

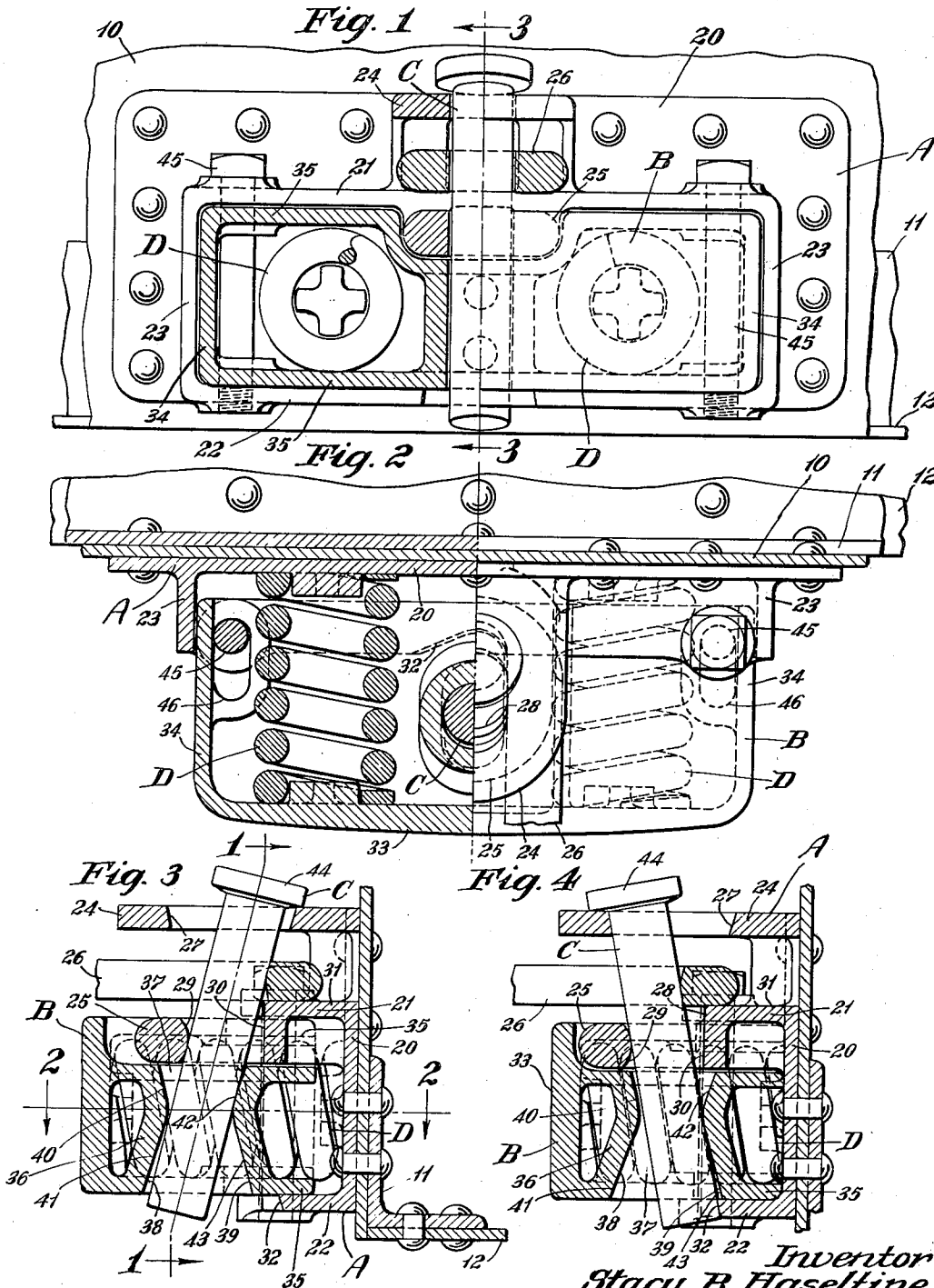
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DRAFT AND BUFFING GEAR

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DRAFT AND BUFFING GEAR

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9 Claims. (Cl. 213—9)

This invention relates to improvements in draft and buffing gears, especially adapted for use in connection with mine cars.

One object of the invention is to provide a simple and efficient combined draft and buffing gear which may be economically manufactured.

Another object of the invention is to provide a gear of the character set forth, including a yieldingly resisted buffing member movable inwardly against the spring resistance means in buff, which buffing member is also directly actuated in draft to compress said spring resistance, thereby eliminating the use of the usual additional separate means actuated by the coupling connection to compress said means in draft.

A further object of the invention is to provide in a mechanism of the character specified in the preceding paragraph, a coupling pin which serves as the sole means for transmitting the draft forces to the buffing head to compress said spring means, thereby greatly reducing the number of parts of the mechanism.

Other objects of the invention will more clearly appear from the description and claims hereinafter following.

