

Nov. 27, 1928.

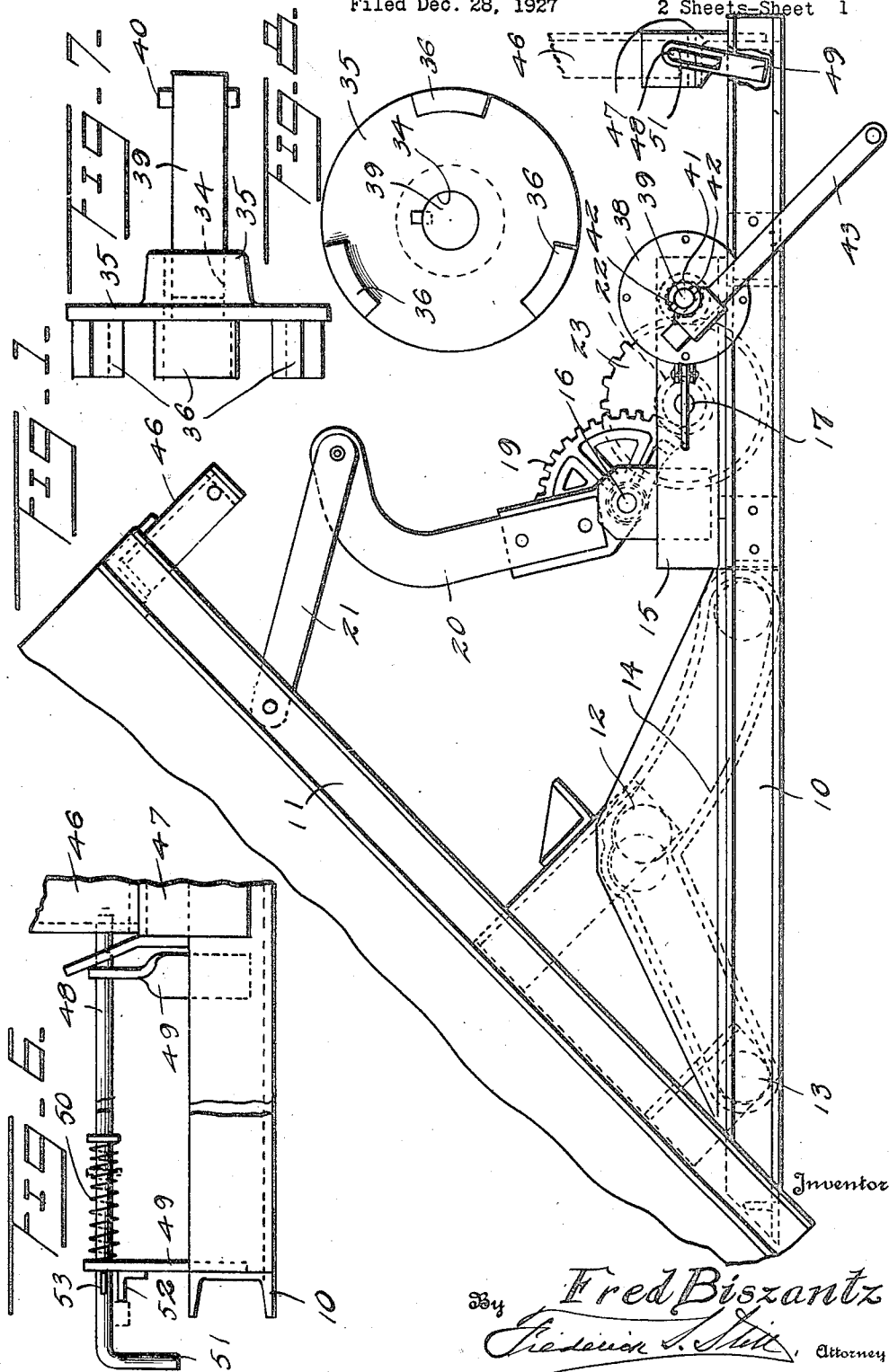
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DUMPING BODY

