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STICKING OF STRIPS

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Fig. 1.

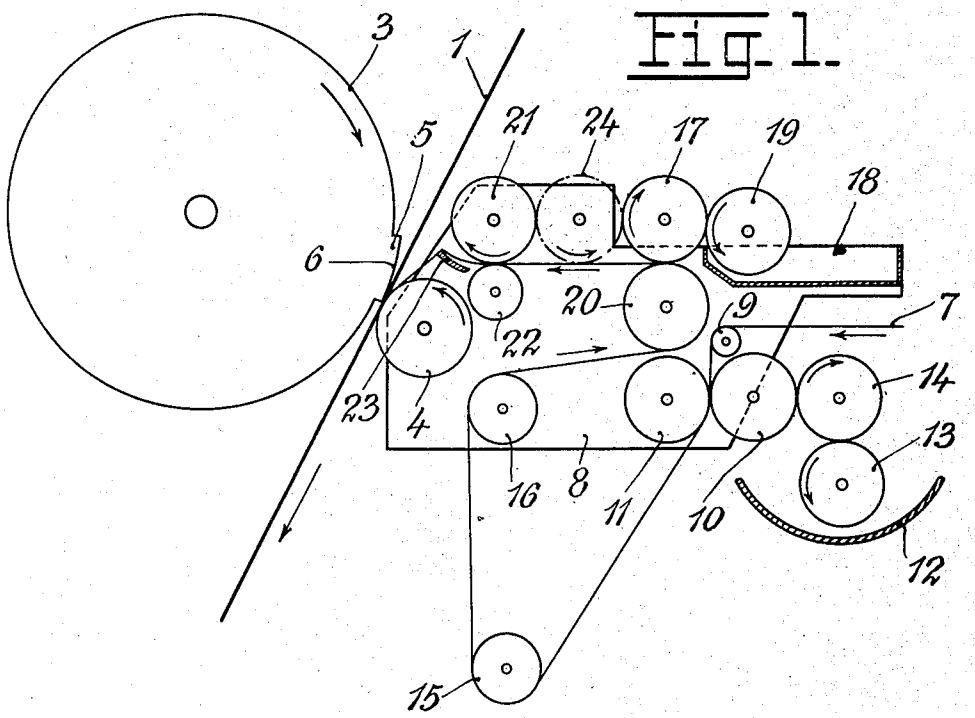
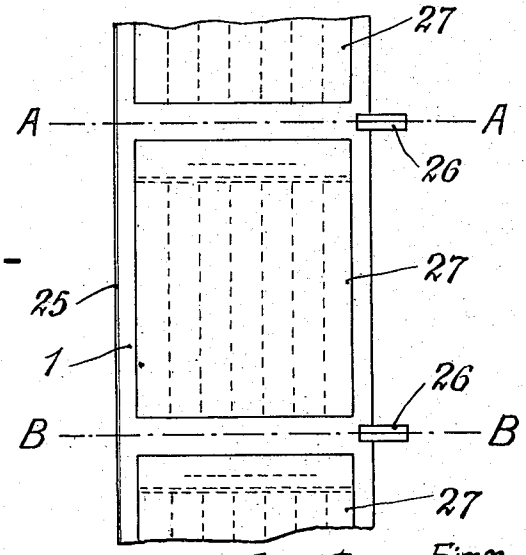


Fig. 2.



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STICKING OF STRIPS

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9 Claims. (Cl. 216—33)

The invention relates to an apparatus for sticking strips on to continuously moving webs of paper or the like. Particularly the apparatus has been designed for the purpose of sticking adhesive sealing strips of paper on to paper webs in rotary printing presses.

The strip is in that case stuck to the paper web in such a way that it projects outside the edge of it, so that the projecting portion may afterwards be folded around and pasted on to the other edge of the web, so that the produced newspaper, magazine or the like cannot be opened without the sealing being broken.

The invention also provides new methods for sealing newspapers, magazines and the like by means of adhesive strips.

