

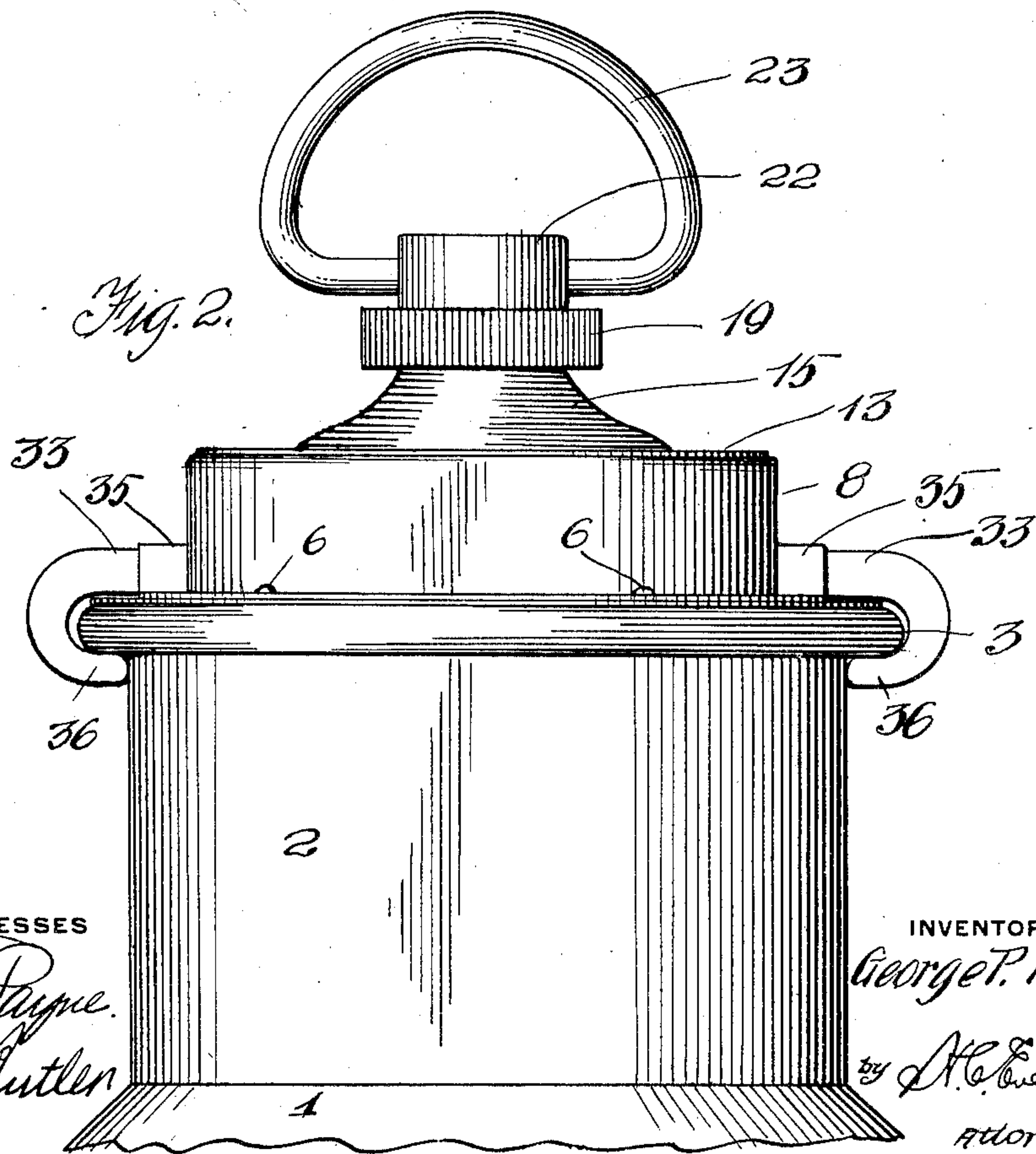
