May 13, 1969 W. D. STOCKDALE 3,443,741

TWO-PIECE UNIT PACKAGE

Filed Nov. 9, 1967 Sheet 1 of 2

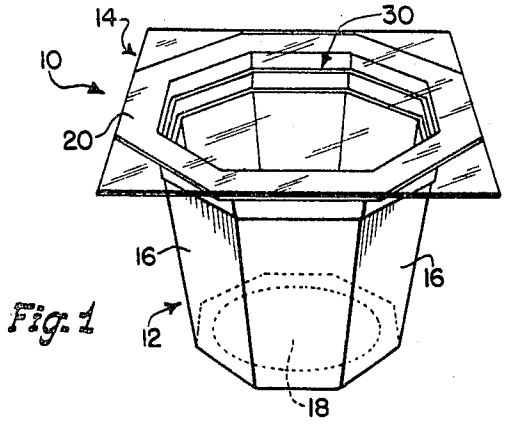



Fig. 1

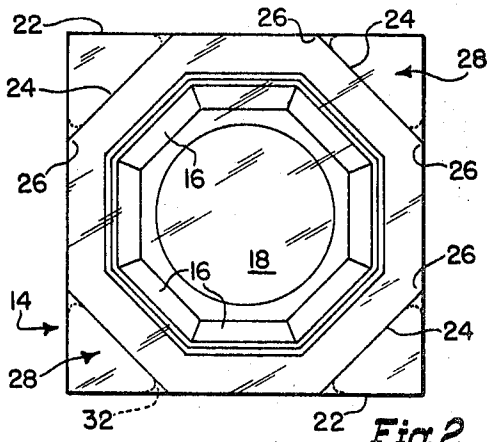



Fig. 2

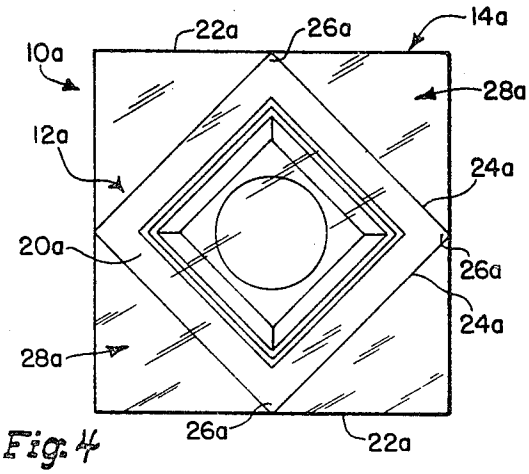



Fig. 4

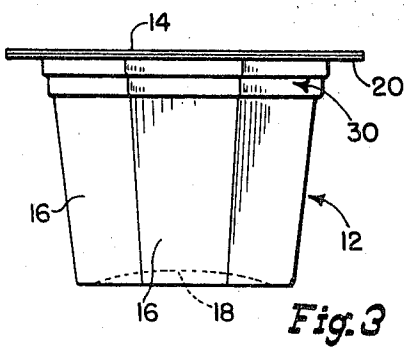



Fig. 3

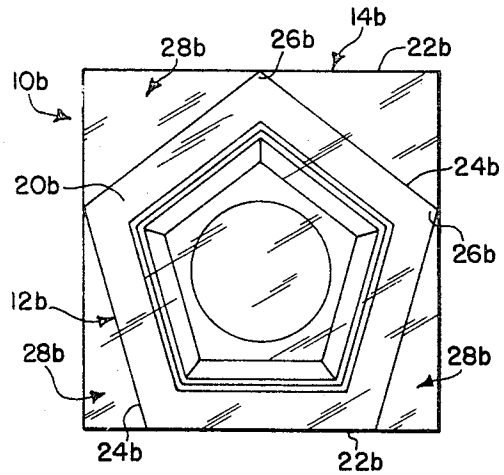



Fig. 5

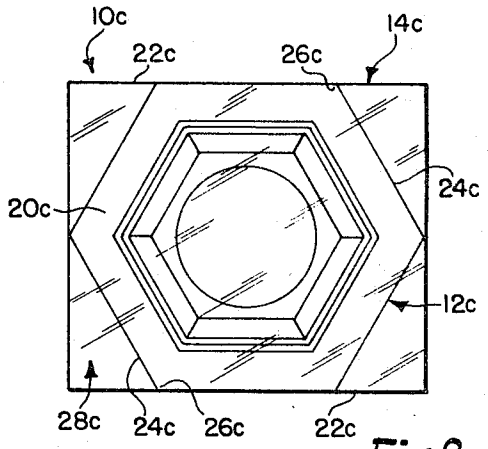



Fig. 6

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May 13, 1969 W. D. STOCKDALE 3,443,741

