June 20, 1950 J. W. McPECK 2,512,110

DRAFT GEAR FOR PUSH CARS

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Fig. 1

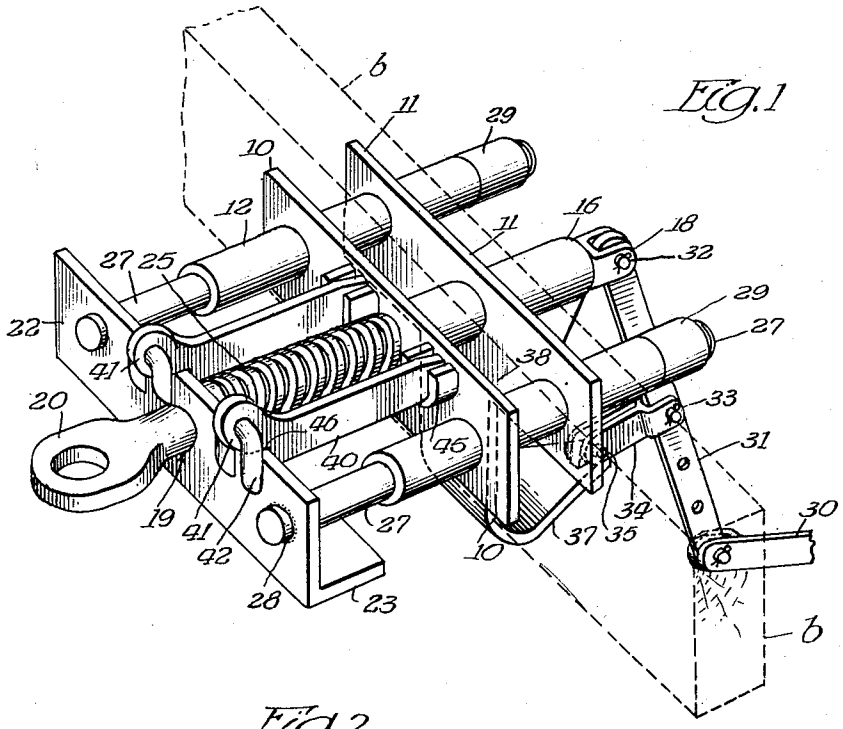


Fig. 2

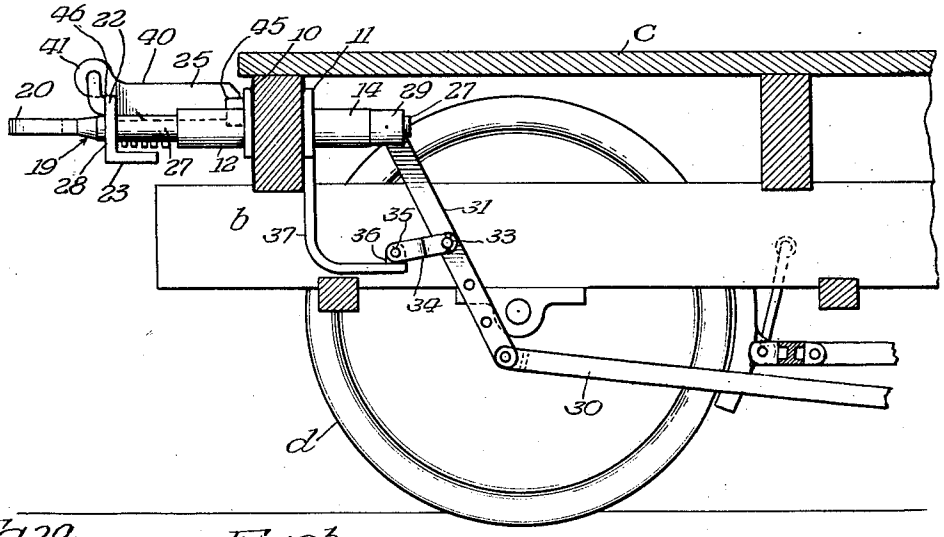


Fig. 2a

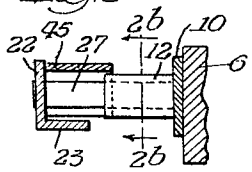
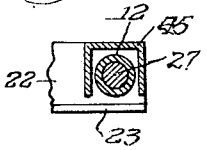


