Sept. 8, 1953 A. J. MEYER 2,651,542

CHOPPER BOX GATE CONTROL

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Fig. 1

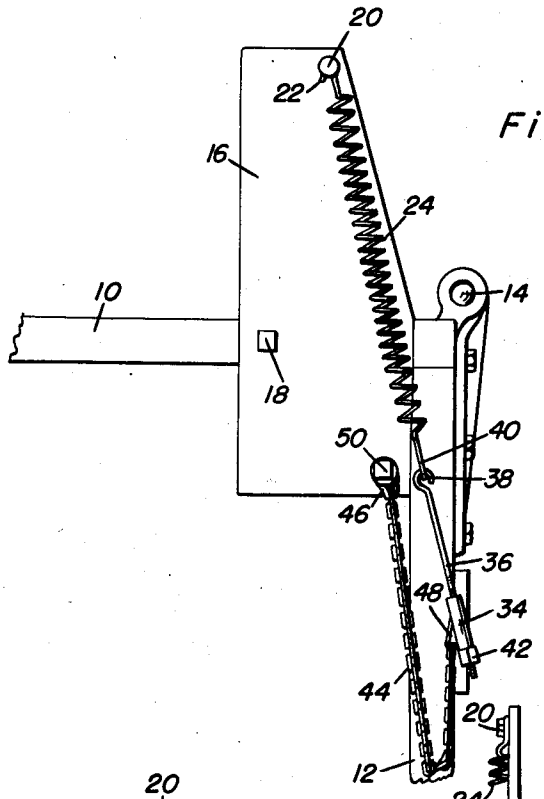


Fig. 2

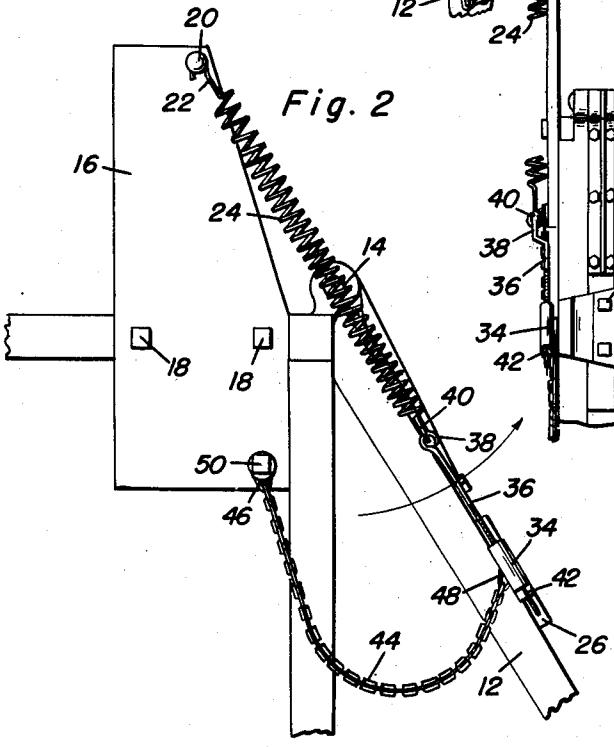
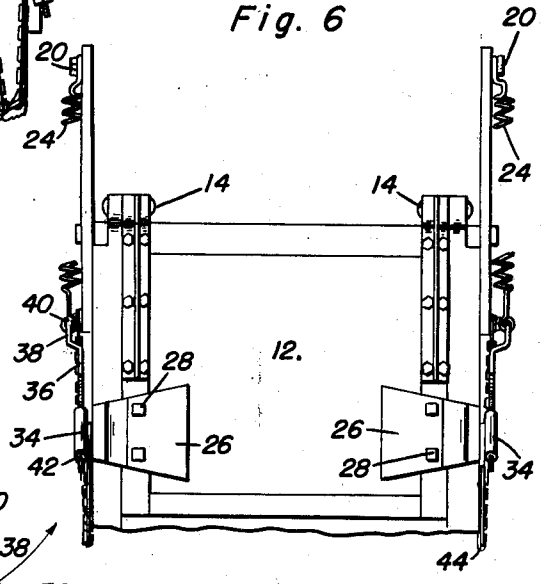


