June 13, 1972 W. W. HOLES ET AL 3,669,555

PHOTOGRAPH ALBUM PAGES AND METHOD OF MAKING THE SAME

Filed March 24, 1970 3 Sheets-Sheet 1

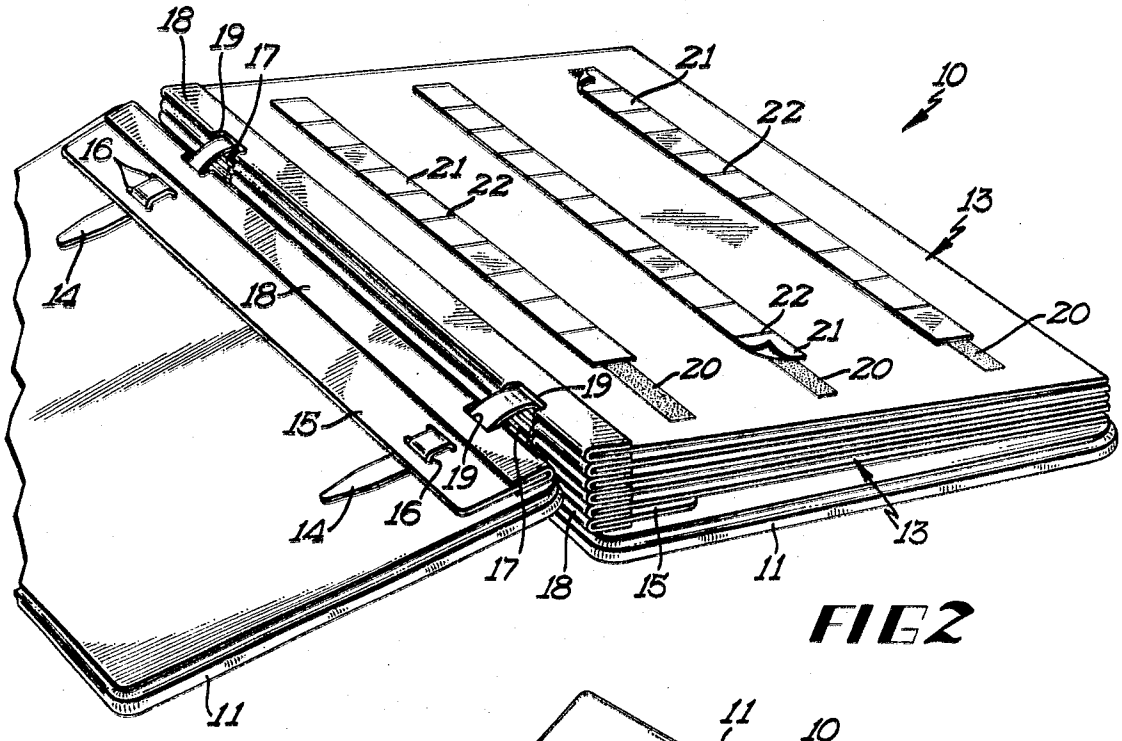

FIG 2

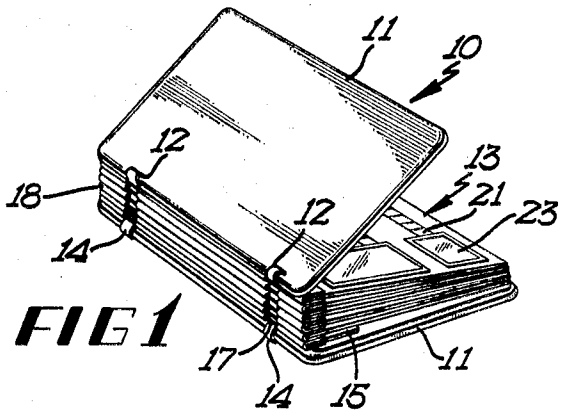

FIG 1

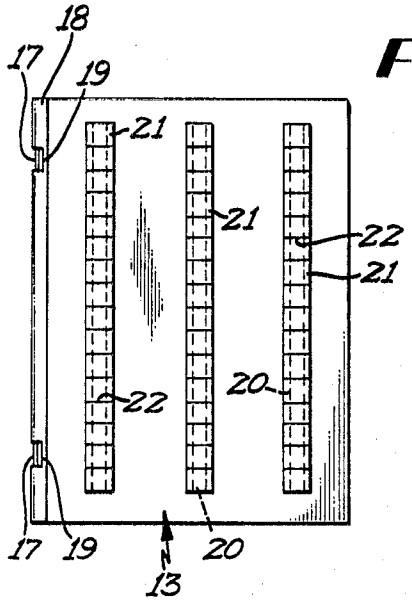

FIG 3

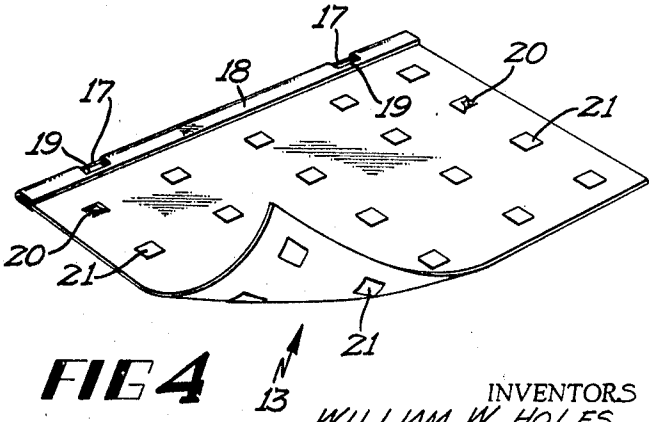

FIG 4

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PHOTOGRAPH ALBUM PAGES AND METHOD OF MAKING THE SAME

Filed March 24, 1970 3 Sheets-Sheet 2

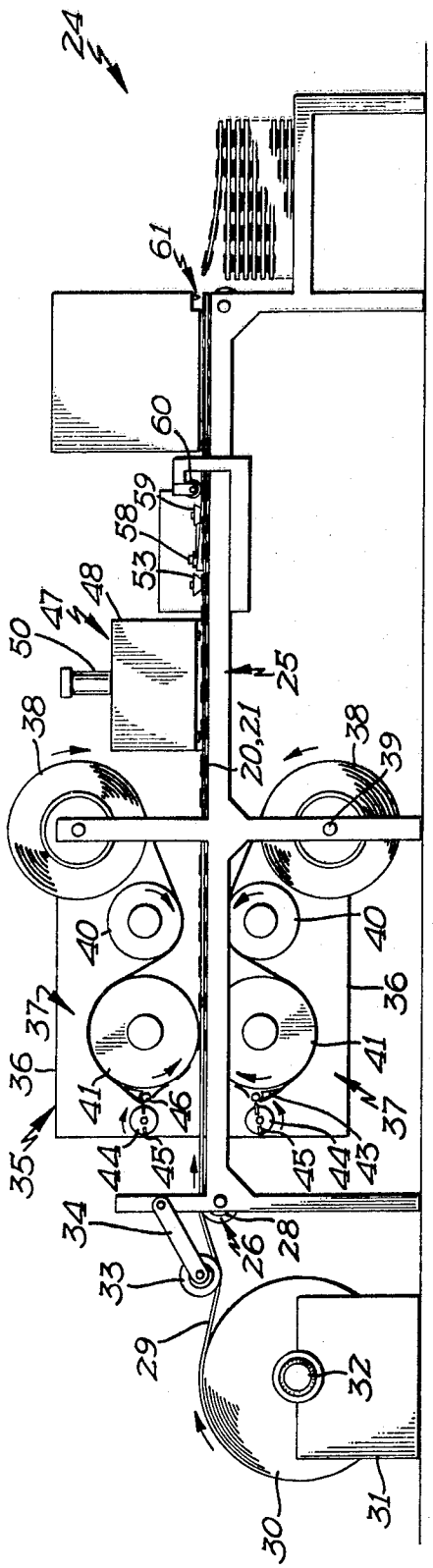

FIG 5

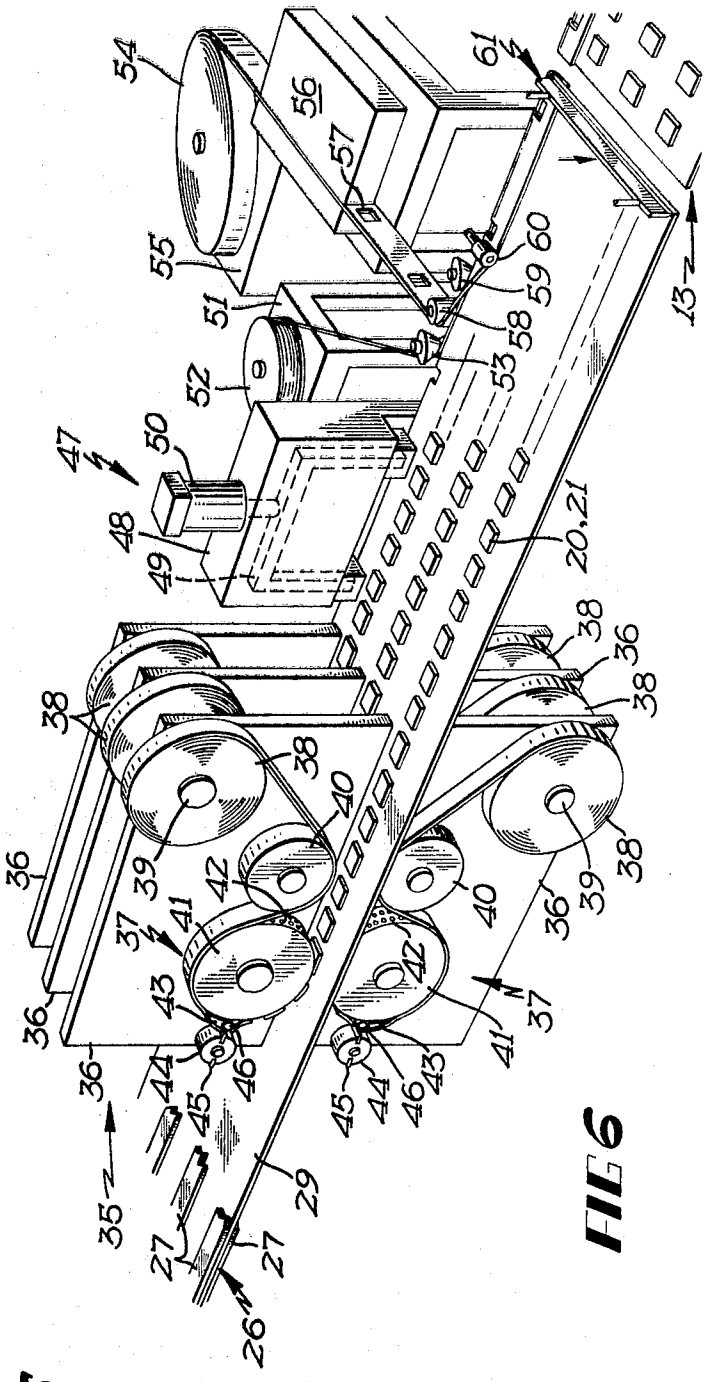

FIG 6

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PHOTOGRAPH ALBUM PAGES AND METHOD OF MAKING THE SAME

Filed March 24, 1970 3 Sheets-Sheet 3

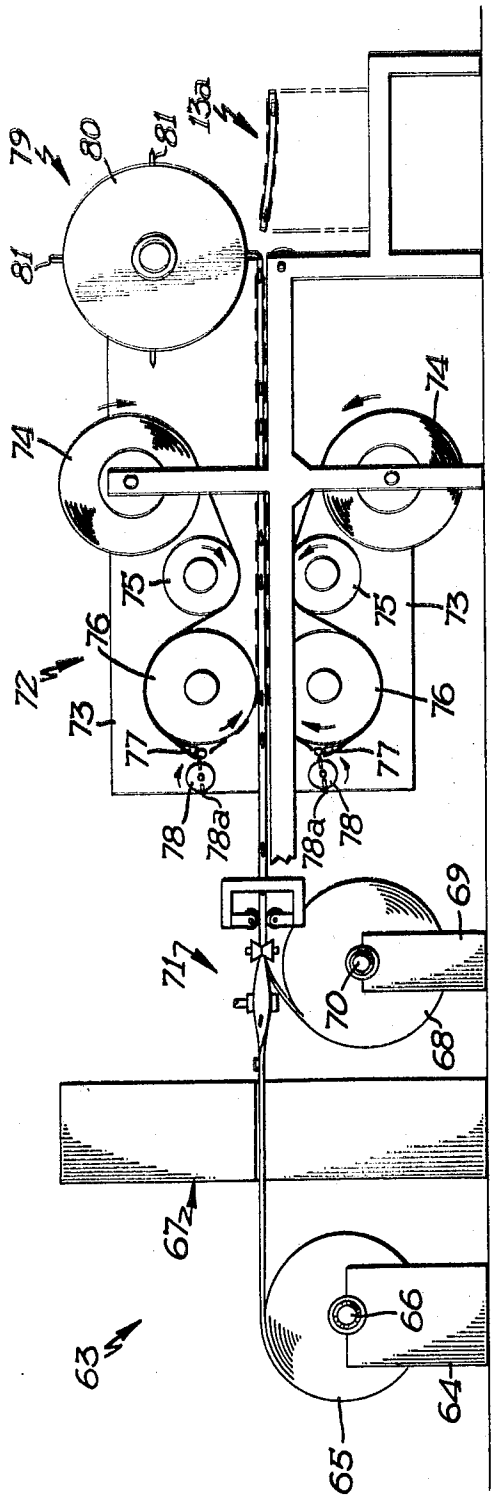

FIG 7

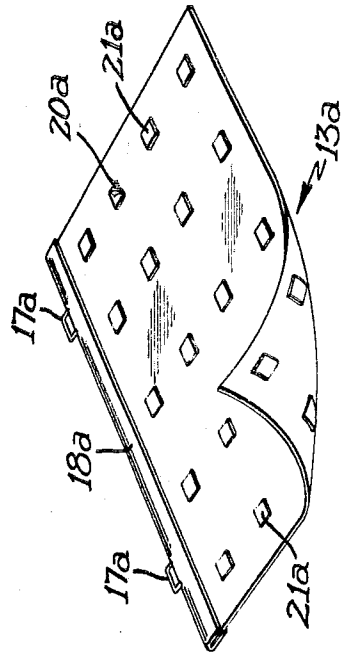

FIG 9

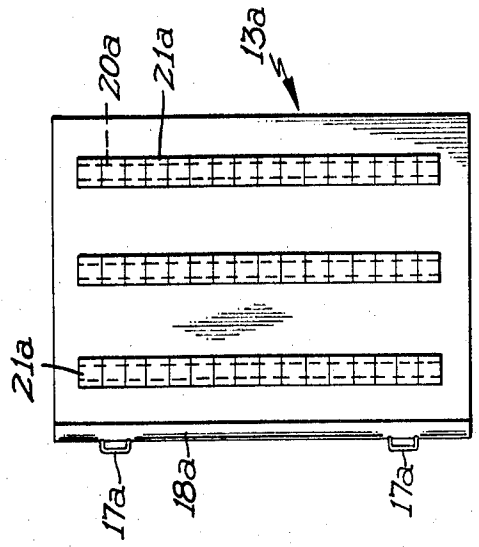

FIG 8

