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Herz

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[54] **METHOD AND APPARATUS FOR HIGH SPEED TICKET PRINTING**

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[73] Assignee: **Vogue Instrument Corporation,** Richmond Hill, N.Y.

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[52] **U.S. Cl.** **282/11.5;** 282/12; 281/5

[51] **Int. Cl.** **B41l 1/20**

[58] **Field of Search** ..... 281/5; 282/12 R, 12 A, 282/11.5, 22, 23, 11.5 A

[56] **References Cited**

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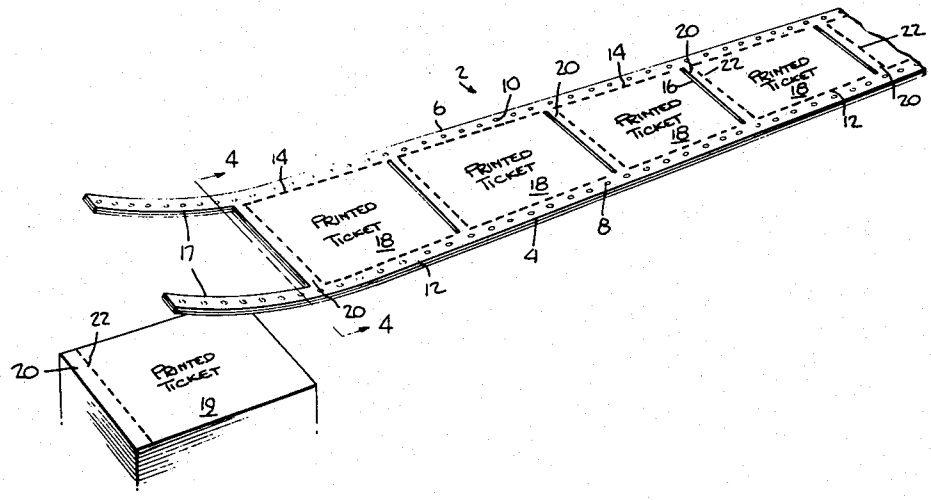
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[57] **ABSTRACT**

A web of paper stock having at least one sheet of paper in thickness, a row of sprocket holes along each longitudinal edge, and a series of transverse slits, is used in a high speed printer. Then, the individual tickets within the web are separated from one another and from the web by subsequent cuts at right angles to the transverse slits.

6 Claims, 4 Drawing Figures



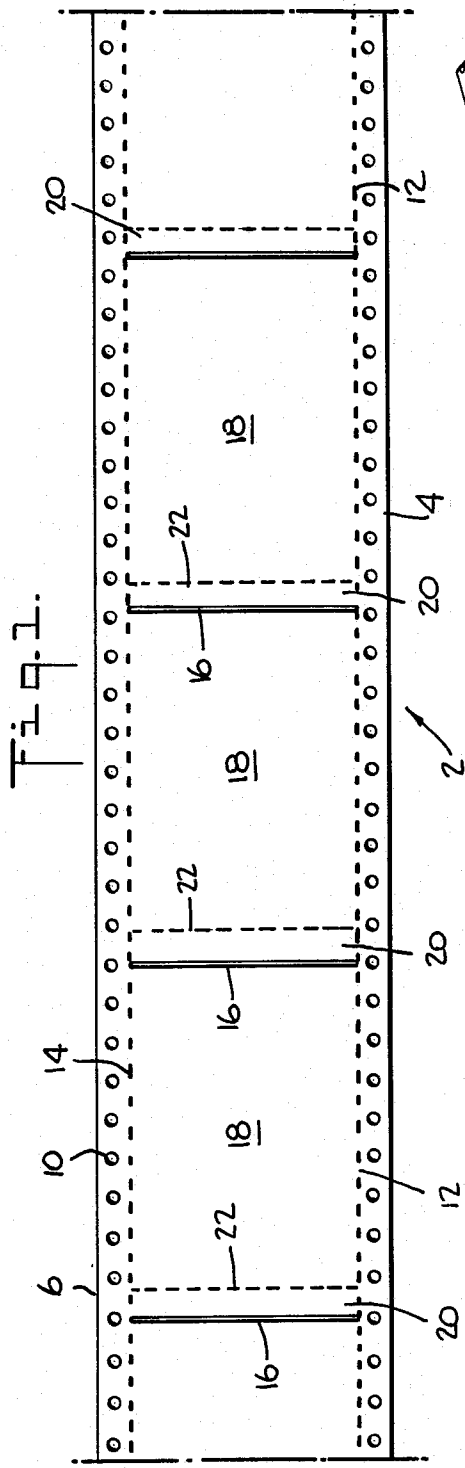


Fig. 1.