Fig. 6



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Fig. 3

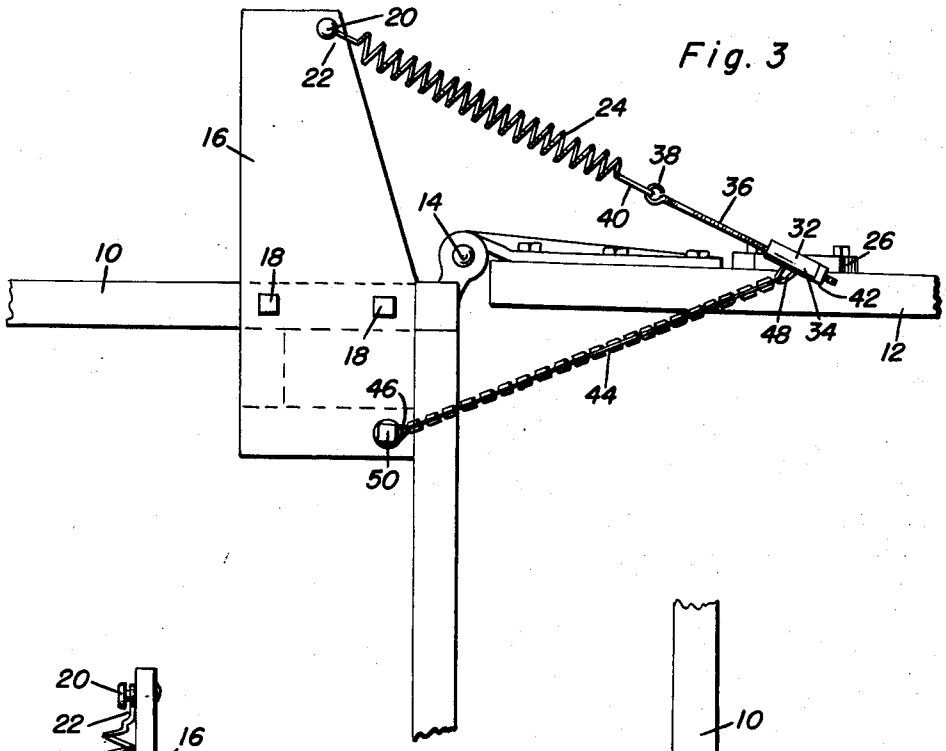


Fig. 4

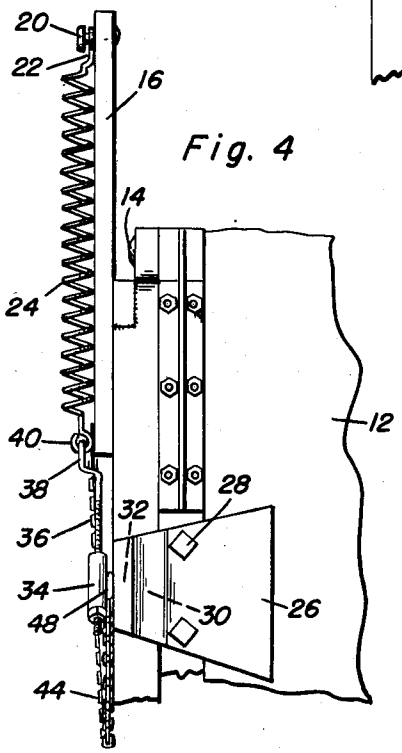
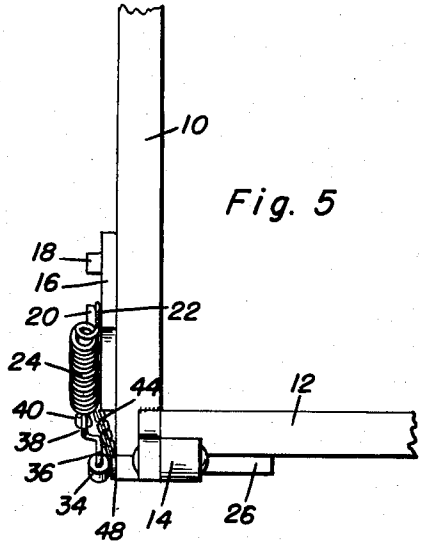


Fig. 5



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CHOPPER BOX GATE CONTROL

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Application September 18, 1952, Serial No. 310,311

3 Claims. (Cl. 296—56)

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This invention relates to new and useful improvements in closure opening devices and the primary object of the present invention is to provide a resilient connection between a closure and the structure on which the closure is swingably mounted, that will aid in permitting convenient opening of the closure and which will also act to yieldingly retain the closure in its closed position.

Another object of the present invention is to provide a cushioning and opening means for chopper boxes involving a pair of coil springs that will be shifted back and forth across the pivot means for the closure of a chopper box to maintain the closure in its closed position and to aid in urging the closure to its open position when the springs are shifted across the pivot means during initial opening of the closure.

A further object of the present invention is to provide a closure cushioning and opening means for chopper boxes that may be quickly and readily attached to or removed from a conventional chopper box structure without in any way interfering with the normal use of the chopper box structure.

A still further aim of the present invention is to provide a combination cushioning and opening means for closure that is extremely simple and practical in construction, strong and reliable in use, efficient and durable in operation, inexpensive to manufacture, service and maintain, and otherwise well adapted for the purposes for which the same is intended.

Other objects and advantages reside in the details of construction and operation as more fully hereinafter described and claimed, references being had to the accompanying drawings forming part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a fragmentary side elevational view of a chopper box and showing the present invention operatively connected to the sides of the box and the closure of the box, the closure being in its closed position;

Figure 2 is a view similar to Figure 1 but showing the closure partially raised to its open position;

Figure 3 is a view similar to Figures 1 and 2 but showing the closure in its completely open position;

Figure 4 is a rear fragmentary view of Figure 1;

Figure 5 is a top plan view of Figure 1; and

Figure 6 is a rear elevational view of Figure 1 in slightly reduced scale.