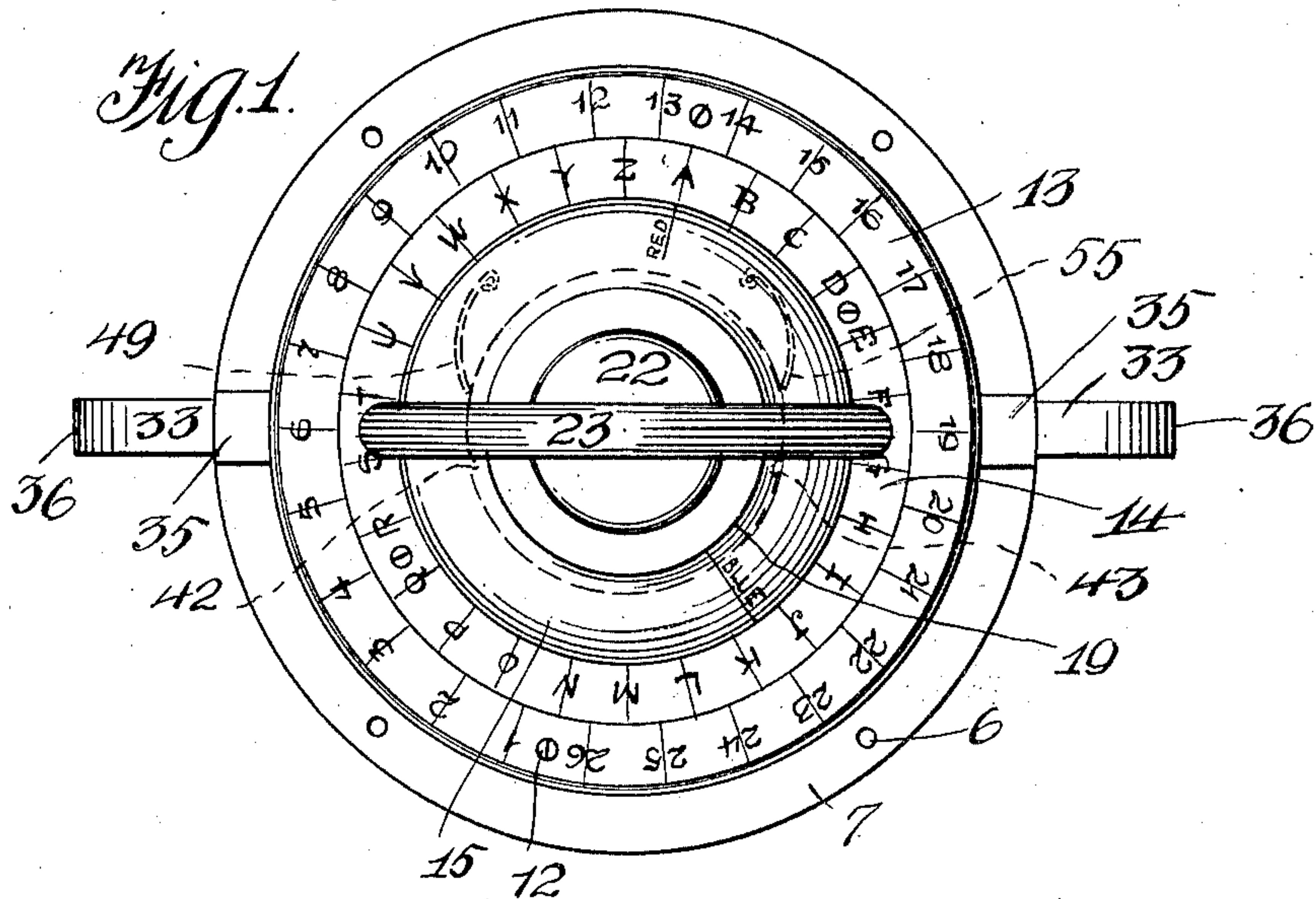
G. P. PRAGER.  
MILK CAN LOCK.