In an apparatus of the kind to which the invention relates a continuous strip sheet, from which the strip is to be torn off, is fed toward the running web or webs of printing paper with a smaller velocity than the latter and caught between two tear-off members arranged revolving at either side of the running webs and provided with cooperating cylindrical surfaces which have the same velocity and direction of movement as the latter, whereby a strip of the desired width is torn off and pressed against the running webs by the cooperating cylindrical surfaces.

Thus the revolving tear-off members provide for the tearing-off as well as for the sticking-on operation.

According to the present invention the tearing-off operation which takes place in consequence of the stress caused in the strip sheet by the difference of linear movement between the above-mentioned tear-off members on the one hand, and the feeding means for the strip sheet on the other hand, is efficiently assisted by a tear-off edge which is arranged transversely to the strip sheet between the feeding means and the tear-off members, so that the strip sheet is torn off thereon.

The strip sheet may either be perforated beforehand so that the tearing off takes place along the perforation line or according to a further feature of the invention the tear-off edge may be formed with a sharp edge which may be serrated if desired and which permits the use of an unperforated strip sheet. This is a feature of great importance since special means for a beforehand perforation may be dispensed with and operations for adjusting the feed of the strip sheet out of regard to elongation of the same during operation become superfluous.

Other features and objects of the invention will appear from the following specification with reference to the accompanying drawing in which:

Fig. 1 illustrates diagrammatically an embodiment of the apparatus according to the invention, and

Fig. 2 part of the running newsprint web during the operation of a method according to the invention.

In Fig. 1, 1 is the running paper web which runs in the direction of the arrow. For example it may be the web or webs of newsprint in a rotary printing press on its way over the former of the folder to the guiding rollers, the axes of which are normal to the plane of the drawing.

Thus the edge 1 of the running web is normal to the plane of the drawing and passes between two tear-off members or rollers 3 and 4, which revolve in the direction of the arrows. The roller 3 has a segment-like projection 5, the cylindrical surface 6 of which as well as the surface of the cylinder 4 have the same linear velocity as the paper web 1, so that the tear-off rollers do not cause any stretching of the latter. 7 is the strip sheet.

In the present example the same is supposed to be a continuous paper strip without perforations and without layer of adhesive when entering the apparatus.

In the latter it passes between or over a plurality of rollers, which are journalled in a frame, consisting chiefly of two cheek plates 8. At first it passes over a guiding roller 9 into a printing mechanism, consisting of a plate cylinder 10 and an impression cylinder 11, whereby it may be provided with printed advertisements or the like.

The plate cylinder 10 receives the ink from a fountain 12 by means of the rollers 13 and 14.

Thereafter the sheet passes over an adjusting roller 15 and a guiding roller 16, and accomplishes hereby a path of such a length that the ink gets sufficient time for drying before the strip sheet enters between a glue roller 17, which has adhesive applied continuously to it from a vessel 18 by intermediation of a roller 19 and a counter pressure roller 20.

From here the strip sheet then enters between feeding rollers 21, 22 and is then conducted over a tear-off knife 23 and down between the tear-off rollers 4 and 3. Between the tear-off knife 23 and the tear-off rollers there may be provided guiding members for the strip sheet, for example in the form of fingers or the like.

The rollers 11, 15, 16, 20, and 22 may be freely journalled, whereas the printing roller 10, the glue roller 17 and the feeding roller 21 are driven from

outside and are synchronized mutually by means of gearings outside the plates 8.

For example between the glue roller 17 and the feeding roller 21 a pinion 24 is indicated.

If for instance one strip of sealing paper is to be pasted on to the running newsprint web 1 once for every passing newspaper page, the feeding speed of the strip sheet 7 has a constant relation to the running speed of the newsprint web 1 corresponding to the relation between the width of the sealing strip and the cut off of the newspaper press.

By means of the adjusting roller 15 the forward end of the strip sheet is adjusted beforehand in such a manner that it enters between the roller 4 and the front edge of the segment 5 as they begin to engage the paper webs, and because of the cylinder faces 4 and 6 having a greater linear velocity than the strip sheet, the latter is torn off on the knife 23, and the strip which is torn off, is pressed against the paper web 1 between the cylinder faces 4 and 6 during their further movement.

