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## (54) Envelope for insertion into bound publication

(57) A new and improved xerographically printable and bindable envelope (30) that is easily removed from a book includes a sheet of paper folded to form a base line (31) and a base portion of two layers with the base portion extending away from the base line a predetermined distance to form a second base line (33). The base portion is glued and includes a perforation (34) immediately removed from the second base line (33) so that the envelope can be torn away from a book without tearing the envelope with the envelope continuing to maintain a glued bottom portion.

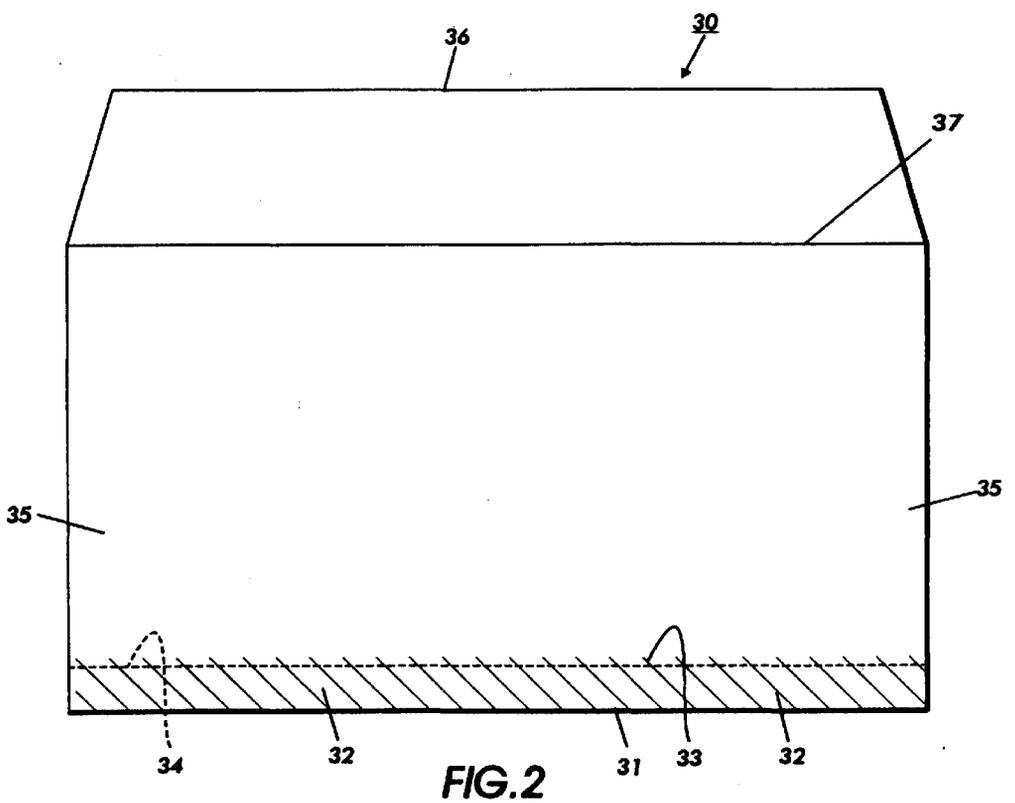



FIG.2

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## Description

This invention relates generally to envelopes, and more particularly, concerns bindable envelopes for use in an electrographic printing machine or the like.

