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[54] **COMPUTER PRINTOUT PAPER PACKAGE**
1 Claim, 3 Drawing Figs.

[52] **U.S. Cl.** ..... **206/57 R,** 270/39, 281/5
[51] **Int. Cl.** **B41l 1/32,** B65h 75/00
[50] **Field of Search** ..... 206/56 AB, 56 AC, 57; 281/5; 270/39; 282/11.5 A

[56] **References Cited**

UNITED STATES PATENTS

1,985,678	12/1934	Hand	281/5
2,446,400	8/1948	Woolley	281/5
3,048,425	8/1962	Fleischmann	206/57
3,285,405	11/1966	Wanderer	206/56 AB

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ABSTRACT: A technique of packaging a web of computer printout paper to facilitate loading the paper in a carrier or support tray and connecting the trailing edge of the web to the leading edge of a succeeding web carried in another tray. The package includes a box which contains the paper web, folded in a zigzag configuration. The box has a cover which, when removed, exposes an end of the pack, the web being folded so that at least the free, trailing end of the web will be exposed when the cover is removed. The exposed trailing end then may be pulled to withdraw a length of the web and the entire package, including the box, may be laid down on the tray. The box then is pulled free to transfer the folded web to the tray and the withdrawn trailing length of the web then may be attached to the leading end of the succeeding web.

