No. 684,246. Patented Oct. 8, 1901.

J. A. HINSON.

DRAFT RIGGING FOR CAR COUPLING DRAW BARS.

(Application filed May 23, 1901.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

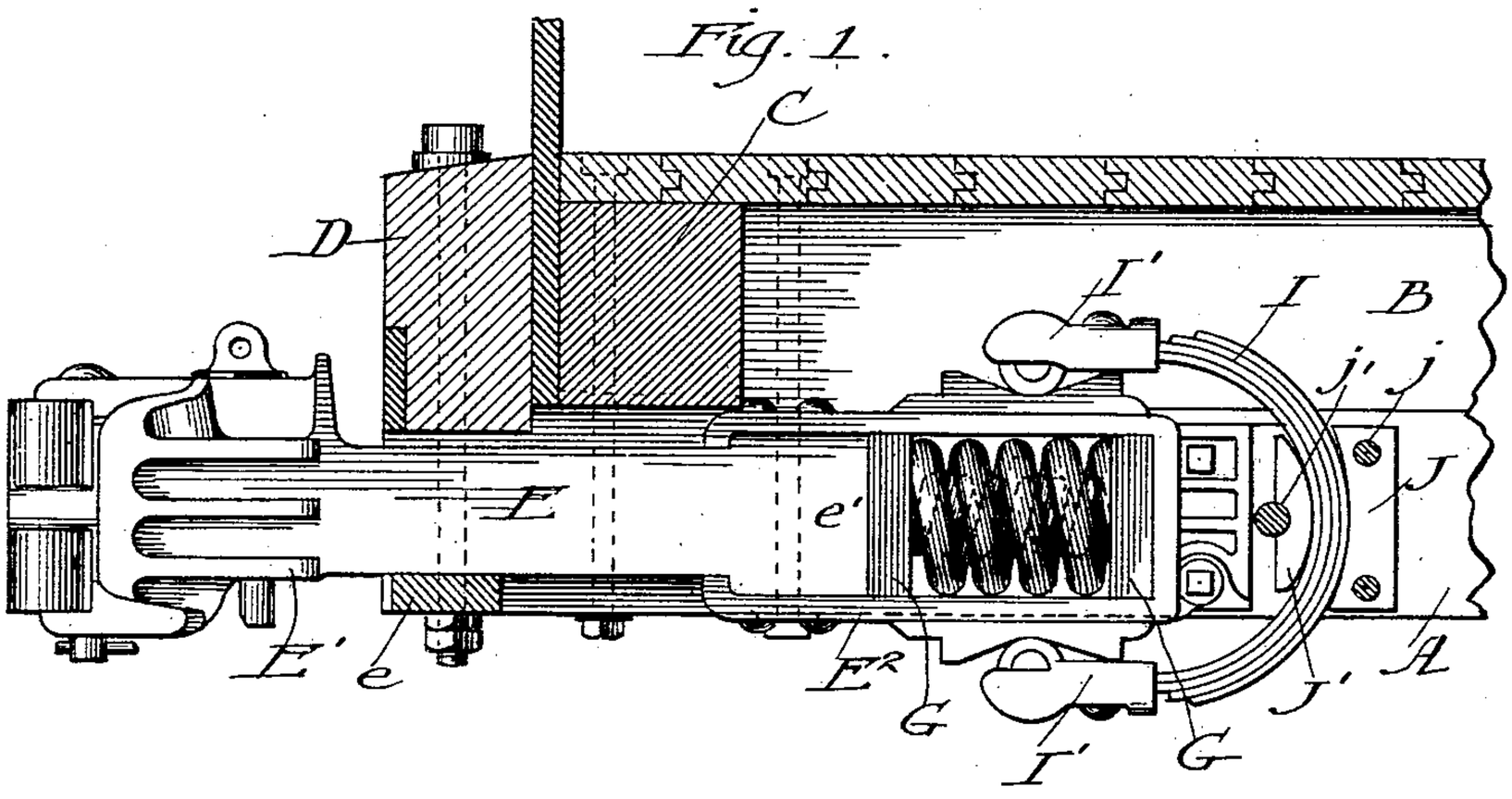
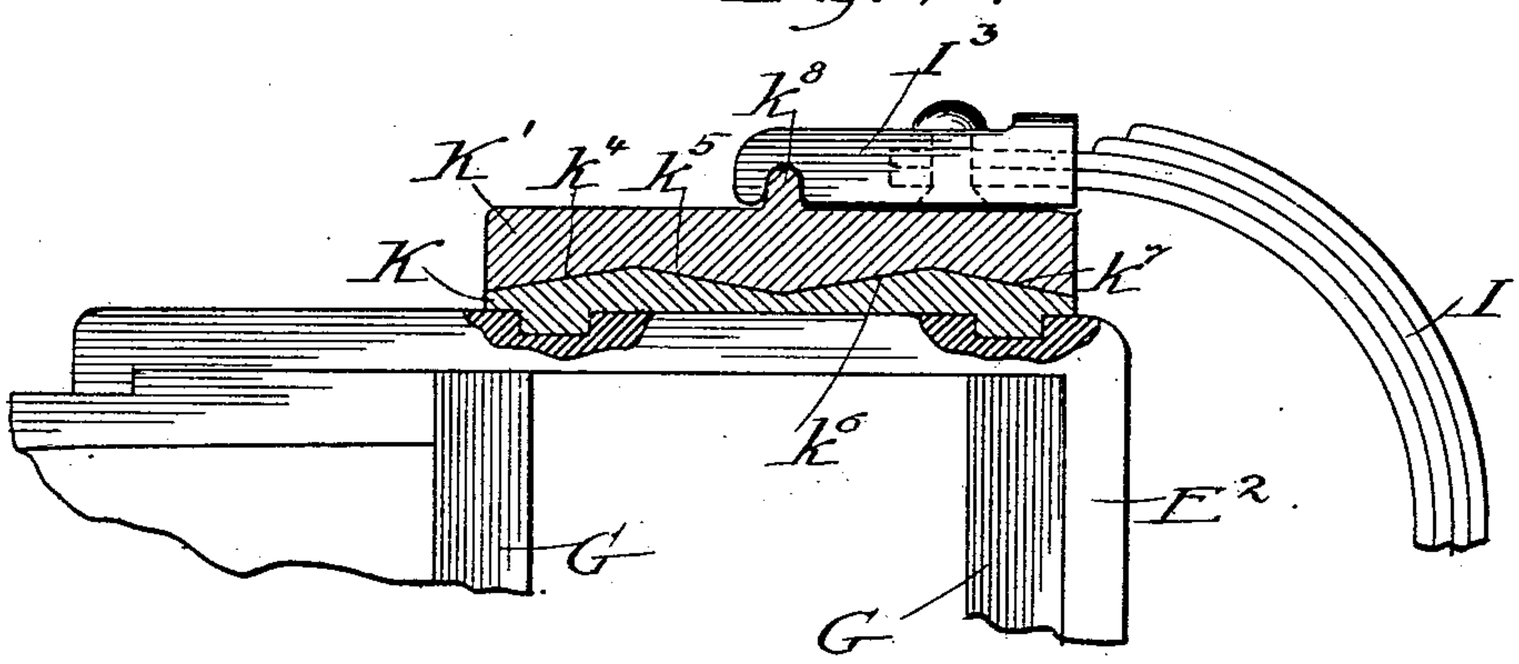


