

1,010,033.

G. G. FLOYD & C. F. MURRAY.
TANDEM SPRING DRAFT GEAR.
APPLICATION FILED MAY 24, 1909.

Patented Nov. 28, 1911.
2 SHEETS-SHEET 1.

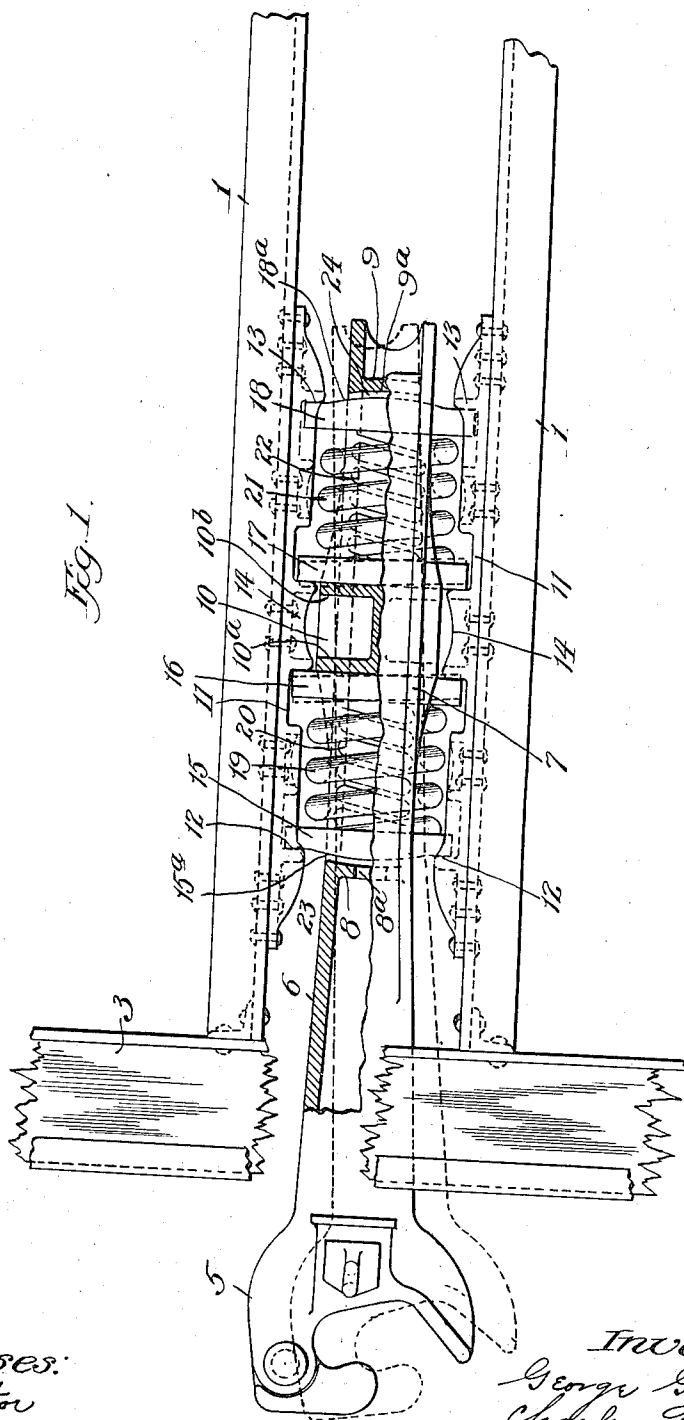


Fig. 1.

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2 SHEETS—SHEET 2.