High speed xerographic reproduction machines and printers, such as, the Xerox DocuTech® 135 and Xerox® 5090 produce copies at a rate in excess of several thousand copies per hour while feeding those copies to a finisher for binding into books or the like. The need has been shown in certain industries to produce multi-page policy/quote books, such as insurance, to attach return address envelopes to their books so that the customer could mail-in their completed policy forms that were contained in the books. Xerographic envelopes are currently available as shown in Figure 1 for use in a wide variety of machines, for example, as shown in Figure 3. Envelope 5 of Figure 1 includes a sheet of paper folded along fold line 8 creating front panel 7 and a complementary back panel 6. The front and back panels are glued together along their side edges and front panel is scored at 8' to form a closure flap 9. The envelope can be printed with an address, a return address, and bound in a book in the finisher of the Figure 3 machine. However, the envelope cannot be removed from the book without being destroyed. This is because the particular binder of Figure 3 works via a mechanical bind. When heated, the spine adhesive in the binder tape flows into the air spaces/pores of the paper. The bind is formed by the adhesive cooling and setting in the pores. Envelopes interspersed with other sheets within a book form an excellent bind because they have a lot of air spaces between them and their neighboring sheets for the adhesive to fill. Thus, a new envelope design is needed that allows removal from a book without tearing the envelope into pieces.

Accordingly, the present invention contemplates a new and improved bindable envelope that is adapted to be easily removed from a book. The envelope includes a sheet of paper folded to form a base line and a base portion of two layers with the base portion extending away from the base line a predetermined distance to form a second base line. The base portion is glued and includes a perforation immediately removed from the second base line so that the envelope can be torn away from a book without tearing the envelope.

An example of an envelope according to the present invention, a known envelope and a printer apparatus for handling the apparatus are illustrated in the accompanying drawings, in which:-

Figure 1 is a schematic rear view of a prior art envelope that is used in copier/printers for insertion into books;

Figure 2 is a schematic front view of a bindable xerographic envelope in accordance with the present invention; and,

Figure 3 is a schematic elevational view of a printer apparatus which binds the envelope of Figure 2 into a book of sheets.

Referring now to Figure 3, printer section 8 comprises a laser type printer and for purposes of explanation is separated into a Raster Output Scanner (ROS) section 87, Print Module Section 95, Paper Supply section 107, and Finisher 120. ROS 87 has a laser, the beam of which is split into two imaging beams 94. Each beam 94 is modulated in accordance with the content of an image signal input by acousto-optic modulator 92 to provide dual imaging beams 94. Beams 94 are scanned across a moving photoreceptor 98 of Print Module 95 by the mirrored facets of a rotating polygon 100 to expose two image lines on photoreceptor 98 with each scan and create the latent electrostatic images represented by the image signal input to modulator 92. Photoreceptor 98 is uniformly charged by corotrons 102 at a charging station preparatory to exposure by imaging beams 94. The latent electrostatic images are developed by developer 104 and transferred at a transfer station 106 to a print media 108 delivered by Paper Supply section 107. Media 108, as will appear, may compromise any of a variety of sheet sizes, types and colors. For transfer, the print media is brought forward by servo controlled rolls in timed registration with the developed image on photoreceptor 98 from either a main paper tray or from auxiliary paper trays 112, or 114. The developed image transferred to the print media 108 is permanently fixed or fused by fuser 116 and the resulting prints discharged to either output tray 118, or to output collating trays in finisher 120. Finisher 120 includes a stitcher 122 for stitching (stapling) the prints together to form books, and a thermal binder 124 for adhesively binding the prints into books and a stacker 125.

The control of all machine functions, including all sheet feeding, is, conventionally, by the machine controller 10. Controller 10 is preferably a known programmable microprocessor, exemplified by the microprocessor disclosed in U.S. Pat. No. 4,166,558. The controller 10 conventionally controls all of the machine steps and functions described herein, and others, including the operation of the document feeder 20, all of the document and copy sheet deflectors or gates, the sheet feeder drives, the finisher, etc. The controller also conventionally provides for storage and comparison of the counts of the copy sheets, the number of documents recirculated in a document set, the desired number of copy sets and other selections and controls by the operator through the console or other panel of switches connected to the controller, etc. The controller is also programmed for time delays from correction control, etc. Conventional path sensors or switches may be utilized to help keep track of the position of the documents and the copy sheets and the moving components of the apparatus by connection to the controller. In addition, the controller variably regulates the various positions of the gates depending upon which mode of operation is se-

lected. Documents placed on platen 22 are scanned into the system with scanner 24.