TWO-PIECE UNIT PACKAGE

Filed Nov. 9, 1967 Sheet 2 of 2

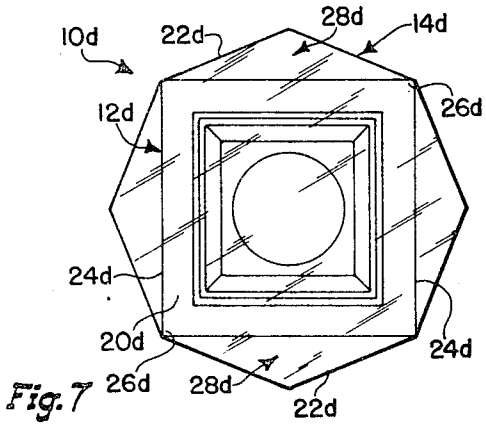



Fig. 7

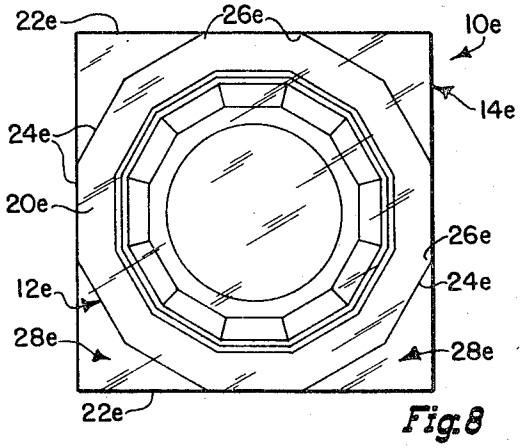



Fig. 8

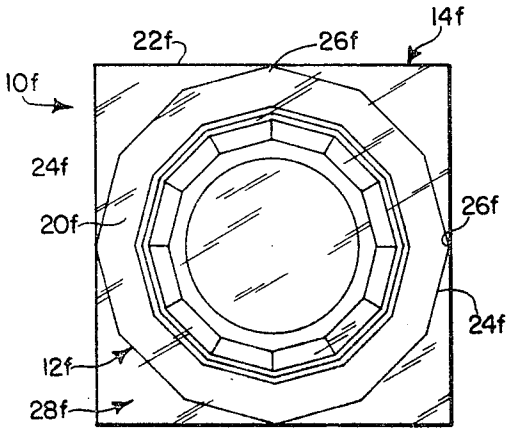



Fig. 9

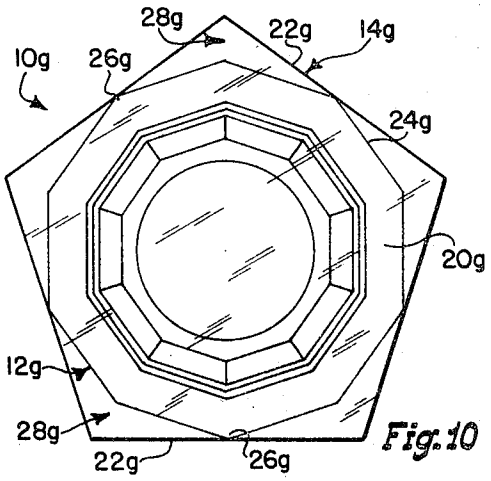



Fig. 10

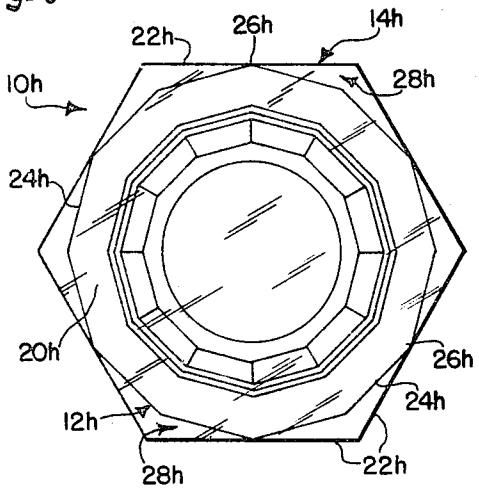



Fig. 11

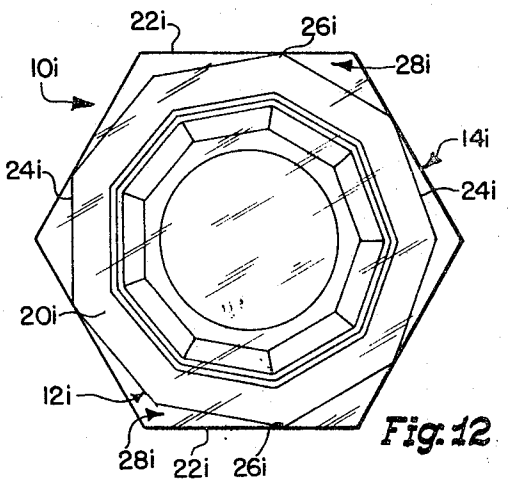



Fig. 12

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3,443,741

# TWO-PIECE UNIT PACKAGE

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Continuation-in-part of application Ser. No. 621,864, Mar. 9, 1967. This application Nov. 9, 1967, Ser. No. 681,625

Int. Cl. B65d *17/00, 5/64, 43/02*

U.S. Cl. 229—51 10 Claims

## ABSTRACT OF THE DISCLOSURE

A two-piece unit package including a container body having a radially outwardly directed flange adjacent its open upper end to which a flexible lid member is secured, said container flange and lid member each having a polygonal exterior margin which are related to each other in such a manner as to provide a plurality of tear tabs from the lid member which, along with the polygonal exterior margin of the flange, facilitates removal of the lid member from the container body.

This is a continuation-in-part of my copending application, Ser. No. 621,864, filed Mar. 9, 1967, now Patent No. 3,390,766.

This invention is directed to two-piece unit packages which are of the single service, disposable variety, and which have been commonly referred in the container industry as "portion packages." Such portion packages have been used for quite a number of years in the packaging of dairy products, jellies, ketchup, mustard and the like. In general, these portion packages have included such forms as flexible plastic and/or paper flattened tube-like devices incorporating various types of opening means, a typical example of which is shown in U.S. Patent No. 3,184,895. Portion packages have also been marketed in the form of a container body and attached flexible lid which is preferably heat sealed to a radially outwardly directed flange of the container body, the container flange also being provided with notches at selected points to facilititate gripping of the lid in removing the same from the container body. U.S. Patent No. 3,054,679 is generally typical of the two-piece unit packages including a container body and an attached heat sealed lid. The present invention relates generally to this last mentioned type of portion package wherein there is provided a formed container body having a radially outwardly directed flange at its open upper end to which a lid element is secured, preferably by heat sealing.