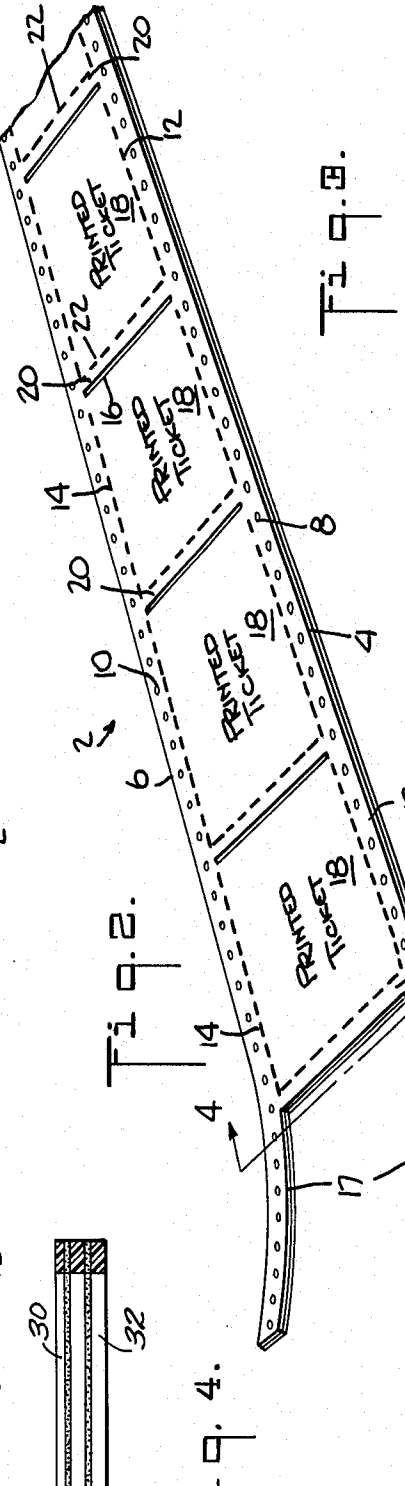


Fig. 2.

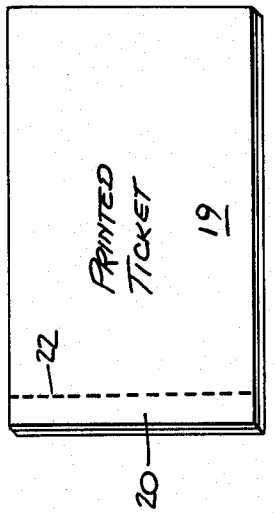


Fig. 3.

Fig. 4.

METHOD AND APPARATUS FOR HIGH SPEED TICKET PRINTING

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to the field of high speed ticket printing, including tickets having multiple pages in thickness and held together by a binding stub.

2. Description of the Prior Art

Huffman Pat. Nos. 3,268,136 and 3,304,102 relate to a data card, not to ticket printing. Eichorn Pat. No. 3,322,441; Sornberger Pat. Nos. 3,191,968 and 3,114,565; and Holmwood Pat. No. 2,700,556 also refer to cards disposed on a web and having perforations and/or slits. Straubel Pat. No. 2,053,786 is of general interest.

Thus, none of these patents disclose the specific embodiment of this invention for the high speed printing of tickets, particularly the use of multiple page tickets and a binding stub and particularly when used with a computer driven printer.

SUMMARY OF THE INVENTION

This invention relates to a web of tickets adapted for use with a high speed printer. The tickets are made from a web of paper stock having at least one sheet of paper in thickness and having two opposing longitudinal edges. The web has a row of sprocket holes along each longitudinal edge. The web also has a series of slits disposed transversely to the longitudinal axis of the web and approximately perpendicular to the rows of sprocket holes.

The slits are adapted to separate one individual ticket within the web from adjacent individual tickets when subsequent cuts are made at right angles to the slits, thereby bisecting the slits. The cuts are made along each longitudinal edge of the web and are located inside of the row of sprocket holes. The web may be composed of multiple sheets of paper stock and each of the individual tickets may have a binding stub. The result is a ticket booklet comprised of multiple pages, adapted to yield a number of copies of the ticket.

