F. B. TOWNSEND.

DRAWBAR CENTERING DEVICE.

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1,372,728.

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Fig 1

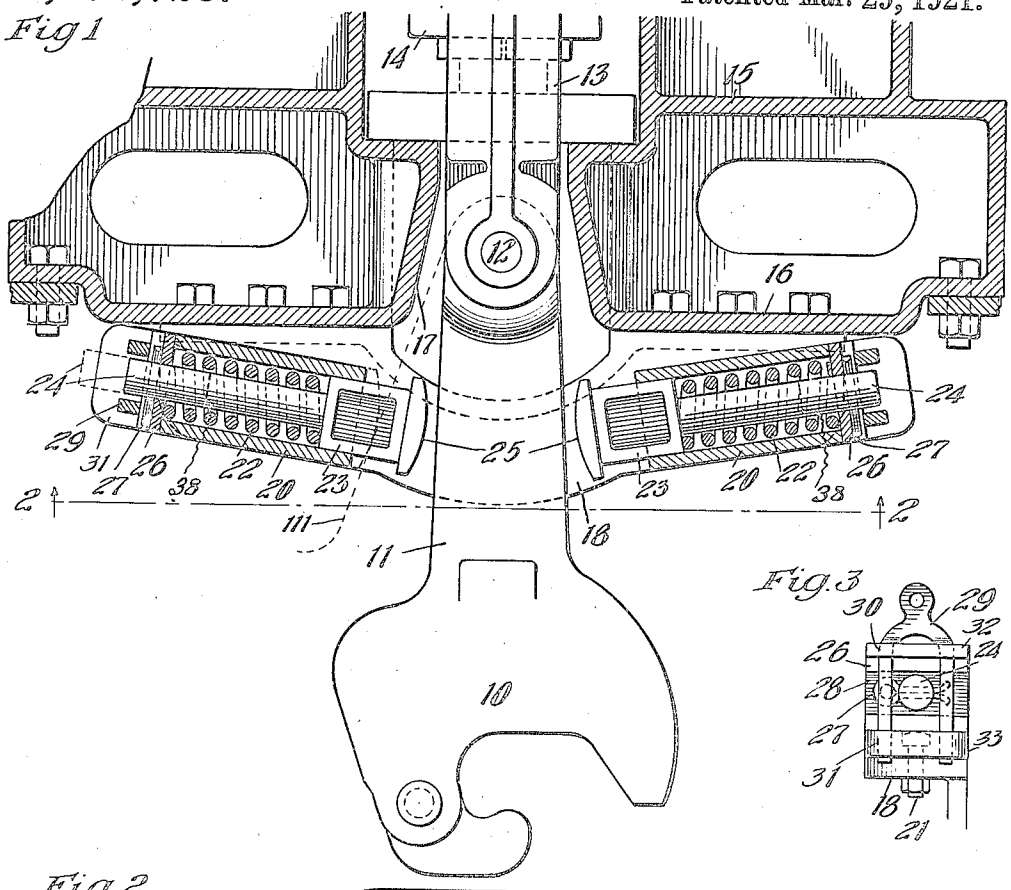
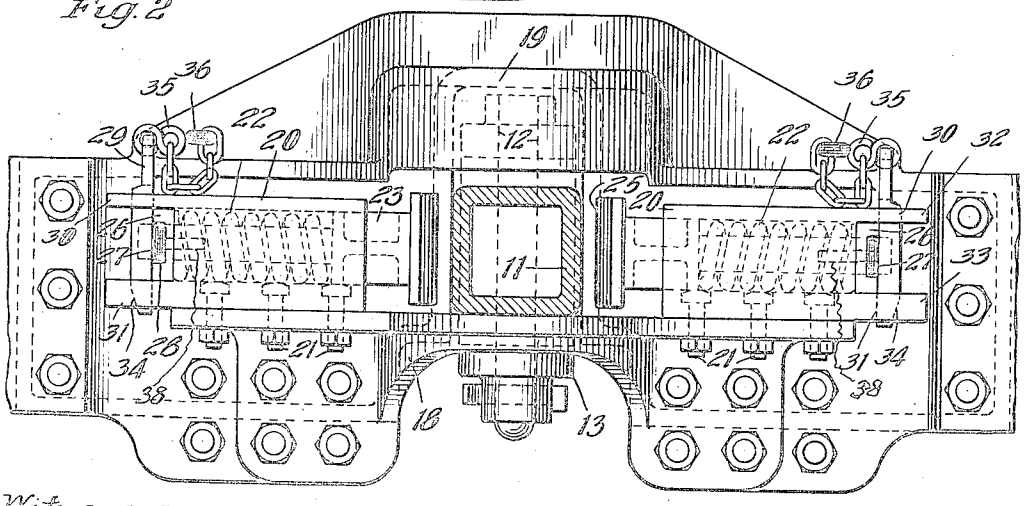


Fig. 3

Fig. 2



Witnesses

Wm. Geiger

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UNITED STATES PATENT OFFICE.