Filed Dec. 28, 1927

2 Sheets-Sheet 1



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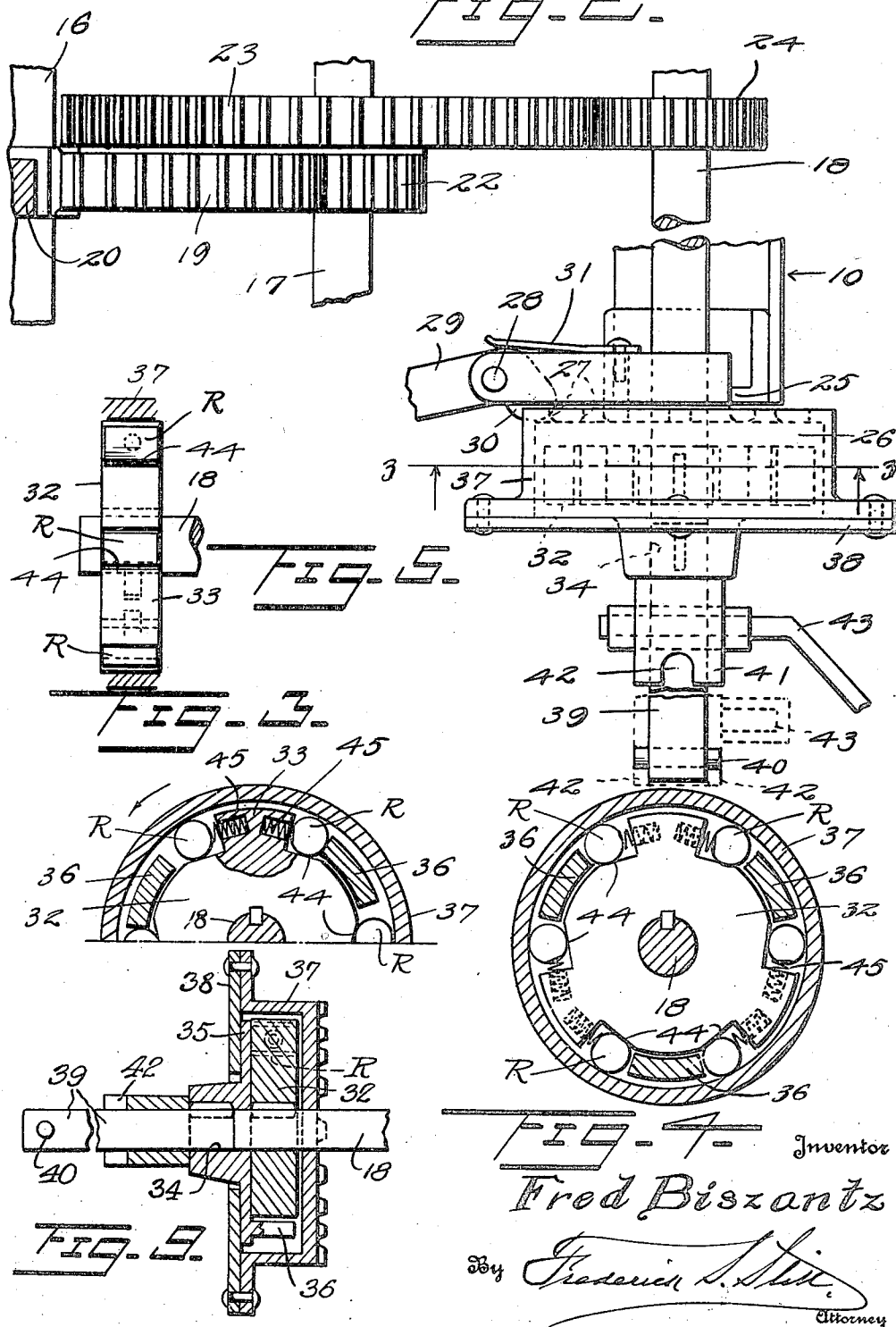
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2 Sheets-Sheet 2



UNITED STATES PATENT OFFICE.