APPLICATION FILED MAY 21, 1910.

997,088.

Patented July 4, 1911.

2 SHEETS-SHEET 1.



WITNESSES  
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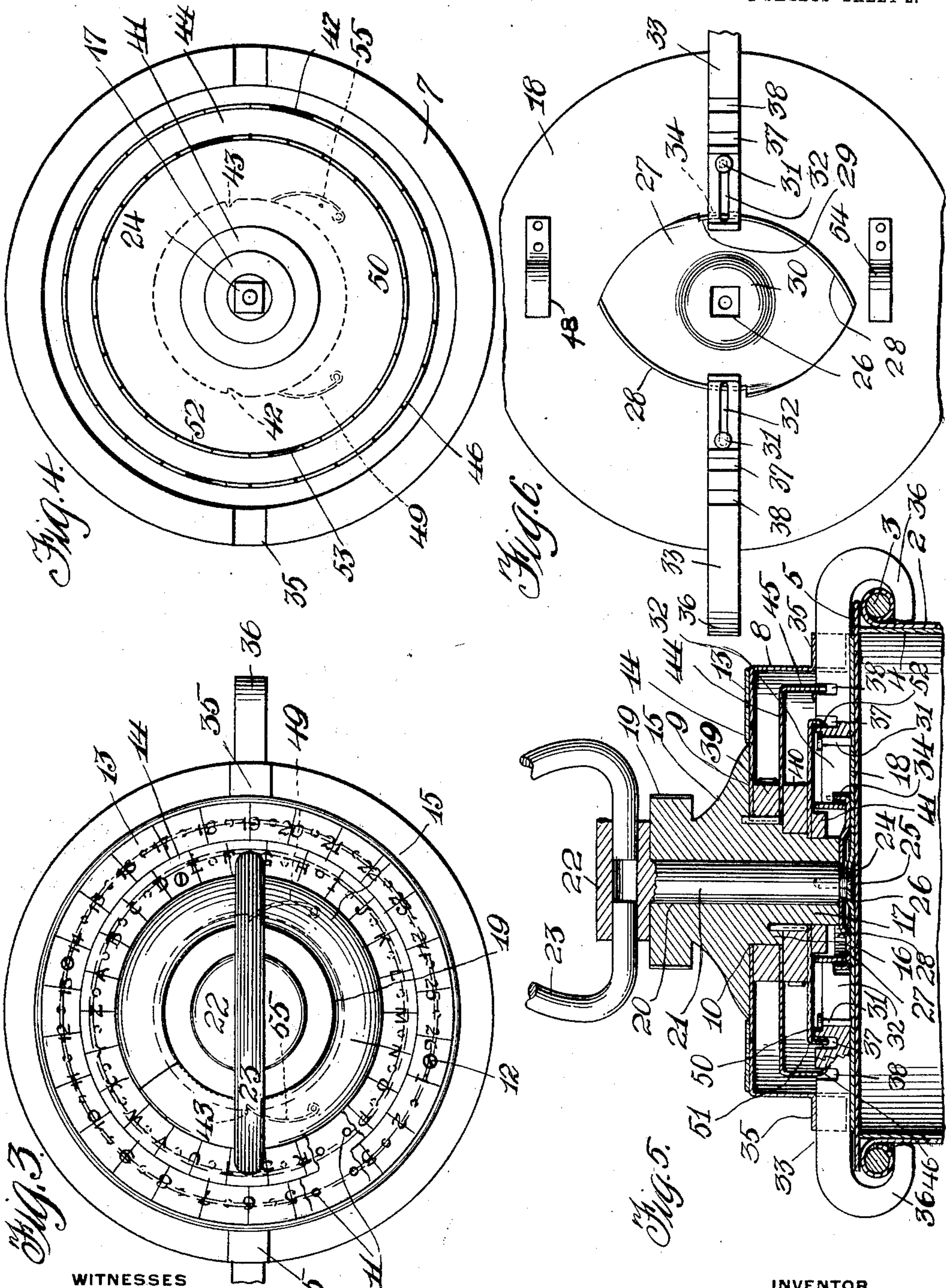
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# UNITED STATES PATENT OFFICE.

GEORGE P. PRAGER, OF INDIANA TOWNSHIP, ALLEGHENY COUNTY, PENNSYLVANIA.

## MILK-CAN LOCK.

997,088.

Specification of Letters Patent.

Patented July 4, 1911.

Application filed May 21, 1910. Serial No. 562,710.

*To all whom it may concern:*

Be it known that I, GEORGE P. PRAGER, a citizen of the United States of America, residing at Indiana township, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Milk-Can Locks, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to a permutation lock and has for its object to provide in a manner as hereinafter set forth a lock of such class which cannot be surreptitiously opened without considerable time and labor.

The lock is designed primarily for use in connection with the lids of milk cans but it is to be understood that it can be used for any purposes wherein it is found applicable.

Further objects of the invention are to provide a permutation lock which is comparatively simple in its construction and arrangement, strong, durable, efficient in its use, readily set up and inexpensive to manufacture.

With the foregoing and other objects in view, the invention consists of the novel construction, combination and arrangement of parts as hereinafter more specifically described and illustrated in the accompanying drawings wherein is shown the preferred embodiment of the invention, but it is to be understood that changes, variations and modifications can be resorted to which come within the scope of the invention as claimed.

