

Jan. 22, 1952

B. ALSTADT ET AL
NURSING BOTTLE NIPPLE

2,582,950

Filed March 2, 1950

2 SHEETS—SHEET 1

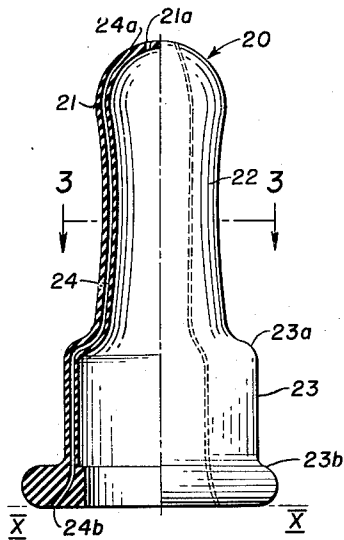


Fig. 1

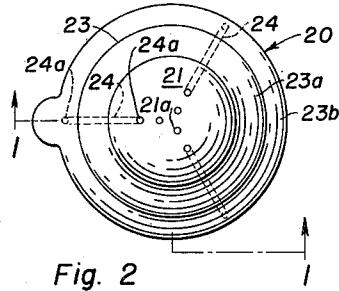


Fig. 2

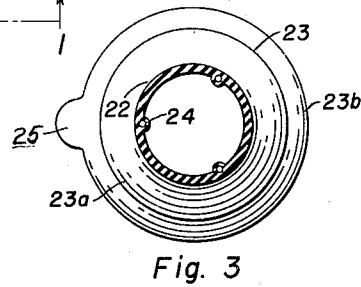


Fig. 3

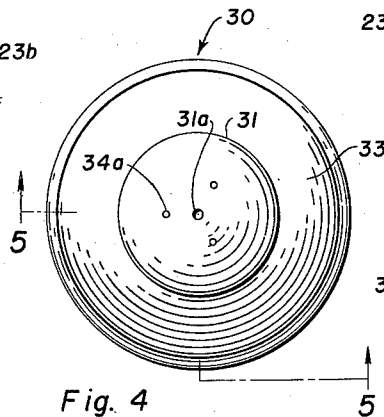


Fig. 4

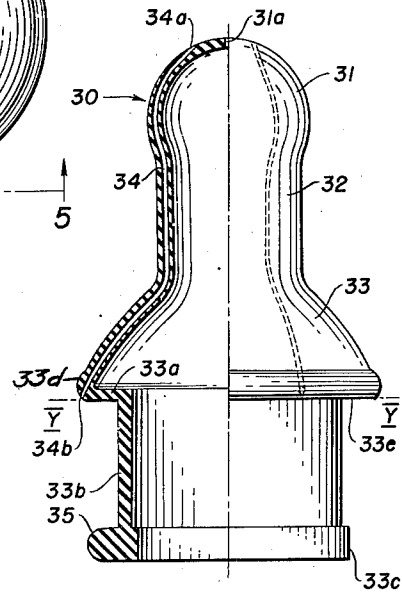


Fig. 5

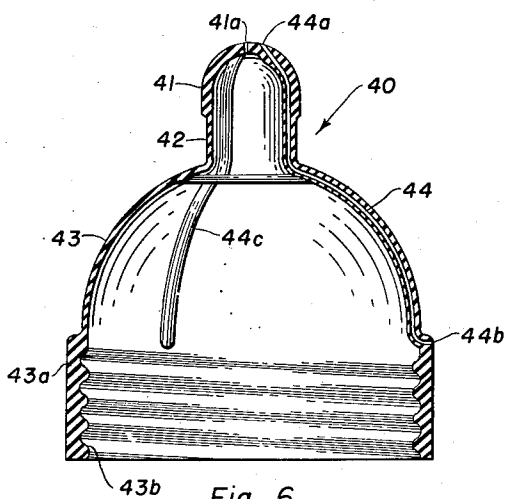


Fig. 6

INVENTORS.
Benjamin Alstadt &
BY Harold Sappey

Erwin M. Barnett
ATTORNEY.