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3,669,555

PHOTOGRAPH ALBUM PAGES AND METHOD OF MAKING THE SAME

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Int. Cl. B42f *13/06*
U.S. Cl. 402—8 2 Claims

ABSTRACT OF THE DISCLOSURE

An album comprises front and rear covers and a plurality of pages bound by flexible straps and hinge elements to the covers. A plurality of adhesive coated segments are applied to opposite sides of each page and each segment has a removable liner element covering its exterior surface. The attachment segments serve to mount photographs and other materials on each surface of the page.

The process of making the album page comprises moving a sheet of album page material through a predetermined path of travel and applying the hinge elements and the hinge binding tape to a longitudinal edge of the page. A plurality of strips of adhesive coated attatchment material is simultaneously applied on oposite sides of the sheet, and the sheet is then cut by a cutting medium into individual pages.

SUMMARY OF THE INVENTION

An object of this invention is to provide an album page for an album and process of making the same wherein the album pages are provided with a plurality of adhesive attachment segments applied to both surfaces of each page to permit attachment of photographs and the like to be mounted on each page.

The process for making album pages involves applying a plurality of adhesive attachment segments to opposite surfaces of a sheet of album page material as the latter is moved along a predetermined path of travel, applying the hinge elements and hinge binding tape to the sheet of material, then cutting the sheet to the appropriate page size. The album pages are then bound together by suitable flexible straps to the front and rear covers.

BRIEF DESCRIPTION OF THE FIGURES OF THE DRAWING

FIG. 1 is a perspective view of one embodiment of an album in a partially opened position which incorporates the novel album page;

FIG. 2 is a perspective view of the album illustrated in an opened condition;

FIG. 3 is a plan view of an album page;

FIG. 4 is a perspective view of a slightly modified form of the embodiment of the album page illustrated in FIG. 3;

FIG. 5 is a side elevational view illustrating one embodiment of the apparatus used in the process of making the album pages illustrated in FIGS. 1 to 4;

FIG. 6 is a perspective view of certain components of the apparatus of FIG. 5;

FIG. 7 is a diagrammatic side elevational view of an embodiment of the apparatus used in making the album pages illustrated in FIGS. 8 and 9;

FIG. 8 is another embodiment of an album page; and

FIG. 9 is a slightly modified form of the page illustrated in FIG. 8.

