. Thereby the flat element 9 is displaced and a tenon 11 formed at a corner of the flat element 9 slides in a recess 12 in a flange 13 extending downwardly from the bottom 1.

The tenon 11 protrudes through the recess 12 and presses against the tearing off means 6 causing this to tilt (Figs. 4 and 5), to turn (Fig. 2) or just to lower (Fig. 6). As long as there is a force in the paper web, the flat element 9 will hold the tearing off means 6 with its edge 7 out in its active position, but immediately after the paper web has been torn off the spring 8 will bring back the tearing off means 6 with its zagged edge 7 to its covered position. Thus the risk to injuries to the next person grasping at the end of the paper web is avoided.

In the case of a flat tearing off means 6 (fig 7) hinged to the bottom 1 the intermediate element 9 is permanently connected to at least one end of the bar in such a manner that a short displacement of the intermediate element 9 results in a movement of the edge 7 of a multiplied distance.

The embodiment of Figs. 8 and 9 is intended for paper dispensers used standing on the floor or on a bench. In this case there has been taken advantage of the force of gravity.

Thus a lever 13 of the tearing off means 6'' keeps the edge thereof in an innocuous position. When pulling the paper web out of the dispenser the friction between the paper and the tearing off means 6'' brings the latter to turn and raise the lever 13. As soon as the paper web is torn off, the lever 13 falls down and brings the edge back to its covered position. The lever 13 can be fitted with a displaceable weight for adjustment of its reaction to the friction force between the paper web and the tearing off means 6''.

Claims

1. Paper dispenser with means for partitioning a paper web into desired pieces, which means includes a zagged edge, covered from injuring the hand of a person grasping at the paper web, said means being placed adjacent to the outlet of the dispenser, characterized in that the at least one partitioning means (6) is actuated by a pulling force in the paper web out of the dispenser, so that the zags of the edge (7) enter into contact with said web in order to depart a piece of the web.
2. Paper dispenser according to claim 1, characterized in that the zagged edge (7) is placed axially along one border of a flat bar (6), turnable around an axis in its longitudinal direction, thereby protruding the edge (7).
3. Paper dispenser according to claim 1, characterized in that the zagged edge (7') is placed alongside a tiltable, in cross-section L-shaped element.
4. Paper dispenser according to any one of the preceding claims, characterized in that there is a flat element (9) next to the outlet of the dispenser bottom (1), having a through-hole (10) of a dimension smaller than the dimensions of the outlet and alignable with the outlet, said element (9) being movable in one or more directions thereby actuating the partitioning means (6) into an active position.
5. Paper dispenser according to claim 4, characterized in that the flat element (9) is polygonal, having at its corners tenons (11) slidable in recesses (12) in the dispenser walls, said tenons (11) actuating the partitioning means (6) into their active positions.

6. Paper dispenser according to any one of the preceding claims, characterized in that the partitioning means (6) are held in their covered position by way of springs (8).

7. Paper dispenser according to any one of claims 1-5, characterized in that the partitioning means (6) after having departed a piece of the paper web return to their covered position under influence of gravity force.

8. Paper dispenser according to any of claims 4-7, characterized in that the flat element (9) is movable vertically as well as horizontally.

9. Paper dispenser according to any one of claims 4-8, characterized in that the flat element (9), after the paper web has been torn off, is retracted to its initial position by way of one or more springs.

10. Paper dispenser according to claim 1 or 2 characterized in that the partitioning means is constituted by a flat bar (6) zagged along one border and hinged at the opposite border, and further through linkage governed by a horizontally guided intermediate element (9).

AMENDED CLAIMS

[received by the International Bureau
on 15 November 1988 (15.11.1988);

original claims 1 and 4 replaced by new claim 1; claims 2,3,6 and 7 cancelled;
claim 5 unchanged but renumbered as claim 2; claim 8 replaced by amended claim 3;
claims 9 and 10 unchanged but renumbered as claims 4 and 5 (1 page)]

1. Paper dispenser with one or more means for partitioning a paper web into desired pieces which means include a zagged edge, covered from injuring the hand of a person grasping at the paper web, said means being placed adjacent to the outlet of the dispenser, and at least one partitioning means (6) is actuated by a pulling force in the paper web out of the dispenser, so that the zags of the edge (7) enter into contact with said web in order to depart a piece of the web, characterized in that there is a flat element (9) next to the outlet of the dispenser bottom (1), having a through-hole (10) of a dimension smaller than the dimensions of the outlet and alignable with the outlet, said element (9) being movable in one or more directions thereby actuating the partitioning means (6) into an active position.

2. Paper dispenser according to claim 1, characterized in that the flat element (9) is polygonal, having at its corners tenons (11) slidable in recesses (12) in the dispenser walls, said tenons (11) actuating the partitioning means (6) into their active positions.

3. Paper dispenser according to claim 1 or 2, characterized in that the flat element (9) is horizontally movable.

4. Paper dispenser according to any one of claims 1-3, characterized in that the flat element (9), after the paper web has been torn off, is retracted to its initial position by way of one or more springs.

5. Paper dispenser according to claim 1 or 2 characterized in that the partitioning means is constituted by a flat bar (6) zagged along one border and hinged at the opposite border, and further through linkage governed by a horizontally guided intermediate element (9).

