

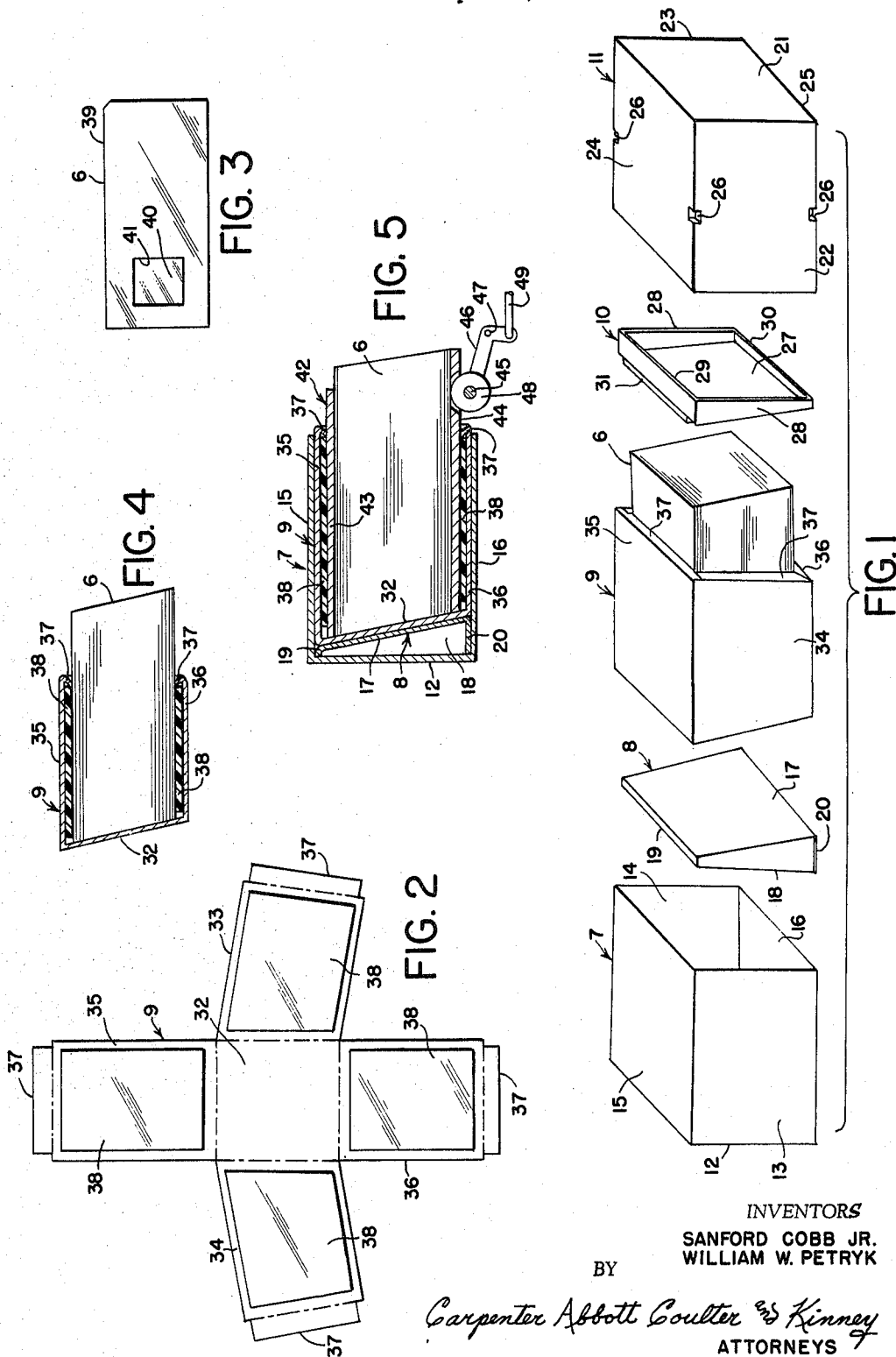
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CARTRIDGE FOR LIGHT-SENSITIVE MATERIAL

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1

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CARTRIDGE FOR LIGHT-SENSITIVE MATERIAL
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3 Claims. (Cl. 95—19)

This invention relates to a cartridge and more particularly relates to a cartridge for packaging light-sensitive materials, which permits said light-sensitive materials to be placed in a magazine of a photographic machine without exposure of said materials to light.