DETAILED DESCRIPTION OF THE INVENTION

Referring now to the drawings and more specifically to FIGS. 1 through 4, it will be seen that one embodiment of the novel photograph or scrapbook album, designated generally by the reference numeral **10** is there shown. This

album includes front and rear covers **11** which are of generally rectangular configuration and each having a pair of longitudinally spaced apart elongate slots **12** therein. It is pointed out that the front and rear covers are preferably formed of a rigid paperboard material having a suitable plastic exterior cover. Alternatively the front and rear covers may be of laminated construction including a laminae of cellular cushion material.

The album **10** also includes a plurality of album pages **13** which are bound to the front and rear covers by flexible elongate straps **14**. A pair of generally rectangular shaped front and rear cover holders **15** are provided, one of which is positioned between the front cover and the first album page, and the other being positioned between the rear page and the rear cover **11**. Each cover holder is of generally rectangular configuration and is formed of a somewhat rigid paper material and each cover holder, while being of a length corresponding to the length of the covers, has a width substantially less than the respective widths of the associated cover.

Each cover holder also has a pair of slots **16** therein adjacent opposite ends thereof. Each cover holder also has an elongate hinge element or wire **17** positioned between the inner longitudinal edge thereof and is secured thereto by a hinge binding strip or tape **18** which is folded over and applied to the inner longitudinal edge of the cover holder. It will also be noted that the inner longitudinal edge of each cover holder also has a pair of generally rectangular shaped longitudinally spaced apart recesses **19** therein and the elongate wire hinge element **18** traverses these recesses. In this regard, the hinge binding strip **18** for each cover holder also has a pair of rectangular shaped openings therein which are disposed in registering relation with the recesses **19** in the cover holder when the binding strip is folded over and applied to the cover holder.

It will also be seen that each album page **13** is also provided with a plurality of rectangular shaped recesses **19** in the inner longitudinal edge thereof. Each album page also has an elongate hinge element or wire **17** applied to the inner longitudinal edge thereof by a hinge binding tape **18** folded over and secured to the associated inner longitudinal edge. The hinge binding strip has an adhesive surface and is provided with a pair of openings therein which are disposed in engaging relation with the recesses **19** in the page. Thus, the strip confining opening is provided for accommodating the straps **14**.

A plurality of attachment segments **20** are applied to opposite surfaces of each album page and these attachment segments have an adhesive coating on opposite surfaces thereof. In the embodiment illustrated in FIGS. 1–3, the attachment segments constitute elongate strips which are applied to each surface of the associated album page in spaced apart relation. Each attachment segment **20** also has a removable liner or cover **21** secured to the exterior surface thereof which may be removed when a photograph **23** or other material is mounted on the album page by means of the attachment segment. It will be noted in the embodiment of FIGS. 1 to 3 that the liner **21** for each attachment segment has a plurality of die cuts **22** extending transversely thereof, these die cuts being arranged through the length of each segment to permit small increments or portions of each liner to be removed from the associated attachment segment. These attachment segments are formed of a pressure sensitive adhesive transfer material which is flexible and which may be applied to the album page during formation of the latter in the process or method to be described hereinbelow.

Referring now to FIG. 4, the album page is identical to that shown in the embodiments of FIGS. 1 to 3, but the attachment segments **20** are of small rectangular configuration and are arranged in longitudinal rows on op-

posite surfaces of the associated page. In the embodiment of FIG. 4, a greater number of segments are used but each segment is of substantially smaller size than that of the segments illustrated in FIG. 3. The attachment segments of FIG. 4 also have the liner attached thereto which may be readily removed in the manner of the embodiment of FIG. 3. It is further pointed out that the attachment segments may be of a configuration other than the rectangular configuration shown, and may be arranged on the page in substantially any symmetrical or asymmetrical fashion.