Fig. 2

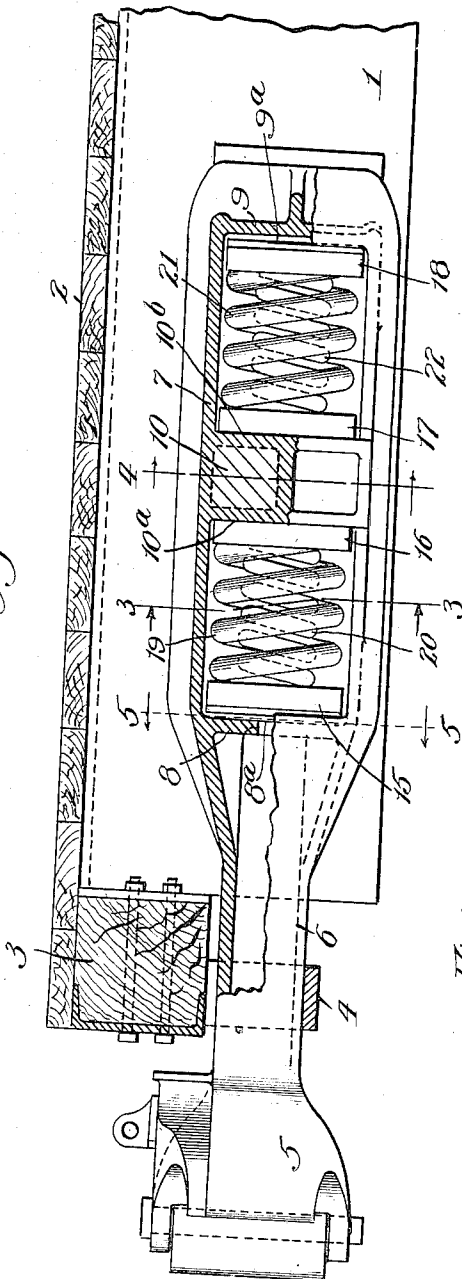


Fig. 5

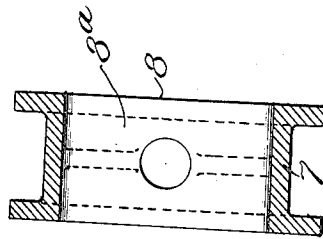


Fig. 4

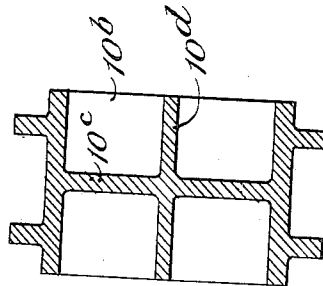
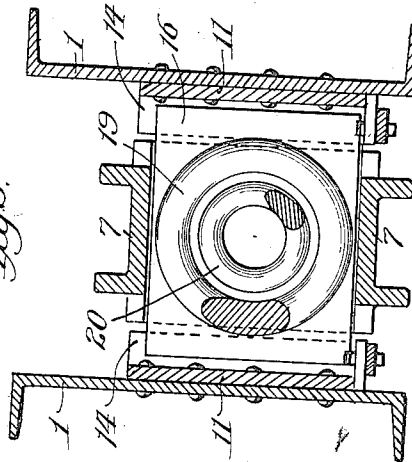


Fig. 3



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UNITED STATES PATENT OFFICE.

GEORGE G. FLOYD, OF GRANITE CITY, AND CHARLES F. MURRAY, OF CHICAGO, ILLINOIS, ASSIGNORS TO AMERICAN STEEL FOUNDRIES, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

TANDEM-SPRING DRAFT-GEAR.

1,010,033.

Specification of Letters Patent.

Patented Nov. 28, 1911.

Application filed May 24, 1909. Serial No. 497,915.

To all whom it may concern:

Be it known that we, GEORGE G. FLOYD, a citizen of the United States, residing at Granite City, in the county of Madison and State of Illinois, and CHARLES F. MURRAY, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Tandem-Spring Draft-Gears, of which the following is a specification.

This invention relates to tandem spring draft gears for railway cars, the general object of the invention being to provide a simplified and improved structure capable of effecting a number of desirable results in a device of this nature.

Among the novel features of the invention may be mentioned the following:

First, an arrangement of tandem springs with followers and stops so arranged relatively to each other and to the yoke of the drawbar that only one spring is brought into action under light shocks, whether of buffing or draft, while both are available to cushion severe shocks and strains.

Second, means in connection with a tandem spring draft rigging whereby the drawbar may be moved radially without the expenditure of undue power. It will be understood that it often becomes necessary to shift the drawbar transversely with reference to the car, in order to permit coupling on curves, etc. Where the front and rear followers directly contact the rear of the coupler shank and the rear wall of the yoke respectively, this shifting must be done against the frictional engagement of the parts, plus the initial compression under which the two springs are inserted. This makes the shifting of the drawbar difficult. Furthermore, the radius from the draw-head to the pivotal point is, in the present construction, increased; that is, the pivotal point is the intermediate follower block, whereas in other constructions the pivotal point will be the rear follower block or stop.

Third, a special formation of the cooperating surfaces of the end transverse walls of the yoke and the outer followers whereby cramping of the springs under either a pull or thrust of the drawbar when in offset position is prevented.