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DUMPING BODY.

Application filed December 28, 1927. Serial No. 243,085.

This invention relates to dumping bodies and more particularly to a control mechanism for use in connection with the dumping bodies of vehicles, which may be employed with dumping bodies of the manually controlled type to secure the same in a desired adjusted position.

A further object of the invention is to provide means for controlling manual operation of a dumping body mechanism of such character that the body may be locked in any desired adjusted position.

A still further object of the invention is the provision of a manually controllable dumping body which shifts longitudinally as it tilts and in which the power required for the dumping operation is materially reduced, by reason of a construction permitting the use of longitudinally shifting pivots therefor.

A still further object of the invention is to provide a construction of this character having control means such that movement of the body in at least one direction may be by gravity.

A still further object of the invention is the provision of a construction of this character wherein the control mechanism will act to lock the body in any adjusted position.

These and other objects I attain by the construction shown in the accompanying drawings, wherein for the purpose of illustration is shown a preferred embodiment of my invention and wherein:—

Figure 1 is a side elevation of a dumping body and control mechanism constructed in accordance with the present invention;

Figure 2 is a fragmentary horizontal sectional view illustrating the control mechanism;

Figure 3 is a section on the line 3—3 of Figure 1 illustrating the parts in the position which they assume when the manual control handle is rotated counter clockwise;

Figure 4 is a similar section showing the position which the parts normally assume or assume when any attempt is made to rotate the device through rotation of the shaft 18, which results from automatic movements of the body;

Figure 5 is a fragmentary sectional view showing the roller disk in side elevation;

Figure 6 is a fragmentary detail view showing the latch mechanism employed for holding the body in loading or transporting position;

Figure 7 is a side elevation of the handle mounting and the control disk;

Figure 8 is an end elevation thereof.

Figure 9 is a longitudinal sectional view through the clutch mechanism.

Referring now more particularly to the drawings, the numeral 10 indicates a sub-frame and 11 a body mounted for oscillation thereon. This body is connected with the frame by mechanism constructed in accordance with the directions of my prior application, No. 236,278, filed November 28, 1927, for dumping bodies. In the construction referred to, I have illustrated the body as equipped with two rollers 12 and 13 alternately acting as pivots about which the weight of the body shifts and coacting with a cam track 14 in such manner that during tilting of the body, the body is longitudinally shifted. The connections of the pivot elements with the body are made in such fashion that the body must be forcibly shifted to its dumping position and may return by gravity to its loading position. Attention is directed to the fact that due to the successive engagement of the pivot rollers 12 and 13 with the cam track, the pressure required to shift the body to its dumping position is reduced to a minimum.

The frame 10 is illustrated as equipped with mounting brackets 15 having mounted therein shafts 16, 17 and 18. The shaft 16 has mounted thereon a segment gear 19 having rigidly secured thereto an arm 20, which is link-connected with the body, as at 21, so that as the body is oscillated, the arm 20 and segment 19 will be rocked, or vice versa. The shaft 17 has secured thereto a combined unit including a pinion 22 meshing with the segment 19 and a gear 23. The shaft 18 has secured thereto a pinion 24 meshing with the gear 23. It will be obvious that by rotation of the shaft 18, the body will be oscillated and by oscillation of the body, the shaft 18 will be rotated. The structure so far described has been of elements either well known in the art or described in my prior application above identified.