Referring now to FIGS. 5 and 6, it will be seen that one embodiment of an apparatus used in carrying out the method of making the album page illustrated in FIGS. 3 and 4 is there shown. This apparatus designated generally by the reference numeral **24** includes a support frame **25** which supports an endless conveyor **26**. The conveyor **26** is a ribbon conveyor having a plurality of endless conveyor ribbons **27** trained about rollers **28**, one of which is driven so that the respective upper runs of the conveyor ribbons move from the left to the right as viewed in FIG. 5. These ribbons are spaced apart from each other to permit the application of the attachment segments **20** to the elongate flexible sheet **29** of album page material. In this regard, the sheet **29** is unwound from a roll **30** of album page material which is revolvably supported on a stand **31** for rotation about an axis defined by the rotational axle **32** of the stand. The sheet is supported upon the conveyor **26** and passes between the conveyor roller **28** and a tension roll **33**, which is revolvably supported on arm **34** pivoted to the frame **25** to maintain tension on the sheet.

Means are provided for applying attachment segments **20** to the sheet of album material and this means, designated generally by the reference numeral **35**, as best seen in FIGS. 5 and 6, includes a plurality of vertical plates or brackets **36** which may be mounted on the support frame **25**. Each vertical plate **36** has a pair of segment applying mechanisms **37** mounted thereon, one mechanism **37** being mounted above the sheet **29** of album page material and the other mechanism being positioned below the sheet. In the embodiment shown, three pairs of segment applying mechanisms **37** are provided for simultaneously applying the attachment segments **20** to the sheet of album page material. These segment applying mechanisms are identical to each other and each includes a roll of attachment tape **38**, each roll being provided with the liner material applied to one adhesive surface thereof. The roll is revolvably mounted on an axle **39** carried by the associated vertical plate **36**.

The strip of tape is unwound from the roll **38** and is trained over a driven feed roller **40** and thereafter over a hollow revolvable vacuum wheel **41**. The vacuum wheel **41**, as well as the feed roller **40**, are revolvably mounted on the associated vertical plate and it will be noted that the circumferential surface of the vacuum wheel is provided with a plurality of openings **42** therein. In this regard, the vacuum wheel of each segment applying mechanism is connected to a source of negative pressure so that the tape is held against the exterior surface of the vacuum wheel as the tape is moved thereby.

The tape passes over a small vacuum wheel shoe **43** formed of a suitable metallic material and extending somewhat tangentially from the associated vacuum wheel. This shoe for each vacuum wheel is also mounted on the plate as best seen in FIGS. 5 and 6. A revolvable cutter wheel **44** is positioned adjacent the shoe and each cutter wheel is provided with a pair of diametrically opposed cutter blades **45** which projects radially outwardly therefrom. This cutter wheel, which is driven, is also carried by the associated plate **36** and serves to cut the tape into segments as the tape is moved over the shoe by the vacuum wheel **41**.

A small support element or pin **46** is positioned adjacent the end portion of the shoe **43** to provide a solid

cutting surface against which the cutter blades may bear during the cutting operation. It will be noted that after each segment is cut by the cutter wheel **44**, the vacuum wheel holds the cut segments thereagainst until the segments are applied to the sheet of album page material. In this regard, the surface of the strip having the liner applied thereto is positioned against the surface of the vacuum wheel and the exposed adhesive surface of the segments are applied by the vacuum wheel to the sheet of album page material as the wheel is further revolved. Thus it will be seen that the attachment segments are applied simultaneously to opposite surfaces of the sheet of album page material. The length of the segments may be controlled by the speed at which the cutter wheel **44** is revolved. Thus by having the cutter wheel **44** revolved at a relatively slower speed than the vacuum wheel, longer segments may be obtained. The feed roller, vacuum wheel and cutter wheel may be driven by a suitable belt and pulley drive.

After the attachment segments have been applied to the sheet of album page material, the sheet is die cut along one longitudinal edge thereof to form the recesses **19** therein as the sheet is continued in its predetermined path of movement. To this end, it will be seen that the die cutting device **47** is positioned adjacent one longitudinal edge of the sheet and this die cutting device includes a housing **48** having a die cutting member **49** shiftably mounted therein. In the embodiment shown, the die cutting member is of U-shaped configuration and is adapted to cut a pair of spaced apart generally rectangular recesses simultaneously in one longitudinal edge of the sheet. These recesses correspond to the recesses **19** in the subsequently formed album page. The die cutting member **49** is vertically reciprocated by a pneumatic piston and cylinder unit **50**, which is supported on the housing **48** and whose piston rod is connected to the die cutting member **49**.

A support **51** is positioned adjacent the conveyor **26** and revolvably supports a spool of wire **52**, which is unwound therefrom and is trained over a wire guide roller **53**, the latter being driven and being oriented to revolve about a vertical axis. This wire guide roller tapers from opposite ends thereof towards its mid-portion and serves to apply the wire against the adjacent longitudinal edge of the sheet of album page material.