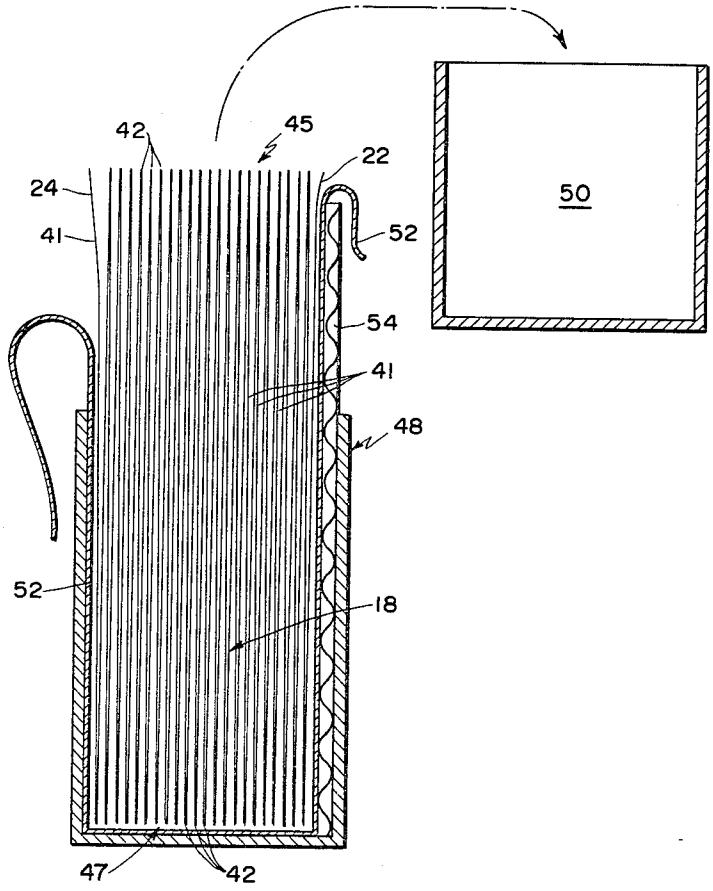


FIG. 1

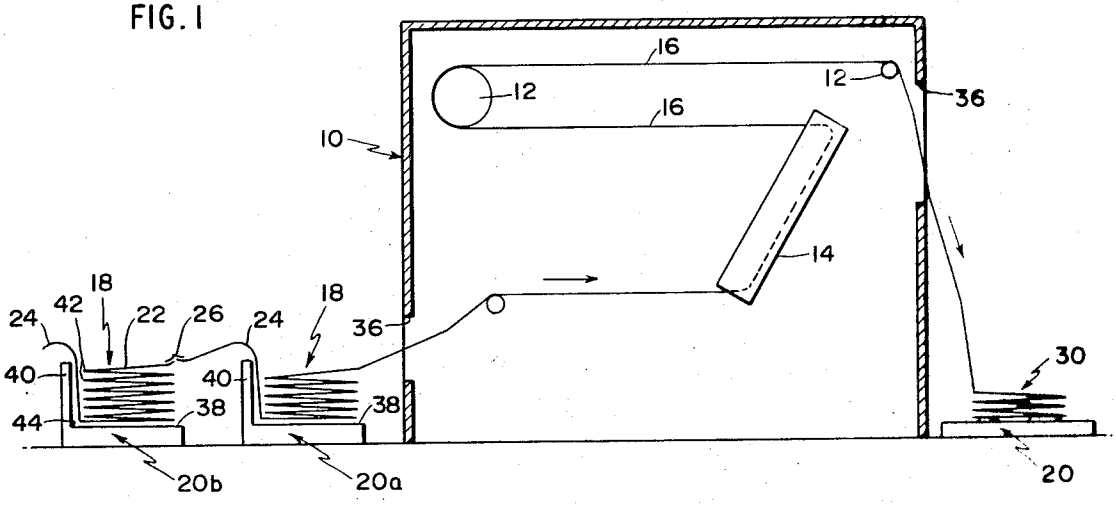


FIG. 2

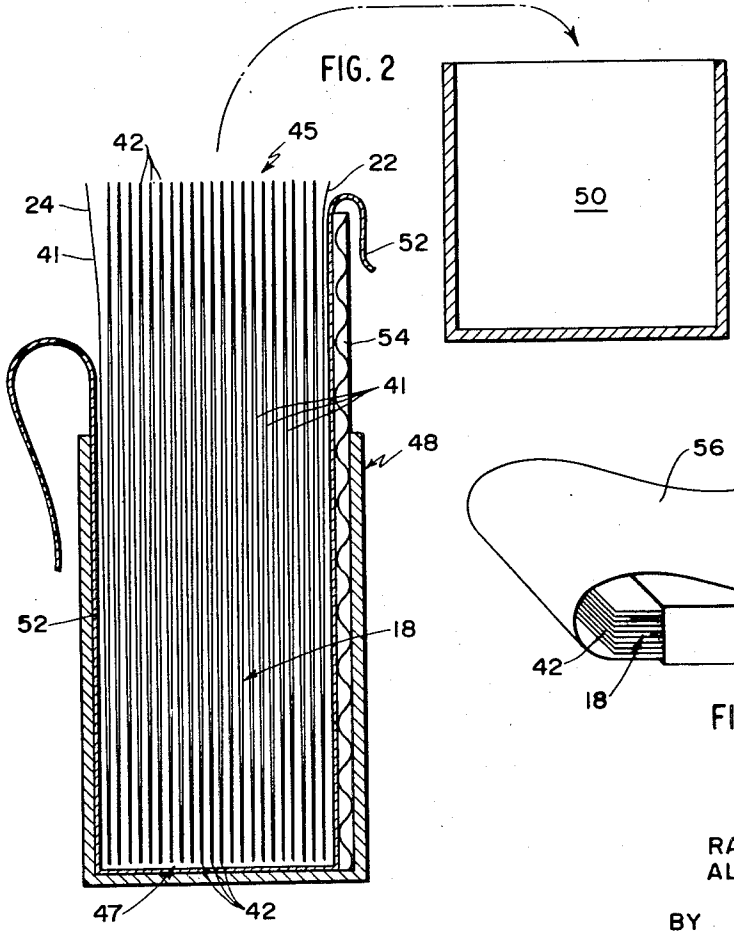


FIG. 3

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COMPUTER PRINTOUT PAPER PACKAGE

BACKGROUND AND SUMMARY OF THE INVENTION

The increasing use of computers and computer techniques has required the use of large volumes of computer readout or printout paper. Because of the impracticability of handling massive, continuous webs of readout paper it has become common practice to provide smaller, more compact bundles or packs of paper. Each pack is supported, individually, by a tray and a number of such trays are arranged in proximity to each other in an array. The trailing end of each web is connected to the leading end of the succeeding web which is carried in the following tray of the array. After practically all of one of the webs has been drawn into the computer printer, the trailing end of that web, which is connected to the leading end of the next web in the array, draws the leading end of the next web to present a continuous web to the printer. After one of the trays has been emptied, it may be reloaded with a fresh pack of computer paper and, in accordance with the invention, the leading end of the freshly loaded pack may be connected to the trailing end of the last pack in the array. It is therefore possible to provide, for all practical purposes an endless, continuous web which may be drawn continually into and through the computer printing equipment.