In order to prevent the strip sheet from sticking to the feeding roller 21 the latter and the glue roller 17 may be made as disk rollers, the disks being arranged axially in relation to each other in such a manner that the glue disks correspond to the intervals between the feeding disks, so that the latter cannot come into contact with the glue.

The width of the segment 5 should naturally be at least that of a strip, so that the strip is pressed against the paper sheet in its entire width. According to the velocities employed and the number of strips to be stuck on, the roller 3 may naturally be provided with different members of such projections. In the present case only one has been chosen in order that the diameter should be the least possible, whereas the roller 4 is made with a considerably smaller diameter.

If it is desired to seal the newspaper with strips at the top as well as at the bottom, it is possible to use the following method which is illustrated in Fig. 2, which shows the paper web 1 after leaving the above described apparatus and after being folded together along its back at 25. The sealing strips 26 are shown projecting laterally from the free edge of the paper web just between the adjoining newspaper pages, the newsprint areas being indicated at 27. It will be understood that when the newspapers are subsequently cut in the folder along the division lines A—A, B—B the strips 26 will be divided lengthwise along these lines so that each newspaper will be sealed at the top as well as at the bottom by strips having half the width of the strips 26 shown. As in this manner the distance between the strips 26 is always the same, the strips may be stuck on by means of an apparatus in which the tear-off roller 3 has only one segmental projection 5 as in Fig. 1.

However, it is also possible with one single strip to seal the newspaper in such a manner that it cannot be opened even partly, namely if the free end of the strip is not folded and pasted on till the newspaper is finally cut and folded once to half page size in the usual way. If then the end of the strip is folded around the edge of the newspaper, it will, if the strip has at first been stuck to the front page at the top, meet the bottom of the front page at the other side of the newspaper, or the last page by tabloid sizes, whereby it will be impossible to open the same without breaking the sealing.

We claim:

1. In a machine which comprises means for continuously running web material, an apparatus for sticking strips on to said running web, which comprises means for feeding a continuous strip sheet toward said running web at a velocity smaller than that of the latter, a tear-off edge, arranged transversely to said strip sheet between said feeding means and said running web, and two tear-off members located at either side of said running web and provided with cylindrical surfaces, the axes of which are arranged transversely to said running web and said strip sheet, said tear-off members being arranged for revolving about said axes with a linear velocity of said cylindrical surfaces like, and in the same direction as, that of said running web, and at such a distance from each other as to engage said running web and said strip sheet between said cylindrical surfaces, so as to cause tearing off of a strip from said strip sheet and pressing of said strip into adhering engagement with said running web, at desired intervals.

2. In a machine which comprises means for continuously running web material, an apparatus for sticking strips on to said running web, which comprises means for feeding a continuous unperforated strip sheet toward said running web at a velocity smaller than that of the latter, and a sharp tear-off edge arranged transversely to said strip sheet between said feeding means and said running web, and two tear-off members located at either side of said running web and provided with cylindrical surfaces, the axes of which are arranged transversely to said running web and said strip sheet, said tear-off members being arranged for revolving about said axes with a linear velocity of said cylindrical surfaces like, and in the same direction as, that of said running web, and at such a distance from each other as to engage said running web and said strip sheet between said cylindrical surfaces, so as to cause tearing off of a strip from said strip sheet and pressing of said strip into adhering engagement with said running web, at desired intervals.

3. In a machine which comprises means for continuously running web material, an apparatus for sticking strips on to said running web, which comprises means for feeding a continuous unperforated strip sheet toward said running web at a velocity smaller than that of the latter, a serrated tear-off edge arranged transversely to said strip sheet between said feeding means and said running web, and two tear-off members located at either side of said running web and provided with cylindrical surfaces, the axes of which are arranged transversely to said running web and said strip sheet, said tear-off members being arranged for revolving about said axes with a linear velocity of said cylindrical surfaces like, and in the same direction as, that of said running web, and at such a distance from each other as to engage said running web and said strip sheet between said cylindrical surfaces, so as to cause tearing off of a strip from said strip sheet and pressing of said strip into adhering engagement with said running web, at desired intervals.

