C. S. COTTON.

DRAFT GEAR.

APPLICATION FILED NOV. 7, 1918.

1,360,184.

Patented Nov. 23, 1920.

2 SHEETS—SHEET 1.

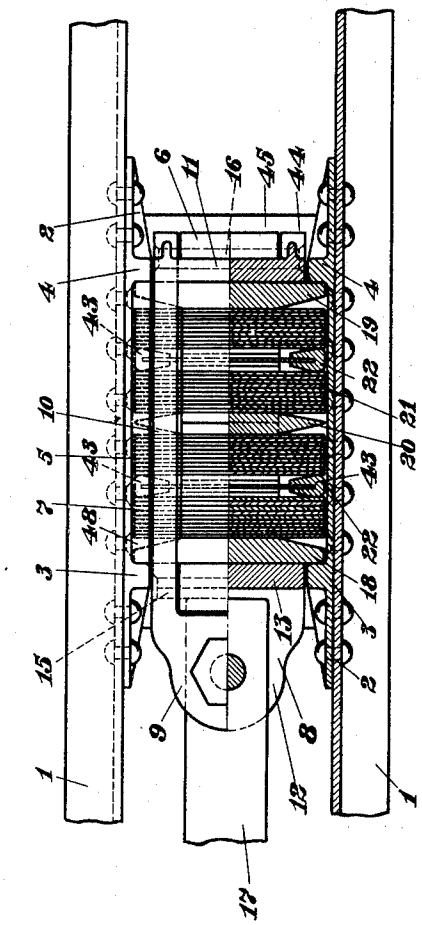


Fig. 1

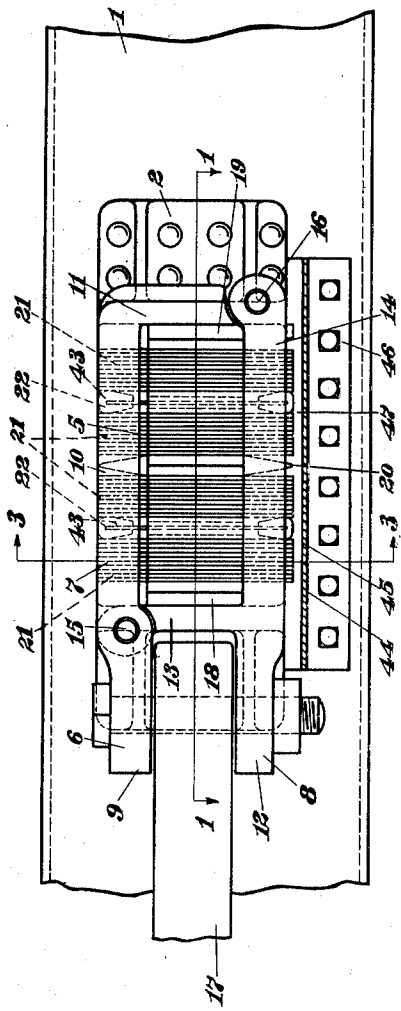


Fig. 2

Witnesses

A. M. Zender

Frank C. Fuller.

Inventor

Charles S. Cotton,

By G. D. Lambe.

Attorney

C. S. COTTON.

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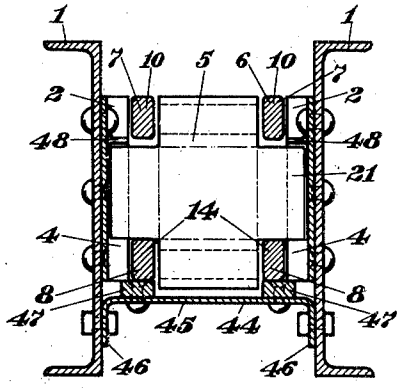


Fig. 3

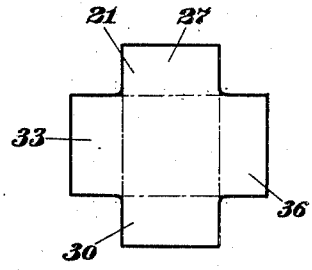


Fig. 4

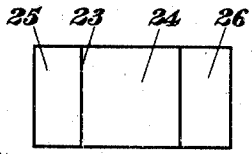


Fig. 5

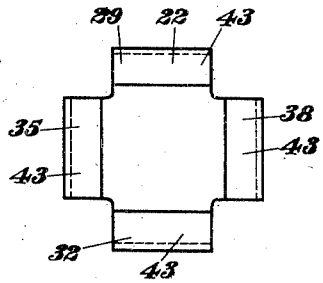


Fig. 6

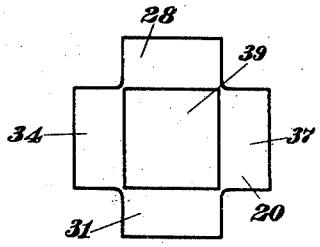


Fig. 7

Witnesses
H. M. Bender
Frank C. Miller.