The invention will be readily understood

when considered in connection with the accompanying drawings which show one practical form in which the same may be embodied, and wherein,—

Figure 1 is a top plan view, partially in horizontal section, of a tandem spring draft gear embodying our improvements. Fig. 2 is a side elevation, partly in vertical longitudinal section, of the same as applied to one end of a car, the floor and end sill of the latter also being shown in vertical longitudinal section. Fig. 3 is a cross-sectional view, enlarged, on the line 3—3 of Fig. 2. Fig. 4 is a similar cross-sectional view on the line 4—4 of Fig. 2. Fig. 5 is a similar cross-sectional view on the line 5—5 of Fig. 2.

Referring to the drawings, 1 designates the parallel draft sills, herein shown as outwardly facing channel-beams constituting the center sills of the car, 2 the floor of the car, 3 the transverse end sill, and 4 the usual hanger which supports the outer end of the drawbar.

5 designates the coupler head, 6 the drawbar, and 7 the yoke. The coupler head, drawbar and yoke are, as herein shown, all integral, constituting a single casting, the drawbar being hollow, as usual, and the yoke being provided with a pair of integral transverse front and rear end walls 8 and 9, respectively, and a transverse intermediate wall 10, this latter being preferably and as herein shown made up of a pair of parallel sides 10^a and 10^b reinforced by intermediate vertical and horizontal partitions 10^c and 10^d, respectively, which construction affords a desirable combination of strength and lightness.

Riveted to the inner faces of the draft-sills are the stop-castings 11, on each of which are formed front and rear stops 12 and 13, respectively, and intermediate stops 14. These latter are of the same thickness as the intermediate wall 10 of the yoke, so that, when the latter is in its normal or idle position, the working faces of said intermediate stops and said intermediate transverse wall are flush or in transverse alinement with each other, as clearly shown in Fig. 1. Lying across the yoke are front and rear pairs of followers, the front and rear followers of the front pair being designated as 15 and 16, respectively; and the front and rear followers of the rear pair

being designated as 17 and 18, respectively. Between the followers 15 and 16 are interposed the usual outer and inner resistance springs 19 and 20, respectively, and between the followers 17 and 18 are interposed a similar pair of outer and inner springs 21 and 22, respectively.

It will be seen by reference to Fig. 1 that the intermediate and end walls of the yoke are separated by a distance slightly greater than the distance between the intermediate and end stops, the result of which is that, under the compressive action of the springs, the intermediate wall 10 of the yoke is, in the normal or idle position of the latter, confined between the followers 16 and 17, the ends of the latter abutting against the working faces of the intermediate stops 14, so that a slight clearance, indicated at 23 and 24, is left between the end walls of the yoke and the outer faces of the end followers 15 and 18. The result of this construction is that, under pulling strains, the front face or side 10^a of the intermediate wall 10 of the yoke acts on the follower 16, compressing the springs 19 and 20 until the rear wall of the yoke engages the rear follower 18, thus calling into action the rear springs 21 and 22; and, similarly, under buffing strains, the rear face or side 10^b of the intermediate wall 10, acting through the follower 17, compresses the springs 21 and 22 until the front end wall of the yoke engages the front follower 15, whereupon the resistance of the front springs 19 and 20 is added. In practice the clearance referred to between the front and rear end walls of the yoke and the outer faces of the front and rear followers 15 and 18 is of such an extent that one set of springs acts alone to cushion all relatively light shocks of both buffing and draft, the auxiliary resistance of the other set of springs being called into action under heavy shocks and strains. It will further be observed that the action of both sets of springs is at all times exerted upon the two

faces of the intermediate wall of the yoke in such a manner as to maintain said faces at right angles to the longitudinal median line of the car and flush with the working faces of the intermediate stops, which action automatically recenters the drawbar and yoke when laterally offset or canted.

Our invention further includes a structural feature whereby the usual cramping effect upon the springs which takes place under draft or buffing strains when the draw-bar is in an offset position, is substantially obviated. This is effected by giving to the outer faces of the end followers and to the end walls of the yoke coöperating convex and concave surfaces, respectively, as shown at 15^a and 8^a at the front end and at 18^a and 9^a at the rear end. By reason of this construction, when either wall of the yoke engages the outer face of the follower, it effects a contact therewith substantially co-extensive with the width of the yoke, so that the contact in all cases overlaps or lies on both sides of the center of the follower face, which obviates the canting of the follower and consequently the resulting cramping of the spring.

We claim:

A draft gear for railway cars, comprising, in combination, draft sills provided with stops, an integral drawbar, yoke and intermediate stop, followers disposed crosswise of said yoke, springs between said followers, the distance between the outside faces of the extreme followers being less than the distance between the rear wall of the drawbar and the inside rear wall of the yoke, substantially as described.

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