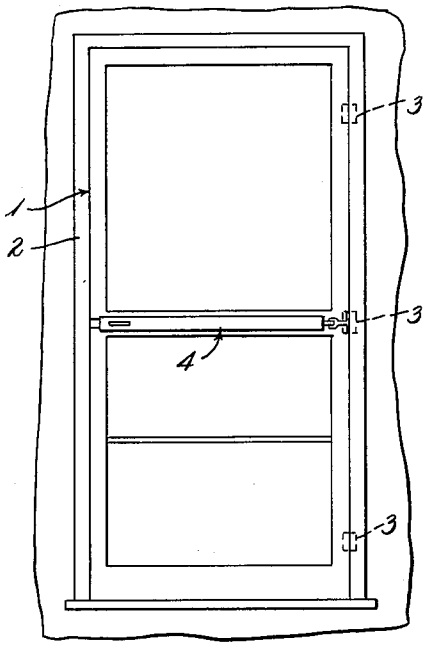
June 9, 1964 W. O. JOHNSON 3,136,571

DOOR LATCH

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FIG. 1



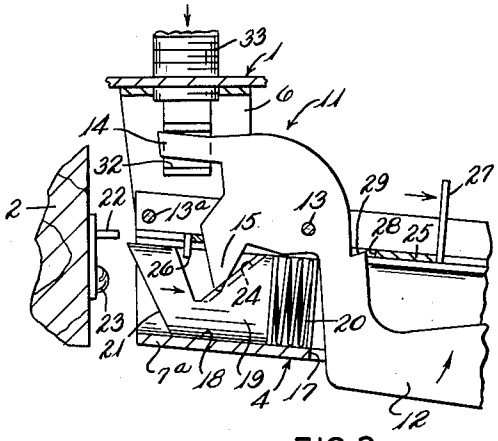


