May 30, 1967 W. E. McNAIR ETAL 3,322,264

CARTON

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FIG. 1

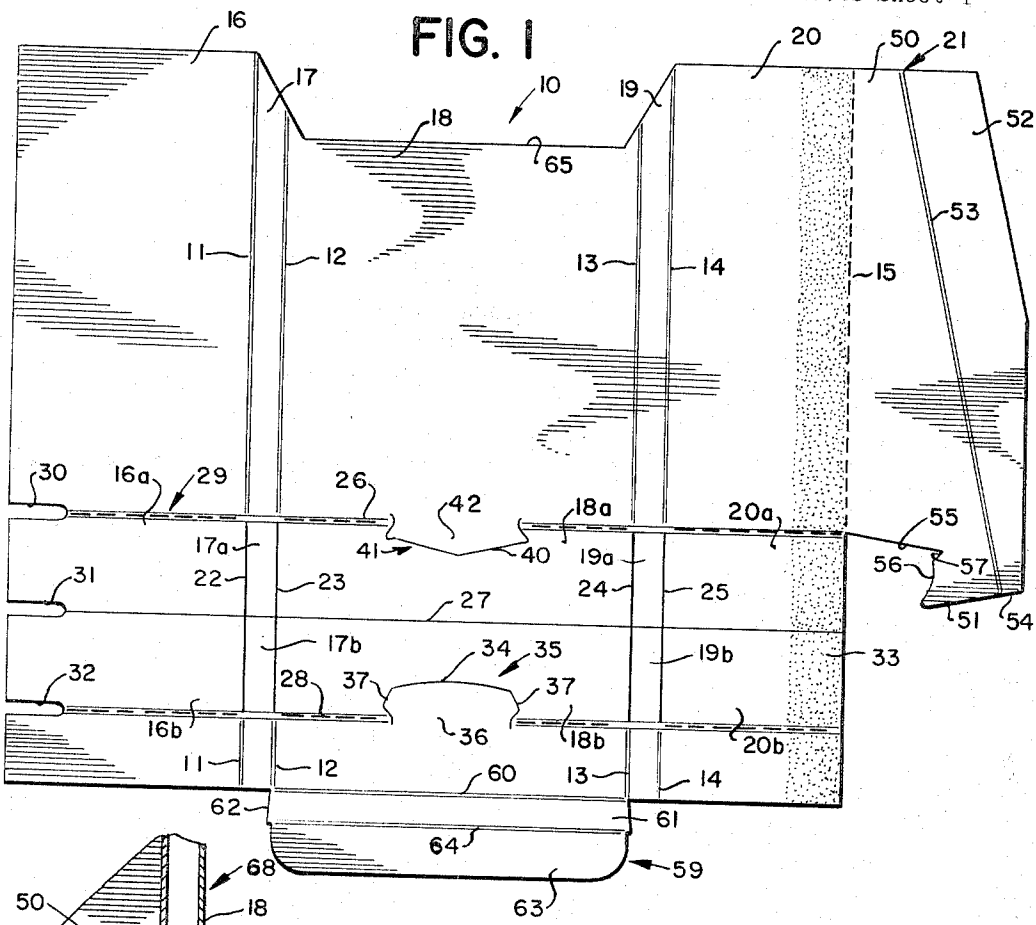
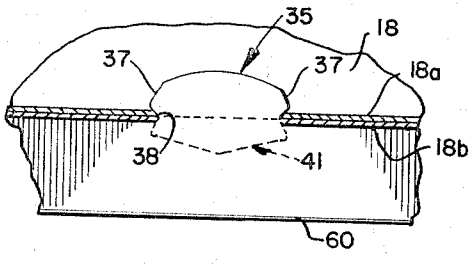