It is an object of the present invention to provide an improved two-piece unit package including a container body having a laterally extending flange at its open upper end to which a flexible lid element is secured, the container flange and the flexible lid element being arranged relative to one another to facilitate quick and easy removal of the lid element from the container body.

Another object of the present invention is to provide a two-piece unit package of the aforementioned type wherein the container body and lid element may be manufactured in a variety of shapes and sizes, all of which are capable of accomplishing quick and easy separation of the container body and lid element from each other.

A further object of the present invention is to provide a two-piece unit package of the aforementioned type which is sanitary, economical, easy to manufacture and fill with an appropriate product, and is very desirable for use by the consumer.

These and other objects and advantages of the present invention are attained by the provision of a two-piece



unit package including a container body having a bottom wall and a side wall extending upwardly therefrom which is connected at its upper end to a radially outwardly directed flange, and a flexible lid member temporarily united to the radially outwardly directed flange of the container body, both the flange and the lid member being provided with a polygonal exterior margin which defines a plurality of sides and angular portions and also being configured, arranged and dimensioned with respect to one another to provide a plurality of tear tabs from said lid member each extending laterally outwardly between closely positioned angular portions of the flange. The above described structure of the package facilitates removal of the lid member from the container body by initially concentrating the tearing forces along the one or more sides intermediate the closely positioned angular portions and then causing progressive tearing of the lid member along the sides and angular portions of the flange as the lid member is removed from the container body by a user.

