G. AND G. H. AMONSEN.

DRAFT APPLIANCE.

APPLICATION FILED DEC. 8, 1919.

1,404,678. Patented Jan. 24, 1922.

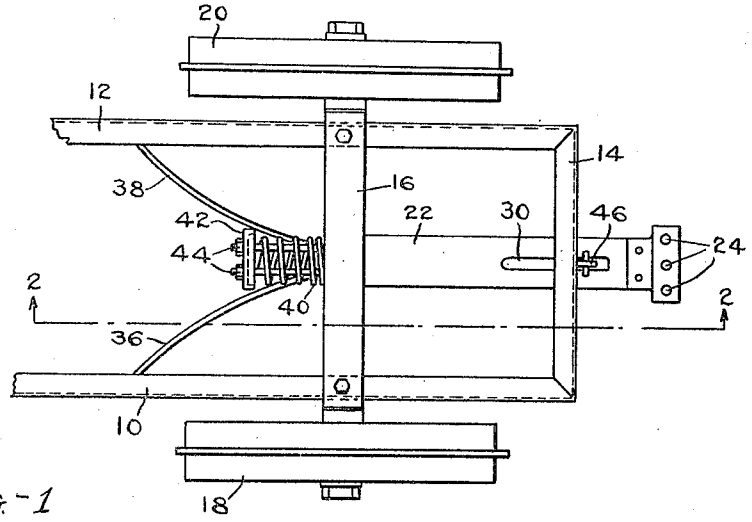


FIG. 1

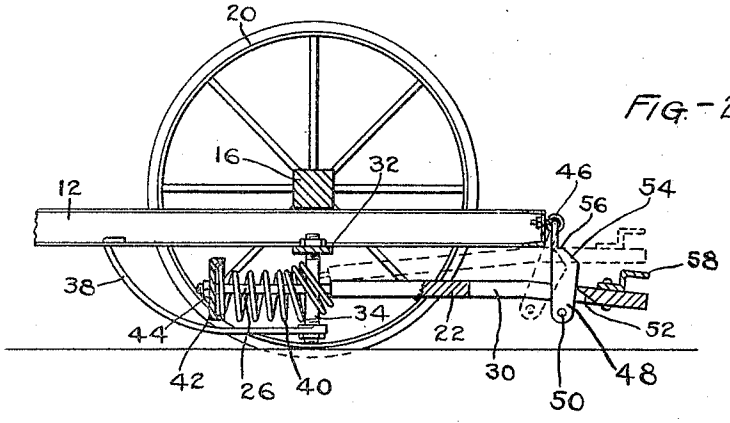


FIG. 2

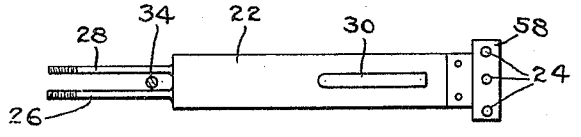


FIG. 3

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DRAFT APPLIANCE.

1,404,678. Specification of Letters Patent. Patented Jan. 24, 1922.

Application filed December 8, 1919. Serial No. 343,224.

To all whom it may concern:

Be it known that we, GILBERT AMONSEN and GEORGE H. AMONSEN, citizens of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Draft Appliances, of which the following is a specification.

Our invention relates to draft appliances and an object is to provide a device of this character in which is embodied a draw-bar for attachment to various vehicles such as tractors, and said draw-bar being attached in such manner that it will be self-centering, self-controlled and self-locking. Among the objects of our invention are the provision of a device which will cushion the pull when starting the vehicle, which will permit the draw-bar to swing in any direction with the minimum amount of friction, which will be self-locking when backing and which will provide for a direct pull on the draw-bar when the vehicle is passing over uneven ground and the front of the vehicle drops or raises.

The full objects and advantages of our invention will appear in connection with the detailed description thereof and the novel features embodied in our inventive idea will be particularly pointed ont in the claims.

In the accompanying drawings which illustrate the application of our invention in one form:—Fig. 1 is a top plan view; Fig. 2 is a view in longitudinal section on the line 2—2 of Fig. 1. Fig. 3 is a top plan view of the draw-bar.

