(No Model.)

2 Sheets—Sheet 1.

S. R. HEIDELBERG.

DRAW BAR FOR LOCOMOTIVES.

No. 512,375. Patented Jan. 9, 1894.

Fig. 1.

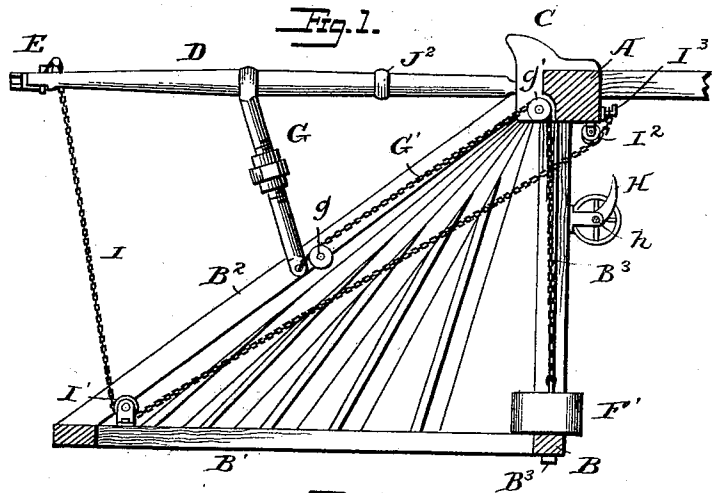


Fig. 2.

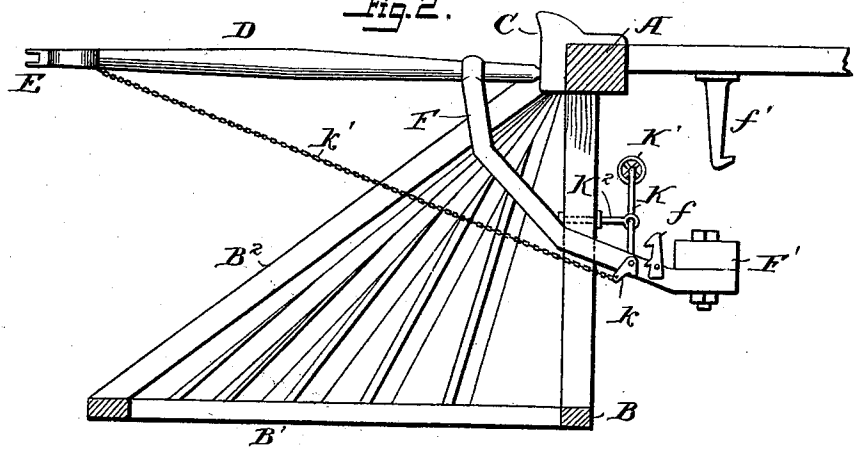
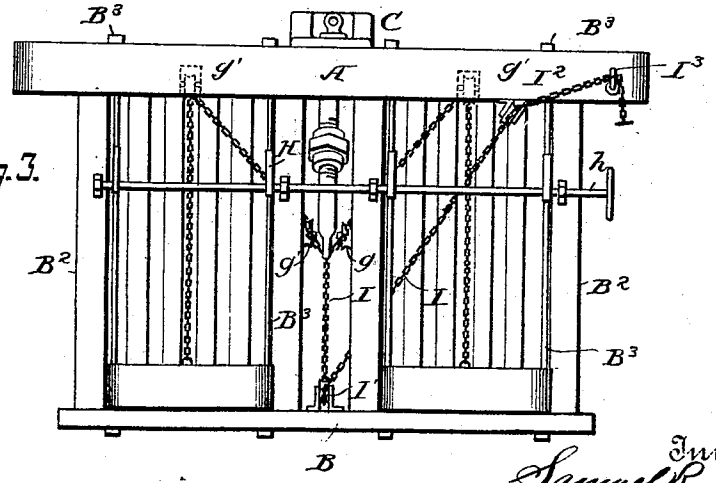


Fig. 3.



