No. 738,469. PATENTED SEPT. 8, 1903.

J. H. McCORMICK.

DRAW GEAR AND BUFFING APPARATUS.

APPLICATION FILED FEB. 28, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

FIG. 1

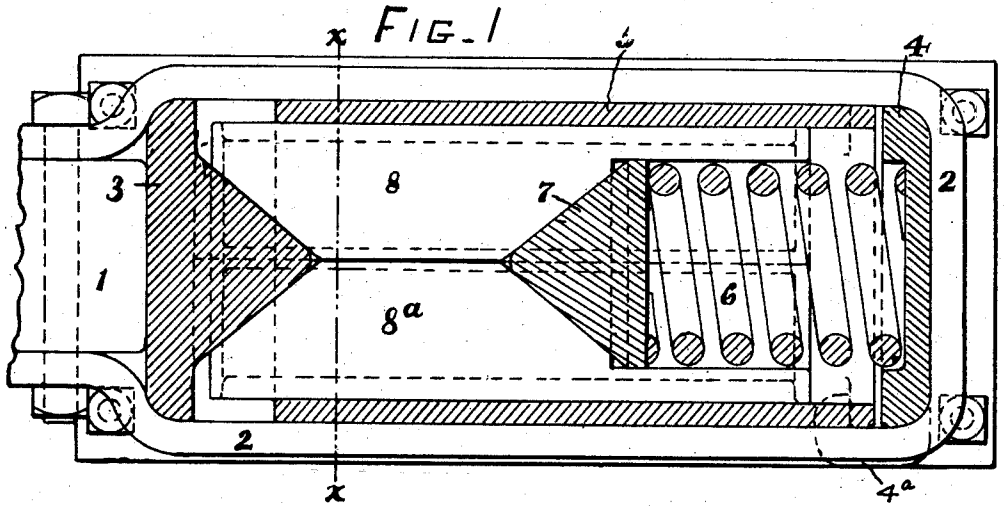
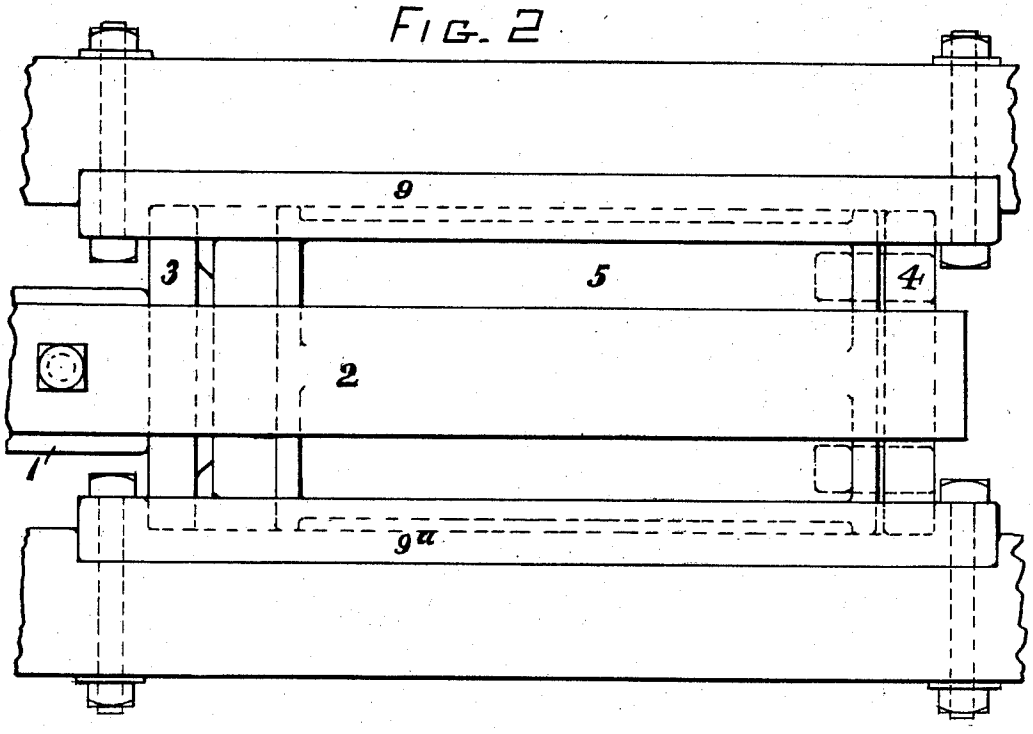


FIG. 2



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NO MODEL. 2 SHEETS—SHEET 2.