In accordance with the present invention, one end of the shaft 18 is extended through a bracket 15 to one side of the frame, which has mounted thereon a bearing bracket 25 through which the shaft is extended. Rotatable upon this end of the shaft is mounted a plate 26, the inner face of which is pro-

vided with teeth 27. Pivoted to the bracket at 28 is a lever 29, one end of which forms a dog 30, which may be moved into or out of engagement with the teeth to lock the plate 26 against rotation. A spring 31 holds the lever 29 either in operative or inoperative position. Keyed to the shaft 18 outwardly of the plate 26 is a disk 32, the periphery of which is provided with outwardly extending lugs 33, at present shown as three in number. The end of the shaft 18 is rotatably engaged in the bore 34 of a control plate 35, which has projecting from the inner face thereof trip lugs 36 corresponding in number to the lugs 33 of the disk 32 and of less width than the space between adjacent faces of the lugs 33. The plate 26 has a flange 37 surrounding the disk 32 and control plate 35, and has secured to the end of this flange a washer plate 38 engaging the outer face of the control plate 35 and preventing separation of this control plate and the plate 26.

The control plate 35 has keyed thereto a stub shaft 39, the outer end of which has extended therethrough a pin 40. Rotatable upon the stub shaft outwardly of the plate 35 is a casting 41, the outer end of which is notched at 42 for coaction with the pin. This casting provides a mounting for a handle 43, by means of which it may be rotated. The periphery of the disk 32 adjacent the notches is recessed, as indicated at 44, the recesses decreasing in depth away from the adjacent lug. Each recess has mounted therein a roller R, which is of such size that when it is disposed adjacent the lug, it has no contact with the inner face of the flange 37. Springs 45, however, carried by each lug 33 serve to urge these rollers away from the lugs so that they come into clamping engagement between the flange and the peripheral wall of the disk. It will be seen that the disk 32 and plate 37 with their associated elements combine to produce a clutch mechanism, locking these elements to one another. If an attempt is made to rotate the disk 32 in one direction, one set of the rollers will recede toward their lugs but the other set of the rollers will act to clamp the disk against rotation. The lugs 36, however, serve as a means for releasing a desired set of rollers. It will be obvious that if the handle casting is shifted to engage with the pin 40 and the handle rotated, the lugs 36 will come into engagement with the rollers at corresponding sides of the lugs 33. As the rollers at the opposite sides will, in response to movement of the disk in this direction, be automatically released, the disk 32 and accordingly the shaft 18 will be rotated. Immediately upon release of the handle, the springs will force the rollers outwardly in the recesses, causing clamping engagement between the flange 37 and the disk. If, at this time, the plate 26 is held against rotation by

engagement therewith of the dog 30, the shaft 18 will be locked.

In conjunction with apparatus of this character, it is desirable that a latching means be employed for holding the body in loading or transporting position to relieve the roller clutch mechanism of the strain which would otherwise be imposed thereon. In the present instance, the body has been shown as provided at its forward end with a prop 46 adapted to seat upon a transverse support 47. This support has an opening formed therein and a bar 48 is mounted in guides 49 for longitudinal shifting and rotating movements and in such fashion that it is aligned with the opening when the prop is seated upon the support. A spring 50 constantly urges the bar inwardly for engagement in the opening of the prop, and the outer end of the bar is provided with an angular portion 51 serving as a handle, by means of which it may be withdrawn against the spring or rotated. The outermost guide 49 has an abutment 52, and upon the shaft is a lug 53. This lug, by engagement with the guide, limits the inward movement of the bar 48 under the influence of the spring with the bar sufficiently advanced to engage in the opening of the prop 46. When the bar is withdrawn, this lug may be positioned by rotation of the bar to engage the abutment 52, holding the bar against longitudinal movement by the spring with the bar sufficiently withdrawn to release the body.