Witnesses

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(No Model.) 2 Sheets—Sheet 2.

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DRAW BAR FOR LOCOMOTIVES.

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Fig. 4.

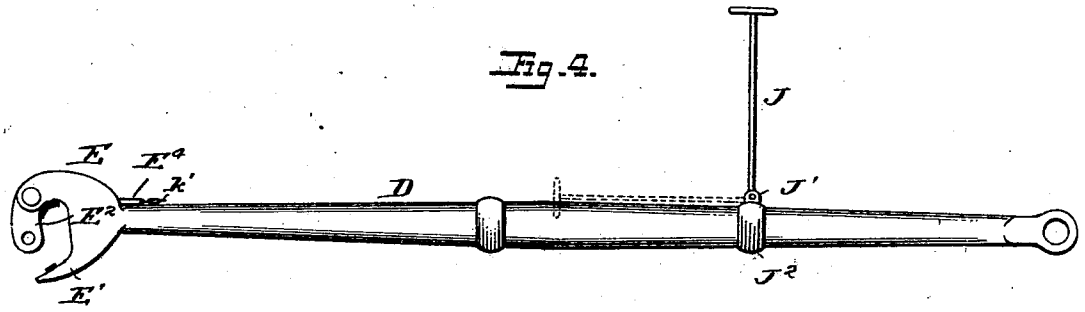


Fig. 5.

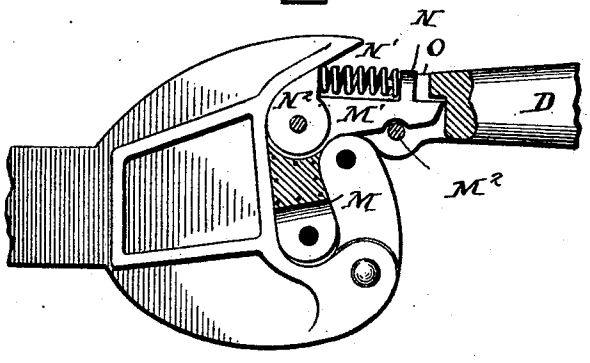


Fig. 6.

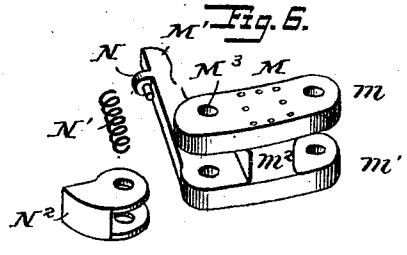
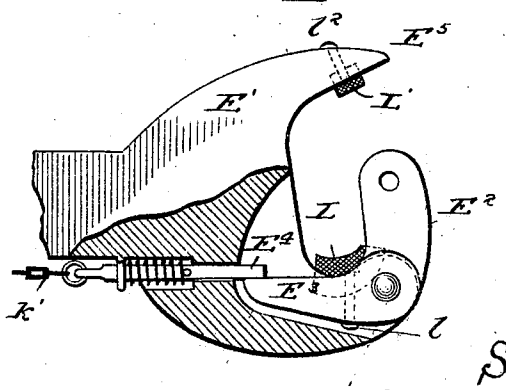


Fig. 7.



Witnesses

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UNITED STATES PATENT OFFICE.

SAMUEL R. HEIDELBERG, OF PALESTINE, TEXAS.

DRAW-BAR FOR LOCOMOTIVES.

SPECIFICATION forming part of Letters Patent No. 512,375, dated January 9, 1894.

Application filed March 28, 1893. Serial No. 467,984. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL R. HEIDELBERG, a citizen of the United States, residing at Palestine, in the county of Anderson and State of Texas, have invented certain new and useful Improvements in Draw-Bars for Locomotives, of which the following is a specification.

My invention relates to draw bars for locomotives and it has for its object to improve the construction, arrangement and operation of said draw bars, and to these ends it consists in the various features of invention, substantially such as are hereinafter more particularly pointed out.