Fig. 1

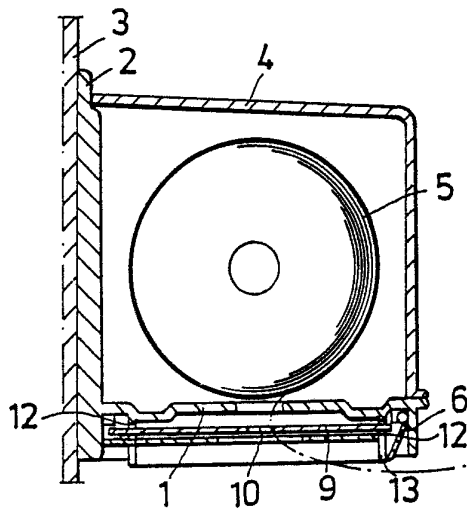


Fig. 2

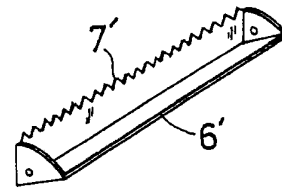
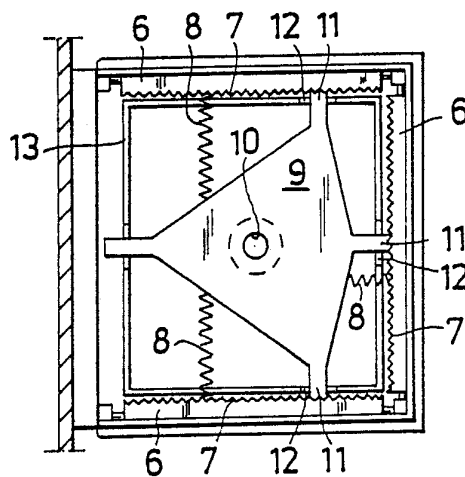


Fig. 3



INTERNATIONAL SEARCH REPORT

International Application No. PCT/SE88/00372

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) ⁶		
According to International Patent Classification (IPC) or to both National Classification and IPC ⁴ A 47 K 10/36		
II. FIELDS SEARCHED		
Minimum Documentation Searched ⁷		
Classification System	Classification Symbols	
IPC 4	A 47 K 10/16, /18, /22, /24, /32, /34, /36, /38; B 65 H 35/00, /04, /06, 75/32 .../...	
Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched ⁸		
SE, NO, DK, FI classes as above		
III. DOCUMENTS CONSIDERED TO BE RELEVANT ⁹		
Category ¹⁰	Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³
X	DE, A1, 3 502 723 (EMSA-WERKE WULF GMBH & CO) 10 October 1985 Claim 1; page 9, lines 3-9; figures 2, 3	1,3,6,7
X	SE, C, 196 912 (E J DROLSHAMMER) 29 June 1965 Page 1, col 2, lines 5-13; page 2, col 1, lines 3-23; fig	1,2,6,7
X	CH, A5, 616 578 (M BAUMANN) 15 April 1980 Page 2, lines 23-34; figures 1, 3 & DE, 2818347	1,2,6,7
X	US, A, 1 653 298 (J F LEIDECKER) 20 December 1927 Page 1, lines 73-98; figures 1, 3	1,2,6,7
X	US, A, 2 032 643 (L A WESTBO) 3 March 1936 Page 2, col 1, line 27 - col 2, line 33; figures 1,3 .../...	1,2,6,7
¹⁰ Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. "&" document member of the same patent family		
IV. CERTIFICATION		
Date of the Actual Completion of the International Search		Date of Mailing of this International Search Report
1988-09-09		1988 -09- 15
International Searching Authority		Signature of Authorized Officer
Swedish Patent Office		Hans Andersson

FURTHER INFORMATION CONTINUED FROM THE SECOND SHEET

II

Fields searched (cont)

US Cl 225: 19-23, 31, 33, 43, 46, 47, 49-58,
67-92, 97, 106;
242: 55.2-55

V. ☐ OBSERVATIONS WHERE CERTAIN CLAIMS WERE FOUND UNSEARCHABLE ¹

This international search report has not been established in respect of certain claims under Article 17(2) (a) for the following reasons:

1. ☐ Claim numbers....., because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claim numbers....., because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claim numbers....., because they are dependent claims and are not drafted in accordance with the second and third sentences of PCT Rule 6.4(a).

VI. ☐ OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING ²

This International Searching Authority found multiple inventions in this international application as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims of the international application.

2. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims of the international application for which fees were paid, specifically claims:

3. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claim numbers:

4. ☐ As all searchable claims could be searched without effort justifying an additional fee, the International Searching Authority did not invite payment of any additional fee.

Remark on Protest

☐ The additional search fees were accompanied by applicant's protest.

☐ No protest accompanied the payment of additional search fees.

III. DOCUMENTS CONSIDERED TO BE RELEVANT (CONTINUED FROM THE SECOND SHEET)		
Category *	Citation of Document, with indication, where appropriate, of the relevant passages	Relevant to Claim No
X	US, A, 2 817 404 (C W VOGT) 24 December 1957 Col 2, line 64 - col 3, line 22; figures 1-3	1,2,6,7
A	DE, A1, 2 351 699 (W ROCHOLZ) 24 April 1975 Claims 1-3	1
A	DE, A1, 3 406 880 (EMSA-WERKE WULF GMBH & CO) 12 September 1985 Claim 1; figures 1, 2	1