The trays, generally, employ a smooth bed and an upstanding end plate so that the pack of paper may be urged into the corner therebetween. Each pack is placed in the tray so that the trailing portion of the web is on the bottom to enable the leading end of the web to be unfolded and withdrawn continually form the top of the pack to the computer's paper requirements. It will be appreciated that when loading the pack in this manner on the tray, the trailing end of the web normally is disposed in the corner and is difficult to reach, because of the relatively poor access to the trailing end of the web, the pack must be shifted and manipulated to enable the trailing end to be gripped and pulled out over the plate after the pack has been placed on the tray. This sometimes results in tearing of the web and, in general, is a somewhat cumbersome procedure. It is among the primary and general objects of my invention to provide a technique for packaging the zig-zag web which simplifies the manipulation of the pack when loading it into its tray and when pulling out its trailing end for attachment to the leading end of the next succeeding pack.

In accordance with the invention, the web is packaged, in its zig-zag configuration, in a box which is constructed so that when its cover is removed, the folded edges of one side of the pack protrude outwardly from the opening of the box. The web is folded so that when the cover is removed, at least the trailing end of the web is exposed and protrudes freely out of the box. Before the pack is removed from the box and placed in the tray, the free, trailing end is pulled out to unfold and draw a length of the web from the pack. The length withdrawn should be sufficient to enable the trailing end of the web to be draped over the upstanding end plate after the pack has been placed in the tray so that the trailing end may be connected to the leading end of the next succeeding pack. After the trailing end is withdrawn to the desired length, the pack may be transferred from the box to the tray with a minimum of manipulative steps simply by carrying the box to the tray and dumping the pack from the box onto the bed of the tray and against the upstanding end plate. It is preferably, before dumping the pack, to fold the withdrawn length of the web over the exposed end of the pack so that, when dumping the pack, the pulled out, trailing end is not bunched into the corner. After the pack has been dumped onto the tray, the pulled out, trailing end may be draped freely over the plate and attached to the next pack. The package described herein thus facilitates withdrawal of the trailing end before the pack is located into the tray and eliminates cumbersome manipulation heretofore required in withdrawing and connecting the trailing end of the pack to the leading end of the next succeeding pack.

The object and advantages of my invention now will be described in detail with reference to the accompanying drawing wherein:

FIG. 1 is a somewhat schematic illustration of a computer printer in which the invention is employed to provide continuous feeding of an endless web of paper;

FIG 2 is an illustration, in section of the packaging technique in accordance with the invention; and

FIG. 3 is an illustration of the package with the trailing end withdrawn and folded over the exposed end of the pack. As shown, somewhat schematically, in FIG 1, a computer printer, indicated generally by the reference character **10** is provided with a paper-feeding mechanism, indicated generally by the rollers **12** which may be driven by conventional means to advance the paper web through the computer and past a printing station, indicated generally by the reference character **14**. In order to operate the computer printer under conditions of maximum efficiency it is necessary to provide a continuous paper web **16** so that the computer need not be shutdown to reload the printout paper. As described above, one method of supplying the continuous web **16** is to provide separate packs **18** of printout paper and to carry each such pack in a tray **20**. A number of such trays may be provided in an array as shown. Each distinct pack **18** has a leading end **22** and a trailing end **24**, the trailing end **24** being connected as by tape **26**, to the leading end **22** of the next succeeding pack **18** in the following tray **20** to present, effectively, an endless web to enable continuous operation of the computer.