Fig. 2b



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FIG. 3

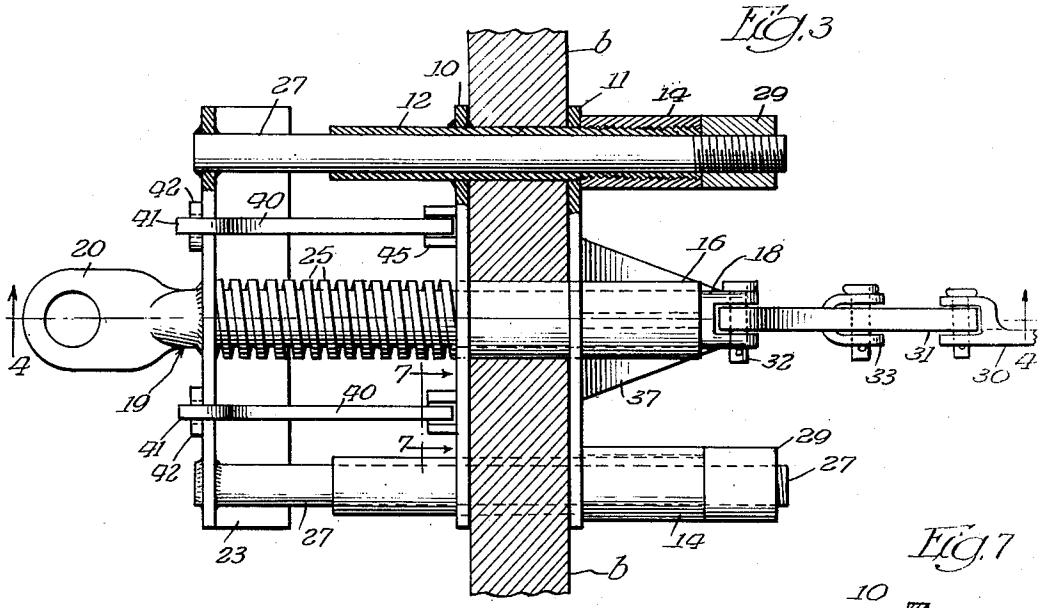


FIG. 7

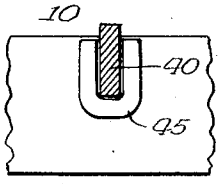


FIG. 4

FIG. 5

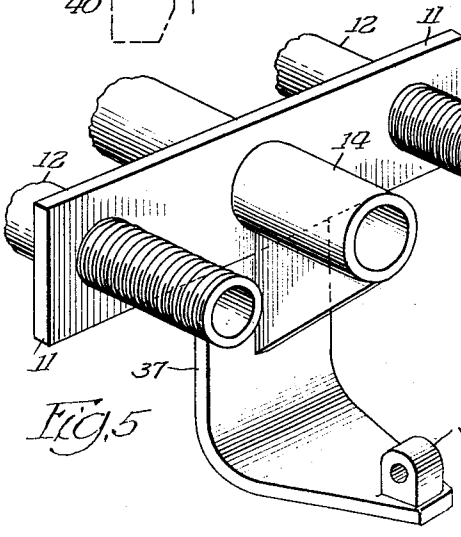
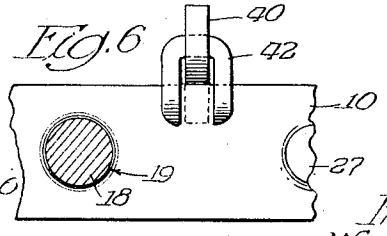


FIG. 6



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DRAFT GEAR FOR PUSH CARS

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11 Claims. (Cl. 213—7)

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The invention relates to improvements in draft gear for use on railway push cars and like trailer vehicles, which include an automatic brake setting device.