In the drawings wherein like reference characters denote corresponding parts throughout the several views, Figure 1 is a top plan view of a permutation lock in accordance with this invention, Fig. 2 is a side elevation of a lock showing the adaptation thereof in connection with the lid of a milk can, Fig. 3 is a plan of the lock partly broken away, Fig. 4 is a bottom plan view of a portion of the lock, Fig. 5 is a vertical sectional view of the lock broken away, and Fig. 6 is a top plan view of a portion of the lock.

By way of example the lock is illustrated in connection with securing the lid of a milk can to the neck thereof and referring to the drawings, 1 denotes the body portion of a milk can or other receptacle, 2 the neck which has the upper edge thereof reamed or provided with a reinforced annular bead 3. The lid of the can or receptacle is indicated at 5 and is provided with a collar 4

which extends into the neck 2. The lid 5 is of such diameter that it will extend upon a reamed or beaded edge 3 of the neck 2. A lock in accordance with this invention is adapted to be mounted upon and secured to the lid of the receptacle and includes a pair of hook-shaped locking bolts adapted to engage over the reamed edge 3 so as to securely connect the lid 5 to the neck 2.

The lock casing includes a circular body portion 8 having its lower end formed with an outwardly extending annular flange 7. The top of the casing is indicated by the reference character 9 and which is formed with a central opening 10 and further provided with a series of circumferentially arranged openings 11. The bottom of the casing consists of a circular plate which is indicated by the reference character 18 and which is secured by hold-fast devices 6 to the flange 7 of the body portion 8. When the lock is mounted upon and secured to the lid 5 of the can or receptacle the hold-fast devices 6 not only couple the bottom plate of the flange 7, but also extend through the lid 5 whereby the lock is fixedly secured to the lid so that when the lock is lifted the lid will be carried therewith.

Mounted upon the top 9 of the body portion 8 of the lock casing are two flat rings 13 and 14, the latter being fitted within the former. The rings 13 and 14 are fixedly secured to the top 9 through the medium of screws 12 or other suitable fastening means which engage in the openings 11. Each of the rings 13 and 14 is graduated. The outer ring 13 is preferably provided with numerals, while the inner ring 14 is provided with letters. The number of openings 11 in the top 9 of the body portion 8 is such as to enable either of the rings 13, 14 being adjusted with respect to each other so as to change the combinations set up by the numerals and letters.

Revolubly mounted upon the top 9 of the body portion 8 and within the ring 14 is a disk setting member comprising a circular body portion 15 arranged above the lock casing and provided with a depending hub which extends through the opening 10 and is stepped as at 16 and 17. The upper end of the body portion 15 is provided with a knurl nut 19 to facilitate the revolving of said body when desired. The disk setting member is formed centrally with a vertically disposed opening 20 of a length as to extend from the inner



to the outer end of the said member and revolubly mounted in said opening 20 is an operating spindle 21 having the upper end thereof formed with a cross head 22 to which is pivotally connected a handle 23. The lower end of the spindle 21 is reduced to provide a rectangular shank 24 which is revolubly held in engagement with the bottom plate 18 of the lock casing by a centrally disposed screw or rivet 25. The head of said screw or rivet 25 is positioned within the raised portion 26 of the bottom plate 18.

Fixed upon the shank 24 of the spindle 21 and revolving the said spindle is an elliptical shaped bolt actuating member 27 having reversely arranged vertical flanges 28 provided with diametrically opposed notches 29 to form shoulders for limiting the rotation of the member 27 in one direction. The central portion of the actuating member 27 is raised as at 30 to engage the end of the hub 17 and to provide a clearance for the raised portion 26 of the plate 18.

Slidably mounted upon the upper face of the bottom plate 18 of the lock casing is a pair of oppositely disposed locking bolts 33, each of which is provided with a longitudinally extending slot 32 and extending through the slots 32 are vertically disposed headed pins 31 which have their lower ends fixedly secured to the bottom plate 18. Each of the bolts 33 has the under side thereof at its inner end provided with a transverse groove 34 in which is adapted to extend a flange 28 for shifting the bolt when the actuating member is revolved. The locking bolts are shifted simultaneously when the actuating member 27 is revolved through the medium of the spindle 21, each of the locking bolts 33 extending through a guide 35 provided therefor in the body portion 8 and each of said bolts has its outer end hook-shaped as at 36 to engage over the reamed or beaded edge 3 of the can or receptacle neck 2, whereby the lid of the can or receptacle will be secured in position. The upper side of each of the locking bolts at points intermediate its ends is provided with transversely extending grooves 37 and 38, the function of which will be presently referred to.