FIG. 3

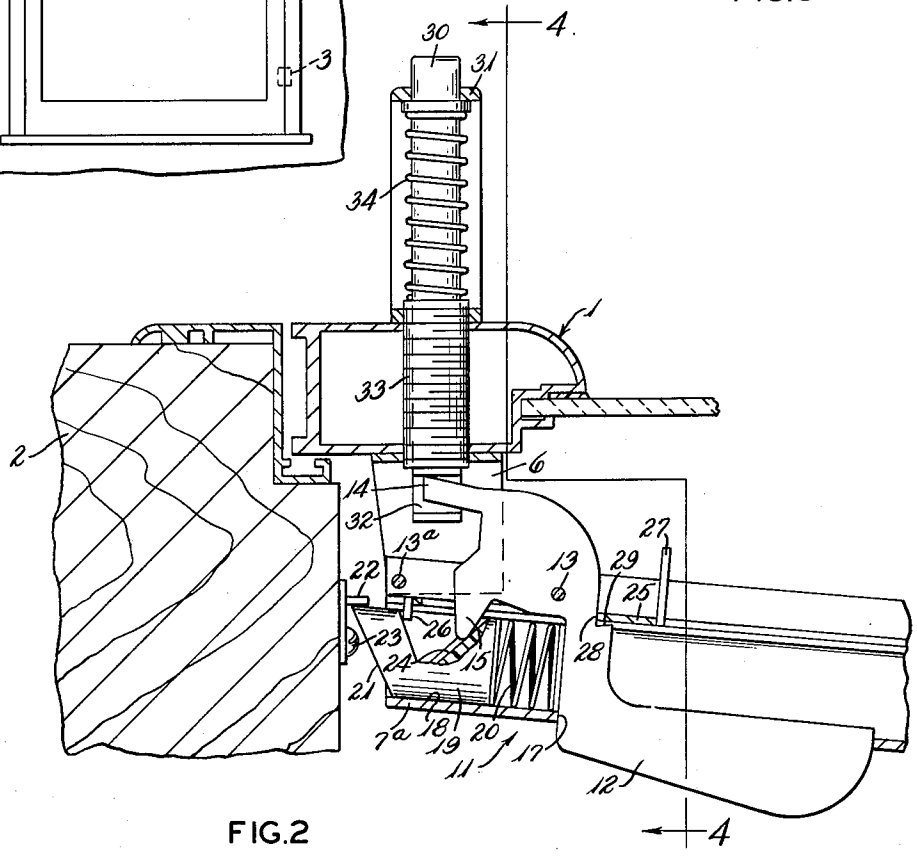


FIG. 2

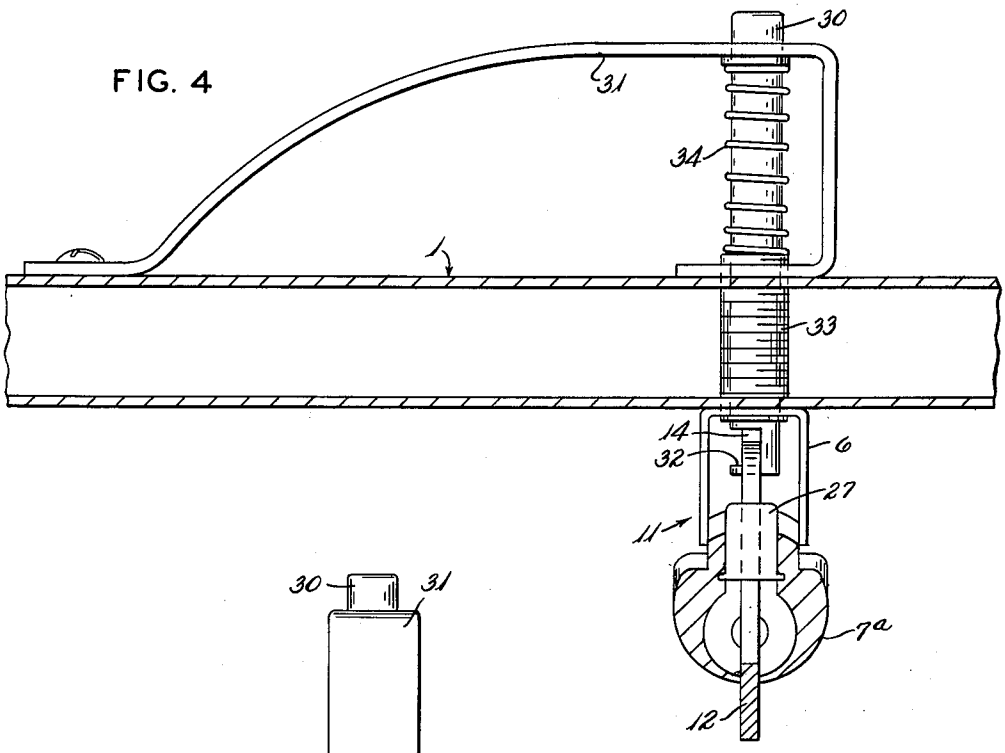
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DOOR LATCH