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DRAWBAR-CENTERING DEVICE.

1,372,728. Specification of Letters Patent. Patented Mar. 29, 1921.

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To all whom it may concern:

Be it known that I, FREDERICK B. TOWNSEND, a citizen of the United States, residing at Hinsdale, in the county of Dupage, and State of Illinois, have invented a certain new and useful Improvement in Drawbar-Centering Devices, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

This invention relates to improvements in draw bar centering devices.

In the operation of railway cars, and particularly locomotives, by which term is included the "tender", radially movable or swingingly mounted draw bars are employed and in order to limit their swinging movements, centering devices have been utilized adapted to yieldingly resist swinging movements beyond a predetermined amount. In the case of locomotive draw bars, the same are relatively short and it is undesirable to permit too great a swinging movement thereof. Occasionally, however, when a locomotive is coupled to a car standing on a track of short radius, it has been found difficult to swing the draw bar of the locomotive sufficiently to permit proper engagement with the coupler of the car.

The object of my invention is to provide a centering device for swinging draw bars, and more particularly, short swinging draw bars of locomotives which will be effective for limiting the swinging movements of the draw bar under all normal conditions and which at the same time is provided with means easily operable by the brakeman, to permit the draw bar to swing to either side a greater distance than is normally permitted in order to take care of any abnormal or unusual conditions incident to the coupling operation.

In the drawing forming a part of this specification, Figure 1 is a horizontal, sectional view of a portion of a locomotive underframe and associated draw bar with my improvements in connection therewith. Fig. 2 is a vertical, sectional view, taken substantially on the line 2—2 of Fig. 1. And Fig. 3 is an end elevational view of one of the centering devices.

In said drawing, 10 denotes a coupler of well known form having a shank 11 which is relatively short, said shank being pivoted as indicated at 12 to the yoke 13 which surrounds the shock absorbing mechanism indicated partly at 14. The shock absorbing mechanism or draft gear is mounted in a cast underframe construction indicated generally by the reference 15. As will be understood, the underframe of locomotives, including the tenders, is usually a heavy casting with the end sill formed integrally therewith and in the construction illustrated, the end sill is so shown. The end sill is designated by the reference 16 and a flaring mouth 17 is provided for the outer end of the yoke and the swinging movements of the coupler shank. A draw bar carry-iron preferably in the form of a casting, is indicated at 18, the same being bolted to the underframe casting, as illustrated in Fig. 2. The casting may also be provided with a striking block indicated at 19 in Fig. 2.

In order to center the draw bar, I provide the following means: Mounted on the draw bar carrier casting 18, on each side of the draw bar shank, are two sets of devices and inasmuch as both are the same, it will only be necessary to detail the description of one of them. Each of said devices comprises a substantially rectangular hollow casing 20 adapted to be rigidly attached to the carrier casting 18 by any suitable means, such as the bolts 21. Said casing 20 is open at each end and has mounted therein a spring 22. The casing 20 is arranged at an acute angle to the shank of the draw bar, as clearly indicated in Fig. 1.

Slidably mounted within the casing 20 is a plunger or piston 23 having an enlarged outer end conformed to fit within the casing 20. Rearwardly of said enlarged end, the plunger has a stem 24 which passes within the spring 22. At its inner end, that is, the end adjacent the draw bar shank, the plunger is provided with a rounded face indicated at 25 to form a better bearing for the shank when it swings into engagement therewith, and to reduce frictional wear on the inner walls of the casing 20.