Referring to the accompanying drawings:—Figure 1, is a longitudinal vertical section of an ordinary pilot for a locomotive showing my invention applied thereto. Fig. 2, is a similar view showing a modified arrangement of the draw bar. Fig. 3, is a rear view of the pilot and connections shown in Fig. 1. Fig. 4, is an enlarged plan view of the draw bar showing the coupling device. Fig. 5, is a still further enlarged view showing one form of draw bar coupling device in connection with an ordinary car coupling of the Janney type. Fig. 6, are perspective details showing the construction. Fig. 7, is an enlarged view of the pilot coupling shown in Fig. 4.

In my prior patent, No. 480,923, dated August 16, 1892, I have described, shown and claimed broadly the general features of my invention involving a counter-balanced draw bar in connection with the pilot of a locomotive, and I have set forth the objects intended to be accomplished by the use of such devices and the advantages arising from their use, and I do not deem it necessary to specifically recite them herein as my present invention relates more particularly to certain improvements in details of construction and arrangement whereby the general invention is more perfectly adapted for certain specific uses and whereby I am enabled to fully comply with the provisions of the law in regard to the automatic and safe control of the coupling devices, and I will now proceed to describe the various features of the improvements which I have made.

Referring to the drawings A, represents the end of the frame of a locomotive of any suitable style or construction to which the pilot is attached. The pilot may be of any well known construction suitable for the purpose and it is shown as consisting of a bottom frame B, B′, having inclined bars or rods B^2, extending from the frame to the plate A. Mounted on the plate or frame A, is a bumper or head C, which may be of any usual construction and serves as a means to support the draw bar D, it being connected to the bumper in any usual or desirable manner. The draw bar is provided at its free end with a coupling head E, and I will describe hereinafter more particularly my improvements relating to this portion of the device.

As in my previous patent one of the main objects of my invention is to provide a suitable counter-balance for the draw bar, which when released, will tend to hold the draw bar in substantially a horizontal position and in condition to be readily connected to the coupler of any ordinary car. In the construction shown in Fig. 1, the counter-balance F′, is shown as consisting of one or more weights arranged to slide vertically in the rear portion of the pilot, it being guided in the upright bars B^2, B^2. In Figs. 1 and 3, I have shown two counter weights F′, arranged on either side of a central space, but it is evident that a single counter weight may be used and that it may be arranged in any of the spaces between the upright bars B^2. While the weights may slide freely between the bars and be guided thereby in order that they may be more perfectly and certainly guided and be able to slide freely, I preferably use guide bars B^3, in the shape of rods which run or bear in corresponding recesses in the counter weight. As it is common to provide these rods in pilots of the usual construction it will be seen that the application of my improved counter weight to the pilot so constructed, involves no change or rearrangement of the parts, and consequently they may be applied at very little expense and trouble. The counter-balance is connected to the draw bar in the present instance, through the medium of an adjustable rod G, which is secured in the present instance to the draw bar near its center and extends downward between the inclined bars B^2. The free end of this rod is connected to a rope, chain or cord G′, the other end of which is connected to the counter weight or weights

F, and in order that this construction may be properly guided I provide pulleys g, g', the former arranged on one of the inclined bars B^2, while the latter is arranged in the frame A, in a position to guide the connection vertically above the counter weight or weights F'. Some suitable means should be employed to maintain the draw bar in its normal position in which it lies parallel with the inclined bars B^2, and various means may be employed to accomplish this object, and I may make use of a latch H, arranged on a rod h, extending across the rear portion of the pilot frame, as clearly shown in Fig. 3, and this can be operated from the side of the locomotive to release the counter weights which will immediately act to elevate the draw bar to the position shown in Fig. 1. Some means should also be provided to restore the draw bar to its normal position and I have shown a chain, rope or cord I, attached to the free end of the draw bar and passing over a pulley or pulleys I', secured on the base of the pilot frame and a pulley I^2, secured to the cross piece A, and thence if desired over another pulley I^3, which may be in the form or supported on a latch to which the links of the chain may be secured. Thus, it will be seen that on pulling the rope or chain I, the draw bar D, will be restored to its normal position, the rod G, being forced downward, elevating the counter weights F', and the parts may be secured by securing the chain or cord on the fastening I^3, and this may take the place of the rod or latch H, for holding the counter weights in position, although I preferably provide both for convenience and safety.