FIG. 7

FIG. 8



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FIG. 2

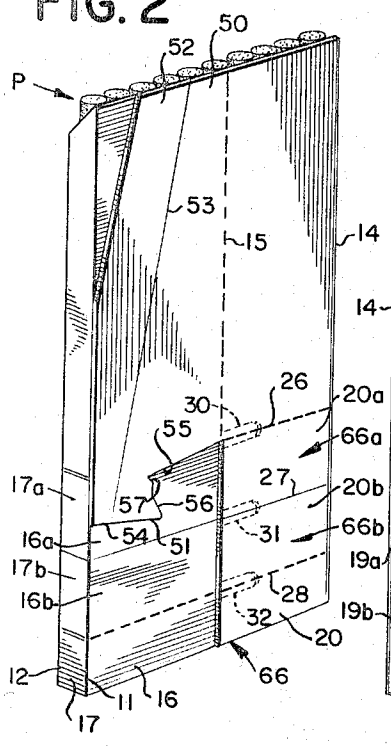


FIG. 3

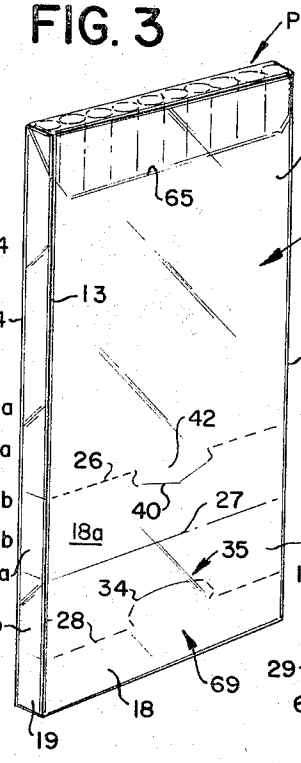


FIG. 4

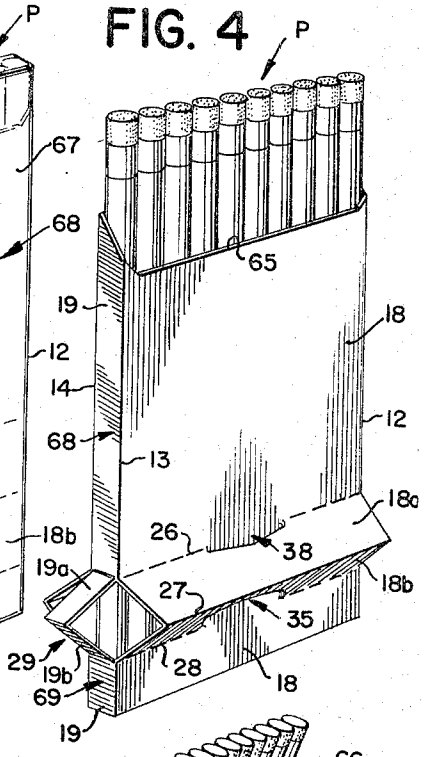


FIG. 5

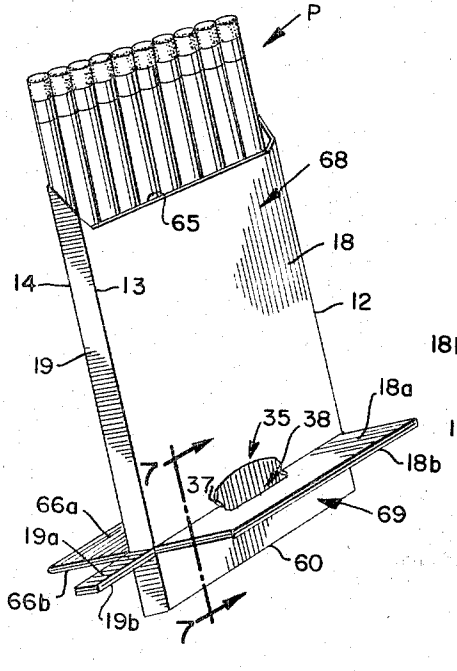
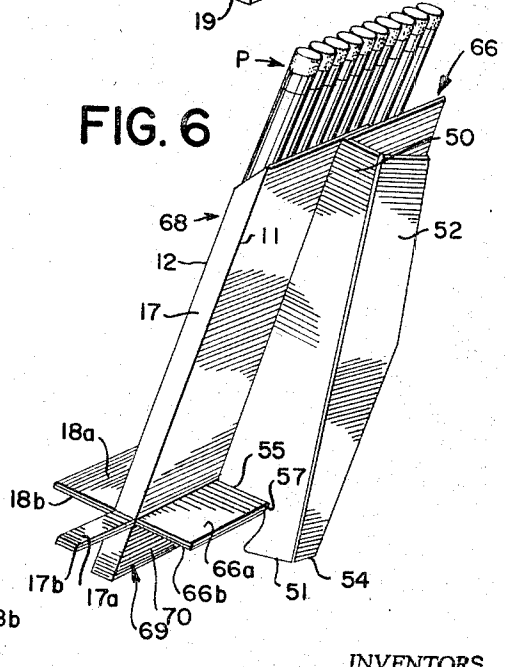


FIG. 6



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CARTON

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15 Claims. (Cl. 206—45.25)

The present invention relates to packages and, more particularly, to a carton for a plurality of pencils, crayons, or other artist's supplies which is readily convertible into a self-supporting easel or the like.