At the outer end of the casing 20, a detachable wall 26 is provided, the same being centrally perforated to accommodate the stem 24 and the latter may have a cotter 27 extending through an elongated slot 38 therein to hold the parts in assembled relation. Said wall 26 is cut away as indicated at 28 to ac-

commodate the cotter 27 and to hold the wall 26 normally in place, I use a forked pin 29. The latter is insertible and removable through appropriate vertically alined openings 30 and 31 in the upper and lower walls, extended, of the shell 20, said extended ends being indicated by the references 32 and 33. The lower ends of the forks of the pin 29 are preferably tapered as indicated at 34 in order to facilitate insertion thereof. In order to prevent accidental loss of the forked pin, I use a chain 35 connected at one end to the pin and at its other end to a suitable eye-bolt or other fastening 36 on the underframe casting.

With the construction shown, it is evident that a slight clearance is normally left between the shank 11 and the rounded ends 25 of the yielding abutments. Movement of the draw bar shank beyond this predetermined amount will press the corresponding plunger outwardly against a yielding spring so that, in actual service when the draw bar is coupled to another car, the shank will be permitted all movement necessary. At the same time, the draw bar will be maintained in its central position when uncoupled, thus facilitating the coupling operation under all normal conditions. When an abnormal condition occurs, as for instance, when the locomotive and car to which it is to be connected are on a track of very short radius, it is evident that the brakeman cannot set the coupler to the required angle to effect the coupling and, of course, is not permitted or supposed to be between the cars during the coupling operation. To meet this condition, I have provided the removable end walls 26 of the casings. The brakeman therefore removes the proper forked pin, thus releasing the end wall 26 and thereby eliminating the fixed abutments for the outer end of the spring. Under these conditions, the brakeman can, of course, swing the coupler to the necessary angle as indicated, for instance, by the dotted lines 111 in Fig. 1 and thereby effect the coupling of the cars. After the coupling has been effected, the end wall 26 can be replaced and the forked pin again inserted, leaving the parts in their normal relation.

The arrangement which I have provided is simple, easily operable and relatively no more expensive than other centering devices now on the market and which cannot be used under certain abnormal conditions, such as above indicated.

I claim:

1. In a draw bar centering device for locomotives and the like having a swingingly mounted draw bar, the combination with yielding abutments on each side of the draw bar shank adapted to permit normal swinging movements thereof, of means manually detachable and replaceable without the aid of tools and coöperable with said yielding abutments adapted, when detached, to permit a displacement of said abutments free from the yielding resistance to readily accommodate a swinging movement of the draw bar greater than normal.

2. In a draw bar centering device for railway rolling stock having a swingingly mounted draw bar, the combination with independent yielding abutments on each side of the draw bar shank, of means manually removable and replaceable without the aid of tools associated with each of said abutments adapted, when removed from normal position, to permit a displacement of the yielding abutments free from the yielding resistance to thereby readily accommodate greater than normal swinging movements of the draw bar.

3. In a device of the character described, the combination with the end frame of a car and a pivotally mounted draw bar, of independent centering devices on each side of the draw bar shank, each device including a plunger adapted to be engaged by the draw bar shank, a spring casing, a spring within the casing yieldingly resisting movement of said plunger, and an abutment freely manually detachable and replaceable for one end of said spring.

4. In a centering device for a swingingly mounted draw bar, centering devices on each side of the shank of the draw bar, each of said centering devices including a casing mounted on an adjacent part of the car underframe, a detachable end wall for the casing, freely manually removable means for holding said end wall normally in place, a spring within the casing bearing at one end against said wall, and a plunger against which the other end of said spring bears, the plunger being in line with the draw bar shank and adapted to coöperate with the latter.

5. In an arrangement of the character described, the combination with the car underframe structure and a swingingly mounted draw bar, of centering means for said draw bar, said centering means comprising two like devices one on each side of the draw bar shank, each of said devices comprising, a casing secured to the underframe structure and open at both of its ends, a plunger slidingly mounted within the casing, a spring within the casing bearing at one end against the plunger, and a readily manually removable abutment for the other end of the spring.

6. In a centering device for draw bars of locomotives and other railway rolling stock, the combination with the underframe structure and the swingingly mounted draw bar, of duplicate devices on opposite sides of the draw bar for centering the latter,

each of said devices comprising, a casing detachably secured to the underframe structure, a removable end wall at the outer end of the casing, a detachable pin normally holding said end wall in position, a plunger at the inner end of the casing and adapted to be engaged by the draw bar, and a spring interposed between said plunger and the removable end wall of the casing.

In witness that I claim the foregoing I have hereunto subscribed my name this 23rd day of May, 1919.

FREDERICK B. TOWNSEND.