July 29, 1924. 1,503,192

G. H. LANGTON

DRAFT GEAR

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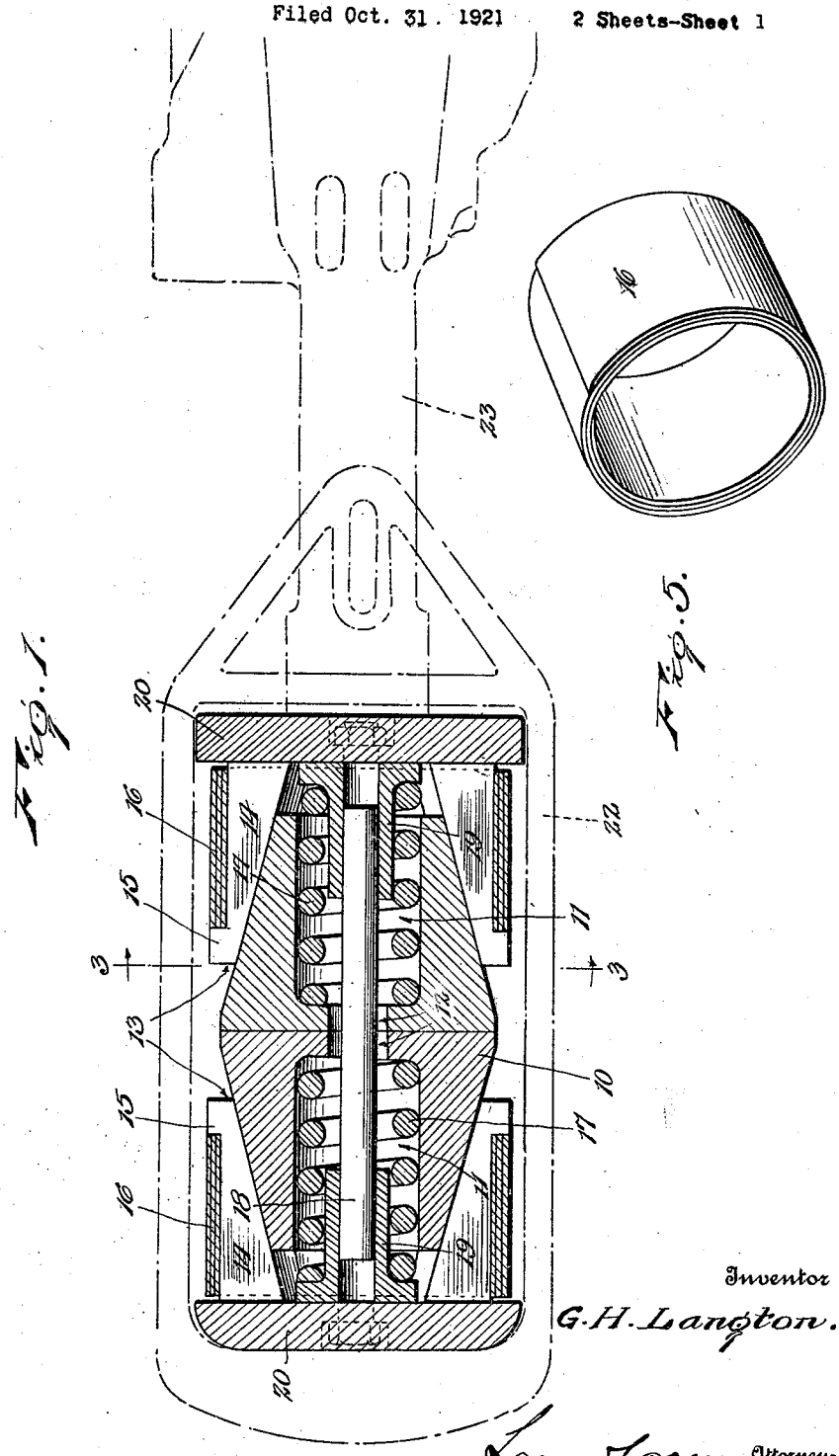


Fig. 1.

Fig. 5.

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Fig. 2.