In accordance with the principles of the invention, an inexpensive yet highly efficient package for artist's pencils or crayons may be easily manufactured from a one-piece paperboard blank. As an important aspect of the present invention, the blank is formed into a condensable tube, that is to say, a tube whose overall length may be effectively shortened to leave the packaged contents projecting outwardly from an open end thereof. As will be appreciated, by causing the articles to be effectively projected from the container, ready access to them may be had without difficulty.

More specifically, the new and improved carton of the invention includes a circumscribing, collapsible bellows structure intermediate its ends which accommodates the reduction in length or condensing of the package. As an important aspect of the invention, locking means in the nature of selectively operable, male and female members are included in the bellows structure, and are adapted to lock the carton in a shortened condition when access to the contents is desired. As a further important aspect of the invention, an integral supporting brace is included in the carton which brace is adapted to be swung from the general plane of one of the carton walls to support the carton as an easel when it is in the condensed condition, while also contributing to the locking of the collapsed bellows structure.

In accordance with the inventive principles, the supporting brace member includes a specially shaped locking portion which engages and holds the bellows in their maximally condensed position. For additional stabilization and solidity of the supported condensed package, the supporting brace includes a full-length stiffening flap.

For a more complete understanding of the present invention and its attendant advantages, reference should be made to the following detailed description taken in conjunction with the accompanying drawings, in which:

FIG. 1 is a plan view of a blank for the new and improved carton embodying the principles of the present invention;

FIG. 2 is a rear perspective view of an erected carton tube;

FIG. 3 is a front perspective view of the completed carton and its contents including a transparent plastic overwrap;

FIG. 4 is a front perspective view of the carton of the invention with its bellows partially collapsed;

FIGS. 5 and 6 are front and rear perspective views, respectively, of the carton of the invention with its bellows locked in a fully collapsed condition and with the supporting brace erected to form an easel; and

FIGS. 7 and 8 are fragmentary cross-sectional views showing details of construction of the bellows locking means.

Referring to FIG. 1, a blank **10** of paperboard material is suitably cut and scored by longitudinally extending score lines **11–15** to provide consecutively articulated, first partial rear wall, first side wall, front wall, second side wall, second partial rear wall, and supporting brace panels **16–21**, respectively. As shown, the score lines **11–14** are interrupted by colinear cuts **22–25**, respectively, which, along with transverse lines of weakness **26**, **27**, and **28** generally define a transverse bellows structure **29**, including upper and lower bellows panels in each of the aforementioned wall panels, which bellows panels are designated, respectively, as **16***a*, **16***b*, **17***a*, **17***b*, **18***a*, **18***b*, **19***a*, **19***b*, **20***a* and **20***b*, as viewed from left to right in FIG. 1.

As shown, the medial line of weakness **27** is typically a continuous blind score, while the transverse lines of weakness **26** and **28** are score lines which are discontinuous in central regions of the front wall and which are further weakened by superimposed spaced cuts to facilitate collapsing of the bellows structure **29** in the completed carton.

As a further means of facilitating the collapsing of the bellows in the finally erected, tubular form of the carton, the aforementioned transverse score lines **26–28** terminate in inwardly extending notches **30–32**, formed at the edges of the first partial rear wall panel **16**. The notches **30–32** are of sufficient length to be substantially coextensive with the width of a longitudinally extending glue strip **33** disposed along the edge of the second partial rear wall panel **20**. As will be appreciated, when the partial rear wall panels **16** and **20** are overlapped and joined by the adhesive of the glue strip **33** in the formation of a carton tube (FIG. 2), only a single layer of the cardboard will be present along the lines of folding **26**, **27**, **28**, to facilitate the collapsing of the bellows of the new carton.