Referring now to a particular aspect of the present invention, the envelope 30 of Figure 2 is configured to be bound into a book in, for example, the Xerox Docutech® 135 or Xerox® 5090/DT in-line binder, or other off-line binder system, and then easily removed from the book for mailing. Envelope 30 comprises a sheet of paper that is folded to form a base line 31 and a base portion 32 of two layers with the base portion extending away from base line 31 a predetermined distance, preferably ½ inch (1.27cm), to form a second base line 33. Base portion 32 is glued and includes a perforation 34 immediately removed from second base line 33 so that the envelope can be torn away from a book without tearing the envelope, the two layers of the base portion remaining glued together above the perforation so that the detached envelope is still closed along its base. The envelope has a front panel 35 suitable for applying indicia thereon by the printing apparatus of Figure 3, or other imaging apparatus, and a rear panel (not shown) of substantially the same rectangular proportions as the front panel that is glued along side edges to the front panel to form a pocket. A flap 36 is connected to the front panel 35 and extends above a fold line 37. The flap is adapted to be folded over the back panel to close the envelope. An advantage to using the bindable xerographic envelope 30 over manual insertion of envelopes into books is the reduction in assembly cycle time and finished product cost.

In use, envelopes 30 are placed into either feed tray 112 or 114 with copy sheets with images transferred thereto at 106. The images are fused at 116 and the envelopes forwarded to finisher 120 where the envelopes along with copy sheets are put together as a book and stitched at 122. Preferably, a thermal binder 125 is used to adhesively bind the prints into a book. The envelope is easily torn away from the book without damage to the envelope by tearing the envelope along the perforation line. The recipient can then use the envelope removed from the book to send information back to an indicated destination.

It should be understood that a novel and improved xerographic envelope has been disclosed that can be printed and bound with a different document into a book on conventional copiers/printers. The envelope includes a perforation along its bottom edge which allows for easier removal in contrast to current envelope designs which, if bound into a book, cannot be removed without damage.

## Claims

1. A bindable envelope (30) that is easily removed from a book, comprising: a sheet of paper folded to form a base line (31) and a base portion (32) of two layers with said base portion extending away from said base line a predetermined distance to form a second base line, and wherein said base portion is glued and includes a perforation (34) immediately removed from said second base line so that the envelope can be torn away from a book without tearing the envelope.

2. The envelope of claim 1, wherein said folded sheet includes a front panel and a rear panel with said front and rear panels being glued together along side edges thereof, and wherein an upper end portion of said front panel is scored to form a flap (36) that is foldable over said front panel to form an enclosed envelope.

3. An envelope adapted to be easily removed from a book, comprising: a sheet of paper folded to form a closure flap portion (36) and a base portion (35) of two layers and a fold line (31); and wherein a glued strip (32) is formed in the base portion of the envelope sealing the base of the envelope above said fold line (31); and a perforation (32) above said fold line but below the base formed by the seal.

4. The envelope of claim 3, wherein said glued strip (32) forms a permanently sealed bottom of the envelope.

5. The envelope of claim 3 or claim 4, wherein said folded sheet includes side portions that are glued, and wherein said perforation (34) extends through both layers of said base portion so that when the envelope is torn away form a book along said perforation the envelope remains sealed.

6. An envelope (30) that is easily removed from a bound book intact, the envelope being formed by folding a sheet of paper along a base line (31) to form a base portion of two layers and front and rear panels with edge portions of the front and rear panels glued together, and wherein the front panel is folded at a top end thereof to form a closure flap (36) for the envelope, wherein:

   a glue strip (32) is formed in said base portion of the envelope sealing said base portion of the envelope above said base line (31); and
   a perforation (34) is provided through both layers of said base portion of the envelope so that when the envelope is torn along said perforation the envelope is removed from a book without being damaged.

7. An envelope according to any of the preceding claims, wherein said flap (36) is unglued and/or unsealed.

8. The envelope of claim 7, wherein said flap (36) in-

cludes glue along an edge thereof.