In the drawing forming a part of this specification, Figure 1 is an end elevational view of a mine car, partly broken away, illustrating my improved combined draft and buffing gear in connection therewith, the gear being shown partly in front elevation and partly in vertical section, said vertical section corresponding substantially to the line 1—1 of Figure 3. Figure 2 is a horizontal sectional view, showing the gear in part plan and part horizontal section, the section thereof corresponding substantially to the line 2—2 of Figure 3. Figure 3 is a vertical sectional view, corresponding substantially to the line 3—3 of Figures 1 and 2. Figure 4 is a view similar to Figure 3 illustrating the movable parts of the mechanism in different positions.

In said drawing, 10 indicates the vertical end wall of a mine car, 11 the end sill to which said end wall is riveted, and 12 a bottom plate riveted to the lower flange of said end sill.

My improved draft and buffing gear is mounted on the end of the car and comprises broadly a support A; a buffing head B; a coupling pin C; and springs D—D.

The support A is in the form of a housing comprising a vertical platelike section 20 having forwardly projecting, spaced top and bottom flanges 21 and 22 connected by vertical side

flanges 23—23. The support A is further provided with a pair of forwardly projecting, spaced horizontal arms 24 and 25, centrally thereof. The arms 24 and 25 are spaced apart such a distance as to accommodate the usual coupling link therebetween, said coupling link being indicated by 26. The arm 24 is provided with an elongated opening 27 therethrough adapted to accommodate the shank of the coupling pin C for movement in a direction lengthwise of the car. The arm 25 is relatively thick, as shown most clearly in Figures 3 and 4, and has a vertical opening 28 therethrough. The front wall of said opening is curved, as indicated at 29, to provide a fulcrum for rocking or pivotal movement of the pin C. The rear wall of said opening, which is indicated by 30, is substantially flat, as clearly shown in Figures 3 and 4. The portion of the arm 25 rearwardly of said opening 28 is of greater vertical height than the front end of said arm and provides a shelf 31 on which the rear end of the coupling link 26 is supported. The bottom wall 22 of the housinglike support A is notched, as indicated at 32, to accommodate the lower end portion of the shank of the pin C when said lower end portion is swung rearwardly to the position shown in Figure 4.

The buffing head B has a vertically disposed, transverse front wall 33, presenting an outer buffing face, which cooperates with the buffer of an adjacent car. The buffing head also has vertically disposed, spaced side walls 34—34 and spaced, horizontal top and bottom walls 35—35. At the center of the head, the top and bottom walls are connected by a rearwardly extending, filler section 36, which has a vertical opening 37 therethrough, adapted to accommodate the lower end portion of the shank of the coupling pin C. As most clearly shown in Figures 3 and 4, the front and rear walls 38 and 39 of the opening 37 of the buffing head B present cam surfaces which cooperate with the shank of the coupling pin C. The cam surface of the wall 38 is formed by a downwardly, rearwardly inclined, upper face 40, and a forwardly, downwardly inclined, lower face 41. The cam surface 39 is formed by a forwardly and downwardly inclined upper face 42 and a downwardly and rearwardly inclined lower face 43. As shown most clearly in Figures 3 and 4, the faces 41 and 43 are of greater vertical length than the faces 40 and 42. The coupling pin C, which extends through the openings 27 of the arm 24, 28 of the arm 25, and 38 of the buffing head B, also extends through the opening of the coupling link 26 and is headed

at its upper end, as indicated at 44. The head 44 is of such a size that it overlaps the side walls of the opening 27, thereby preventing downward movement of the pin C.

5 The springs D—D, which are disposed at opposite sides of the mechanism, are arranged within the buffing head B and have their front and rear ends bearing respectively on the inner side of the front wall 33 of the buffing head B and on the front face of the platelike section 20 of the support A.

10 The buffing head B is held assembled with the housing or support A by means of retaining bolts 45—45 extending through openings in the top and bottom walls 21 and 22 of the support A and through elongated openings 46—46 in the top and bottom walls 35—35 of the buffing head B. The openings 46—46 are of such a length as to permit the necessary inward movement of the buffing head in both buff and draft. The inward movement of the buffing head is limited by engagement of the rear end thereof with the wall of the housing formed by the platelike section 20 thereof.

25 The operation of my improved draft and buffing gear is as follows: When a buffing force is applied to the buffing head B, the latter is forced inwardly against the resistance of the springs D—D, thereby absorbing the shock. During this action, the coupling pin C is carried rearwardly with the buffing head, and the coupling link 26 may move therewith. When the pulling force is applied in draft to the coupling link 26, the upper end of the pin C is pulled outwardly, thereby causing the pin to rock on the curved fulcrum face 29 of the arm 25 of the housing or support A, and swinging the lower end portion of the shank of the pin C rearwardly, or inwardly, toward the end of the car. This swinging movement of the pin forces the buffing head B rearwardly, or inwardly, from the position shown in Figure 3 to that shown in Figure 4, thereby compressing the springs D—D. The draft forces applied to the coupling link 26 are thus yieldingly resisted by inward movement of the buffing head.