As an important aspect of the invention, a locking tab **35** is formed as an integral part of the front wall **18** and has a generally blunt arrow shape, which provides a narrow throat portion **36** and relatively broad locking shoulder portions **37**. More specifically, the tab **35** is formed by a cut **34** which extends from below the score line **28**, forming the major portion of the tab **35** within the generally rectangular outline of the bellows panel **18***b*. A complementary locking slot **38** for the tab **35** is defined by an opening created in the generally rectangular outline of the bellows panel **18***a* when it is folded out of the plane of the front wall **18** along the score line **26** in the subsequent formation of an easel, as will be described in more detail hereinafter. The slot **38** is bounded by a cut **40**, having a generally sharp arrow shape, and the front wall **18** in the area **42** of discontinuity in the score line **26**. As should be understood, the locking tab **35** and an element **41** defined by the slot cut **34** remain integral with and in the plane of the front wall **18** at all times.

As a further important aspect of the new and improved carton, a brace **21** is articulated along the line of weakness **15** to the free edge of the second partial rear wall panel **20** above the bellows panel **20***a*, as shown in FIG. 1. The brace **21** advantageously is of half the carton width and includes a tapered supporting leg **50** having a sloped base **51** and a stabilizing flap **52** articulated thereto along a score line **53**. As clearly shown in FIG. 1, the base **54** of the stabilizing flap is colinear with the base **51** of the supporting leg, both bases being located coextensively with the bellows **29** in the blank **10**. In accordance with the inventive principles, the leg **51** includes a locking cutout **55** which extends from the upper corner of the bellows panel **20***a* obliquely outwardly for a distance substantially equal to the width of the bellows panel **20***a* and then down to the edge of the base **51** along a generally arcuate path. A slight projection **56** in the locking cutout **55** forms a locking notch **57** in which the collapsed bellows panels may be held (FIGS. 6 and 7) in the subsequent use of the carton.

A bottom tuck flap closure **59** is articulated along the score line **60** to the bottom edge of the front wall panel **18**. As shown, the tuck closure includes a bottom wall

61 having outwardly tapered edges 62 and a tuck flap 63 articulated along a transverse score line 64 to the bottom panel 61.

In the illustrated preferred embodiment of the invention, the uppermost portions of the front and side wall panels 17–19 are suitably cut away to provide a recess 65 for purposes of display when the erected carton is in an uncondensed condition (FIG. 3). However, in certain applications where all of the carton walls are to be of equal length, the recess may be completely omitted. Moreover, it may be found desirable or necessary to add a tuck flap or other closure to the top end of the carton which may be similar to the bottom tuck flap closure 59.

In accordance with the principles of the invention, the blank 10 may be simply formed into the new and improved carton by folding it along two longitudinal scores (e.g., 11, 13) and then overlapping and joining the partial rear wall panels 16, 20 to form a flattened tube having a composite rear wall 66, having composite rear bellows panels 66*a*, 66*b* formed by the uniting of bellows panels 20*a*, 20*b*, and also including generally co-planar brace member 21. Upon squaring and infolding of the bottom wall 61 and tuck flap 63, the carton structure is completed and in condition to be filled with pencils P or like cylindrical objects (FIG. 2). After filling, the package may be completed by overwrapping the carton with a transparent plastic film material 67, such as cellophane or polyethylene (FIG. 3).

In use, the overwrap 67 is removed and the upper portion 68 and lower portion 69 of the carton tube (the portions above and below the bellows structure 29) are moved toward one another to collapse the bellows 29 and to shorten the effective length of the carton, thereby projecting the pencils above the upper edges, as shown in FIG. 4.

As should be understood, the brace member 21 must first be swung away from the plane of the composite rear wall 66 to accommodate the outward movement of the rear bellows panels when they are collapsed. Importantly, and as particular feature of the invention, the rear bellows panels 66*a*, 66*b* when collapsed will come rest in and be locked by the locking notch 57 formed in the brace 21, as shown best in FIG. 6.