As it may happen that the counter weight may not elevate the draw bar to the exact point desired to meet the coupling on the car to which the connection is to be made, and as the coupling may be out of the medium line, it is desirable to have some means by which the operator can guide the draw bar so as to secure its direct and positive coupling with the coupler on the car, and while various means may be provided for this purpose, I have shown a guide arm or lever J, secured to the draw bar preferably about midway between the rod and its pivotal point, and this serves as a means for guiding and directing the draw bar in the act of coupling. I preferably arrange this draw bar by hinging it, as at J', to the ring or attaching device J^2, and so arranging the pivotal point that when the draw bar is elevated the guide will naturally assume the position shown in Fig. 4, where it can readily be grasped by the operator, but when the draw bar is drawn down to its normal position parallel to the inclined bars B^2, the guide will fall by its own weight and assume the position shown in dotted lines, Fig. 4, where it will remain out of the way. This is accomplished by simply arranging the pivot J', at an angle to the plane of the draw bar.

In Fig. 2, I have represented a different form of counter-balance, substantially such as is shown in my prior patent, and I have provided means whereby the counter balance may be locked and controlled. Thus the arm F, is attached to the draw bar D, in front of its pivotal point and extends rearwardly and downwardly and is provided with the weight F', and mounted on the bar F, is a catch f, arranged to engage a suitable latch f', which may be secured to the frame of the locomotive and in this way the draw bar is held in its normal position. In order to release the latch I provide a rod K, the end of which passes through the bar F, and carries a finger k, which will engage the latch f, to release it when it is rotated by the rod K. The rod extends outside of the frame and may be provided with a hand wheel K', by means of which it may be turned. It is also connected to a standard K^2, which is mounted on one of the upright bars B^2, of the pilot and the rod K, can slide therein, being connected thereto by a loose joint. This rod can also be utilized to direct the draw bar so that it will properly engage with the coupling on the car, the standard K^2, forming a lever, permitting the rod to be moved in and out, or up and down or sidewise to properly direct the draw bar.

When a coupler E, requires to be unlatched or otherwise controlled, I connect the coupling by a chain k', with the toe k, and it will thus be seen that when the toe is operated to disconnect the latch f, it will at the same time release the knuckle of the coupler, so that it may properly engage the coupling on the car.

In my former patent I showed an ordinary coupler head with a pin adapted to coupling with the usual coupling link, but it is desirable to provide a draw bar with a knuckle which will co-operate with the now standard coupling known as the twin jaw or Janney coupler, and I have provided my present draw bar with such a coupler. In this coupler E, I connect the head E', to the draw bar D, in any proper way, as by welding or otherwise, and this head is provided with the knuckle E^2, having the usual locking toe E^3, and locking device E^4. In the present instance I have shown the locking device as consisting of a spring actuating rod extending into the recess of the head, so as to engage the toe E^3, and provide the rod with a chain k', or other suitable device whereby it may be operated to release the knuckle. While this is the preferred form of coupler head and coupler, other well known and equivalent arrangements may be used. It happens, however, that the coupler on the draw bar is more or less liable to be displaced by accident or otherwise and thus become disconnected from the ordinary coupler head, and in order to prevent this I provide means whereby the couplers shall be secured together against accidental displacement. In the present instance I have shown an elastic material L, mounted on the toe E^3, of the knuckle, the latter being re-

cessed to receive the elastic material, it being connected and held in position by a rod or bolt l. This elastic material is shown as a block or rubber but a spring or other suitable material may be used. I also provide the guide arm E^5, of the head with a similar recess in which I mount an elastic material L′, which may be secured as by a bolt l^2, and this may be of rubber or a spring or other material. It will be seen that when the knuckle of the coupler on the car engages the head on the draw bar these elastic materials will be compressed and when the parts are locked together they will exert a constant tension on the knuckle and prevent it slipping out of position to become disengaged.