Inventor
Charles S. Cotton,
By G. C. Lambe.
Attorney

UNITED STATES PATENT OFFICE.

CHARLES S. COTTON, OF INGRAM, PENNSYLVANIA, ASSIGNOR TO PRESSED STEEL CAR COMPANY, OF PITTSBURGH, PENNSYLVANIA, A CORPORATION OF NEW JERSEY.

DRAFT-GEAR.

1,360,184. Specification of Letters Patent. Patented Nov. 23, 1920.

Application filed November 7, 1918. Serial No. 261,522.

To all whom it may concern:

Be it known that I, CHARLES S. COTTON, a citizen of the United States, residing in Ingram, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Draft-Gears, of which the following is a specification.

An object of the present invention is to provide a simple and efficient draft gear for railway cars.

Heretofore draft gears of the type illustrated in the drawings have been provided with rectangular spring plates which could be deflected at one place only, *i. e.* at the transverse central line of the plate and an object of the invention is to provide a draft gear in which the spring plates are made of such a form that they will be deflected at a plurality of places.

A further object of the invention is to provide a draft gear having cruciform springs and the combining of such springs with the followers in such a manner that, when a car to which the gear is applied is in operation, the central portions of the springs will retain their original form and the top, bottom and side portions will deflect.

Referring now to the drawings in which like reference characters refer to like parts, Figure 1 is a plan view of a portion of a railway car with the invention mounted thereon, the lower half of the figure being a section taken on the line 1—1 of Fig. 2; Fig. 2 is a side elevational view of the same, one of the draft sills being removed to more clearly show the invention; Fig. 3 is a cross sectional view taken on the line 3—3 of Fig. 2, both sills being shown; Figs. 4, 5, 6 and 7 are detail views of the spring plates, front and rear followers, spacing members, and intermediate follower respectively.

Referring now in detail to the drawings 1 indicates the draft sills of a car which may be of any suitable form, 2 indicates the cheek plates which are secured to the draft sills and which comprise front and rear stop lugs 3 and 4 respectively, and 5 indicates the combined draft and buffing mechanism. This mechanism comprises a yoke 6 which preferably consists of parts 7 and 8. The part 7 is provided with an end portion 9, spaced portions 10 and a back portion 11, and the part 8 is provided with an end portion 12, a projecting portion 13 and spaced portions 14. These parts 7 and 8 may be connected together in any suitable manner, but as shown in the drawings are preferably connected together by rivets 15 and 16, the rivet 15 passing through the spaced portions 10 of the part 7 and the projecting portion 13 of the part 8 and the rivet 16 passing through the spaced portions 14 of the part 8 and the back portion 11 of the part 7 and when these parts are connected together in this manner a cage like structure is formed for the reception of the parts forming the shock absorbing mechanism. Further when these parts 7 and 8 are connected together the end portions 9 and 12 form a jaw to which a coupler shank 17 is suitably connected through the medium of a bolt or any other suitable means.

The shock absorbing mechanism comprises front and rear followers 18 and 19 respectively, a center spacing member 20, springs 21 and spacing members 22. The front and rear followers are preferably rectangular in form and when in operative positions they extend through the yoke 6 and at their ends are adapted to engage the stop lugs 3 and 4 respectively of the cheek plates 2. Each of these followers is provided with a face 23 having a flat central portion 24 and tapering side portions 25 and 26. Between these faces 23 of the followers the springs 21 are mounted in the yoke, which springs are spaced apart into sets by the center spacing member 20 and the front and rear spacing members 22. The springs 21, center spacing member 20 and spacing members 22 are cruciform and when in operative positions in the yoke 6, their upper portions 27, 28 and 29 respectively extend between the spaced portions 10 of the part 7, their lower portions 30, 31 and 32 respectively extend between the spaced portions 14 of the part 8, their side portions 33, 34 and 35 respectively extend between the portions 10 and 14 of the parts 7 and 8 respectively at one side of the yoke and their side portions 36, 37 and 38 respectively extend between the portions 10 and 14 at the opposite side of the yoke. The center spacing member 20 is provided with two faces, each of which has a flat central portion 39 and tapering top, bottom and side portions and the spacing members 22 are substantially flat for the greater portion of their area and at their top, bottom and side portions are provided with enlarged portions 43, each of which

tapers toward the central portion of the member, and the springs 21 are preferably flat for their full area.