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FIG. 4



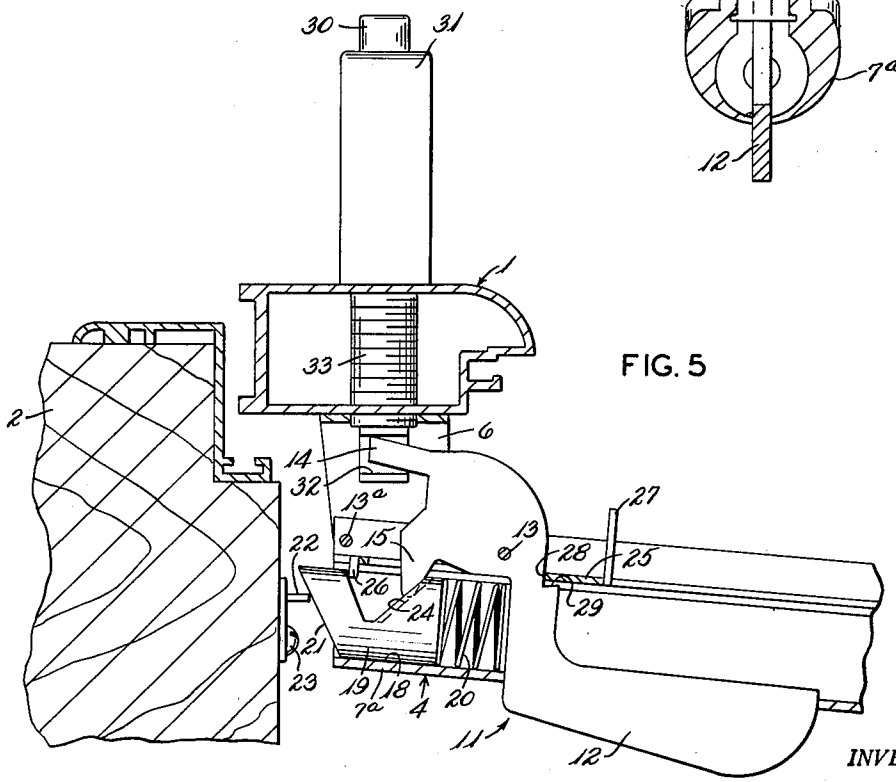


FIG. 5

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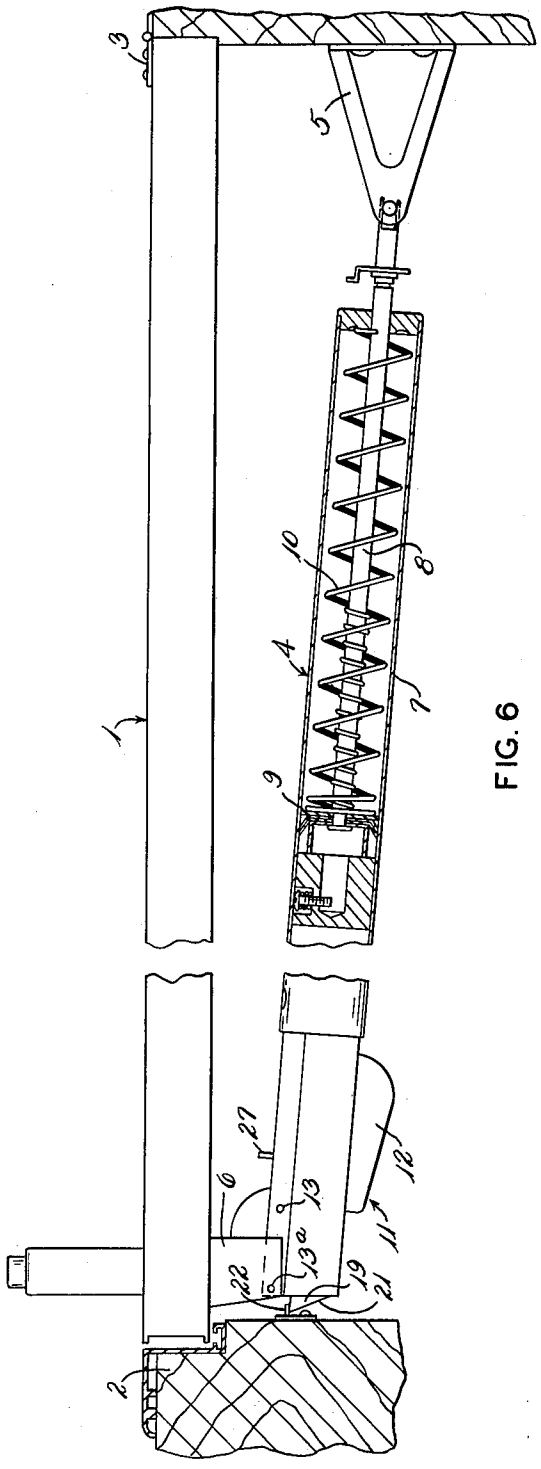


FIG. 6

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DOOR LATCH

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4 Claims. (Cl. 292—166)

The present invention relates to door latches, and especially to a door latch adapted to be carried by a door closer assembly operatively secured to a door on the inner surface thereof.

At the present time there are many different types of latches available for doors, and the latch of the invention is particularly adapted for use with storm doors, screen doors and the like. These various latches available on the market are of many different constructions, but insofar as I am aware, none of these are of the type that can prevent the door from being locked from the outside when the door is inadvertently closed with the latch previously set in a locked position. Thus in many instances it has been necessary to remove a door from its hinges, or to take other special action in order to open the locked and latched door from the outside when, for example, no one is within the house having this locked, latched door thereon. Many of these latches are of the type that do not have any keys, or other similar opening means provided for use therewith so that they cannot be opened from the outside.