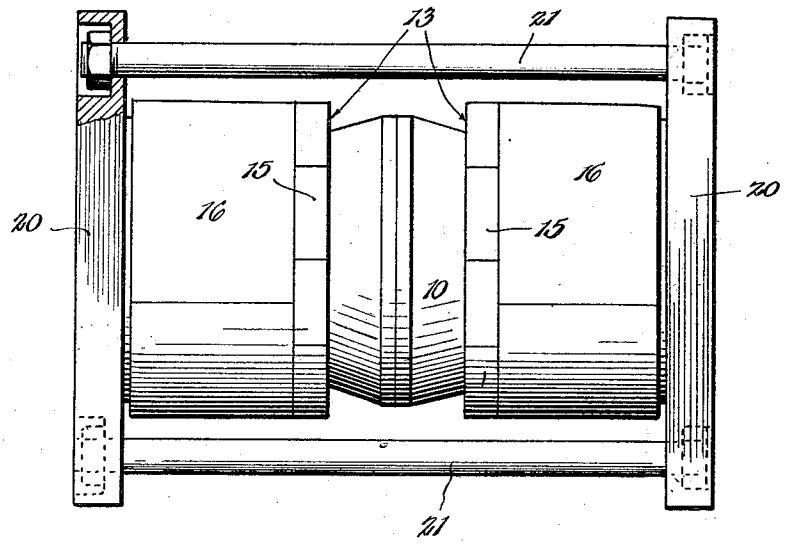


Fig. 3.

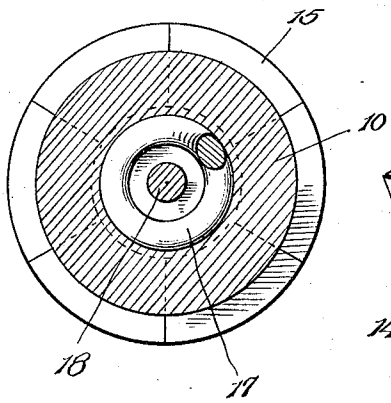
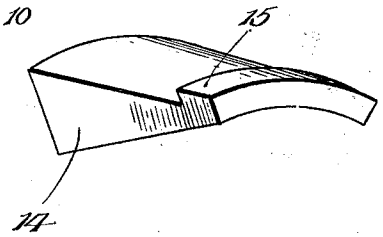


Fig. 4.



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UNITED STATES PATENT OFFICE.

GEORGE H. LANGTON, OF PRINCETON, WEST VIRGINIA.

DRAFT GEAR.

Application filed October 31, 1921. Serial No. 511,577.

To all whom it may concern:

Be it known that I, GEORGE H. LANGTON, citizen of the United States, residing at Princeton, in the county of Mercer and State of West Virginia, have invented certain new and useful Improvements in Draft Gear, of which the following is a specification.

This invention relates to an improved draft gear for locomotives or other railway rolling stock and seeks, as one of its principal objects, to provide a draft gear wherein both pull and buff upon the gear will be frictionally resisted and wherein the gear will be double acting.

A further object of the invention is to provide a draft gear wherein the same frictional resistance will be offered to either pull or buff upon the gear.

A still further object of the invention is to provide a draft gear wherein crashing of the gear will be prevented.

And the invention has as a still further object to provide a gear well adapted to supplant the usual conventional draft gearing, a draft gear which will be sturdy in its construction, and a gear which may be readily assembled.

Other and incidental objects will appear hereinafter.

In the drawings:

Figure 1 is a longitudinal section view through my improved draft gear, a conventional coupler and yoke being shown in dotted lines,

Figure 2 is a plan view showing the gear in detail,

Figure 3 is a vertical sectional view on the line 3—3 of Figure 1, looking in the direction of the arrows,

Figure 4 is a detail perspective view showing one of the segments of the friction shoes employed, and

Figure 5 is a detail perspective view showing one of the spring retaining collars for the shoes.

In carrying the invention into effect, I employ a double conic core 10 which, as shown in Figure 1 of the drawings, is tapered toward opposite ends thereof. This core may, as illustrated, be formed of mating sections abutting at their larger ends or, if preferred, may be integrally formed. Formed in each section of the core axially thereof is a socket 11 and leading through the bottom walls of said sockets are registering openings 12 connecting the sockets. Surrounding each of the tapered end portions of the core is a series of friction shoes 13 each series being composed of six shoes 14, as shown in Figures 4 and 3, of segmental outline. The inner faces of the shoes are tapered to seat flat against the conical faces of the core while the outer faces of the shoes lie parallel to the axis of the core and formed on said shoes at their inner ends are annular shoulders 15. Surrounding the shoes to coact with these shoulders are resilient tensioning collars 16. As shown in detail in Figure 5, each of these collars is in the nature of a flat spiral spring having several convolutions fitting snugly one within the other, and, as will be perceived, the collars will serve to hold the shoes 13 in binding contact with the core.