**9.** The envelope of any of the preceding claims, wherein said envelope (30) includes a bound end and an open end.

**10.** A copier/printer that prints image information onto copy sheets and envelopes, the envelopes being constructed according to any of the preceding claims.

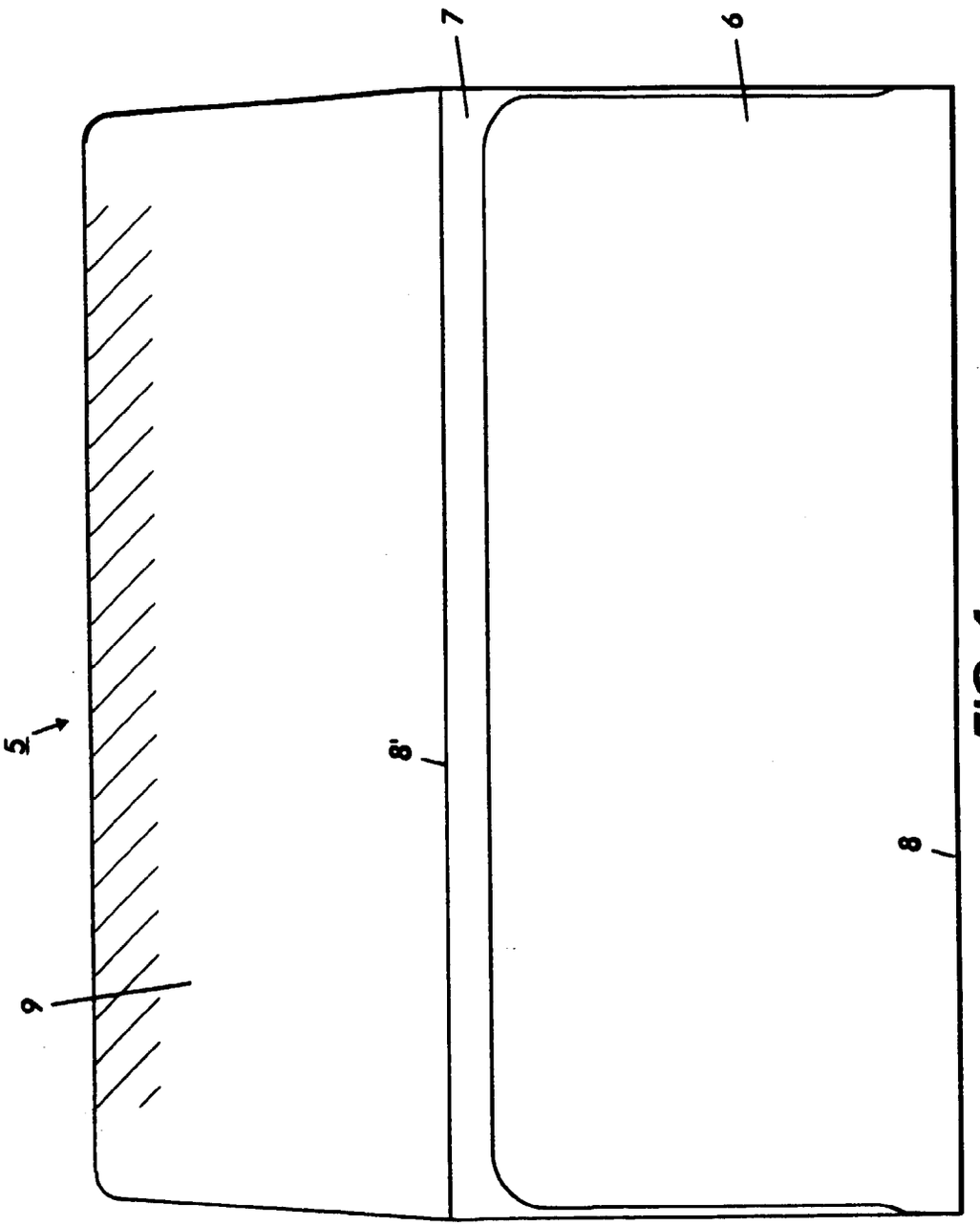