The general object of the present invention is to provide a novel and improved door latch characterized by the provision of means in the latch or lock assembly for preventing complete door closing and locking action when the door latch is in a locked position.

Another object of the invention is to provide a door latch made from relatively few parts which are made from conventional materials but which parts are adapted to have a long service life and to be easily operated and readily controlled.

Another object of the invention is to use a plastic cylinder or plug as the lock member in the latch and where such plastic cylinder will be positioned in a tube for movement along the axis thereof and for control by an associated latch handle.

Another object of the invention is to provide a latch member and unit that is adapted to be used with a door closer and push bar assembly that extends susbtantially the transverse width of a door, and with the latch assembly being adapted to be secured to the door and operatively engage a keeper plate secured to the door frame for latching action.

The foregoing and other obejcts and advantages of the invention will be made more apparent as the specification proceeds.

Attention now is particularly directed to the accompanying drawings, wherein:

FIG. 1 is an elevation of a door and associated frame means and with a door closer and latch means of the invention being operatively associated therewith;

FIG. 2 is an enlarged horizontal section through the latch means embodying the principles of the invention and showing it locked in operative association with an associated keeper plate;

FIG. 3 is a section like FIG. 2 but with the latch shown in its released position;

FIG. 4 is a fragmentary vertical section taken on line 4—4 of FIG. 2;

FIG. 5 is a view, like FIG. 2, but with the latch shown in its locked position and showing the action thereof when the door is moved towards a closed position with the latch locked to prevent door closing action; and

FIG. 6 is an enlarged plan view, partially shown in section, and partially broken away to show the components of the door closer and latch assembly of the invention.

When referring to corresponding members shown in the drawings and referred to in the specification, corresponding numerals are used to facilitate comparison therebetween.

The present invention, generally speaking, relates to a door latch comprising a frame means attachable to a door on the inner surface thereof and which frame means includes a tubular section, a latch handle pivotally carried by the frame means for movement in a horizontal plane, which latch handle has an operative finger extending transversely of the door, a latch plug, or latch bolt slidably carried by the tubular section and resiliently urged to extend therefrom towards an associated door frame, means for attachment to a door frame for engaging the latch plug to retain the door closed, the latch handle having a projection thereon engaging the latch plug to move it transversely inwardly of a door to release it from engaging the means on the door frame when the latch handle is moved towards the door, a latch lock bar slidably carried by the frame means and engaging the latch plug in one position for preventing release movement of said latch plug, the latch lock bar being movable to engage the latch handle and lock it in a fixed position to retain the latch and means engaged, and other means carried on the door on the outside thereof and engaging the operative finger to move the latch handle and latch plug to a released position for door opening action.

The general features of the present invention are shown in more detail in the accompanying drawings wherein a door 1 is shown pivotally secured in a door frame 2 by means such as hinges 3. A door closer 4 is shown secured to the door frame 2 by means of a bracket 5 and this door closer extends transversely of the door to provide a push bar that is secured adjacent its other end to the door 1, as by means of a positioning bracket 6. The door closer 4 thus extends the transverse width of the door and it is primarily made from a cylindrical pipe or tube 7 that has a conventional air spring, or door check unit built into the end thereof adjacent the bracket 5 and with such unit including a piston rod 8, piston 9 and suitable spring means 10.

The new and improved latch of the invention is indicated as a whole by the numeral 11 and the latch includes a latch handle 12 which is made from a flat member, such as a metal sheet. The latch handle 12 has an operative finger 14 extending therefrom at a portion thereof positioned adjacent the door 1 while a projection 15 is also formed thereon and extends back towards the tube 7.

The latch handle 12 preferably is positioned on a substantially U-shaped extension 7*a* which is suitably secured to one end of the tube 7 and extends therefrom towards the door frame 2. A rivet, or pin 13 pivotally secures the door handle 12 in position and a similar rivet or pin 13*a* extends between the bracket 6 and the upper margins or ends of the U-shaped tube extension 7*a* to draw the upper margins thereof into closely adjacent but spaced parallel relationship for receiving part of the latch handle 12 therebetween. The free end of the door closer means thus is pivotally secured to the door.