Freely fitting in the sockets 11 of the core sections are releasing springs 17 and extending through said springs and through the registering openings 12 of said sections is a buffer rod 18. Slidably fitting over this rod at its ends are thimbles 19 fitting in the outer ends of the springs, the springs thus serving to center the rod 18 with respect to the core as well as with respect to said springs. Coacting with the shoes 14 at their outer ends are followers 20 overlying the thimbles 19 and extending between said followers are coupling bolts or rods 21 which may be adjusted for positioning the shoes upon the ends of the core 10. The followers are, of course, designed to coact with an ordinary yoke and, in Figure 1, I have conventionally illustrated a yoke 22 and coupler 23 in dotted lines.

As will now be seen in view of the preceding description, when pull is exerted upon the coupler 23, the rearmost of the followers 20 will be shifted forwardly for advancing the rearmost of the shoes 14 forwardly upon the rear end of the core. Thus, due to the frictional resistance between said shoe and the core, the core will be bodily shifted forwardly and thus advanced within the foremost of the shoes 14. Accordingly, both the shoes will be coincidently dilated by the core against the tension of the collars 16. As the collars are expanded by the dilating shoes, the convolutions of the collars respectively will bind against each other and frictionally coact to resist expansion of the collars as well as to increase the tension of the collars upon the shoes for proportionately increasing the frictional

engagement between the shoes and the core so that the shoes will effectively coact with the core for cushioning forward pull upon the coupler. Shifting of the followers 20 will, of course, serve to compress the springs 17 so that when the pull upon the coupler is released these springs will expand for returning the followers to their normal positions. Coincidently the collars 16 will contract about the shoes for riding the shoes down the tapered ends of the core to abut the followers, the collars operating to take up any wear upon the shoes so that the shoes will always be tightly held in binding engagement with the core. Buff upon the coupler will, of course, serve to shift the foremost follower rearwardly with an ensuing reverse operation of the parts to that just described, the foremost shoe being advanced rearwardly over the core and the core being shifted rearwardly for dilating the rear shoe, while the springs 17 will, of course, be coincidently compressed. Thus, under both pull and buff, the gear will be double acting, both of the shoes employed being dilated in each instance. I accordingly provide a draft gear wherein the principle of frictional resistance will be effectively utilized for absorbing strain upon the gear. The buffer rod 18 is provided for limiting the movement of either of the followers toward the other so that pounding of the gear will be prevented. As the springs 17 are compressed the rod will, as will be seen, be caused to slide through the thimbles 19 to coact with the followers for holding said followers apart so that at no time can the followers be moved to engage directly with the ends of the core 10.

Having thus described the invention, what is claimed as new is:

1. A draft gear for car couplings comprising a pair of conic frustums mounted with their bases together and provided with central sockets and registering central apertures through their bases, a buffer rod of a length slightly greater than the added length of the conic frustums, thimbles having axial bores, said rod being slidably mounted in said bores and said apertures, compression springs in said sockets surrounding said thimbles and abutting with their ends against the same and said bases respectively, a follower for each thimble contacting with the outer face of the thimble, a series of shoes surrounding the tapering surfaces of each conic frustum and provided with shoulders at their inner ends, springs surrounding each series of shoes tending to press the shoes tightly against the conic frustums, said springs being confined between said shoulders and said followers and engaging the external surface of the shoes.

2. A draft gear for car couplings comprising a pair of conic frustums mounted with their bases together, provided with central sockets and registering central apertures through their bases, a buffer rod of a length slightly greater than the added length of the conic frustums, said rod being mounted axially in said apertures, flanged thimbles having axial bores slidably supporting the ends of the buffer rod, coiled compression springs in said sockets gripping said thimbles tightly and abutting against the thimble flanges and said bases respectively, a follower for each thimble contacting with the outer face of its flange, a series of shoes for each conic frustum fitting the tapered surfaces thereof and provided with cylindrical external surfaces and with shoulders at their inner ends, spiral springs surrounding each series of shoes tending to press the shoes tightly against said conic frustums, said spiral springs being confined between said shoulders and said followers and engaging the external surface of the shoes.

In testimony whereof I affix my signature.

GEORGE H. LANGTON. [L. S.]