Keyed or otherwise secured respectively to the stepped portions 16 and 17 of the hub are ratchet wheels 39 and 40 and secured to the stepped portion 17 of the hub below the ratchet wheel 40 is a collar 41. The ratchet wheel 39 is provided with a notch or tooth 42, while the ratchet wheel 40 is formed with a tooth or notch 43.

Loosely interposed between the ratchet wheels 39 and 40 is an inverted flange locking disk 44, the flange of the disk being indicated at 45 and provided with ratchet teeth 46 and oppositely disposed notches 47. The flange 45 of the disk 44 extends

through the grooves 38 of the locking bolts 33 thereby preventing the shifting of said bolts until the disk 44 is moved so that the bolts 33 will be positioned in the notches 47 of the disk. The teeth 46 of the flange 45 are adapted to be engaged by a resilient detent or spring 48 which is mounted upon the bottom plate 18 of the lock casing, the said detent or spring 48 arresting movement in one direction of the disk 44. Mounted upon the disk 44 is a resilient pawl 49 adapted to engage the notch or tooth 42 of the wheel 39 whereby when the setting member 15 is revolved in one direction the disk 44 will be carried therewith.

Loosely interposed between the ratchet wheel 40 and the collar 41 is an inverted flange disk 50 of less diameter than the disk 44, the flange of the disk 40 is indicated at 51 and is provided with ratchet teeth 52 and oppositely disposed notches 53. Adapted to engage the ratchet teeth 52 of the flange 51 is a resilient detent or spring 54 carried by the bottom plate 18 of the lock casing and which is adapted to prevent back rotation of the disk 50. The flange 51 of the disk 50 extends in the grooves 37 of the locking bolt and which will prevent the shifting of said bolts until the disk 50 is positioned so that the bolts are seated in the notches 53. Mounted upon the disk 50 is a resilient pawl 55 adapted to engage the teeth or notch 53 of the ratchet wheel 40 whereby the disk 50 will be shifted with the setting member 15 when the latter is revolved. The ratchet wheel 40 is rotated in an opposite direction with respect to the ratchet wheel 39 whereby the disk 50 is rotated in an opposite direction with respect to the disk 44.

The function of the shoulders formed with the notches 29 and the flanges 28 is to arrest the rotation of the actuating member 27 when the bolts have been shifted to the position in which their grooves 37, 38 register with the flanges 44 and 50.

To permit of releasing the locking bolts from the position as shown in Fig. 5 it necessitates the shifting of the disks 44 and 50 through the medium of the setting member so that the notches 47 and 53 will aline with the guide-ways 35 of the lock casing. After the disks 44 and 50 have been shifted to position the notches in the manner as stated, the spindle 21 is revolved in one direction so that the flanges 28 will ride through the grooves 34 of the locking bolts which will shift the locking bolts outwardly thereby releasing the lid of the can or receptacle. To lock the lid the actuating member 27 is shifted in the opposite direction through the medium of the spindle 21, the locking bolts being drawn inwardly until the hooked ends 36 thereof assume the position shown in Fig. 5 of the drawings.



At this time the shoulders formed by the notches 29 will arrest movement of the actuating member in one direction indicating that said member has been shifted sufficiently, the setting member 15 is then re-

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15  
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35  
40  
45  
50  
55  
60  
65

olved so that the flanges of the disks 44 and 50 will extend in the grooves 37 and 38 whereby the bolts will be locked.

When the setting member is rotated in one direction the detent 49 engaging in the notch 42 will cause the disk 44 to revolve with the setting member, the revolving of the said member 15 is continued until a mark or indicator upon the edge thereof is opposite a certain numeral upon the ring 13, this will indicate that the notches of the disk 44 are in alinement with the guideways 35. During this movement of the disk the resilient detent 48 passes over the teeth 46 of the flange of the disk. When the disk 44 has been adjusted to the desired position the detent 48 prevents back rotation of said disk. During the rotation of the disk 44, the disk 50 is prevented from rotating by the engagement of the detent 54 with the teeth 52 of the flange 51 of the disk 50. After the disk 44 has been adjusted to the desired position, the setting member is rotated in the opposite direction, the resilient detent 55 engaging in the notch 43 causes the disk 50 to revolve with the setting member. The disk 50 is rotated until the notches 53 of said disk are in alinement with the guideway 39. This is determined when the mark or indicator upon the setting member is opposite a letter upon the ring 14. When the two disks are positioned in the manner as stated the spindle 21 is revolved which operates the actuating member 27 and the bolts are shifted to released position.