An object of this invention is the provision of means for packaging light-sensitive silver halide film sections mounted in aperture cards of the record type commonly employed in connection with existing record card tabulating and sorting systems. It further provides means for inserting the aperture cards bearing the light-sensitive film sections into a magazine from which the cards may be individually fed through a photographic machine. It will be understood, however, that the invention is not limited to a cartridge for photosensitive film sections mounted in cards of the statistical or tabulating machine type, since other forms of apertured record or catalogue cards may be used.

A further object of the present invention is to provide a cartridge for cards bearing photosensitive film sections which will present said cards to a magazine in a fanned or riffle relationship. The fanning of cards of the record type is generally done by the operator of a machine using such cards to obtain a count of the same or to see that the cards are properly separated. It is obvious that an operator could not remove cards bearing a light-sensitive portion and riffle such cards in hand without exposure of the film section to the light present but this can be accomplished with the package of the present invention without exposure of the film portion.

A still further object of the present invention is the provision of an inexpensive and readily fabricated cartridge for record cards bearing a photosensitive film portion.

A still further object of the present invention is the provision of a shipping carton for record cards bearing a light-sensitive film section which will not necessitate removal of the cards from said carton to insert the same in a photographic machine.

These and other objects of the present invention will become more apparent as the following description proceeds, and the accompanying drawings are referred to in which:

FIGURE 1 is a perspective view of the several elements of the present invention shown in disassembled relation; FIGURE 2 is a plan view of a blank from which the card supporting member of the cartridge is formed, with the card supporting pads positioned on said blank; FIGURE 3 is a plan view of a record card bearing a light-sensitive film section; FIGURE 4 is a vertical sectional view of the card supporting blank in folded position with a stack of cards positioned therein; and FIGURE 5 is a vertical sectional view of the card supporting cartridge positioned over a magazine with the cards positioned within said magazine.

The shipping cartridge or carton of the present invention shown in the drawing, constitutes the preferred em-

2

bodiment of the invention. It is adapted primarily to hold and encase a stack of record cards 6 and comprises a sleeve 7, a buttress or filler 8, a card supporting member or insert 9, a second buttress or filler 10 and an enclosing sleeve or cover 11. The members or components 7 to 11 when telescoped together form a generally rectangular shaped package for shipment and storage of the record cards 6.

The sleeve 7 is preferably formed of fiberboard, although corrugated box-board, sheet metal or other rigid sheet material may be used and may be formed from a single sheet of such material which is cut, folded and fitted together in any manner well known in the art, to provide said sleeve 7 with an end wall 12, a pair of side walls 13 and 14, and top and bottom walls 15 and 16 respectively. This sleeve 7 provides means for holding the folded walls of the card supporting member or insert 9 in a fixed relation with respect to each other when the cards and insert are telescoped into said sleeve.

The buttress 8 is formed to fit within the sleeve 7 against the end wall 12 thereof. This buttress 8 is formed to provide an inner sloping wall or false bottom to the closed end of the sleeve 7 and is similarly formed of corrugated fiberboard, solid fiberboard or other material. The buttress 8 is formed from a die-cut blank which is scored and folded to provide a wall portion 17, substantially right-triangular shaped side portions 18 (only one of which is shown), and a narrow upper portion 19 and a slightly wider lower base portion 20. The folded portions 18, 19 and 20 have the free or distal edges thereof abutting the end wall 12 of the sleeve 7, forming the sloped or slanted false bottom 17.

The cover 11 of the cartridge is formed similarly to the sleeve 7 and telescopically receives the sleeve 7 therewithin to close the open end thereof. The cover 11 comprises an end wall 21, side walls 22 and 23, and a top and bottom wall, 24 and 25 respectively. The side walls 22 and 23 and the top and bottom walls 24 and 25, respectively, are cut transversely along their adjacent marginal edges to form inwardly depressed tabs 6 in said marginal edges which form abutments engageable with the corners of the side, top and bottom walls of the sleeve 7 when it is telescoped into the cover 11, to limit the telescoping movement thereof.

The buttress 10 is formed similarly to the buttress 8 from a single blank which is die-cut, scored and folded to provide a member having a wall portion 27, substantially right triangular side portions 28, a relatively wide upper portion 29 and a narrow lower portion 30. The buttress 10 is adapted to fit within the sleeve 11, with the distal ends of the side portions 28 and the distal ends of the upper and lower portions 29 and 30 abutting the end wall 21 to place the wall portion 27 at an incline forming a false end within the cover member 11. The buttress 10 may be provided with a foam or sponge pad 31 which is secured, by an adhesive or other means, to the face of the wall portion 27. The pad 31 provides a cushion engageable with the ends of the stack of cards 6 as will hereinafter be described.