FIG.1

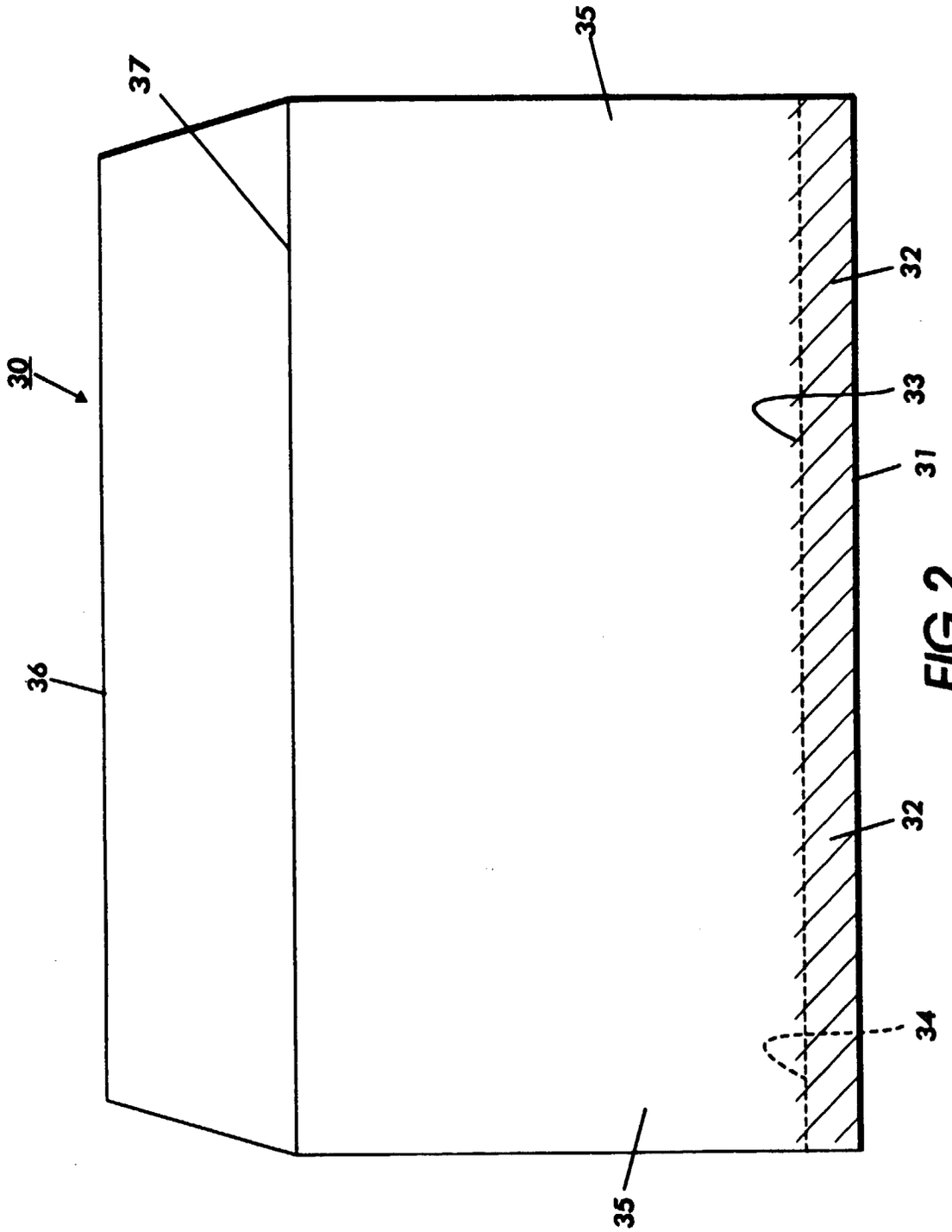



FIG.2

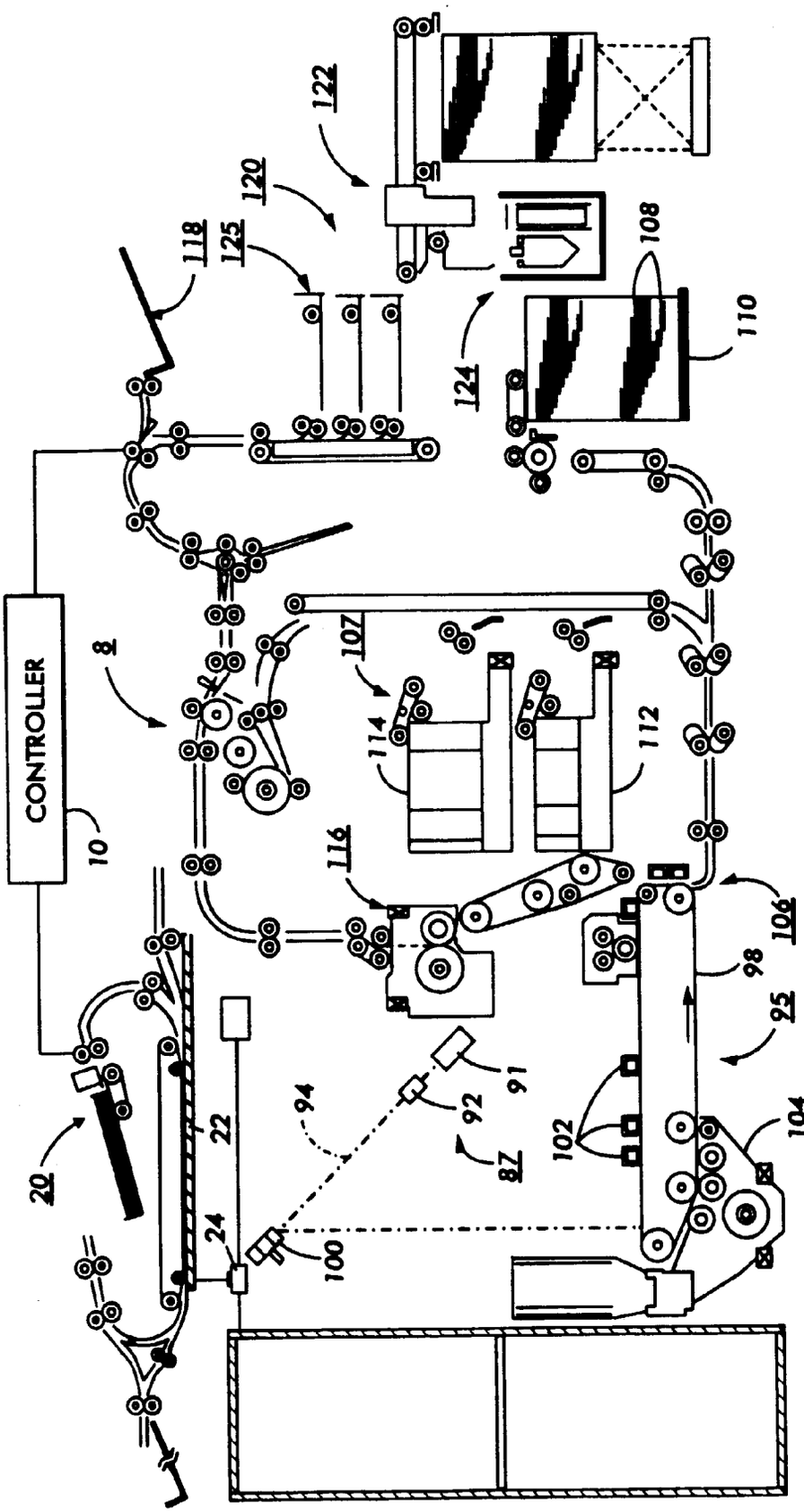

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FIG.3