Such a method of high speed printing on a web of tickets has been found to greatly improve the speed and convenience of ticket preparation in industries such as the airline industry.

DESCRIPTION OF THE DRAWINGS

FIG. **1** is a top plan view of the web of tickets of this invention.

FIG. **2** is an isometric view of the same web of tickets shown in FIG. **1**, illustrating how individual tickets are separated from the web.

FIG. **3** is an isometric view of an individual ticket booklet after having been separated from the web illustrated in FIGS. **1** and **2**.

FIG. **4** is an end view of the web of tickets of FIG. **2**, taken along section lines **4—4**.

DETAILED DESCRIPTION

Referring to FIGS. **1** and **2**, the web of tickets adapted for use with a high speed printer is indicated generally by the numeral **2**. The web **2** is comprised of paper stock having at least one sheet of paper in thickness and having two opposing longitudinal edges **4** and **6**. The web **2** has a row of sprocket holes **8** and **10** along each of the longitudinal edges **4** and **6** of the web **2**. Subsequent cuts **12** and **14** will be made along each of the longitudinal edges **4** and **6** to separate the individual tickets **18** from each other and from the web **2**. The subsequent cuts **12** and **14** are made on the inside of the rows of sprocket holes **8** and **10** with respect to the edges **4** and **6** of the web **2**. As a result, the rows of sprocket holes **8** and **10** are closer to the edges **4** and **6** of the web **2** than where the subsequent cuts **12** and **14** will be made. The subsequent cuts **12** and **14** are made to separate the edge portions **17** of the web **2** having the sprocket holes **8** and **10** from the inner portion of the web **2**.

The web **2** also has a series of slits **16** disposed transversely to the longitudinal axis of the web **2**. The subsequent cuts **12** and **14** are made at right angles to the slits **16** and thereby bisect the slits **16**. Adjacent slits **16** thereby define two opposing sides of an individual ticket **18** within the web **2**. The subsequent cuts **12** and **14** to be made along each edge **4** and **6** of the web **2** also define two other opposing sides of each ticket **18** within the web **2**. The slits **16** are adapted to separate one individual ticket **18** within the web **2** from adjacent individual tickets **18** within the web **2** when the edge portions **17** of the web **2** having the sprocket holes **8** and **10** are separated from the inner portion of the web **2** by subsequent cuts **12** and **14**.

Referring to FIGS. **2** and **3**, the web **2** (shown in FIG. **2**) is comprised in thickness of a plurality of sheets of paper and thus each individual ticket **18** within the web **2** is comprised of multiple pages. The multiple pages of each ticket **18** further comprise a glued binding stub **20** adapted to hold the multiple pages of each ticket **18** together after the individual tickets have been separated from the web **2** to form a ticket booklet **19**. The stub **20** has a longitudinal axis which is disposed transversely to the longitudinal axis of the tickets **18**.

The individual tickets **18** or ticket booklets **19** have printed material thereon which adapts the tickets for whatever use is intended, such as for airline tickets. The multiple pages have carbon portions which are adapted to produce carbon copies from the top form of the ticket booklet **19** when the top form is filled in. Each individual ticket booklet **19** may have additional intermittent perforations **22** disposed adjacent to the binding stub **20**. The additional perforations **22** are disposed approximately parallel to the longer axis of the binding stub **20**. These additional perforations **22** are adapted to separate the binding stub **20** from the multiple pages of said ticket booklet **19**.

In the embodiments illustrated in FIGS. **1** and **2**, the individual tickets **18** within the web **2** are disposed with the longitudinal axis of each ticket **18** parallel to the rows of sprocket holes **8** and **10**. In an alternate embodiment (not shown), the individual tickets may also be disposed with the longitudinal axis of each ticket disposed transversely to the row of sprocket holes **8** and **10**. In such alternate embodiment, the slits **16** will be disposed parallel to the longitudinal edges **4** and **6** with an interval of paper between adjacent slits **16**. The subsequent cuts **12** and **14** will be made perpendicular to the longitudinal edges **4** and **6**.