FIG. 3 of the drawings best shows that the operative latch handle 12 is positioned in a horizontal plane and with the rivet 13 positioning one part of the latch handle to extend towards the door 1 and with the latch handle extending through a suitable slot 17 provided in the tube extension 7*a* so that an operative section of the latch handle protrudes from the tube extension away from the door 1.

The tube extension 7*a* is formed with a tubular bore 18 therein in which a latch 19 is slidably positioned. The latch in this instance is shown to comprise a latch plug,

or member which is of substantially cylindrical shape in section and which preferably is made from a low friction material, such as nylon or equivalent. This latch, or latch bolt, or plug 19 is urged axially outwardly of the tube extension by a spring 20 compressed between the axially inner end of the latch 19 and the portion of the latch handled extending through the tube extension. An end of the latch 19 is normally exposed at the end of the tube extension 7a and this extension is tapered axially inwardly at the surface 21 as shown, and the latch is adapted to engage a suitable keeper plate 22 secured to the door frame 2 by a screw 23. When the latch 19 is free for axial movement, the latch thus will slide over the keeper 22 when the slanted surface 21 contacts the keeper on door closing action. The projection 15 formed on the latch handle normally engages a slanted surface or recess 24 formed in the latch 19 so that when the latch handle is moved in towards the tube extension 7a, the projection 15 will operate the latch 19 so as to move it axially inwardly of the door closure assembly and permit door opening action when desired.

It is an important feature of the present invention that this latch or latch plug 19 can be locked in its operative position and will not automatically spring by the keeper 22 on door closing action when the latch is in its locked operative position. This avoids inadvertent locking of the door when one is on the outside of the door to make it impossible to open the door from the outside. Such lock action is obtained by means of a latch lock bar 25 which has a downwardly extending flange 26 formed thereon that can be moved to engage part of the latch plug such as a surface of the recess 24. The latch lock bar 25 is suitably engaged by the upper portion of the tube extension 7a as to be slidably positioned therein for limited movement along the axis of this tube extension. A control finger or flange 27 is formed on an axially inner portion of the latch lock bar to facilitate sliding this bar from its released position to its operaitve or engaged position with relation to the latch 19. The latch lock bar 25 has an axially extending slot 28 therein through which the latch handle 12 projects and with the axial movement of the latch lock bar thus being limited to the clearance between the slot 28 and the latch handle. When it is desired to lock the latch handle 12 against releasing or door opening action, the latch lock bar 25 is slid axially outwardly towards the associated keeper 22 at which time a portion of the latch lock bar will be adapted to engage a shoulder 29 formed on the latch handle 12 so that the latch is held in a locked or closed position and no movement of the latch handle is then permitted. The locked position of the latch lock bar 25 is best shown in FIGS. 2 and 5 in this position the flange 26 engages the latch 19 to retain it in extended position even though one would endeavor to close the door with the latch lock bar 25 in its axially extended position and with the latch handle 12 engaging the shoulder 29. The latch lock bar 25 is retained in place by sufficient frictional force, and the relationship of the parts, as to prevent movement thereof by contact of the keeper and latch 19.

When the latch lock bar 25 is not in its locking position, such bar does not interfere with the opening, or operative pivotal action of the latch handle, including actuation thereof from outside the door. The door opening member may comprise a control pin, or rod 30 which is slidably positioned in a handle bracket 31 secured on the outer surface of the door 1. The control pin 30 also extends through the door 1 and has a recess 32 formed in one side thereof in the portion thereof extending inwardly of the door. The control pin is also slidably positioned in and extends through a sleeve 33 carried by the door frame for the door 1 to guide the control pin 30 and permit only axial movement thereof. At all times, the control pin 30 is suitably engaged with a coil spring 34 positioned between portions of the control handle or bracket 31

whereby the control pin is always urged axially outwardly of the door. At all times, the recess 32 provided in the inner end of the control pin engages the operative finger 14 on the door latch 12 so that pushing the control pin 30 inwardly of the door will cause the latch handle 12 to move through an operative arc and release the latch 19 from its associated keeper.