The several objects of the invention are to provide a draft gear which includes automatic brake setting means and which: includes a mounting for the draft gear which is adapted to be readily applied to push cars of standard construction; is adapted for connection to and for actuating standard brake equipment on such cars; includes a draw bar which is slidably retained in true alignment by rigid guides fixed on the mounting; is adapted to be easily disconnected from and connected to the brakes on the car; includes thrust devices between the draw bar and the mounting for rendering the brakes inoperable by the draw bar; is simple in construction and light in weight; can be installed on push cars of standard construction at a low cost; includes simple and efficient devices for rendering the brake means inoperative by the draw bar when desired; and other objects which will appear from the detailed description.

The invention consists in the several novel features hereinafter set forth and more particularly defined by claims at the conclusion hereof.

In the drawings:

Figure 1 is a perspective of the draft gear, the end sill to which it is adapted to be applied being illustrated by dotted lines;

Fig. 2 is a side elevation, one end of the push car being shown in section;

Fig. 2^a is a section illustrating one of the dust guards for the guide rods for the draw-bar structure.

Fig. 2^b is a section taken on line 2^b—2^b of Fig. 2^a.

Fig. 3 is a plan of the draft gear, parts being shown in section;

Fig. 4 is a section taken on line 4—4 of Fig. 3;

Fig. 5 is a detail of the plate of the mounting on which the fulcrum link for the brake operating lever is supported; and

Fig. 6 is a detail of the pivotal support for one of the locking bars for preventing automatic operation of the brake.

The invention is exemplified as applied to a push car of standard construction, which usually includes an end sill *b*, a deck *c* and carrying wheels *a*, all of which may be of usual or standard construction.

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The mounting for the draft gear is adapted to be demountably and rigidly secured to the end sill *b* of the push car. This mounting comprises an outer plate 10 which is adapted to abut and fit against the outer face of the end sill *b*; an inner plate 11 which is adapted to abut and fit against the inner face of said end sill; a pair of sleeves 12 which extend through and are welded in plate 10 and extend through holes in plate 11 and project rearwardly therefrom; clamping collars 14 which are screw threaded to the projecting inner ends of sleeves 12 and are adapted to clamp the end sill *b* between plates 10 and 11 to support the entire draft gear from said sill. A central sleeve 16 is welded in outer mounting plate 10 and is adapted to extend through end sill *b* and mounting plate 11 for slidably guiding the stem of the draw bar hereinafter described. A brace plate 13 is welded to the inner face of plate 11 and supports the inner end of sleeve 16. In applying this mounting to the push car, holes are drilled in the end sill for the passage therethrough of sleeves 12 and 16. This construction provides a mounting for the draft gear which is demountably clamped and rigidly secured to the end sill *b* of the push car.

The draw bar, generally designated 19, is provided with an eye 20 at its outer end for a coupling pin by which the push car may be connected to the draw bar on a motor car and includes a stem 18 which is slidably mounted in the sleeve 16 which is welded to the outer mounting plate 10. Adjacent eye 20, stem 18 extends through the vertical flange of a transverse bar 22 which is angular in cross section. Stem 18 is welded as at 24 in the vertical flange of transverse bar 22 so that said bar is slidable with the draw bar 19. A coil spring 25 around stem 18 extends between outer mounting plate 10 and transverse bar 22 which is fixed to the draw bar 19 and is compressible by inward thrust exerted on the draw bar so that the sliding movements of the stem 18 may be utilized to operate the braking device. A pair of rods 27 which are disposed at the sides of the stem 18 and are parallel to said stem, have their outer ends extending through and welded as at 28 in the vertical flange of transverse bar 22. These rods 27 extend through and are slidably guided in sleeves 12. Nuts or screw collars 29 are screw threaded to the inner ends of rods 27 which project from

the sleeves 12. Nuts 29 abut against the inner ends of sleeves 12 and limit the outward movement of the draw bar by spring 25 and are set on rods 27 to maintain spring 25 under predetermined compression.