Jan. 22, 1952

B. ALSTADT ET AL
NURSING BOTTLE NIPPLE

2,582,950

Filed March 2, 1950

2 SHEETS—SHEET 2

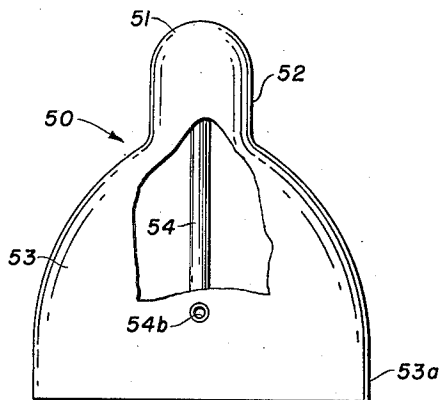


Fig. 7

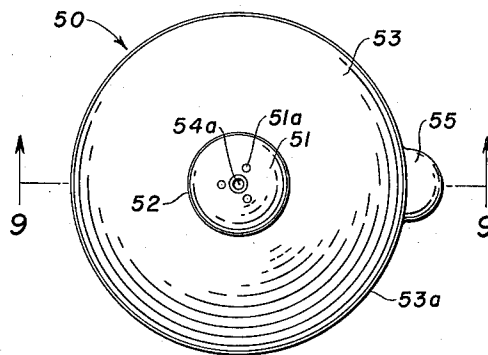


Fig. 8

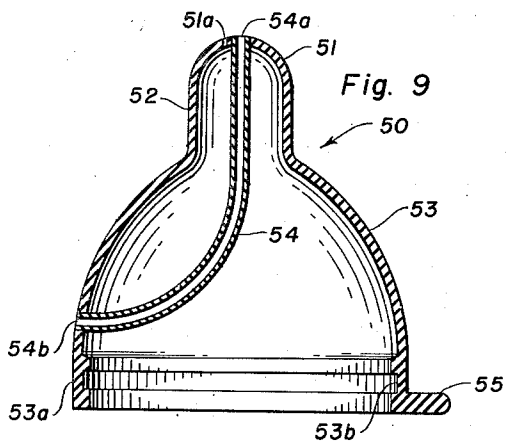


Fig. 9

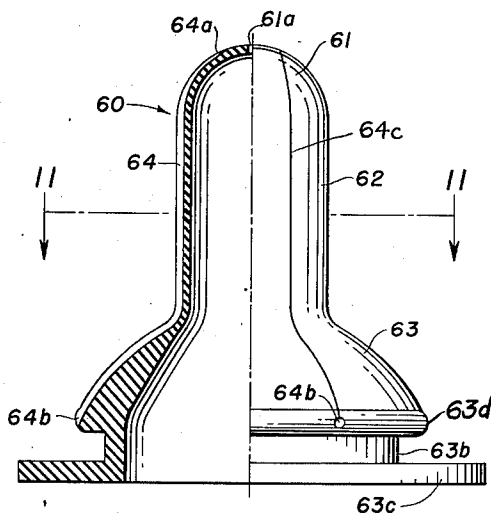


Fig. 10

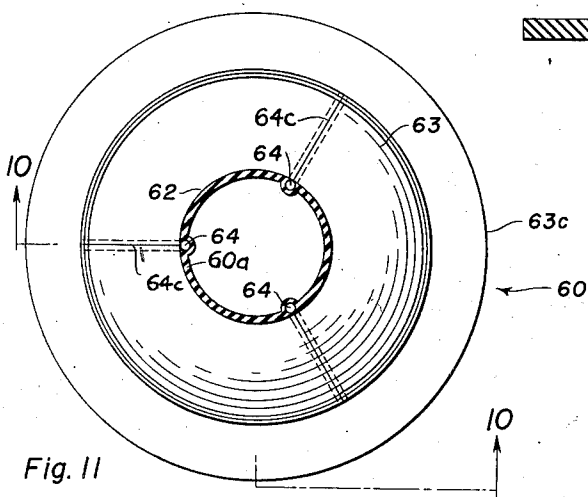


Fig. 11

INVENTORS.
Benjamin Alstadt &
Harold Sappey
BY

Erwin M. Barnett
ATTORNEY.

UNITED STATES PATENT OFFICE

2,582,950

NURSING BOTTLE NIPPLE

Benjamin Alstadt and Harold Sappey,
New York, N. Y.