45 I have herein shown and described what I now consider the preferred manner of carrying out my invention, but the same is merely illustrative and I contemplate all changes and modifications that come within the scope of the claims appended hereto.

50 I claim:

1. In a combined draft and buffing gear for cars, the combination with a support having a vertical back wall; of an outwardly projecting arm on said support; a bearing face on said support outwardly of the end of the car; a buffing head slidably mounted on said support; means yieldingly resisting inward movement of the buffing head; and an upright lever actuated in draft, said lever being pivoted between its ends on said bearing face of the arm of said support, one end of said lever being pulled outwardly in draft, said lever engaging the buffing head to force the same inwardly when said lever is actuated in draft.

65 2. In a combined draft and buffing gear for cars, the combination with a supporting structure fixed to the end of the car, said structure having a fulcrum shoulder thereon; of a buffing head slidably carried by said supporting structure; shock absorbing means opposing inward movement of said head; a lever bar having one end thereof provided with means for coupling the same to a coupling element of an adjacent car, said lever bar having the other end thereof bear-

ing on said buffing head, said lever being pivoted on said fulcrum shoulder to effect inward movement of said last named end of the lever when said first named end is pulled outwardly away from the end of the car; and a limiting stop on said support engageable by said lever for limiting outward swinging movement of said lever.

3. In a combined draft and buffing gear for cars, the combination with a support on the end of the car; of an outwardly projecting arm on said support; an inwardly movable buffing head on said support, said head having an inwardly extending portion thereof disposed below said arm; means on said support yieldingly opposing inward movement of said head; and a lever fulcrumed between its ends on said arm and having a coupling connection at the upper end thereof, the lower end of said lever engaging said inwardly extending portion of the head to force said head inwardly when the upper end of the lever is swung outwardly in draft.

4. In a combined draft and buffing gear for cars, the combination with a supporting member; of an outwardly projecting arm on said member, said arm having a rearwardly facing fulcrum shoulder thereon; a buffing head movable inwardly on said member, said head having a rearwardly extending section thereof disposed below said arm, said section having a forwardly facing bearing surface thereon; means yieldingly opposing inward movement of said head; and a lever pivoted between its ends on said fulcrum shoulder of the arm and having its lower end engaged with said bearing surface of the head, said lever receiving the pulling force in draft above the pivotal point of said lever.

5. In a combined draft and buffing gear for cars, the combination with a support; of an outwardly projecting arm on said support, said arm having a vertical opening therethrough; a coupling pin extending through said opening and rockable on the walls of said opening to swing about its mid section; a buffing head slidable inwardly on said support, the lower end of said pin engaging the buffing head to move the head inwardly when the upper end of said pin is swung outwardly; and means yieldingly opposing inward movement of said head.

6. In a combined draft and buffing gear for cars, the combination with a support; of an outwardly projecting arm on said support, said arm having a coupling pin receiving opening therethrough; a buffing head slidable inwardly on said support, said head having an inward extension thereon below said arm, said extension having an opening therethrough; yielding means opposing inward movement of said head; and a coupling pin extending through the opening of said arm and head and rockable in said opening of the arm to swing about a point between its ends, the upper end of said pin being formed to receive a coupling link and the lower end thereof bearing on a wall of the opening of said head to force the head inwardly in draft action of the gear.

7. In a combined draft and buffing gear for cars, the combination with a support; of an outwardly projecting arm on said support; a buffing head movable inwardly on said support, said head and arm having vertically aligned openings therethrough; means yieldingly opposing inward movement of said head; and a lever for forcing said head inwardly in buff, said lever extending through the opening of the arm into the opening of said head, and being rockable in said opening of the arm to actuate the buffing head.

8. In a combined draft and buffing gear for cars, the combination with a support; of an arm on said support, said arm having a vertical opening therethrough; a buffing head movable inwardly toward the end of the car in buff, said head having a vertical opening therethrough; yielding means opposing inward movement of said head; and an upright lever extending through said openings, said lever being pivoted in the opening of said arm and having camming engagement below the pivot point thereof with a wall of the opening of said buffing head to force the head inwardly toward the end of the car upon the lever being swung outwardly in draft.

9. In a combined draft and buffing gear for cars, the combination with a support; of a buffing head movable inwardly on said support, said head

having a rearward extension provided with a vertical opening therethrough; spring means opposing inward movement of said head; an outwardly extending arm on said support above said extension of said head; a second outwardly extending arm on said support above said first named arm, said arms having vertically aligned openings therethrough, said arms being spaced apart vertically to receive a coupling link therebetween; and a coupling pin headed at the upper end and having the shank thereof extending through the openings of said arms and said extensions, said pin rocking in the opening of said first named arm and engaging the rear wall of the opening of the buffing head to force the buffing head inwardly when a pulling force is applied to said pin.

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