The insert 9 is formed from a substantially cruciform-shaped, die-cut blank shown most clearly in FIGURE 2. The blank provides a center portion which when folded along the scored marginal edges thereof forms an end wall 32 of the insert 9. Four flaps 33, 34, 35, and 36, radiate from the center portion 32 and form the side walls,

3

the top and bottom of the insert 9. The distal end of each of said flaps 33 to 36 have a tab or flap member 37 formed integrally therewith. These tabs 37 have a width slightly reduced from that of the respective flaps to which they are attached.

The flaps 33 and 34 which form the side walls of the insert 9 are trapezoidal in shape, thus placing the end wall 32 of said insert at an incline when the flaps are folded to form a box-like structure or shell. The marginal edges of the flaps 33 and 34 (as illustrated in FIGURE 2) have an angular relationship with the adjacent marginal edges of the flaps 35 and 36, which in the illustrated embodiment vary about 10 degrees from a true 90° angle with respect to said edges of the flaps 35 and 36. The free marginal edges of the flaps 33, 34, 35 and 36 intersect to form right angled outer corners on said flaps. The flaps 35 and 36 when folded form the top and bottom walls respectively of the insert 9.

A pad 38 is positioned on each of the flaps 33, 34, 35 and 36, as shown in FIGURE 2. The pads 38 are formed from an opaque, low density, readily compressible, resilient, light weight (e.g., less than about 2.5 lb. per cubic ft.) foam or sponge of polyurethane, rubber, styrene, vinyl or other material commonly used for the formation of foams. The pads 38 may be fixed to the flaps 33, 34, 35 and 36 by a suitable adhesive or other means, or the pads may be placed adjacent a stack of cards 6 and the blank forming the insert 9 could be placed therearound during assembly of this package.

FIGURE 3 illustrates a record card 6 of the type referred to herein. The record card 6 is adapted for use in the tabulating machine systems for record storage and includes a photosensitive film portion 40 which may take the form of an insert of silver halide film fixed in an aperture 41, which is cut in the card stock 39 of said record card 6.

FIGURE 4 shows the insert 9 in folded position with a stack of cards 6 positioned therein. It will be noted that the stack of cards are positioned in a riffle manner such that one end of each of the cards in said stack engages the inclined end wall 32 of the insert 9. The cards are supported in a centralized position in the insert 9 by the foam pads 38 positioned adjacent the flaps 33, 34, 35 and 36. In the position shown the foam pads 38 are resiliently compressed to hold the cards in position and prevent the seepage of light around the cards such that the film portion could become exposed. The tabs 37 of the flaps are folded inwardly to engage the stack of cards 6 and to enclose the ends of the insert 9 adjacent one edge of each of the pads 38. It will be noted that these tabs 37 engage the ends of the pads 38 and that the tabs 37 are inclined inwardly with respect to the planar face formed by the free ends of the flaps 33, 34, 35 and 36, when folded in one direction with respect to the end wall 32.

The insert 9, when the flaps thereof are folded together and a stack of cards is positioned within said insert 9, is adapted to be telescopically received within the sleeve 7. This sleeve 7 serves to hold the flaps 33, 34, 35 and 36 in a folded position and holds the pads 38 in engagement with the sides, top and bottom of the stack of cards 6. The cover member 11 with the buttress 8 positioned in the end thereof is then telescoped over the sleeve 7 until the abutment tabs 26 formed in said cover 11 abut the corners of the sleeve 7. In this position the cards are supported against the end wall 32 of the insert 9 and the opposite or outwardly extending end portion of the stack of said cards will abut the foam pad 31 fixed or positioned against the wall portion 27 of the buttress 10. This pad 31 may similarly be formed of a low density readily compressible and pliable foam such as the pads 38. This pad 31 provides a protective support to the free ends of the cards 6 in the stack thereof.