Reference is now made to the drawings wherein:

FIG. 1 is a perspective view showing a two-piece unit package constructed in accordance with the teachings of the present invention;

FIG. 2 is a top plan view of the package shown in FIG. 1;

FIG. 3 is a side elevational view of the package shown in FIG. 1; and

FIGS. 4–12 are top plan views of various polygonally-shaped lid and container body flange portions which incorporate the principles of the present invention.

Referring first to the embodiment of the present invention shown in FIGS. 1–3, it will be seen that the two-piece unit package **10** generally comprises a container body **12** and a lid element **14**. The container body **12** has a general octagonal configuration with each of the sides **16** of the octangonally-shaped container body **12** extending upwardly and outwardly from a planar bottom wall and terminating in an octagonally configured, radially outwardly directed flange portion **20**. The lid element **14** is temporarily united to the upper face of the octagonally configured, radially outwardly directed flange portion **20** preferably by heat sealing technique which are well known. The container body **12** is preferably formed as a one-piece seamless thin walled thermoplastic container from various plastic materials which are commercially available, polystyrene being one preferred example. The lid element **14** is preferably a flexible plastic film of transparent character which is capable of being heat sealed to the flange portion **20** and also capable of being preprinted thereon with suitable indicia for advertising and display purposes. It will be appreciated, however, that the container body and lid elements **12** and **14** respectively can be made from various paper, foil, plastic or any combinations in the forms of laminates and the like, and such is within the purview of the present invention.

As best seen in FIG. 2 of the drawings, the lid element **14** has a square shape, the maximum distance between any two opposing edges **22** of which is generally equal to the maximum distance between any two opposing sides **24** forming the octagonal exterior configuration of the radially outwardly directed flange **20**. The radially outwardly directed flange **20**, in addition to the plurality of sides **24**, includes a plurality of angular or corner portions **26** which provide a polygonal exterior margin in the form of an octagon for the radially outwardly directed flange portion **20**. The lid element **15** and the radially outwardly directed flange **20** of the container body **12** are thus configured, arranged and dimensioned with respect to one another, as best seen in FIG. 2 of the drawings, to provide a plurality of tear tabs **28** which may be easily grasped by a user in removing the lid element **14** from the container body **12**. It will be noted that each of the

tear tabs **28** extends laterally or radially outwardly between adjacent angular portions of the flange **20** to facilitate removal of the lid element from the container body by initially concentrating the tearing forces along the side **24** of the container flange **20** intermediate such angular portions **26**. Thereafter, separation of the lid element **14** from the container flange **20** will constitute a progressive separation or tearing along the sides **24** and angular portions **26** of the container flange **20**. In this way, maximum advantage is obtained by a user in first grasping and pulling on any one of the tear tabs **28** which will have the effect of concentrating the tearing forces along one of the sides **26** and then cause progressive separation along the sides **24** and angular portions **26** of the container flange **20**.

It will also be appreciated that since there are no interruptions in the container flange, to provide for grasping of a lid element as is typical with prior art constructions, there will be a broad surface contact between the lid element **14** and the container flange **20** in the portions thereof which are temporarily united to each other, such as by heat sealing. Lack of interruptions in the container flange, together with the polygonally-shaped margin of the container flange, will afford a rigid container body structure in the area of the open upper end thereof. The above described arrangement also enables a user to grasp the two-piece unit package **10** in such a manner that the tear tab **28** will be folded down along the sides **24** cooperating therewith to prevent any finger contact with peripheral edge portions of the container flange over which extend the tear tabs **28**.

The container body **12** may be formed in any desirable shape, as long as the container flange and lid member are configured, arranged and dimensioned in the manner described above. However, for aesthetic purposes, the container may desirably be provided with a polygonal configuration corresponding to that of the container flange **20**. Also, stacking facilities **30** may be incorporated in each container body to prevent jamming therebetween prior to the containers being filled and united to the lid elements **14** to form the two-piece unit package **10**. Various types of stacking features may be employed as are conventional in the art, and a specific description thereof is unnecessary insofar as an understanding of the present invention is concerned.