When the followers, springs and spacing members are in their proper positions in the yoke, as shown in Figs. 1 and 2 of the drawings, the flat central portions of the followers and of the center spacing member will contact with the central portions of adjacent sets of springs and the enlarged portions 43 on the spacing members will contact with the portions 27, 30, 33 and 36 of adjacent sets of springs, and these spacing members will, when the coupler shank has received a shock, permit the central portions of the springs to bend inwardly toward the central portion of the spacing member, thus absorbing the shock. It will here be noted that the springs are adapted to bend at four different places as shown by dot and dash lines in Fig. 4 of the drawings, and that the central portions of the springs will remain substantially flat due to the flat central portions of the followers being of substantially the same area as the central portions of the springs, thus making the resistance to shocks, around the center of the coupler shank more uniform than has heretofore been possible in this type of draft gear. Further by making the springs of such a form that they will bend at a plurality of places the resistance to shocks to which the draft gear is subjected will be increased over that obtained in draft gears of this type in which the springs are rectangular in shape and bend at their central portion in a single line, thus making it possible to provide a draft gear of a given capacity from a minimum amount of material.

The draft and buffing mechanism may be supported from the draft sills in any suitable manner but as shown in the drawings is preferably supported by a member 44 which has a horizontally disposed web 45 and down turned flanges 46 which flanges are secured to the webs of the draft sills by rivets or other suitable means. Secured to the upper side of the web 45 of this member are wear pieces 47 upon which the portions 14 of the yoke 6 are adapted to travel. To prevent accidental upward movement of the mechanism, each of the cheek plates is provided with a lug 48 with which the springs followers and spacing members are adapted to engage.

The front and rear followers are more liable to become damaged than the other parts of the mechanism and for this reason are preferably made rectangular so that when they become damaged they may be removed or replaced without disconnecting the parts 7 and 8 of the yoke 6. It will, however, be understood that these followers may be cruciform if desired.

It will be understood by those skilled in the art to which this invention pertains that many changes may be made in the form and combination of the different parts without departing from the spirit and scope of the invention.

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

1. A draft gear comprising draft sills, stop members on said sills, a yoke between said sills, front and rear followers mounted in said yoke adapted to engage said members, cruciform springs mounted between said followers, and cruciform spacing members between said springs, the top, bottom and side portions of said springs and spacing members being adapted to engage each other.

2. A draft gear comprising draft sills, stop members on said sills, a yoke mounted between said sills, front and rear followers mounted in said yoke adapted to engage said members, springs between said followers, and spacing members between said springs, said springs, and spacing members being cruciform, the projecting portions of said springs being deflectable.

3. In a draft gear, the combination with draft sills, of stop members on said sills, a yoke mounted between said sills, followers mounted in said yoke adapted to engage said members, flat cruciform springs mounted between said followers and spacing members mounted between said springs, the projecting portions of said springs being adapted to be deflected.

4. In a draft gear, the combination with draft sills, of stop members mounted on said sills, a yoke mounted between said sills, front and rear followers mounted in said yoke adapted to engage said members, and flat cruciform shock absorbing means mounted in said yoke between said followers, the projecting portions of said means being adapted to be deflected.

5. In a draft gear, the combination with draft sills, of stop members mounted on said sills, and a shock absorbing mechanism mounted between said sills adapted to engage said stop members, said mechanism comprising a plurality of flat cruciform springs, the projecting top, bottom and side portions of said springs being adapted to be deflected.

6. In a draft gear, the combination with draft sills of stop members mounted on said sills, a yoke mounted between said sills, said yoke comprising a plurality of connected parts having spaced longitudinally extending portions, followers mounted in said yoke adapted to engage said members, springs mounted in said yoke between said followers, and spacing members mounted in said yoke between said springs, said springs and spacing members being cruciform and having

portions extending between the spaced portions of said yoke.

7. In a draft gear, a flat cruciform spring, the top, bottom and side portions thereof being adapted to be deflected and the central portion being adapted to retain substantially its original form when said top, bottom and side portions are deflected.

8. The combination in a draft gear, of a yoke, followers mounted in said yoke, said followers having flat central portions, cruciform springs mounted in said yoke between and in contact with the flat central portions of said followers, cruciform spacing members mounted in said yoke between said springs adapted to engage the top, bottom and side portions of said springs, said portions being adapted to be deflected and the central portions of said springs being adapted to retain substantially their original forms when said top, bottom and side portions are deflected.

In testimony whereof I affix my signature in the presence of two witnesses.

CHARLES S. COTTON.

Witnesses:
EVA CHAMBERLIN,
CORA L. DOVEY.