Application March 2, 1950, Serial No. 147,242

15 Claims. (Cl. 128—252)

1

This invention relates to liquid feeding nipple constructions, for example, as, used on infant nursing bottles, and more particularly is directed to improved nipple constructions for serving, as in natural breast feeding, to minimize nervous tension that generally is manifested by a so-called "colic condition" thereby providing for an improved method of infant feeding.

Among the objects of the invention is to generally improve feeding nipple constructions and methods of infant feeding of the character described, which constructions shall comprise few and simple parts forming a rugged structure capable of withstanding rough usage, which shall be easy and cheap to manufacture, which shall be practically non-collapsible in use, which shall operate under relatively low suction conditions, which constructions and method shall at all times during feeding aid in continuously maintaining the connection between the lips and nipple thereby more closely approximating natural breast feeding conditions, which shall be easy to keep in sanitary and hygienic condition, which shall be reliable in operation, which shall be adaptable to be conformed to various types of feeding bottles, and which shall be practical and efficient to a high degree in use.

Other objects of the invention will in part be obvious and in part hereinafter pointed out. The invention accordingly consists of features of constructions, combinations of elements, and arrangement of parts which will be exemplified in the constructions hereinafter described and of which the scope of application will be indicated in the claims following.

In the accompanying drawings in which are various possible illustrated embodiments of this invention:

Fig. 1 is an elevational view of a liquid feeding nipple constructed to embody the invention, cut along line 1—1 in Fig. 2 to expose the interior structure for showing one of the spaced apart air passageways incorporated in the wall thereof.

Fig. 2 is a top plan view of the improved nipple shown in Fig. 1, the spaced apart air passageways being shown in dash lines.

Fig. 3 is a cross-sectional view taken on line 3—3 in Fig. 1, showing a sectional structure through the neck portion of the nipple transversely of the spaced apart air passageways.

Fig. 4 is a top plan view similar to Fig. 2 showing a modified nipple construction embodying the invention.

Fig. 5 is an elevational view similar to Fig. 1,

2

cut along line 5—5 in Fig. 4 to show the spaced apart air passageways having inlet ends terminating at the base edge of the nipple breast.

Fig. 6 is a sectional elevational view of another modified nipple construction having a base thereof formed to fit a wide mouth type bottle and showing spaced apart air passageways formed as internal ribs for the nipple structure.

Fig. 7 is a front elevational view of a further modified nipple construction embodying the invention partly broken away to expose the positions of the air supply tube or conduit.

Fig. 8 is a top elevational view of the nipple shown in Fig. 7.

Fig. 9 is a cross-sectional view, taken on line 9—9 in Fig. 8, through the air supply tube.

Fig. 10 is an elevational view similar to Figs. 1 and 5 cut along on line 10—10 in Fig. 11 of still another modified form of nipple construction embodying the invention showing spaced apart air passageways formed as invaginations of the nipple wall having closed slits extending along the surface of the teat, neck and breast of the nipple, and

Fig. 11 is a cross-sectional view taken on line 11—11 in Fig. 10 showing the spaced apart air passageways in transverse section.

Referring in detail to the drawing, 20 denotes a nipple formed of a flexible material, such as gum or synthetic rubber, or other suitable substances having like elastic properties, constructed to embody the invention.

Nipple 20 as seen in Figs. 1 to 3 may comprise a teat or bulbous hollow head portion 21 extending from a tubular or sleeve-neck 22, the latter being interposed between said teat portion 21 and a hollow base portion or breast 23; said teat portion 21, neck 22 and breast 23, as here shown, being integrally formed in the construction of nipple 20.

Teat portion 21 may form a substantially hollow hemispherical-shaped structure having one or more through-openings 21a to permit flowing liquid from the interior of teat portion 21 there-through, as hereinafter described, and said breast 23 which may be shouldered as at 23a, may terminate in a thickened peripheral rim or bead 23b for retaining nipple 20 on the mouth of a feeding bottle (not shown) in the well understood manner.

Said nipple 20 may be provided with uniformly spaced apart elongated continuous air-passageways or conduits 24 which may be integrally formed with the wall structure of said nipple 20 to extend substantially the length of the teat

3

portion 21, the neck 22 and the breast 23. Said passageways 24 may each terminate in an inlet end 24b at the bead 23b, that is, just above a plane X—X passing through the extreme edge of said bead peripheral rim 23b, and the nipple has an outlet end 24a for each of said passageways 24 terminating at the teat portion 24 just short of the level of through-openings 21a as is clear from Figs. 1, 2 and 3.