In operation of the device as above described and assuming the body to be in the position illustrated, if it is desired to employ the body in its automatic capacity, it is simply necessary for the operator, after releasing the latch bar 48, to swing the lever 29 to the position where the dog 30 disengages from the teeth 27 of the plate 26. The body will then be released for movement and will oscillate to its dumping position in its movements, causing the arm 20 to rock, thereby causing rotation of the shaft 18 and through the disk 32 and control plate 35 rotation of the stub shaft 39 and the plate 26. When the operation has been completed, the body can be locked against return movement by re-engaging the dog 30 with the teeth of the plate 26. As the rollers R at this time lock the plate 26 and disk 32 against relative rotation and the plate 26 is locked against rotation, the shaft 18 may not rotate and accordingly the gear train and body are held stationary. Return movement is accomplished in the same manner. If desired, the body may be positively shifted to insure proper positioning thereof by engaging the crank and rotating the same through a short space. When the handle is released, the rollers will immediately serve to lock the parts in position and engagement of the latch bar may be very readily accomplished.

To operate the device manually, the dog 30 is left engaged and the handle is engaged with the stub shaft 39 and rotated. The lugs 36 engage against the set of rollers which would normally be effective to prevent rotation of the shaft 18 in the direction in which the handle and shaft 39 are being rotated and force them toward the lugs 33. The other set of rollers will automatically recede against their springs to permit rotation of the shaft 18. When the body has reached its desired position, it is merely necessary to disengage the handle when the rollers will immediately become effective to lock the shaft 18 and thus prevent further movement of the body in either direction.

Since the construction hereinbefore set forth is capable of a certain range of change and modification without materially departing from the spirit of the invention, I do not limit myself to such specific structure except as hereinafter claimed.

I claim:—

1. In a dumping body assembly for vehicles, a frame, a body mounted for oscillation thereon, a shaft, connections between the shaft and body whereby the body is oscillated as the shaft is rotated, means locking said shaft against rotation in both directions in all positions of the body and a manually operable element rotatable in both directions, said element when rotated in either direction initially releasing the means locking the shaft against rotation in such direction and then operatively engaging the shaft to rotate the same in such direction.

2. In a dumping body assembly for vehicles, a frame, a body mounted for oscillation thereon and moving from dumping to loading position by gravity when empty, a shaft, connections between said shaft and the body whereby the shaft is rotated as the body is oscillated and the body is oscillated when the shaft is rotated, means locking said shaft against rotation in both directions in all positions of the body, a manually operable element rotatable in either direction, said element when operated in either direction initially releasing the means locking the shaft against rotation in such direction and then operatively engaging the shaft to rotate the same in such direction and means for simultaneously releasing said locking means.

3. In a dumping body assembly for vehicles, a frame, a body mounted for oscillation thereon, a shaft, connections between the shaft and body whereby the body is oscillated as the shaft is rotated, a member rotatable upon the shaft, a latch for holding the member stationary, coacting clutch elements carried by the member and shaft including means locking the shaft against rotation with relation to the member in both directions in all positions of the body, a manually operable element rotatable in either direction, said ele-

ment when rotated in either direction initially releasing the means locking the shaft against rotation with relation to the member in such direction and then operatively engaging the shaft to operate the same in such direction.

4. In a dumping body assembly for vehicles, a frame, a body mounted for oscillation thereon, a shaft, connections between the shaft and body whereby the body is oscillated as the shaft is rotated, a member rotatable upon the shaft, a latch for holding the member stationary, coacting clutch elements carried by the member and shaft including means locking the shaft against rotation with relation to the member in both directions in all positions of the body, a manually operable element rotatable in either direction, said element when rotated in either direction initially releasing the means locking the shaft against rotation with relation to the member in such direction and then operatively engaging the shaft to operate the same in such direction, said latch being releasable to thereby permit the member to rotate with the shaft whereby the shaft may be rotated in either direction by oscillation of the body.

5. In a dumping body assembly for vehicles, a frame, a body mounted for oscillation thereon, a shaft, connections between the shaft and body whereby the body is oscillated as the shaft is rotated, a member rotatable upon the shaft, a latch for holding the member stationary, the member having a flange projecting to one side face thereof, the shaft within the flange having a disk attached thereto, rollers carried by said disk and coacting with the disk and flange, said rollers being divided into two groups one of which operates to lock the disk against rotation with relation to the flange in one direction and the other of which operates to lock the disk with relation to the flange in the opposite direction, an element rotatable in either direction, means for rotating said element and means carried by the element having coaction with said groups of rollers whereby upon rotation of the element in a given direction the group locking the disk against rotation with relation to said member in the said direction is rendered inoperative.