FIG. 3

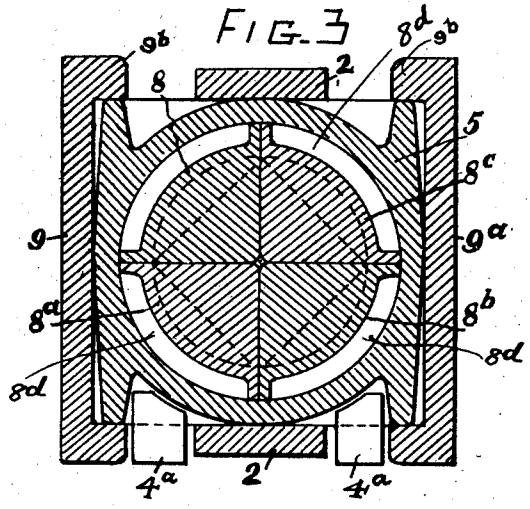


FIG. 4

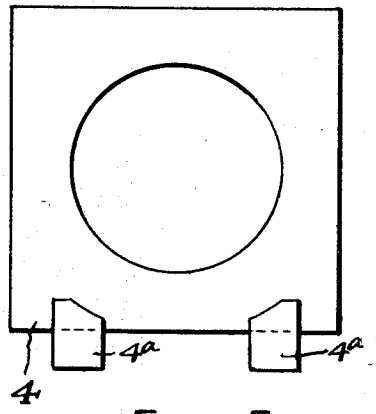


FIG. 5

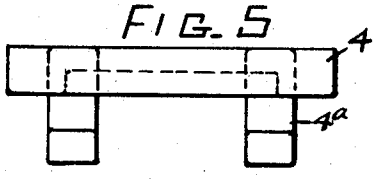


FIG. 6

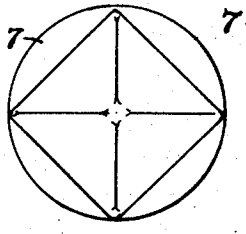
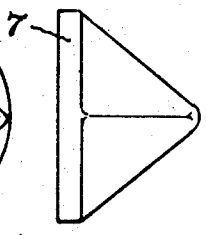


FIG. 7



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UNITED STATES PATENT OFFICE.

JOHN H. McCORMICK, OF COLUMBUS, OHIO.

DRAW-GEAR AND BUFFING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 738,469, dated September 8, 1903.

Application filed February 28, 1902. Serial No. 96,061. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. McCORMICK, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented a certain new and useful Improvement in Draw-Gear and Buffing Apparatus, of which the following is a specification.

My invention relates to that class or type of draw-gear and buffing apparatus in which frictional resistance is employed in connection with a resisting-spring to reduce shocks and prevent rebound, that result from heavy bodies, such as cars meeting in violent contact with each other.

The object of my invention is to provide a combined draw-gear and buffing apparatus of improved construction that will have increased efficiency and will have embodied in it the elements of simplicity, strength, durability, and reduced cost of construction, as well as being easily adaptable to all existing constructions in cars.

My invention consists in the various constructions and combinations of parts hereinafter described, and more fully set forth in the claims.

These objects I accomplish in the manner illustrated in the accompanying drawings, in which—

Figure 1 is a longitudinal vertical section through the center of the draw-gear and buffing apparatus, showing the relative normal positions of the parts, the yoke-strap and the end of the draw-gear being shown in full. Fig. 2 is a plan view of the apparatus, showing how it is attached to the car-sills by means of the sill-plates. Fig. 3 is a transverse section of the apparatus, the yoke-strap, and the sill-plates on line $x\,x$ of Fig. 1. Fig. 4 is an end view of the rear follower. Fig. 5 is a plan view of the same. Fig. 6 is an end view of the inside wedge, and Fig. 7 is a side elevation of the same.

Similar numerals refer to similar parts throughout the several views.

In the drawings, 1 represents the rear end of the draw-bar. Rigidly bolted to the draw-bar 1 is the yoke-strap 2. Bearing against the rear end of the draw-bar is the front follower-plate 3, on the rear side of which is a projecting four-sided wedge. Bearing against the four sides of the wedge are four segments 8, 8^a, 8^b, and 8^c, the forward ends of which are beveled to conform to the bevel of the wedge on the front follower-plate 3. The outside surfaces of the four segments are shaped to conform to the inside surfaces of the case 5. In Fig. 3 the four segments are shown as hollowed out where they should bear against the case. These spaces, which are indicated at 8^d, are to be filled with composition or wood filling in order to provide a better frictional surface. The rear ends of the four segments 8, 8^a, 8^b, and 8^c are cut out, so as to form a central space for the resisting-spring 6 and a seat for the four-sided wedge 7, against which the forward end of the spring bears. The rear end of the spring 6 bears against the rear follower-plate 4. The ends of the follower-plates 3 and 4 bear against and are guided by flanges 9^b on the sill-plates 9 and 9^a. The plates, as are shown by Figs. 1 and 2, are bolted to the draft-sills of the car. The rear follower-plate 4 has formed on its lower edge two hooked lugs 4^a, (shown in Figs. 1, 4, and 5,) in which ride the flanges on the rear end of the case 5. By the arrangement and construction of the parts described the whole inside of the case is utilized as frictional surface.