In Figs. 5 and 6, I have shown a different construction of knuckle and means for securing it in position. In this instance the knuckle M, is preferably made of three parts m, m', m^2, which are suitably bolted together and pivoted to the end O, of the draw bar. The toe M′ of the knuckle is preferably formed integral with the part m', and may be locked by any suitable device as a pin M^2. Extending from the rear of the toe is a projection N, on which is mounted a spring N′, and this engages a friction device N^2, which is bifurcated so as to embrace the plate m', of the knuckle and be secured in position by the pivot M^3. The spring N′, bears on the friction device N^2, and when the knuckle is in engagement with the coupling on the car, as shown in Fig. 5, this spring presses the friction device against the guard of the knuckle tending to hold the parts in close frictional contact and thereby preventing any danger of accidental displacement.

While I have thus described the preferred embodiment of invention, it is evident that the general principles of construction and arrangement may be varied by those skilled in the art to adapt my invention to various constructions of locomotives and various coupling devices, and I do not limit myself to the precise construction and arrangement shown.

What I claim is—

1. The combination with the frame, the pilot and draw bar, of a counter weight arranged to move vertically in the pilot, and connections between the counter weight and draw bar, substantially as described.

2. The combination with the frame, the pilot and the draw bar, of the counter weights, mounted in guides on the pilot and arranged to move vertically thereon, and connections between the counter weights and draw bar, substantially as described.

3. The combination with the frame, pilot, and the draw bar, of a rod connected to the draw bar and extending downward therefrom, a counter weight and a chain connected to the counter weight and to the rod, substantially as described.

4. The combination with the frame, the pilot and the draw bar, of a rod connected to the draw bar, the counter weight moving vertically in the pilot, the guide rolls and the chain connected to the rod and to the counter weight, substantially as described.

5. The combination with the frame, the pilot and pivoted draw bar, of the vertically sliding counter weight, connections between the counter weight and draw bar and stop devices for supporting the counter weight, substantially as described.

6. The combination with the frame, the pilot and the draw bar, of a coupler head carried by the draw bar, a counter weight for operating the draw bar and a chain connected to the draw bar and arranged to restore the draw bar to its normal position and raise the counter weight, substantially as described.

7. The combination with the frame, the pilot, and the draw bar having a coupler, and locking device controlling the coupling, of a chain connected with the latch and draw bar and arranged to release the locking device and restore the draw bar to its normal position, substantially as described.

8. The combination with the pilot and draw bar, of a coupler head provided with a knuckle and elastic devices arranged on the bearing surface of the coupler head to engage the knuckle of the complementary coupler head, substantially as described.

9. The combination with the pilot and draw bar, of a coupler head mounted on the draw bar, a knuckle and locking device for the knuckle, the elastic devices arranged on the knuckle and guide arm to engage the toe of the complementary coupler head, substantially as described.

10. The combination with the pilot and draw bar, of a coupler head arranged thereon provided with a knuckle having a toe, the bearing surface of the toe being recessed to receive the elastic material, substantially as described.

11. The combination with the pilot and draw bar, of a coupler head having a knuckle provided with a toe, the guide arm of the coupler head and the toe of the knuckle being provided with elastic material on their bearing surfaces to engage the knuckle of the complementary coupler head, substantially as described.

12. The combination with the frame, the pilot and the counter-weighted draw bar, of a guide arm pivotally connected thereto and arranged to automatically assume a position parallel therewith or at an angle thereto as the drawbar is raised or lowered, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

SAMUEL R. HEIDELBERG.

Witnesses:
F. L. FREEMAN,
A. W. DOBSON.