Reference is now made to the other embodiments of the present inveniton which are shown in FIGS. 4–12 of the drawings. Each of the FIGURES 4–12 represent a separate embodiment which will be described in relation to the FIGS. 1–3 embodiment, and for this reason, similar reference numerals are employed with various suffixes in alphabetical sequence being applied thereto to designate corresponding parts in the various figures.

In FIG. 4 of the drawings, a square-shaped lid element **14***a* as well as a square-shaped container flange **20***a* is provided. The lid element and container flange **14***a* and **20***a* respectively are rotated or positioned 90° out of sequence from one another, and the container flange **20***a* is substantially smaller than the lid element **14***a* such that the diagonal between any two angle or corner portions **26***a* of the container flange is substantially equal to the distance between any two edges **22***a* of the lid element. Tear tabs **28***a* will again be provided, as in the FIGS. 1–3 embodiment, due to the configuration, arrangement and dimensioning of the lid element **14***a* and container flange **20***a*.

Referring to FIG. 5 of the drawings, it will be seen that the container flange **20***b* has a pentagon shape while the lid element **14***b* still assumes the square shape as in the previous embodiments. Again, a plurality of tear tabs **28***b* will be provided as the result of the specific structural arrangement between the lid element **14***b* and container flange **20***b* as in the previous embodiments.

In FIG. 6 of the drawings, the peripheral exterior margin of the container flange **20***c* assumes the shape of a hexagon while the lid element **40***c* has a peripheral margin which is rectangular in configuration. Thus, the lid element **14***c* in this embodiment is an irregular polygon since all the edges **22***c* thereof are not equal as in the previous embodiments. The rectangular shape of the lid element **14***c* is utilized in this embodiment so that the hexagonally-shaped exterior margin of the container flange **20***c* is located within the confines of the peripheral margin of the lid element **14***c* as illustrated. This will provide the plurality of tear tabs **28***c* as in the previous embodiments without there being any excess of material from the lid element **14***c*.

In all of the previous embodiments, the lid element has either an equal or lesser number of sides and angles than the container flange. It will be apparent, however, that a two-piece unit package may be provided which incorporates a lid element having a greater number of sides and angles than the container flange. This is illustrated in FIG. 7 of the drawings wherein the container flange **20***d* is provided with a square-shaped peripheral margin while the lid element **14***d* is octagonally-shaped. The configuration, arrangement and dimensioning of the container flange **20***d* and lid element **14***d* will still provide the tear tabs **28***d* as in the previous embodiments which will function in essentially the same manner as the lid element **14***d* is removed from the container flange **20***d*.

In the FIGS. 8–9 embodiments, the peripheral exterior margin of the container flange **20***c* and **20***f* respectively is in the shape of a dodecagon while the lid element **14***e* and **14***f* respectively in both embodiments is square-shaped. The essential difference between the FIGS. 8 and 9 embodiments is that the container flanges **20***e* and **20***f* are positioned 90° out of phase with one another. Thus, the container flange **20***e* will have four of the twelve sides thereof in alignment with the edges **22***e* of the square-shaped lid element **14***e*. The container flange **20***f* in FIG. 9, however, has four of the twelve angular portions **26***f* in alignment wit hthe four edges **22***f* of the lid element **14***f*. Thus, it can be seen that various polygonally-shaped lid elements and container flanges may be oriented in a slightly different manner from one another and still achieve the underlying principles of the present invention. In the case of the FIG. 8 embodiment, the tear tabs **28***e* extend laterally outwardly from the peripheral outer margin of the container flange **20***e* between two angular portions **26***e* which are separated by another angular portion **26***e* whereas in the FIG. 9 embodiment, the tear tabs **28***f* extend laterally outwardly between angular portions **26***f* which are spaced from one another by two angular portions **26***f* located therebetween along the outer peripheral margin of the container flange.

Referring now to the FIG. 10 embodiment, it will be seen that the container flange **20***g* has an outer peripheral margin in the shape of a decagon while the configuration of the outer peripheral margin of the lid element **14***g* is a pentagon. Hence, it can be seen that polygons having an odd number of sides may be configured, arranged and dimensioned with respect to one another as the previous embodiments to afford a plurality of tear tabs **22***g* which will function in the same manner as previously described.