The method for the high speed printing of tickets, such as the ticket booklet **19** illustrated in FIG. **3**, includes preparing a web **2** of paper stock having at least one sheet of paper in thickness and having two longitudinal edges **4** and **6**, as illustrated in FIGS. **1** and **2**, and

stamping a row of sprocket holes **8** and **10** along each of the longitudinal edges **4** and **6** of the web **2.**

The method also includes stamping a series of slits **16** in the web **2** transversely to the longitudinal axis of the web, adjacent slits **16** thereby defining two opposing sides of an individual ticket **18** within the web **2.** The slits **16** are adapted to separate one individual ticket **18** within the web **2** from adjacent individual tickets **18** within the web **2.** The method also includes the subsequent step of cutting the longitudinal edge portions **17** of the web **2** having the sprocket holes **8** and **10** and arranging the cutting at **12** and **14** to bisect the transverse slits **16** in the area of each end of the slits **16** to separate each individual ticket **18** within the web **2** from adjacent individual tickets **18** within the web **2.**

This method for the high speed printing of tickets may further comprise the additional step of gluing a portion of each sheet of each ticket **18,** where there are a plurality of sheets within each ticket **18,** to a similar portion of each additional sheet of the same ticket **18.** The glued portions comprise a binding stub **20.** For convenience, gluing should take place before the edge portions **17** of the web **2** having the sprocket holes **8** and **10** are separated by cuts **12** and **14** from the web **2.** Preferably, such gluing takes place when the web **2** is fabricated before the rows of sprocket holes **8** and **10** are stamped. The binding stub **20** is arranged with its longitudinal axis disposed transversely to the longitudinal axis of web **2** and to the longitudinal axis of ticket **18.**

FIG. **4** shows a typical method of securing a plurality of sheets together, particularly where it is desirable to insert a piece of carbon paper therebetween. For purposes of illustration FIG. **4** shows a top sheet **30** and bottom sheet **32,** between which may be interposed a piece of carbon paper **34.** The top sheet is glued by adhesive **36** to the top side of carbon paper in the stub area, **20,** only while the under side of the carbon paper is glued to the bottom sheet **32** in this same stub area by adhesive **38.** Of course additional sheets of paper with a corresponding piece of carbon paper interposed between each two sheets can be added to provide further copies as required.

In one specific embodiment of this invention, illustrated in FIG. **3,** the individual ticket booklet **19,** including binding stub **20,** measures approximately 8 7/16 inches in length and 3 ¼ inches in width. The binding stub **20** measures 3 ¼ inches in length and 1 ⅛ inches in width. Referring to FIG. **2,** in this embodiment the longitudinal axis of the individual ticket **18** within the web **2** is arranged parallel to the rows of sprocket holes **8** and **10.** Other specific embodiments of this invention may be designed in which the dimensions of individual tickets **18** vary, the binding stub **20** is placed on another side, or the longitudinal axis of the individual ticket **18** is disposed transversely to the rows of sprockets holes **8** and **10.**

What is claimed is:

1. A series of interconnected multi-page booklets produced from a continuous web of multi-copy forms which are adapted for use with a high speed printer, comprising:

a. a web of paper stock having a plurality of sheets of paper in thickness and having two opposing longitudinal edge portions and an inner portion;

b. said web having a row of sprocket holes along each longitudinal edge portion of said web, and lines of perforation extending longitudinally of said web and disposed along the inside of each row of sprocket holes;

c. said web having a series of pre-cut slits, said slits extending between said lines of perforation, with adjacent ones of said slits defining two opposing sides of a multi-page booklet within said web, said slits being disposed transversely to the longitudinal axis of said web and extending across said inner portion of said web, said transverse slits and said lines of perforation permitting an individual booklet to be separated from the remaining web; and

d. a glued binding stub along an edge of each of said pages of each booklet adapted to hold the multiple pages together after a booklet has been separated from said web, said binding stub extending transversely to the longitudinal axis of said web and adjacent to each of said transverse slits.

2. A series of multi-page booklets according to claim **1,** wherein the pages of each booklet has intermittent perforations disposed adjacent to said binding stub, said perforations being disposed approximately parallel to the longer axis of said binding stub, said perforations being adapted to separate the binding stub from the multiple pages of said booklet.

3. A series of multi-page booklets according to claim **1,** wherein said individual pages of said booklet have printed material thereon which is adapted for airline tickets.

4. A series of multi-page booklets according to claim **1,** wherein said multiple pages have carbon portions adapted to produce carbon copies of the top form of the ticket when the top form is filled in.

5. A series of multi-page booklets according to claim **1,** wherein said individual pages within said web are disposed with the longitudinal axis of each ticket parallel to said row of sprocket holes.

6. A series of multi-page booklets according to claim **1,** further comprising intermittent perforations disposed along each longitudinal edge portion to separate said edge portion from said inner portion of said web.

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