What I claim, is:

1. A lock comprising a pair of locking bolts, each having its upper face provided with a pair of grooves, a pair of flanged disks one arranged over the other and having their flanges engaging in said grooves to prevent movement of said locking bolts, each of said disks having its flange provided with a pair of notches constituting clearances for the bolts to permit of the shifting of the latter, means for revolving one of said disks in one direction to position its flange with its notches in register with said bolts, means for shifting the other of said disks in the opposite direction to position its flange and its notches in register with said locking bolts, and rotatable means engaging in the lower faces of said locking bolts for shifting them to and from locking position.

2. A lock comprising a pair of locking bolts, each having its upper face provided with a pair of grooves and its lower face near its inner end with a single groove, a

pair of flanged disks one arranged over the other and having their flanges engaging in the grooves of the upper faces of the bolts to prevent movement of these latter, each of said disks having its flange provided with a pair of notches constituting clearances for the bolts to permit of the shifting of the latter, means for revolving one of said disks in one direction to position its flange with its notches in register with the bolts, means for shifting the other of said disks in the opposite direction to position its flange and its notches in register with said locking bolts, and a rotatable flanged means engaging in the grooves of the lower faces of said locking bolts for shifting them to and from locking position.

3. A lock comprising a pair of locking bolts, each having its upper face provided with a pair of grooves and its lower face near its inner end with a single groove, a pair of flanged disks one arranged over the other and having their flanges engaging in the grooves of the upper faces of the bolts to prevent movement of these latter, each of said disks having its flange provided with a pair of notches constituting clearances for the bolts to permit of the shifting of the latter, means for revolving one of said disks in one direction to position its flange with its notches in register with the bolts, means for shifting the other of said disks in the opposite direction to position its flange and its notches in register with said locking bolts, a rotatable flanged means engaging in the grooves of the lower faces of said locking bolts for shifting them to and from locking position, each of said flanges of each of said disks being toothed, and means engaging the said toothed flanges to prevent back rotation of the disks after they have been adjusted.

4. A lock comprising a pair of locking bolts, each having its upper face provided with a pair of grooves, a pair of flanged disks one arranged over the other and having their flanges engaging in said grooves to prevent movement of said locking bolts, each of said disks having its flange provided with a pair of notches constituting clearances for the bolts to permit of the shifting of the latter, a setting member, means associated with said setting member for revolving one of said disks in one direction to position its flange with its notches in register with the bolts when the setting member is revolved in one direction, means associated with said setting member for shifting the other of the said disks in the opposite direction to position its flange and its notches in register with said locking bolts when the setting member is operated in the opposite direction, and rotatable means engaging in the lower faces of said locking bolts for shifting them to and from locking position.



5. A lock comprising a pair of locking bolts, each having its upper face provided with a pair of grooves, a pair of flanged disks one arranged over the other and having their flanges engaging in said grooves to prevent movement of said locking bolts, each of said disks having its flange provided with a pair of notches constituting clearances for the bolts to permit of the shifting of the latter, a setting member, means associated with said setting member for revolving one of said disks in one direction to position its flange with its notches in register with the bolts when the setting member is revolved in one direction, means associated with said setting member for shifting the other of the said disks in the opposite direction to position its flange and its notches in register with said locking bolts when the setting member is operated in the opposite direction, rotatable means engaging in the lower faces of said locking bolts for shifting them to and from locking position, and means extending through said setting member and engaging said rotatable means for actuating it.

6. A lock comprising a pair of locking bolts, each having its upper face provided with a pair of grooves, a pair of flanged disks one arranged over the other and having their flanges engaging in said grooves to

prevent movement of said locking bolts, each of said disks having its flange provided with a pair of notches constituting clearances for the bolts to permit of the shifting of the latter, a setting member, means associated with said setting member for revolving one of said disks in one direction to position its flange with its notches in register with the bolts when the setting member is revolved in one direction, means associated with said setting member for shifting the other of the said disks in the opposite direction to position its flange and its notches in register with said locking bolts when the setting member is operated in the opposite direction, rotatable means engaging in the lower faces of said locking bolts for shifting them to and from locking position, means extending through said setting member and engaging said rotatable means for actuating it, and means engaging with the flanges of said disks to prevent back rotation of said disks after they have been shifted to position their notches in register with the bolts.

In testimony whereof I affix my signature in the presence of two witnesses.

GEORGE P. PRAGER.

Witnesses:

MAX H. SROLOVITZ,  
K. H. BUTLER.