Referring to the particular construction shown in the drawings, the characters 10 and 12 designate the side frame members and the character 14 designates the rear frame member of a vehicle. An axle 16 bolted to the side members, is provided with wheels 18 and 20. A draw-bar 22 is provided with engageable holes 24 at its rear, screw-threaded rods 26 and 28 at its front and a slot 30 between its ends. Secured to the side frame members beneath the axle 16 is a transverse bar 32 through which extends a bolt 34, the lower end of which is braced by rods 36 and 38, the rear ends of which surround the bolt and the front ends of which are attached to the side frame members. The rods 26 and 28 straddle the bolt 24 and a coiled spring 40 surrounds the rods. Most of the coils of this spring are located entirely in front of the bolt 34, but some of them, two for instance, as shown in Fig. 2, have the lower portion of the coil placed back of the bolts 34 so that the spring is tensioned upwardly at its rear. The front end of the spring engages a cap 42 which is held on the rods 26 and 28 by nuts 44, threaded upon the rods. The bolt 34 normally has a position between the rods 26 and 28 as shown in Fig. 3, so as to be spaced from the front end of the draw-bar proper. An eye-bolt 46 secured to the rear frame member 14 serves to support a member 48 for swinging movement in all directions. The member 48 extends down through the slot 30 and is provided at its lower end with a pin or lug 50 which prevents the rear end of the draw-bar from becoming disengaged from the member 48. The rear wall of the slot 30, is inclined, as shown at 52, and the rear upper portion of the member 48 is provided with an inclined surface 54 terminated by a square shoulder 56. The holes 24 serve for attaching the draw-bar to an implement or device which is to be hauled and an angle member 58 may be provided as shown in Fig. 2 to prevent the connecting member of the implement from becoming disengaged.

The operation and advantages of our invention will be readily understood from the foregoing description. The spring 40, cushions shocks which would otherwise occur upon starting the vehicle and the arrangement of the spring is such that the draw-bar is normally stressed upwardly as shown in dotted lines in Fig. 2. When a pull on the draw-bar occurs, it is drawn into straight line position as shown in full lines in said figure. The member 54 is sufficiently long so that the draw-bar may have further movement downwardly from such position. It will, therefore, be apparent that there will be a straight pull on the draw-bar regardless of the unevenness of the ground traveled over and regardless of upward or downward tilting of the tractor frame. Turning is readily accomplished since the member 54 will swing either to the right or left with the minimum amount of friction and the same thing is true of the draw-bar with relation to its pivotal action upon the bolt 34. In backing, the draw-bar swings upwardly into the dotted line position shown in Fig. 2, the inclined wall 52 on the draw-bar engages on top of the shoulder 56 of the member 48, and this member is forced forwardly into its

dotted line position in engagement with the rear frame member 14. The draw-bar is thus locked and prevented from turning and the implement or trailer may be backed without liability of swerving to either side. Since the draw-bar in this position is locked to the vehicle frame, the trailer may be turned toward one side or the other by properly steering the vehicle in backward direction. In starting to back, the spring 40 also serves as a cushion since the draw-bar moves in a forward direction against the tension of the spring until the draw-bar proper comes against the bolt 34. The draw-bar is connected in such manner that the front wheels of the vehicle are held down both in pulling and backing so that liability of the vehicle tipping over backward is reduced. In backing, the draw-bar exerts an upward thrust upon the rear frame member 14.

We claim—

1. A draft appliance comprising a draw-bar, means for attaching said draw-bar to a vehicle and a single spring for cushioning said draw-bar and also moving the rear end thereof upwardly above the line of draft when not restrained.

2. A draft appliance comprising a draw-bar, means for pivotally attaching said draw-bar to a vehicle for lateral movement in both directions and also for upward and downward movement, means normally stressing said draw-bar to extreme upward position, and a member for limiting the amount of movement permitted said draw-bar in a downward direction.

3. A draft appliance comprising a draw-bar, a pair of rods secured to the front end of said draw-bar, a bolt depending from a vehicle frame and passing between said rods, a coiled spring surrounding said rods and arranged to cushion said draw-bar and also stress the rear end thereof upwardly out of the straight line position assumed by said draw-bar in pulling, and means for automatically locking said draw-bar to the vehicle frame in backing.

4. A draft appliance comprising a draw-bar provided with a slot between its ends, a pair of rods secured to the front end of said draw-bar, a bolt depending from a vehicle frame and passing between said rods, a coiled spring surrounding said rods, a cap secured to the front ends of said rods for engagement by the front end of said spring, the main portion of said spring lying between said cap and said bolt and the rear coils of said spring being placed on their lower side at the rear of said bolt, a member pivoted to the vehicle frame for movement in all directions and depending through said slot, the rear upper portion of said member having a shoulder adapted to be engaged by the rear wall of said slot when said draw-bar is pushed forwardly, and means on the lower end of said member which prevents said drawbar being forced off said member.

5. A draft appliance comprising a draw-bar provided with a slot between its ends, a pair of rods secured to the front end of said draw-bar, a bolt depending from a vehicle frame and passing between said rods so as to be normally spaced from the front end of said draw bar, a coiled spring surrounding said rods and arranged to cushion said draw-bar and also stress the rear end thereof upwardly, a member pivoted to the vehicle frame for movement in all directions and depending through said slot, the rear upward portion of said member having a shoulder adapted to be engaged by the rear wall of said slot when said draw-bar is pushed forwardly, the front upper portion of said member engaging the vehicle frame when the draw-bar is in its forward position, and means on the lower end of said member which prevents said draw-bar being forced off said member when the rear end of said draw-bar is in its downward position.

In testimony whereof we hereunto affix our signatures.

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GEO. H. AMONSEN.