6. In a dumping body assembly for vehicles, a frame, a body mounted to move by gravity upon the frame from at least one of dumping or loading position to the other thereof, a shaft, connections between said shaft and body whereby the shaft rotates as the body is oscillated and the body is oscillated as the shaft is rotated, releasable means locking said shaft against rotation in both directions and manual means for rotating said shaft initially rendering the locking means inoperative to lock the shaft in the direction in which it is being rotated by said manual means.

7. In a dumping body assembly for vehicles, a frame, a body mounted for oscillation thereon, a shaft, connections between the shaft and body whereby the body is oscillated as the shaft is rotated, a member rotatable upon the shaft, a latch for holding the member stationary, the member having a flange projecting to one side face thereof, the shaft within the flange having a disk attached thereto, rollers carried by said disk and coacting with the disk and flange, said rollers being divided into two groups one of which operates to lock the disk against rotation with relation to the flange in one direction and the other of which operates to lock the disk with relation to the flange in the opposite direction, the rollers of either group being rendered inoperative by circumferential movement thereof upon the disk, an element rotatable in either direction having portions coacting with said rollers whereby upon rotation of said element in either direction the rollers locking the disk against rotation with relation to the flange in said direction are shifted circumferentially of the disk to release the same.

8. In a dumping body assembly for vehicles, a frame, a body mounted for oscillation thereon, a shaft, connections between the shaft and body whereby the body is oscillated as the shaft is rotated, a member rotatable upon the shaft, a latch for holding the member stationary, the member having a flange projecting to one side face thereof, the shaft within the flange having a disk attached thereto, said disk having circumferentially spaced radially extending lugs upon the periphery thereof, the periphery of the disk approaching the adjacent face of the flange as it recedes from said lugs, rollers adjacent each face of each lug, springs forcing the rollers circumferentially of the disk from the lugs, a plate confronting the disk having lugs projecting between adjacent rollers, and means for rotating said plate.

9. In a dumping body assembly for vehicles, a frame, a body mounted for oscillation thereon, a shaft, connections between the

shaft and body whereby the body is oscillated as the shaft is rotated, a member rotatable upon the shaft, and having upon one face thereof circumferentially spaced teeth, a pivoted lever having one end in the form of a dog engageable in said teeth, coacting clutch elements carried by the member and shaft including means locking the shaft against rotation with relation to the member in both directions in any position of the body, a manually operable element rotatable in either direction, said element when rotated in either direction initially releasing the means locking the shaft against rotation with relation to the member in such direction and then operatively engaging the shaft to operate the same in such direction, said latch being releasable to thereby permit the member to rotate with the shaft whereby the shaft may be rotated by oscillation of the body.

10. In a dumping body assembly for vehicles, a frame, a body mounted for oscillation thereon, a shaft, connections between the shaft and body whereby the body is oscillated as the shaft is rotated, a member rotatable upon the shaft and having upon one face thereof circumferentially spaced teeth, a pivoted lever having one end in the form of a dog engageable in said teeth, the member having a flange projecting at the opposite side face thereof, the shaft within the flange having a disk attached thereto, rollers carried by said disk and coacting with the disk and flange, said rollers being divided into two groups one of which operates to lock the disk against rotation with relation to the flange in one direction and the other of which operates to lock the disk with relation to the flange in the opposite direction, an element rotatable in either direction, means for rotating said element and means carried by the element having coaction with said groups of rollers whereby upon rotation of the element in a given direction the group locking the disk against rotation in said direction is rendered inoperative.

In testimony whereof I affix my signature.
FRED BISZANTZ.