Through-openings 21a serve to permit the flow of liquid contents of the feeding bottle through the nipple 20 into a child's mouth in which teat portion 21 of nipple 20 is placed in the well known manner, and passageways 24 provide direct communication of the end of nipple teat portion 21 in the child's mouth with the surrounding air independent of the contents of such nursing bottle and liquid flow therefrom.

Nipple 20 may be provided with a tab projection or lip 25 integrally formed with head 23b serving as a finger grasping handle to facilitate mounting on the conventional rim bead of the nursing bottle in the well understood manner.

After constructing nipple 20 as above described and shown in Figs. 1 to 3, a practical application of the invention may be carried out by simply mounting nipple 20 on a feeding bottle containing a milk formula, water or any other feeding liquid and on inserting said nipple 20 into an infant's mouth whereby teat portion 21 having through-openings 21a and said outlet ends 24a of passageways 24 are positioned within the mouth cavity, the infant's lips will close about neck 22 of nipple 20 in position against breast 23 with inlet ends 24b of passageway 24 communicating with the free atmosphere. When suckling by the infant commences the liquid will flow from the bottle in an even stream through openings 21a simultaneously with atmospheric air flowing through passageways 24 into the mouth cavity. This flow of air between the atmosphere and mouth cavity is substantially free and unimpeded so that after the completion of each suck there is sufficient air supplied to the mouth cavity for replacing the partial vacuum created within the bottle without requiring releasing the connection between the nipple and the lips.

When sufficient liquid flows into the throat to initiate a swallowing reflex, the liquid will pass down the esophagus and any excess air in the mouth cavity will be taken care of through the respiratory system.

In practicing the invention with nipple 20 in maintaining the above described communication of air between the free atmosphere and the infant's mouth cavity during suckling, the infant will be found to take liquid food from a bottle contentedly and in a relaxed mood so as to minimize often present nervous tension to which gastric disturbances and distress are attributed.

A modified form embodying the invention is shown in Figs. 4 and 5 as nipple 30 which is seen to comprise teat portion 31 having a through-opening 31a and tubular or sleeve-neck 32 similar to teat portion 21 and neck 22 of nipple 20, respectively, said nipple 30 having a dome-shaped breast portion 33 formed with a base wall 33a and provided with a tubular mounting extension 33b.

A peripheral bead 33c terminates tubular extension 33b for mounting and retaining nipple 30 on the conventional rim bead of a nursing bottle (not shown) in the well understood manner.

4

Said bead 33c may be provided with a conventional finger grip tab 35, if desired.

In nipple 30, as in nipple 20, there may be provided spaced apart elongated air-passageways 34, integrally formed with the wall structure thereof to extend the length of teat portion 31, neck 32 and breast 33. Said passageways 34 may each terminate in an outlet end 34a positioned similar to passageways 24 but terminate in an inlet end 34b at the base edge 33d of breast 33, that is, in the plane Y—Y of the bottom surface 33e of base wall 33a, as shown in Fig. 5.

Another modification embodying the invention is shown in Fig. 6 as nipple 40 which comprises a teat portion 41 formed with through-openings 41a, tubular or sleeve-neck 42, similar to portions 21, 31 and necks 22, 32 of nipples 20 and 30, respectively, and a dome-shaped breast portion 43 of slightly more rounded contour than breast 23. Breast 43 may terminate in an annular flange 43a formed with internal threads 43b for screw mounting nipple 40 on a feeding bottle of the well known wide mouth type (not shown) in the well understood manner.

Nipple 40 may also be provided with spaced apart air passageways 44 formed in bracing ribs 44c to extend along the interior of nipple 40 from teat portion 41 to flange 43a, air passageways 44 each terminating in an inlet end 44b at the upper edge of flange 43a and in an outlet end 44a in the region of through-openings 41a.