When the bellows structure 29 has been fully collapsed (FIGS. 5 and 6) and in accordance with the invention, the upper and lower panels 18*a*, 18*b* will be automatically locked in the collapsed condition by the insertion of the blunt arrowlike tab 35 into the locking slot 38 formed in the upper bellows panel 18*a*. As shown clearly in FIGS. 7 and 8, the element 40 will lie adjacent the lower tube portion 69 without the slot 38, while the locking tab 35 will be locked within the upper slot 38 with the shoulders 37 engaging the outer surfaces of the collapsed upper panel 18*a*. It will be appreciated that in some instances it may be desirable to reverse this arrangement and provide an arrow-like tab which may be locked in a slot formed in the lower front bellows panel 18*b*.

After the carton has been condensed, the stabilizing flap 52 may be folded as shown in FIG. 6, so that its base 53 will be co-planar with the base 51 of the support brace 21 and the lower edge 70 of the composite rear wall 66. The length of the supporting leg and stabilizing flap is less than the condensed length of the carton (FIG. 7) in accordance with the inventive principles. Therefore, the carton will be self-supporting and in a canted fashion when set upon a planar surface and will act as an easel to hold the projected pencils, as shown best in FIG. 6. As will be understood, the carton may be returned to its original elongated condition by reversing the above-enumerated assembly steps when it is no longer necessary to employ it as an easel.

It will be appreciated that the carton of the invention may be simply and efficiently manufactured from one-piece paperboard blanks to provide a unique, self-supporting easel for pencils or the like. While the description of the invention has been specifically directed to a specific, contemplated application in which pencils or the like are supported in easel fashion, it will be apparent to those skilled in the art that the new construction has great utility as a display package and for products other than artist's materials. Thus, it should be understood that the carton herein specifically illustrated and described is intended to be representative only, as certain changes may be made therein without departing from the clear teachings of the disclosure. Accordingly, reference should be made to the following appended claims in determining the full scope of the invention.

We claim:

1. A condensable carton formed from a one-piece paperboard blank, comprising
   (a) consecutively articulated first partial rear wall, first side wall, front wall, second side wall, and second partial rear wall panels arranged to define a rectangular tube,
   (b) bottom closing means articulated to said tube at the lower extremities thereof,
   (c) pairs of bellows panels formed in the front and rear of the walls of said rectangular tube,
   (d) said bellows panels being collapsible to shorten the effective length of said tube, and
   (e) upper and lower locking means included in one of said front and rear walls and adapted to be interlocked when said bellows are fully contracted and to maintain said tube in said effectively shortened condition.

2. A condensable carton formed from a one-piece paperboard blank, comprising
   (a) consecutively articulated first partial rear wall, first side wall, front wall, second side wall, and second partial rear wall panels arranged to define a rectangular tube,
   (b) bottom closing means articulated to said tube at the lower extremities thereof,
   (c) pairs of bellows panels formed in each of the walls of said rectangular tube,
   (d) said bellows panels being collapsible to shorten the effective length of said tube,
   (e) upper and lower locking means included in said front wall and adapted to be mutually engaged when said bellows are fully contracted and to maintain said tube in said effectively shortened condition,
   (f) free swinging brace means articulated to one of said rear wall panels along a free edge thereof and adapted to be swung outwardly from said carton to support it in a generally upright position,
   (g) said brace defining a cutout locking portion adapted to receive and to hold the bellows panels associated with the rear wall when said panels are in a collapsed, face-to-face relation.

3. The carton in accordance with claim 2, in which
   (a) said locking means comprises a generally arrow-like tab integral with said front wall and extending into the general outline of one of a pair of said bellows panels and a slot defined in the other of said pair immediately adjacent said front wall.

4. A self-supporting display carton, comprising
   (a) a first tubular body portion having a predetermined cross section,
   (b) a second tubular body portion having the same predetermined cross section as said first body portion,
   (c) flexible bellows walls connecting said tubular body portions and supporting said body portions in a predetermined spaced relation,
   (d) said body portions and bellows walls cooperating to form an elongate tubular container structure having a predetermined first length,
   (e) said bellows wall portions being collapsible to form a tubular container structure having a second length less than said first length, and

(f) interlocking means associated with each of said first and second body portions and being operative to maintain said container in its condensed condition.