A brake actuating lever 31 has its upper end pivotally connected at 32 to the inner end of draw bar stem 18 and is fulcrumed at 33 on a fulcrum link 34. The lower end of lever 31 is pivotally connected to a brake actuating rod 30. Fulcrum link 34 is pivotally connected at 35 to lug 36 which is welded to a bracket 37 which is formed of plate metal and has an upstanding flange which is welded to the lower edge of inner mounting plate 11 so that the brake shifting lever and its fulcrum link will be supported by the draft gear and its mounting.

At times it is necessary to back the push car and then it is desirable to eliminate the automatic setting of the brakes by inward thrust on the draw bar 19. For this purpose a pair of pivoted thrust bars 40 are provided which when placed in operative position form struts between transverse bar 22 on the draw bar and outer mounting plate 10. These thrust bars are loosely pivoted on U-shaped lugs 42 the legs of which are welded to the outer face of transverse bar 22 so that the thrust bars may be suspended in an inoperative position at the outer side of transverse bar 22 or swung into operative position between transverse bar 22 and mounting plate 10. U-shaped lugs 45 are welded to the outer face of plate 10 for holding the distal ends of thrust bars 40 in operative position. Each thrust bar 40 is provided with an integral shoulder 46 which when the bar is in its operative position is adapted to abut against the inner face of the vertical flange of transverse bar 22 so that the thrust stresses applied to the draw bar will be transmitted from transverse bar 22 to mounting plate 10 without shear stresses on the pivot pins of U-shaped lugs 42. When automatic braking is desired, the thrust bars 40 will be swung so they will be suspended vertically at the outer side of transverse bar 22 and at the sides of the draw bar.

When the draft gear for automatic braking is to be installed on the push car, it is only necessary to drill three holes through the end sill *b* for sleeves 12 and 16. In mounting the draft gear on the car, clamping plate 11 and screw collars 14 and 29 are detached from sleeves 12 and lever 31 is uncoupled from stem 18 of the draw bar. Sleeves 12 and 16 are then passed through the holes in the end sill *b* until the mounting plate 10 abuts against the outer face of the sill. Plate 11 is then slipped over sleeves 12 and 16 and moved against the inner face of end sill *b*. Collars 14 are then screwed onto sleeves 12 until the end sill *b* is securely clamped between plates 10 and 11. Rods 27 are then slipped through sleeves 12 and stem 18 is extended through sleeve 16 with the spring 25 around stem 18. Nuts 29 are then screwed onto the inner ends of rods 27 and the nuts when tightened will subject spring 25 to the desired degree of compression. The upper end of the brake actuating lever 31 will then be connected by pin 32 to the inner end of the draw bar stem and the mounting of the draft gear on the push car will be completed. When it is desired to remove the draft gear for replacement or repair, it can be demounted from the push car by unscrewing collars 14 and 29 and disconnecting lever 31 from stem 18.

The operation will be as follows: During the normal operation of the push car when automatic braking is desired, and there is a tendency of the push car to over-run; the push car spring 25 will be compressed by transverse bar 22, and the draw bar. The stem 18 of the draw bar will slide inwardly in sleeve 16 and rock lever 31 to set the brakes. During this operation, rods 27 will slidably and rectilinearly guide the draw bar. The thrust bars 40 will then be suspended in front of angle bars 22, 23. When automatic braking is not desired, bars 40 will be swung so their distal ends will be confined in U-shaped sockets 44 so they will abut against mounting plate 10 and bar 22 and prevent the draw bar from compressing spring 25 and the sliding of the stem 18 in sleeve 16.