A further modification of the invention in the form of the nipple construction 50 is shown in Figs. 7, 8 and 9, which may be similar to nipples 30 and 40 shown in Figs. 5 and 6, and has a teat 51 provided with suitably spaced through-openings 51a, an integrally formed neck 52 and breast 53 having breast extension 53a. The latter may be provided on an interior side thereof with a bottle-bead gripping annular groove 53b and if desired with an outwardly extending finger-grip tab 55 as shown in Fig. 9. However, instead of providing passageways 34c and 44c as in nipples 30 and 40, respectively, nipple construction 50 may be provided with an interior extending air supply tube or conduit 54 which passes from said teat 51 through the neck 52 and out through the breast 53, said tube 54 having an outlet end 54a terminating at teat 51 adjacent to said openings 51a as is shown in Figs. 8 and 9, an inlet end 54b of said tube 54 terminating at the breast 53 just above extension 53a.

Still another modified form of air supplying means embodying the invention may include spaced apart passageways 64 in a nipple 60 shown in Figs. 10 and 11. Such passageway construction may also be used in nipples 20, 30 or 40 instead of air passageways 24, 34 or 44, respectively, if desired.

Nipple 60, as here shown, may be of a type for mounting on a wide mouth nursing bottle and is seen to comprise a teat portion 61, a neck 62, breast 63, tubular extensions 63b and outwardly extending flange 63c over which a screw coupling cap (not shown) fits for clamping engagement with the nursing bottle mouth in the well understood manner. Air passageways 64 may each be fashioned as an invagination of exterior nipple wall 60a to provide substantially normally closed slits 64c each of which may be extended the entire length of the said exterior wall 60a from inlet opening end 64b at base edge 63d of the breast 63 to outlet opening end 64a adjacent through-opening 61a in teat portion 61, to facilitate cleansing of nipple 60 by deforming

5

wall 60a along said slit 64c as well as simplifying the manufacture thereof. However, said slits 64c may be extended only part way along passageways 64 if desired.

Tube 54 may be made of a substantially more rigid material than the rest of nipple 50 so as to resist collapse and obstruction of the free flow of air when in use and to also serve as a stiffening means for nipple 50 thereby preventing collapse of the nipple structure under biting effects and the consequent obstruction of the flow of feeding fluid from the bottle.

The novel improved method of infant feeding provided by the invention will now be apparent and is seen to comprise the steps of feeding a liquid from a nursing bottle through a nipple by mouth suction while simultaneously maintaining free communication of atmospheric air within the mouth cavity, that is, concurrently drawing air from the atmosphere outside the mouth into the region of mouth suction within said cavity.

Nipples 30, 40, 50 and 60 will each operate in the same manner as described above for nipple 20 and it is to be understood that the various modifications of the air passageways may be utilized in any form of nipple without departing from the scope of the invention.

It has been found that favorable results are obtained in the modifications shown when through-openings 21a, 31a, 41a, 51a and 61a are of the usual size that is, so that an intermittent drip of liquid will take place when the bottle is inverted with said nipple opening or openings thereof below the liquid level in the bottle and the air passageways 24, 34, 44, 54, and 64 have a total effective diameter of about 1 mm. Where a plurality of passageways 24, 34, 44 or 64 are provided on a nipple, each passageway having a correspondingly smaller diameter has been found to render satisfactory results.

It is thus seen that there are provided improved liquid feeding nipple constructions in which the objects of the invention are achieved and which are well adapted to meet all conditions of practical use.

As various possible embodiments may be made in the above invention and as various changes might be made in the embodiments above set forth, it is understood that all the above matters herein set forth or shown in the accompanying drawings are to be interpreted as illustrative and not in a limiting sense but any permissible change must fall within the purview of the claims asserted in this application.

Having thus described our invention, we claim as new and desire to secure by Letters Patent:

1. A nursing nipple having a hollow perforated head of the character described comprising an elastic tubular wall structure for drawing a liquid flow from a bottle therethrough, said wall structure formed with an elongated air conduit completely partitioned from said liquid flow within the nipple communicating an exterior side of said nipple head when within the mouth in suckling position with the atmosphere external the mouth.

2. A nursing nipple of the character described comprising an elastic tubular wall structure terminated by a perforated head for passing a flow of liquid from a bottle therethrough, said wall structure formed with an elongated air conduit having both an inlet and outlet communicating with the exterior of the nipple, said conduit being partitioned off from said liquid flow, within the tubular structure, said conduit outlet being located in the region of the perforated head.

6

3. A nursing nipple of the character described comprising a tubular wall structure terminated by a perforated head for passing a flow of liquid from a bottle therethrough, and an elongated air conduit contained within the nipple having both an inlet and outlet communicating with the exterior of the nipple, said conduit outlet being located in the region of the perforated head.