A roll of binding tape **54** is revolvably mounted on a support **55** which is also positioned adjacent the conveyor **26** and adjacent the support **51**. The binding tape is unwound from the roll **54** and passes through a die cutting device **56** which is preferably pneumatically actuated in the manner of the die cutting device **47** wherein rectangular openings **57** are die cut in the tape **18** as the latter is moved therethrough.

The binding tape is then trained about a tape applying roller **58** so that the tape is urged against the adjacent longitudinal edge of the sheet of album page material and a tape folding roller **59** serves to fold the tape at its mid point over the adjacent longitudinal edge of the album page material and over the wire which has been applied to the longitudinal edge of the sheet. The tape is then folded along its mid point by a tape folding roller **59** which is similar in configuration and construction to the roller **53**. A tape pressing assembly **60** comprising upper and lower opposed rollers (only one of which is shown) press the folded tape into intimate contact with opposite surfaces of the sheet of album page material to secure the same thereto. In this regard, the binding tape is not only folded along its longitudinal center line but the tape is also folded so that the openings **57** therein are disposed in registering relation with the recesses **19** in the sheet of album page material. Finally, the sheet of album page material is cut into predetermined lengths by a sheet cutting device **61** which is vertically shiftable and which completes the formation of the album pages.

Referring now to FIGS. 8 and 9, it will be seen that a slightly modified form of the album pages, designated **13***a* is there shown and each has a binding strip **18***a* applied to the inner longitudinal edge thereof which secures a pair of generally U-shaped hinge elements **17***a* to the edge of the page. In this regard, it will be noted that the U-shaped hinge elements project outwardly from the edge of the album page but are disposed in substantially the general plane of the page. The album page **13***a*, as shown in FIG. 8, also has attachment segments **20***a* applied to opposite surfaces thereof, each segment having a liner **21***a* applied to the exterior surface thereof. In the embodiment of FIG. 8, the attachment segments comprise three elongate strips and the liner for each segment is die cut transversely thereof in spaced relation through its length and is similar to the embodiment of FIG. 3. In the embodiment of FIG. 9, the attachment segments are of smaller size and are spaced apart in the manner of the embodiment of FIG. 4.

Reference is now made to the apparatus shown in FIG. 7 which is used in forming the album pages illustrated in FIGS. 8 and 9. To this end, it will be seen that this apparatus, designated generally by the reference numeral **63**, is provided with a ribbon type conveyor identical to that shown in the embodiment of FIGS. 5 and 6. A stand **64** is spaced from one end of the conveyor and the stand supports a roll **65** of binding tape which is revolvably mounted on the stand by an axle **66**. The tape is unwound from the roll and is moved through a staple applying machine **67** which applies the U-shaped hinge elements **17***a* thereto.

A roll of album page material **68** is revolvably mounted on a stand **69** by an axle **70** and is unwound therefrom and supported on the conveyor. The binding tape is engaged by a tape applying and folding roller assembly **71** and is applied to the longitudinal edge of the sheet of album page material. Thereafter, the attachment segments are applied to the sheet by the segment applying means **72** which are identical in construction to that shown in the embodiment of FIGS. 5 and 6. In this regard, the segment applying means includes a plurality of support plates or brackets **73** which are vertically arranged and which support the segment applying mechanisms.

Each pair of segment applying mechanisms are also arranged above and below the sheet of album page material. Each mechanism includes a roll of attachment tape **74** provided with a suitable liner and which is trained about a drive feed roller **75**. The tape is thereafter trained about a drive vacuum wheel **76** having a shoe **77** and the tape is cut into segments by a driven cutter wheel **78** which is also provided with pairs of cutter blades **78***a*. It will be noted that the hinge element and binding tape are applied to the sheet of album page material prior to the application of the attachment segments in the embodiment of FIG. 7.

The sheet of album page material is cut into individual page sizes by a sheet cutting device **79** comprised of a drum **80** having a plurality of blades **81** affixed thereto and projecting radially outwardly therefrom. The drum is driven at a speed to cut the sheet of album page material into the desired page size.

In carrying out the process of forming album pages, it will be seen that the sheet of album page material is moved in a predetermined path of travel and in this path of travel, the attachment segments are simultaneously applied to the sheet. The binding tape and hinge elements are also applied to the sheet. The sheet is finally cut into page sizes, and a plurality of pages are bound to front and rear covers and cover holders by suitable flexible straps **14**.