In the FIGS. 11 and 12 embodiments, the lid elements **14***h* and **14***i* respectively have a peripheral exterior margin which is in the shape of a hexagon while the peripheral exterior margin of the container flanges **20***h* and **20***i* are respectively configured in the shape of a dodecagon and nonagon.

It will be apparent that those polygonal shapes having a larger number of sides and angular portions will afford a greater number of tear tabs, and such is the case where the lid element has five, six or more sides and angular portions as in the FIGS. 7 and 10–12 embodiments. The polygonal shape of the peripheral exterior margin of the container flange may be varied to provide any number of sides and angular portions, including up to 12

or more, and this will increase the progressive separation of the lid element from the container flange as it encounters more sides and angular portions when a lid element is separated from a container flange. However, it should be recognized that a polygon may have such a large number of sides and angular portions that it is indistinguishable from a circle, and such is to be avoided since this will not facilitate the progressive separation of the lid element from the container flange as is contemplated by the present invention.

The term polygon or polygonal shape as used herein is intended to cover any shape having a plurality of sides and angles which are three or more in number, but less than that polygonal figure which would generally be indistinguishable from a circle. It will thus be apparent that the present invention affords a wide range of sizes and shapes for the polygonal exterior margin of the lid element and container flange while also enabling easy and quick removal thereof as described above. In certain instances, it may be desirable to provide outwardly facing projections **32** at the angular portions **26** as in the FIGS. 1–3 embodiments or the other embodiments of the present invention. The projections **32** will have the effect of further concentrating the tearing forces as the lid element is removed from a container flange.

I claim:

**1.** A two-piece unit package comprising a container body having a bottom wall and a side wall extending upwardly therefrom which is connected at its upper end to a radially outwardly directed flange, and a flexible lid element temporarily united to the radially outwardly directed flange of said container body, said flange and said lid element each having a polygonal exterior margin defining a plurality of alternating sides and angular portions, each of the side portions of said flange and lid element being substantially equal to other side portions of said flange and lid element respectively, said flange having a generally constant radial width throughout the circumference thereof, the container side wall at its upper end having a complementary polygonal configuration corresponding to the polygonal exterior margin of the flange to also provide a polygonal interior margin for said flange, the polygonal exterior margin of said flange and lid element being configured, arranged and dimensioned with respect to one another to provide at least three tear tabs from said lid element each extending laterally outwardly between closely positioned angular portions of said flange to facilitate removal of said lid element from said container body by initially concentrating the tearing forces along the one or more sides intermediate said closely positioned angular portions and then causing progressive tearing of the lid element along the other sides and angular portions of said flange as the lid element is removed from said container body by a user.

**2.** The package as defined in claim **1** wherein said closely positioned angular portions are immediately adjacent angular portions separated by a single side portion.

**3.** The package as defined in claim **1** wherein said closely positioned angular portions include both immediately adjacent and spaced angular portions of said container body flange.

**4.** The package as defined in claim **1** wherein the angular portions of said flange include projections which aid in concentrating the tearing forces of the one or more sides of the container body flange located therebetween.

**5.** The package as defined in claim **1** wherein the lid element has less polygonal sides and angular portions than said container body portion.

**6.** The package as defined in claim **1** wherein the lid element has more polygonal sides and angular portions than said container body flange.

**7.** The package as defined in claim **1** wherein the lid element and container body flange have an equal number of sides and angular portions.

**8.** The package as defined in claim **1** wherein said tear tabs are capable of being folded downwardly against the polygonal exterior margin of said container body flange as said package is gripped by a user.

**9.** The package as defined in claim **1** wherein said lid element is temporarily united to said container body flange by being heat sealed thereto.

**10.** The package as defined in claim **1** wherein said container body and lid element each are formed in one piece from plastic material.

**References Cited**

UNITED STATES PATENTS

| | | | |
|---|---|---|---|
| 2,736,665 | 2/1956 | Marshall | 99—171 |
| 3,021,001 | 2/1962 | Donofrio | 229—43 X |
| 3,054,679 | 9/1962 | Bradford | 229—2.5 X |

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U.S. Cl. X.R.

99—171; 206—65; 229—43