4. An infant's nursing nipple having a hollow perforated head for drawing a liquid flow from a bottle therethrough comprising a wall structure, an elongated air conduit supported by said wall structure completely partitioned from said liquid flow communicating a region of said head within the infant's mouth with the atmosphere external to the nipple when the latter is in suckling position.

5. A nursing nipple of the character described comprising an elastic tubular wall structure terminated by a perforated sucking head for passing a flow of liquid from a bottle therethrough, an elongated air conduit extending longitudinally in said wall structure and having an outlet end in the nipple exterior region of said perforated sucking head, said air conduit having an inlet end communicating the conduit with the exterior of the nipple when said sucking head is in a child's mouth.

6. A nursing nipple of the character described comprising a perforated bulbous hollow teat portion, a tubular neck extending from said teat portion, said neck being interposed between the teat portion and a flexible walled hollow dome shaped breast, and spaced apart air-passageways extending longitudinally of the nipple and through wall portions of said breast, neck and teat portions, said air-passageways each having an inlet on said breast and outlet on said teat portion communicating an exterior side of the nipple teat portion when within the mouth in suckling position with the atmosphere external the mouth.

7. An infant's nursing nipple having a wall structure comprising a perforated bulbous hollow head portion wherethrough a liquid flow passes, a tubular neck extending from said head portion interposed between the latter and a breast portion, an elongated air conduit supported by said wall structure completely partitioned from said liquid flow communicating a region of said head within the infant's mouth with the external atmosphere outside the infant's mouth when said nipple is in suckling position, said air conduit having an inlet end on the breast beyond the infant's lip suckling position and an outlet end in the region of said nipple perforated head.

8. The nursing nipple defined in claim 6 including spaced bracing ribs formed on an inner surface of said wall structure through which said air-passageways extend.

9. The nursing nipple defined in claim 6 in which said air-passageways are each formed as an invagination of said wall portions providing a substantially normally closed slit extending longitudinally the air-passageway on the surface of the nipple.

10. The infant's nursing nipple defined in claim 7 in which said elongated air conduit has a midportion thereof detached from said wall structure and disposed in the stream of said liquid flow.

11. The infant's nursing nipple defined in claim 7 in which said elongated air conduit is formed of a more rigid material than the wall structure and has a midportion thereof detached from the

7

latter forming a collapsing resistant means for said wall structure.

12. The nursing nipple defined in claim 1 in which said air conduit is formed as an invagination of said wall structure providing a substantially normally closed slit extending longitudinally the conduit on the surface of the nipple.

13. An infant's nursing nipple of the character described comprising a tubular wall structure terminated by a perforated head for passing a liquid flow from a bottle therethrough, and an elongated air conduit contained within the nipple having both an inlet and outlet communicating with the exterior of the nipple, said conduit outlet being located in the region of the perforated head within the infant's mouth when in suckling position, said conduit inlet being located exteriorly beyond the infant's lip suckling position, said conduit having a midportion thereof detached from said wall structure and disposed in the stream of said liquid flow.

14. A nursing nipple of the character described comprising a perforated bulbous hollow teat portion, a tubular neck extending from said teat portion, said neck being interposed between the teat portion and a flexible walled hollow dome shaped breast, and an elongated air conduit having an inlet end on said breast, said conduit extending through said tubular neck and terminating in an outlet end on said teat portion.

8

15. In an infant's feeding nipple having a perforated bulbous hollow teat portion, an intermediate tubular neck and a dome shaped breast portion, the latter terminating in means for mounting the nipple on the mouth of a feeding bottle to pass liquid flow therefrom into the infant's mouth through said nipple when in suckling position, an air conduit communicating an inlet end thereof positioned on the nipple to lie exteriorly of the mouth when in said suckling position with an outlet end thereof positioned in the region of said teat portion within the mouth, said air conduit being partitioned off from said liquid flow through the nipple.

BENJAMIN ALSTADT.
HAROLD SAPPEY.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
Re. 11,086	Eggers	June 17, 1890
Re. 11,087	Eggers	June 17, 1890
210,157	Siebenlist	Mar. 19, 1878
380,835	Ware	Apr. 10, 1888
609,415	Coulbourn et al.	Aug. 23, 1898
2,005,437	Naum	June 18, 1935