4. Method of sealing newspapers, magazines or the like by means of adhering paper strips, which are folded around the open lateral edge of the newspaper or the like, characterized by the fact that the strip is applied to the continuous paper web just between two newspaper pages or the like, so that later on when the newspaper or the like is cut by means of the press, the strip is

divided lengthwise, and thus the newspaper or the like is sealed at the top as well as at the bottom.

5. In a machine which comprises means for continuously running web material, an apparatus for sticking strips on to said running web, which comprises means for feeding a continuous strip sheet toward said running web at a velocity smaller than that of the latter, a tear-off edge, arranged transversely to said strip sheet between said feeding means and said running web, and two tear-off members located at either side of said running web and provided with cylindrical surfaces, the axes of which are arranged transversely to said running web and said strip sheet, and at least one of which is formed on a segmental projection of one of said tear-off members, said tear-off members being arranged for revolving about said axes with a linear velocity of said cylindrical surfaces like, and in the same direction as, that of said running web, and at such a distance from each other as to engage said running web and said strip sheet between said cylindrical surfaces, so as to cause tearing off of a strip from said strip sheet and pressing of said strip into adhering engagement with said running web, at desired intervals.

6. In a machine which comprises means for continuously running web material, an apparatus for sticking strips on to said running web, which comprises means for feeding a continuous unperforated strip sheet toward said running web at a velocity smaller than that of the latter, a sharp tear-off edge arranged transversely to said strip sheet between said feeding means and said running web, and two tear-off members located at either side of said running web and provided with cylindrical surfaces, the axes of which are arranged transversely to said running web and said strip sheet, and at least one of which is formed on a segmental projection of one of said tear-off members, said tear-off members being arranged for revolving about said axes with a linear velocity of said cylindrical surfaces like, and in the same direction as, that of said running web, and at such a distance from each other as to engage said running web and said strip sheet between said cylindrical surfaces, so as to cause tearing off of a strip from said strip sheet and pressing of said strip into adhering engagement with said running web, at desired intervals.

7. In a machine which comprises means for continuously running web material, an apparatus for sticking strips on to said running web, which comprises means for feeding a continuous unperforated strip sheet toward said running web at a velocity smaller than that of the latter, a serrated tear-off edge arranged transversely to said strip sheet between said feeding means and said running web, and two tear-off members located at either side of said running web and provided with cylindrical surfaces, the axes of which are arranged transversely to said running web and said strip sheet, and at least one of which is formed on a segmental projection of one of said tear-off members, said tear-off members being arranged for revolving about said axes with a linear velocity of said cylindrical surfaces like, and in the same direction as, that of said running web, and at such a distance from each other as to engage said running web and said strip sheet between said cylindrical surfaces, so as to cause tearing off of a strip from said strip sheet and pressing of said strip into adhering engagement with said running web, at desired intervals.

8. In a machine which comprises means for continuously running web material, an apparatus for sticking strips on to said running web, which comprises means for feeding a continuous strip sheet toward said running web at a velocity smaller than that of the latter, a tear-off edge arranged transversely to said strip sheet between said feeding means and said running web, and two tear-off members, one of which has a projection formed as a cylinder segment, and the other of which is of cylindrical form and with a radius smaller than that of said cylinder segment, the axes of the cylindrical surfaces of said members being arranged transversely to said running web and said strip sheet, and said tear-off members being arranged for revolving about said axes with a linear velocity of said cylindrical surfaces like, and in the same directions as, that of said running web, and at such a distance from each other as to engage said running web and said strip sheet between said cylindrical surfaces, so as to cause tearing off of a strip from said strip sheet and pressing of said strip into adhering engagement with said running web, at desired intervals.

9. The method of sealing printed matter which comprises first sticking an adhesive strip to the front page of said printed matter in a running web in lateral projection from the right hand side margin near one end of said page before cutting said web, and then, after cutting and final folding to a half page size, folding said strip, and contacting its free end with said page at the opposite side of the printed matter so produced.

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