5. A carton blank comprising a paperboard sheet cut and scored to provide

(a) first upper partial rear, first upper side, upper front, second upper side, and second upper partial rear wall panels, adapted to be formed into an upper rigid tube,

(b) first lower partial rear, first lower side, lower rear, second lower side, and second lower partial rear wall panels adapted to be formed into a lower rigid tube, and

(c) bellows panels spacing said lower panels from said upper panels and adapted to accommodate relative movement of said upper and lower tubes between predetermined extended and condensed conditions,

(d) cooperable locking means formed in association with said bellows panels, and

(e) a bracing panel articulated to one of said partial rear wall panels and adapted to be folded outwardly therefrom to support said tubes in a generally upright position when in said condensed condition.

6. The carton blank of claim 5, in which

(a) said bellows panels are articulated to said front and rear wall panels.

7. The carton blank of claim 5, in which

(a) said bellows panels are articulated to each of said wall panels.

8. The carton blank of claim 5, in which

(a) said bracing panel defines a locking notch accommodative of said bellows panels in the fully collapsed condition,

(b) stabilizing flap means are articulated to said bracing panel, and

(c) said bracing panel and said stabilizing flap include colinear bases disposed at a predetermined angle with the bottom edges of said lower wall panels.

9. The carton blank of claim 5, in which

(a) said locking means includes an arrowlike tab integral with one of said carton wall panels and extending into the general outline of an immediately adjacent bellows panel and a complementary locking slot defined by the bellows panel to which said immediately adjacent bellows panel is articulated.

10. The carton blank of claim 5, in which

(a) said bracing panel is of greater length than said upper tube but of shorter length than the combined lengths of said upper and lower tubes.

11. A condensable display container for pencils or the like, comprising

(a) upper and lower tubular container sections movable in telescopic fashion toward and away from each other along a predetermined axis,

(b) a swingable easel brace articulated to one of said container sections along said axis for pivotable movement toward and away from said one section, and

(c) means associated with the other of said container sections and lockingly engaged by said brace simultaneously to lock said container sections in telescopically condensed relation and to secure said brace in container supporting position.

12. A condensable display container for pencils or the like, comprising

(a) upper and lower tubular container sections movable in telescopic fashion toward and away from each other,

(b) a swingable easel brace articulated to one of said container sections, and

(c) mateable means formed on each of said upper and lower sections for releasably locking said container sections in telescopically condensed relation.

13. A condensable carton formed from a one-piece paperboard blank, comprising

(a) consecutively articulated first partial rear wall, first side wall, front wall, second side wall, and second partial rear wall panels arranged to define a rectangular tube,

(b) bottom closing means articulated to said tube at the lower extremities thereof,

(c) pairs of bellows panels formed in the front and rear of the walls of said rectangular tube,

(d) said bellows panels being collapsible to shorten the effective length of said tube,

(e) upper and lower locking means included in one of said front and rear walls and adapted to be mutually engaged when said bellows are fully contracted and to maintain said tube in said effectively shortened condition, and

(f) a free swinging brace means articulated to one of said rear wall panels along a free edge thereof and adapted to be swung outwardly from said carton to support said carton in a generally upright position,

(g) said brace means including a locking portion adapted to receive and hold the bellows panels associated with the rear wall when said panels are in a collapsed, face-to-face relation.

14. A condensable carton in accordance with claim 13, in which

(a) said brace means has a length less than the length of said shortened tube.

15. A condensable carton formed from a one-piece paperboard blank, comprising

(a) consecutively articulated first partial rear wall, first side wall, front wall, second side wall, and second partial rear wall panels arranged to define a rectangular tube,

(b) bottom closing means articulated to said tube at the lower extremities thereof,

(c) pairs of bellows panels formed in the front and rear of the walls of said rectangular tube,

(d) said bellows panels being collapsible to shorten the effective length of said tube, and

(e) upper and lower locking means included in one of said front and rear walls and adapted to be mutually engaged when said bellows are fully contracted and to maintain said tube in said effectively shortened condition,

(f) said locking means comprises a generally arrowlike tab integral with said front wall and extending into the general outline of one of a pair of said bellows panels and a slot defined in the other panel of said pair immediately adjacent said front wall.

References Cited

UNITED STATES PATENTS

1,407,526	2/1922	Glover	206—45.26
2,023,242	12/1935	Ringler	206—45.2
3,057,470	10/1962	Heiber	206—45.2
3,134,486	5/1964	Voorhies	229—39

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