The invention exemplifies draft gear for a push car which includes automatic brake setting when the draft gear is subjected to inward thrust and which includes a mounting which is adapted to be readily applied to and installed on the push car.

In practice, it is desirable to apply a lubricant to the rods 27 for their free sliding movement in the sleeves 12. In order to prevent foreign material, such as, dirt and grit from being accumulated on the rods 27 while the car is being loaded or unloaded, dust guards 45 of channeled cross-section, as illustrated in Figs. 2^a and 2^b, have their front ends welded to the inner face of the bar 22 and extend over rods 27 and depend around their sides. These guards prevent the accumulation of dirt and grit on the lubricated exposed portions of said rods.

The invention also exemplifies a unitary mounting for the draw bar and the brake actuating lever which facilitates the installation of the draft gear on the car.

The invention also exemplifies a construction in which the draw bar is securely and slidably supported for rectilinear movement in the mounting.

The invention also exemplifies draft gear of this type which is simple in construction, is formed mainly from wrought or plate metal and rods or tubing and which may be fabricated at a low cost.

The invention is not to be understood as limited to the details set forth since these may be modified within the scope of the appended claims without departing from the spirit and scope of the invention.

Having thus described the invention, what I claim is new and desire to secure by Letters Patent is:

1. Draft gear for a push car provided with an end sill, comprising: a transversely extending plate adapted to abut against a side face of the sill, a sleeve fixed to said plate and extending through the sill, means for securing said plate on the sill, a drawbar provided with a stem extending through and slidably supported in said sleeve, a transverse bar rigid with the drawbar, a spring between the plate and the transverse bar compressible by inward thrust on the drawbar, and a pair of locking bars between the plate and the transverse bar for selectively locking the drawbar against inward sliding movement in the sleeve.

2. Draft gear for a push car provided with an end sill, comprising: a pair of plates adapted to abut against opposite side faces of the sill, a sleeve secured to one of the plates and extending through the sill and the other of said

plates, means for clamping the plate on the sill, a drawbar provided with a slidable stem extending through the plates and the sill, a transverse bar fixed to the drawbar, a rod fixed to the transverse bar and extending through and slidable in the sleeve, a spring between the plate and the transverse bar compressible by inward thrust on the drawbar, and means between the transverse bar and the plate for selectively locking the drawbar against inward sliding movement.

3. Draft gear for a push car provided with an end sill, comprising: a pair of plates adapted to abut against the opposite side faces of the sill, sleeves secured to one of the plates and extending through the sill and the other of said plates, means for clamping the plates on the sill, a drawbar provided with a slidable stem extending through the plates and the sill, a transverse bar fixed to the drawbar, rods fixed to the transverse bar and extending through and slidable in the sleeves, a spring between one of the plates and the transverse bar compressible by inward thrust on the drawbar, and means between the transverse bar and one of the plates for selectively locking the drawbar against inward sliding movement.

4. Draft gear for a push car including an end sill, comprising; a pair of mounting plates adapted to abut against the side faces of the sill, a sleeve secured to one of the plates and extending through the sill and the other plate, means for clamping the plates on the sill, a draw bar provided with a stem extending through and slidable in the plates, a transverse bar fixedly secured to the drawbar, a rod fixedly secured to the transverse bar and extending through and slidable in said sleeve, a spring between one of the mounting plates and the transverse bar, means on the inner end of the rod for limiting the outward movement of the draw bar by the spring, and means for selectively locking the draw bar against sliding movement.

5. Draft gear for a push car including an end sill; comprising; a pair of mounting plates adapted to abut against the side faces of the sill, a pair of sleeves secured to one of the plates and extending through the sill and the other plate, means on said sleeves for clamping the plates on the sill, a slidable draw bar provided with a stem extending through said sill and said plates, a transverse bar fixedly secured to the draw bar, rods fixed to said transverse bar and extending through and slidable in said pair of sleeves, a spring between one of the mounting plates and the tranverse bar, means on the inner ends of the rods for limiting the outward movement of the draw bar by the spring, and means between the transverse bar and one of the mounting plates for selectively locking the draw bar against sliding movement.