The apparatus illustrated in FIGS. 5 and 6 which is utilized in carrying out the process permits the sheet of album page material to be moved in its predetermined path of travel between a pair of segment applying media which cut and simultaneously apply a plurality of attachment segments to opposite surfaces of the sheet. The sheet of album page material is then die cut along one longitudinal edge to define the strap receiving recesses and the elongate hinge element or wire is then applied to the die cut longitudinal edge of the sheet and secured thereagainst by the binding tape. In this instance, the binding tape is also die cut so that the openings therein are disposed in registering relation with the die cut recesses in the sheet. Finally the sheet is cut into page sizes. The sheet of album page material is interrupted in its movement during this operation to permit the sheet to be die cut, and the binding tape is also interrupted in its movement during the die cutting operation performed thereon.

In the process carried by the apparatus illustrated in FIG. 7, the hinge elements are applied to the binding tape which in turn is applied to the sheet prior to the application of the attachment segments thereto.

Album pages which are provided with attachment segments of the type disclosed may have photographs and the like readily mounted on the page by merely removing the liner for an attachment segment and applying the photograph against the segment. In the embodiments of FIGS. 2 and 8, a portion of the liner for the entire attachment segment may be removed, as desired, to accommodate the photograph or other material to be mounted on the album page.

It will therefore be seen from the preceding paragraphs that we have provided a novel album page for an album and process of making the same so that such albums are ideally suited for use as photograph albums, scrap books and the like. The present process is capable of high volume production and is substantially fully automated.

Thus it will be seen that we have provided a novel album page and process of making the same in which album pages may be efficiently but inexpensively produced.

What is claimed is:

1. An album comprising

a front cover and a rear cover, each cover having a pair of olngitudinally spaced openings adjacent one longitudinal edge thereof,

a plurality of similar album pages each having a pair of longitudinally spaced apart generally rectangular shaped recesses in one longitudinal edge thereof, an elongate metallic element positioned against said one longitudinal edge of each page, a flexible binding strip having one surface coated with an adhesive applied to and folded along its center line over said one longitudinal edge of each page, said binding strip having a plurality of openings therein corresponding in size and shape to the recesses in said page, said openings in the strip being disposed in registering relation to the recesses in the page,

each page having a plurality of transversely spaced apart elongate attachment strips applied to opposite sides thereof and each strip extending longitudinally of its associated page, each attachment strip having opposed adhesive surfaces one of which is applied to the surface of the page, and the other adhesive surface of each strip having non-adhesive removable liner element thereon, each liner element having a plurality of transversely extending die cuts therein,

a plurality of substantially flat elongate flexible binding straps each having opposite ends thereof looped through openings in each album cover and each strap extending through the recesses in a plurality of album pages to bind the pages to said front and rear covers,

and a pair of elongate cover holder members, one being positioned adjacent said front cover and the other being positioned adjacent the rear cover, each cover holder member being hingedly connected with said binding straps and each having slots therein through which the ends of the straps are looped.

2. An album comprising

a front cover and a rear cover, each cover having a pair of longitudinally spaced openings adjacent one longitudinal edge thereof,

a plurality of similar album pages each having a pair of longitudinally spaced apart generally rectangular shaped recesses in one longitudinal edge thereof, an elongate metallic element positioned against said one longitudinal edge of each page, a flexible binding strip having one surface thereof coated with an adhesive applied to and folded along its center line over said one longitudinal edge of each page, said binding strip having a plurality of openings therein corresponding in size and shape to the recesses in said page, said openings in the strip being disposed in registering relation to the recesses in the page,

each page having a plurality of transversely and longitudinally spaced apart attachment segments applied to opposite sides thereof, said segments being arranged in parallel rows extending longitudinally of the associated page, each attachment segment having opposed adhesive surfaces, one of which is applied to the surface of the page, and the other adhesive surface of each segment having a non-adhesive removable liner element thereon,

a plurality of substantially flat elongate flexible binding straps each having opposite ends thereof looped through openings in each album cover and each strap

extending through the recesses in a plurality of album pages to bind the pages to front and rear covers,

and a pair of elongate cover holder members, one being positioned adjacent said front cover and the other being positioned adjacent the rear cover, each cover holder member being hingedly connected with said binding straps and each having slots therein through which the ends of the straps are looped.

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U.S. Cl. X.R.

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