It will be realized that the positioning bracket 6 on which a portion of the latch means of the invention is shown to be positioned could in some instances be completely separate from any type of a closer means used in association with the door. Thus the entire latch assembly could be carried on this bracket when modified to include members similar to the tube extension 7a on which the latch handle 12 is shown positioned in the present embodiment of the invention. Hence such tube means could be fixedly secured to the bracket 6 rather than being pivotally associated therewith as shown in the present structure.

From the foregoing, it will be seen that a relatively uncomplicated type of a door latch has been provided but with the latch having desirable features in that it cannot be latched or locked inadvertently when a person is closing the door and going outside of the door. This prevents any locking out actions by the latch means of the invention and thus achieves the objects of the invention.

While one complete embodiment of the invention has been disclosed herein, it will be appreciated that modification of this particular embodiment of the invention may be resorted to without departing from the scope of the invention as defined in the appended claims.

What is claimed is:

1. In combination in a door having an inner and an outer surface and a lock and latch assembly,
   - a frame means for attachment to a door on the inner surface thereof,
   - a latch handle pivotally carried by said frame means for operative movement,
   - latch means slidably carried by said frame means and resiliently urged to an operative position extending therefrom towards a door frame,
   - said latch handle having a portion thereof engaging said latch means to move it transversely inwardly of the door to release it from engaging any associated means on a door frame when said latch handle is operatively moved, and
   - a latch lock bar slidably carried by said frame means and engaging said latch means in one position to retain it in an extended operative position,
   - said latch lock bar also engaging said latch handle in said one position to prevent operative movement thereof.

2. In combination in a door having an inner and an outer surface, and a lock and latch assembly,
   - a frame means for attachment to a door on the inner surface thereof,
   - a latch handle pivotally carried by said frame means for operative movement,
   - latch means slidably carried by said frame means and resiliently urged to an operative position extending therefrom towards a door frame,
   - said latch handle having a portion thereof engaging said latch means to move it transversely inwardly of a door to release it from association with a door frame when said latch handle is operatively moved, and
   - a latch lock bar slidably carried by said frame means and directly engaging said latch means in one position of said latch lock bar to retain said latch means in an extended operative position and prevent accidental locking thereof, said latch lock bar also engaging said latch handle to prevent movement thereof when said latch lock bar is at said one position.

3. In combination in a door having an inner and an

outer surface and a lock and latch assembly where a door closer extends substantially the width of the door,

a latch handle resiliently carried by the door closer to be associated with a door and having a normal position spaced from the inner surface thereof,

said latch handle having an operative finger extending therefrom and being pivotally positioned on said door closer,

a low friction plastic latch bolt slidably carried by said door closer and normally resiliently urged to extend therefrom towards a door frame to operatively engage it,

said latch handle having a projection thereon engaging said latch bolt to move it transversely inwardly of said door when said latch handle is moved from its normal position,

a latch lock bar slidably carried by said door closer for limited movement,

said latch lock bar having a release position and having an operative position where it engages said latch bolt in its extended position to prevent movement thereof and avoid undesired locking action thereof, said latch lock bar in its said operative position also being operatively associated with said latch handle to prevent movement thereof, and

said latch handle projection engaging said latch bolt to pull it to a release position when said latch handle is operated when said latch lock bar is in its release position.

4. In combination in a door having an inner and an outer surface and a lock and latch assembly,

a frame means for attachment to a door on the inner surface thereof and including a transversely extending tubular section,

a latch handle pivotally carried by said frame means for movement in a horizontal plane,

said latch handle having an operative finger extending transversely of the door,

a latch bolt slidably carried by said tubular portion of said frame means and resiliently urged to extend therefrom towards a door frame to engage means thereon,

said latch handle having a projection thereon engaging said latch bolt to move it transversely inwardly of a door to release it from engaging any means on the door frame when said latch handle is moved towards said door,

a latch lock bar slidably carried by said frame means and engaging said latch bolt in one position to prevent release movement of said latch bolt,

said latch lock bar being movable to engage said latch handle and lock it in a fixed position to retain said latch bolt in an extended position, and

means carried by said door on the outside thereof and engaging said operative finger to move said latch handle and said latch bolt to a retracted position when said door is closed and said latch lock bar is not in its operative locked position.

References Cited in the file of this patent

UNITED STATES PATENTS

2,331,403	Leonard	Oct. 12, 1943
2,978,267	North et al.	Apr. 4, 1961