Each of the trays **20** has a bed **38** on which the pack **18** is supported. An upstanding end plate **40** or other surface is provided against which the folded edges **42** of the pack may bear so that when the pack is loaded properly in the tray, it may nest in the corner **44** defined between the bed **38** and the upstanding end plate **40**.

The packs **18** are loaded onto the trays **20** with the leading end **22** on top and the trailing end **24** on the bottom. The free, trailing end **24**, which is on the bottom of the pack, is withdrawn upwardly and over the top edge of the end plate **40** and is taped or otherwise connected to the leading end **22** of the next pack, which is at the top of that next pack. As the printed roll continually draws the web of paper, the first tray **20*a*** will be emptied and the paper will begin to be drawn from the next tray **20*b***. During this time the emptied tray **28** may be refilled with a fresh pack. The leading end of this freshly placed pack may be connected to the trailing end of the web resting in the next tray **20*b*** just before the trailing end of that pack web is draw into the printer.

Because the folded edges **42** of each pack **18** are disposed snugly in the corner **44** of its supporting tray **20**, the trailing end **24** of the web which is to be connected to the next pack **18** is not readily accessible and the pack must be shifted about and manipulated in order to enable the trailing end to be gripped and pulled out from beneath the pack and over the top of the end plate **40**. Such manipulation of the pack, after it has been loaded onto the tray, may be avoided by employing a packaging technique for the serpentine web as shown in FIG. **2**.

The package includes a box **48** dimensioned to receive the serpentine-folded web. The web is folded, in a zig-zag configuration to define a plurality of contiguous panels or sheets **41** of substantially equal length, connected to each other at common folds **42**. Thus, the folded pack has a pair of opposed edges **45,47** which are defined by the registered common folds **42**. In the preferred embodiment shown, the pack is disposed in the box so that one of its edges **45** and its free, leading and trailing ends **22,24** protrude outwardly from the box when the cover **50** is removed. The other edge **47** of the pack is disposed in the bottom of the box **48**. Although, as shown, both free ends **22,24** of the web may be exposed, it only is necessary that the trailing end **24** be exposed when the box is opened. It should be noted that in some applications, when the printout paper is of a photosensitive nature, it may be prepackaged in an opaque bag **52**, such as black polyethylene, and the bag **52** containing the web **18** may be inserted into the box. In this instance, the bag **52** must be opened after the cover **50** of the box is removed in order to expose the folded edges **42** of the pack **18** and the free, trailing end **24** of the

web. Additionally, a filler blank **54** may be inserted into the box to rigidify the folded web within the box.

Because the pack **18** is retained within the box so that the trailing end **24** is free exposed after the box **48** (and a lightproof proof bag, if present) are open, the trailing end **24** may be gripped and pulled to withdraw a length **56** of the trailing portion of the web from the box. The withdrawn, trailing portion preferably is then folded over the exposed folded, edges **42** of the pack, as shown in FIG. **3**, and the pack then may be dumped from the box **48** directly into the corner **44** of the tray **20**. The withdrawn segment **56** of the web **18** then may be draped over the top of the end plate **40** in readiness for connection to the leading end **22** of the next succeeding pack **18**. This technique eliminates the need for shifting or manipulating the pack after it has been placed on the tray to grip and withdraw the trailing segment **56** of the web. This reduces the likelihood of tearing the web and simplifies the loading of the tray.

It should be understood that the foregoing description is intended merely to be illustrative of my invention and that other embodiments and modifications will be apparent to those skilled in the art without departing from its spirit.

Having thus described my invention what I desire to claim and secure by Letters Patent is:

1. A package of computer printout paper comprising a folded stack of sheets which form a continuous web of paper having a leading edge and a trailing edge, the fold lines lying at opposite inner and outer sides of said stack and the leading and trailing edges being adjacent to the outer side of said stack, a box having an open top and a cover having an open bottom packaging said stack, with said box housing that portion of the stack adjacent the inner side and said cover housing the remainder of said stack adjacent the outer side such that removal of the cover leaves the leading and trailing edges and that portion of the stack adjacent the outer side projecting from the web box.

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