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Referring now to the drawings in detail, wherein for the purpose of illustration, there is disclosed a preferred embodiment of the present invention, the numeral 10 represents the side frame members of a chopper box, wagon box, truck body or the like which are connected by any suitable means. One end edge of a vertically swingable closure or gate 12 is pivotally or hingedly secured to the rear ends of the side members 10, as at 14, whereby the closure may be swung downwardly to a closed position or swung upwardly to an open position.

Anchor plates 16 are secured to the outer faces of the side members 10 by fasteners or the like 18. The upper end portions of the plate 16 extend well above the horizontal pivot means 14 for the closure and fixedly support outwardly projecting headed lugs 20 that are engaged by the forward hook ends 22 of elongated spring members or coil springs 24.

Plate members 26 are secured to the outer face of closure 12 by fasteners or the like 28. The plate members 26 are horizontally aligned with one another and are located at opposite side edges of the closure. The plate members 26 are formed with bearing sockets or recesses 30 that receive horizontal pivot pins 32 which are fixed to and project perpendicularly from guide sleeves 34.

Threaded rods 36 are slidably received in the sleeves 34 and terminate in hooks 38 that engage the rear terminal hooks 40 of springs 24. Nuts 42 are threaded on the ends of the rods 36 remote from the hooks 38 and abut the sleeves 34 to permit longitudinal adjustment of the rods 36 within the sleeves 34 for the purpose of adjusting the tension of springs 24.

Means is provided for limiting opening movement of closure 12 and for reducing loosening in the pivotal connection between the closure and the side frame members. This means comprises a pair of flexible members or chains 44 having terminal eyes 46 and 48. Eyes 46 receive fasteners 50 that are threadedly secured to the lower ends of the plate 16 and eyes 48 receive the pivots of sleeves 32.

In practice use of the present invention, and assuming that the closure 12 is in its closed position as shown in Figure 1, a user will pull the lower end of the closure 12 upwardly until the springs 24 shift upwardly across the pivot means 14. In this position, as shown in Figure 2, the springs 24 will yieldingly urge the closure 12 upwardly to its open position as shown in Figure 3.

As the closure 12 is lowered, springs 24 will be shifted downwardly across the pivot means 14 and as the springs 24 will then be located below the pivot means 14, the springs will yieldingly retain the closure 12 in its closed and lowered position as shown in Figure 1.

Should the springs 24 lose some of their resilient characteristics, then the nuts 42 are adjusted to compensate for the loss in resiliency of the springs 24. Chains 44 will limit the upward swinging movement of the closure 12 so that the closure 12 will be in a substantially horizontal position when it is in its completely open position as shown in Figure 3.

In view of the foregoing description taken in conjunction with the accompanying drawings, it is believed that a clear understanding of the device will be quite apparent to those skilled in this art. A more detailed description is accordingly deemed unnecessary.

It is to be understood, however, that even though there is herein shown and described a preferred embodiment of the invention, the same is susceptible to certain changes fully comprehended by the spirit of the invention as herein described and the scope of the appended claims.

Having described the invention, what is claimed as new is:

1. In a chopper box including a vertically swingable closure having a horizontal pivot, a cushioning means for the closure comprising an anchor plate attached to the box and extending upwardly well beyond the pivot, and a coil spring terminally attached to the upper portion of the plate and the closure, said spring extending above the pivot when the closure is in its open position and shifting across the pivot as the closure is moved to its closed position to retain the closure in its closed portion, and means adjustably and pivotally attaching one end of the spring to the closure comprising a member pivotally mounted on said closure and a rod slidably adjustable in said member and to which said end of the spring is attached.

2. In a chopper box including a vertically swingable closure having a horizontal pivot, a cushioning means for the closure comprising an anchor plate attached to the box and extending upwardly well beyond the pivot, and a coil spring terminally attached to the upper portion of the plate and the closure, said spring extending above the pivot when the closure is in its open position and shifting across the pivot as the closure is moved to its closed position to retain the closure in its closed portion, and means adjustably and pivotally attaching one end of the spring to the closure, said means attaching one end of the spring to the closure including a plate member secured to the closure, a sleeve pivotally mounted on the plate member and a rod slidably adjustably received in the sleeve and attached at one end to the spring.

3. In a chopper box including a vertically swingable closure having a horizontal pivot, a cushioning means for the closure comprising an anchor plate attached to the box and extending upwardly well beyond the pivot, and a coil spring terminally attached to the upper portion of the plate and the closure, said spring extending above the pivot when the closure is in its open position and shifting across the pivot as the closure is moved to its closed position to retain the closure in its closed portion, and means adjustably and pivotally attaching one end of the spring to the closure, said means attaching one end of the spring to the closure including a plate member secured to the closure, a sleeve pivotally mounted on the plate member and a rod slidably adjustably received in the sleeve and attached at one end to the spring, and a limiter chain terminally attached to said plate and said plate member limiting opening movement of said closure.

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