When it is desired to use a stack of the cards 6 in a camera or machine adapted to use such cards, the cover

4

member 11 of the cartridge may be removed from the sleeve 7, removing therewith the buttress portion 10. The cards are now still readily held in the insert 9 which is retained in its folded position within the sleeve 7. The number of cards in the stacks of such cards 6 may vary depending upon the intended use of the cards. In the illustrated example in FIGURE 5, a magazine 42 adapted to feed single cards therefrom, may have a capacity for a stack of, for example, 500 of such cards 6. This magazine may be formed of metal or other rigid material and include a pair of side walls (not shown), a top and bottom wall 43 and 44 respectively. The magazine 42 is tubular in form and supported at the forward end thereof by suitable means, not shown. The inner dimensions of the tubular magazine 42 are adapted to receive a certain quantity of said cards in stacked relation, and to position the cards 6 within said magazine 42 the free ends of the cards are positioned within the rear open end of said magazine and then the entire insert and sleeve 7 is telescoped over the magazine 42 forcing the cards forwardly into said magazine. This is accomplished by the wall portions of the magazine 42 engaging the tabs 37 of the insert 9 which will be folded more tightly into said insert and the same serve to compress the ends of the foam pads 38. As the forward movement of the insert over the magazine 42 continues, the foam pads 38 become progressively compressed and displaced from their original position engaging the cards to a position engaging the outer surfaces of the wall portions of the magazine. With this type of a construction it is obvious that no light can reach the film section 40 of the cards 6 during the insertion of the cards within the magazine 42. Thereafter the magazine 42 is covered by a housing or shroud around the camera such that when the cards are individually fed from said magazine by suitable feeding means, the cards will not be exposed to light.

An example of a suitable feeding means is diagrammatically illustrated in the FIGURE 5 and includes a driven shaft 45 bearing in one end of a pair of bell cranks 46 pivoted intermediate their ends by a suitably supported rod 47. The driven shaft 45 has fixed thereto a roller 48 which is engageable with the lowermost of the cards 6 in the stack to feed said card forwardly. The remaining cards are held in position in the magazine 42 by suitable stop means (not shown) provided adjacent the forward end of said magazine 42. A connecting rod 49 is connected to the other end of the bell cranks 46 and to an actuator (not shown) to move the roller 48 into and out of engaging relation with the lowermost card of the stack of cards 6, to provide means for singly feeding said cards into the camera or other machine from the magazine.

The herein described cartridge is simple as far as construction is concerned and may be manufactured at a low and reasonable cost.

Having thus described the invention, what is claimed as new is:

1. A cartridge for sheet material having a light-sensitive film portion comprising:

- a tubular sleeve having one open end;
- an insert slidably received within said sleeve and having an end wall, a bottom wall, a top wall, and a pair of allochiral side walls, said top, bottom and side walls being joined with said end wall and said end wall being disposed in a plane inclined with respect to said bottom wall;
- an opaque resilient readily compressible pad positioned against the inner surface of said bottom, top and side walls and covering a substantial portion of the inner surfaces thereof for supporting within said insert a stack of sheet material having a light-sensitive film portion;
- and cover means fitted over the open end of said sleeve to enclose said insert.

5

2. A package of apertured record cards having a light-sensitive film mounted in the apertures of said cards comprising:

- a rectangular cross-section tubular sleeve having one open end;
 - an insert slidably received within said sleeve and having an end wall, a bottom wall, a top wall, and two allochiral side walls, all of said walls being joined together to dispose said end wall in a plane inclined with respect to said bottom wall;
 - an opaque resilient readily compressible pad positioned against the inner surface of said bottom, top and two side walls and covering a substantial portion of the inner surfaces thereof;
 - a stack of said record cards disposed within said insert between said pads with one end of said stack engaging said end wall;
 - and a tubular cover telescopically receiving therewithin the open end of said sleeve to enclose said insert and said cards.
3. A package according to claim 2, wherein said record cards are of a length, in relation to said insert, such that

6

said stack has said one end engaging said end wall and has the opposite end of said stack extending outwardly of said insert.

References Cited by the Examiner

UNITED STATES PATENTS

Re. 7,295	9/1876	Osborn	206—57
176,341	4/1876	Osborn	206—57
1,599,026	9/1926	Markert	229—30
1,691,736	11/1928	Oppenheim	229—14
2,215,230	9/1940	Rabkin	95—19
2,432,611	12/1947	Edwards	312—50
2,597,810	5/1952	Myers	229—10
2,859,905	11/1958	Choate	229—16
2,893,617	7/1959	George	229—14
2,979,246	4/1961	Liebeskind	229—14
3,100,431	8/1963	Hayes	95—73

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