6. Draft gear for a push car including an end sill, comprising; a pair of mounting plates adapted to abut against the side faces of the sill, a pair of sleeves secured to one of the plates and extending through the sill and the other plate, means on said sleeves for clamping the plates against the sill, a slidable draw bar provided with a stem extending through the sill and said plates, a transverse bar fixed to the draw bar adjacent its outer end, rods fixed to said transverse bar and extending through and slidable in said pair of sleeves, a spring between one of the mounting plates and the transverse bar, means on the inner ends of the rods for limiting

the outward movement of the draw bar by the spring, means between the transverse bar and one of the mounting plates for selectively locking the draw bar against sliding movement.

7. Draft gear for a push car including an end sill, comprising; a pair of mounting plates adapted to abut against the side faces of the sill, a pair of sleeves secured to one of the plates and extending through the sill and the other plate, means on said sleeves for clamping the plates against the sill, another sleeve fixed to one of the mounting plates extending through the sill and the other mounting plate, a draw bar provided with a stem extending through and slidable in said last named sleeve, a transverse bar fixed to the draw bar adjacent its outer end, rods fixed to said transverse bar and extending through and slidable in said pair of sleeves, a spring between one of the mounting plates and the transverse bar, means on the inner ends of the rods for limiting the outward movement of the draw bar by the spring, and means between the transverse bar and one of the mounting plates for selectively locking the draw bar against sliding movement.

8. Draft gear for a push car including an end sill, comprising; a mounting plate adapted to abut against one of the side faces of the sill, means for securing the plate on the sill, a draw bar provided with a steam slidably supported in the mounting plate, a transverse bar fixed to the draw bar adjacent its outer end, a spring between the mounting plate and the transverse bar, means for limiting the outward movement of the draw bar by the spring, a locking bar pivotally supported on the transverse bar, and a U-shaped holding member for the locking bar fixed on the mounting plate.

9. Draft gear for a push car including an end sill, comprising; a mounting plate adapted to abut against one of the side faces of the sill, means for securing the plate on the sill, a draw bar provided with a stem slidably supported in the mounting plate, a transverse bar fixed to the draw bar adjacent its outer end, a spring between the mounting plate and the transverse bar, means for limiting the outward movement of the draw bar by the spring, locking bars pivotally supported by the transverse bar, and U-shaped holding members for the locking bars fixed on the mounting plate.

10. Draft gear for a push car including an end sill, comprising; a mounting plate adapted to abut against one of the side faces of the sill, means for securing the plate on the sill, a draw bar provided with a stem slidably supported in the mounting plate, a transverse bar fixed to the draw bar adjacent its outer end, a spring between the mounting plate and the transverse bar, means for limiting the outward movement of the draw bar by the spring, and locking bars at the sides of the draw bar, pivots for the locking bars fixed on the transverse bar, and U-shaped holding members for the locking bars on the mounting plate, the bars being provided with abutments for engaging the transverse bar and the mounting plate.

11. Draft gear for a push car including an end sill, comprising a pair of mounting plates adapted to abut against the side faces of the sill, a pair of sleeves secured to one of the plates and extending through the sill and the other plate, means on said sleeves for clamping the plates against the sill, a draw bar provided with a stem extend-

ing through and slidable in said plates, a transverse bar fixed to the draw bar adjacent its outer end, rods fixed to said transverse bar and extending through and slidable in said pair of sleeves, a spring between one of the mounting plates and the transverse bar, means on the inner ends of the rods for limiting the outward movement of the draw bar by the spring, and dust guards secured to the transverse bar and overlying the exposed portions of the rods.

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