The operation of the parts thus described is as follows: When the action is a buffing or pushing operation, the four-sided wedge on the forward follower-plate 3 is forced against the beveled ends of the four segments 8, 8^a, 8^b, and 8^c. This pressure is transmitted to the wedge 7, the movement of which is resisted by the spring 6. The first result is that the opposite wedges 3 and 7, acting on the beveled portions of the segments 8, 8^a, 8^b, and 8^c, will press them outward against the case 5. All the parts will be moved backward together until the rear end of the case 5, between which and the rear follower-plate 4 there is normally a small space, contacts with the rear follower-plate 4. By this arrangement the first action in either a buffing or pulling operation is resisted only by the spring. This saves the frictional parts from the constant wear they would be subjected to from slight movement of the draw-bar. After the end of the case 5 has been forced against the rear follower-plate 4 the segments 8, 8^a, 8^b, and 8^c

will continue to be forced backward against the resistance of the spring and also against the much greater frictional resistance that has been created between them and the case by the outward pressure of the wedges. In a draft or pulling action the results are the same as in a buffing action. In this case, however, the force is first applied through the yoke 2 to the rear follower-plate 4. As in the former case, the small forces are absorbed by the spring 6 alone until the follower-plate 4 comes in contact with the end of the case 5. The case 5 now receives the force direct from the follower 4 and is pushed forward against the frictional resistance of the segments 8, 8^a, 8^b, and 8^c, which are now stationary, bearing solidly against the four-sided wedge formed on the front follower-plate 3. The spring 6 is compressed between the wedge 7 and the rear follower-plate 4 as it moves forward. The force of compression is transferred by the wedge 7 and the resisting-wedge on the front follower 3 to the segments 8, 8^a, 8^b, and 8^c, pressing them outward against the case, creating the friction that resists the forward movement of the case. In both draft and buffing operations the return of the parts to normal position is by means of the spring 6, which has been compressed by the operation. By this construction and arrangement of the parts it is plain that both resisting and impelling forces must act through the wedges 3 and 7, as these wedges bear directly against the segments 8, 8^a, 8^b, and 8^c, so that all forces from either direction will tend to press the segments against the case, and no longitudinal movement of the parts can take place without being accompanied by frictional resistance. This prevents the violent return of the draw-bar and other parts after the force has been reduced or ceased to act. The hooked lugs on the lower part of the follower-plate 4, acting on the flange of the case, return it, with the follower-plate 4, after a pulling operation and prevent it from being pulled forward with the segments 8, 8^a, 8^b, and 8^c after a buffing operation.

It is plain that the details can be varied considerably without departing from the spirit of the invention. For instance, a less or greater number of segments can be used, more springs can be added, and the shape of the case can be changed; also, one of the wedges shown could be left out without changing the action or principle of the apparatus.

Having now fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a draw-gear and buffing apparatus, the combination of a longitudinally-movable case, of longitudinally-movable segments within the case, a central wedge contacting directly with the draw-bar and bearing directly against the segments and a resisting-spring in central alinement with the central wedge, substantially as specified.

2. In a draw-gear and buffing apparatus, the combination of a longitudinally-movable case, longitudinally-movable segments within the case having constant and direct contact with a follower-plate, a central wedge bearing against the segments to force them outward against the case and a resisting-spring bearing against the central wedge, substantially as specified.

3. In a draw-gear and buffing apparatus, the combination of opposite wedges that move together in the same direction, intermediate segments that move longitudinally with the wedges, a resisting-spring, and a case against the longitudinal walls of which the segments are pressed by the wedging force, substantially as specified.

4. In a draw-gear and buffing apparatus, the combination of a case containing longitudinally-movable parts against which they bear to create friction, a follower-plate connected to the case so that each will have some movement independent of the other, and a compression-spring bearing against the follower-plate, substantially as specified.

5. In a draw-gear and buffing apparatus, the combination of opposite wedges that move together in the same direction, intermediate parts that move longitudinally with the wedges and against which the wedges bear from opposite directions, a compression-spring one end of which bears against a wedge and the other end against a follower-plate, and a case against the longitudinal walls of which the intermediate parts are forced by the pressure of either of the wedges, substantially as specified.

6. In a draw-gear and buffing apparatus, the combination of a longitudinally-movable case, longitudinally-movable parts within the case, a central wedge formed on the follower-plate and bearing against the movable parts to press them outward against the case and to move them longitudinally, and a resisting-spring in direct central alinement with the central wedge, substantially as specified.

7. In a draw-gear and buffing apparatus, the combination of longitudinally-movable parts, means by which the movable parts are pressed against a case containing the parts in order to create frictional resistance, a follower-plate connected to the case so that each will have some longitudinal movement independent of the other, and a compression-spring, substantially as specified.

JOHN H. McCORMICK.

In presence of—
A. L. PHELPS,
W. L. MORROW.