Fig. 4.



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(No Model.) 2 Sheets—Sheet 2.

Fig. 2.

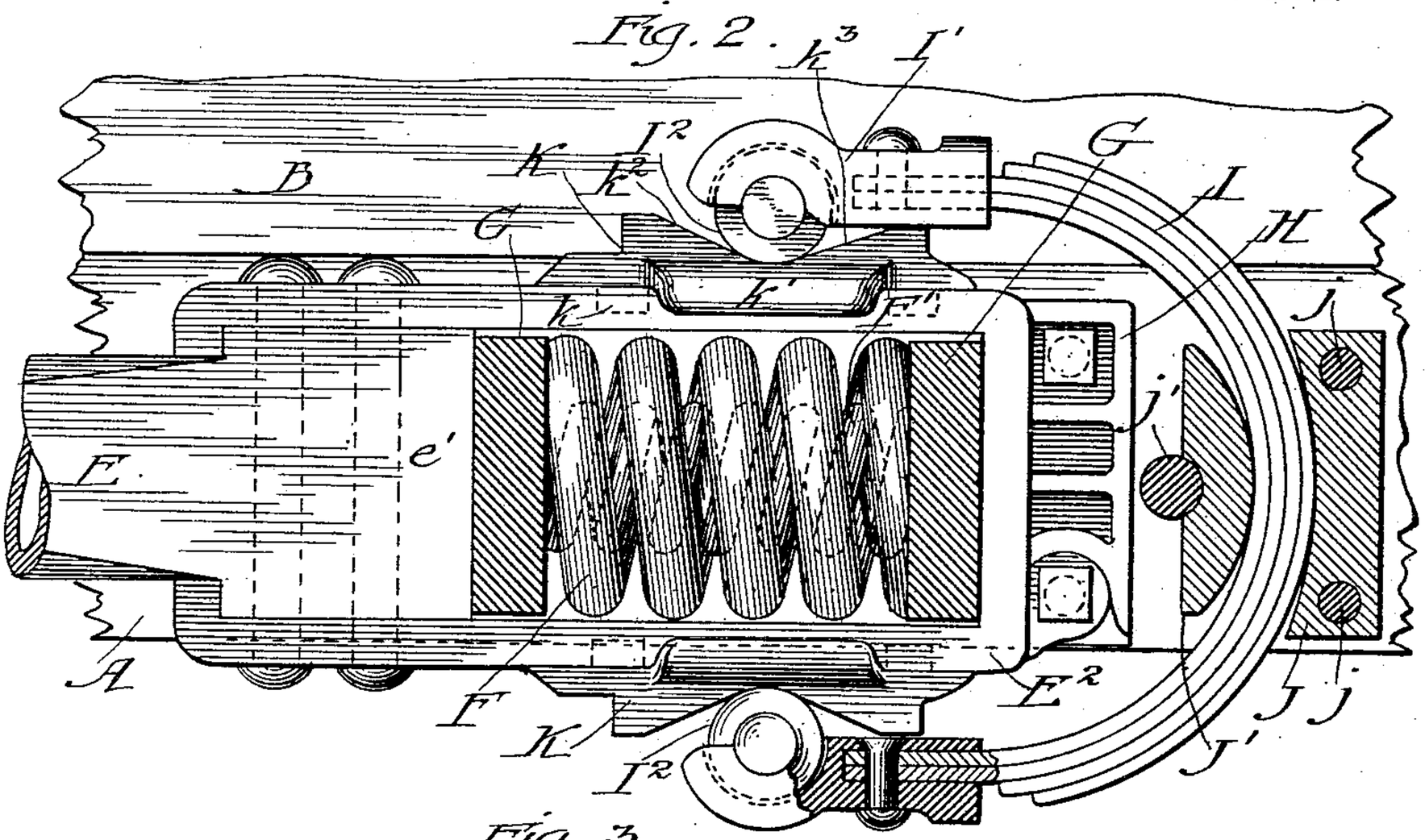
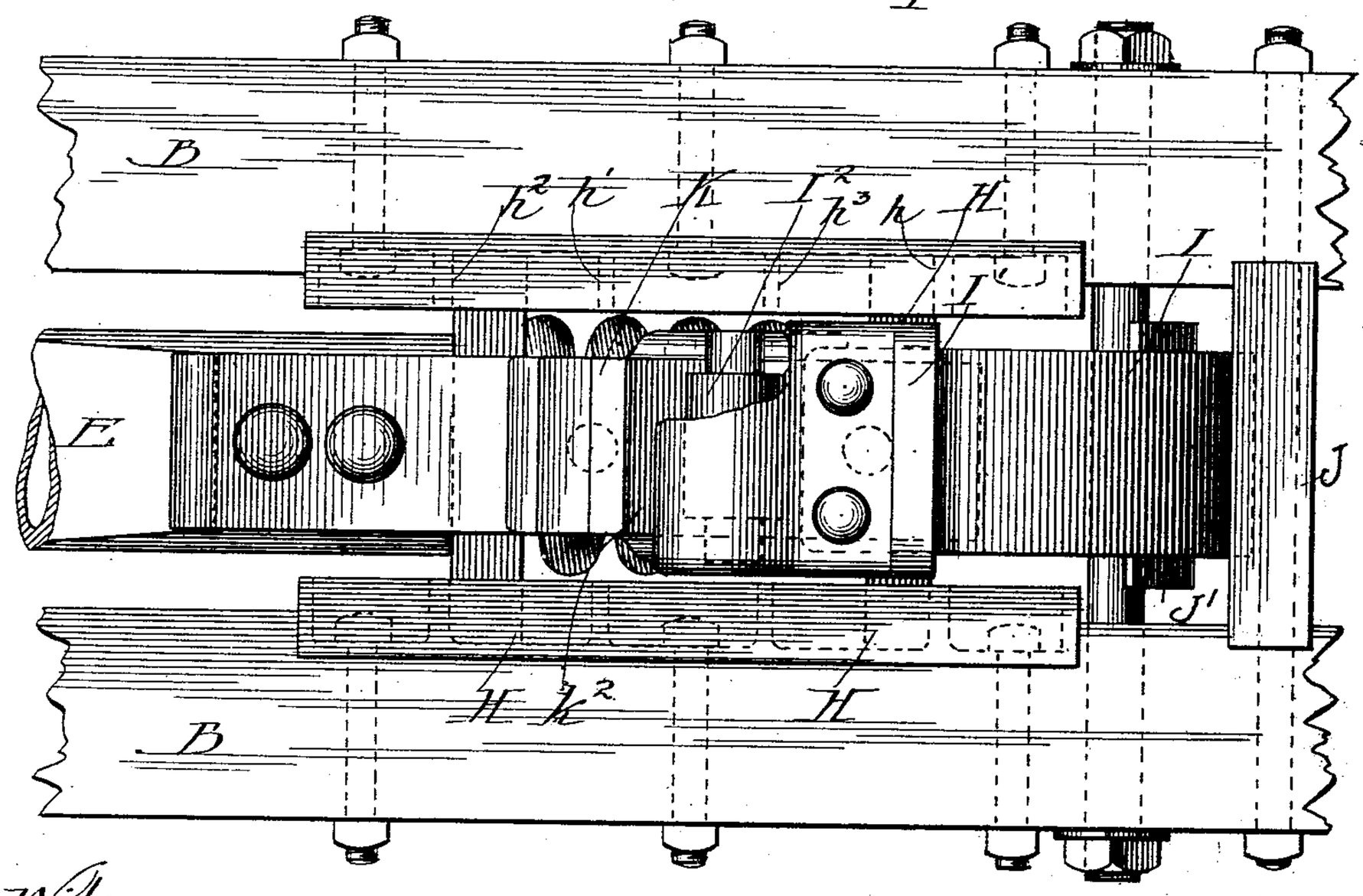


Fig. 3.



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UNITED STATES PATENT OFFICE.

JAMES A. HINSON, OF CHICAGO, ILLINOIS.

DRAFT-RIGGING FOR CAR-COUPLING DRAW-BARS.

SPECIFICATION forming part of Letters Patent No. 684,246, dated October 8, 1901.

Application filed May 23, 1901. Serial No. 61,495. (No model.)

To all whom it may concern:

Be it known that I, JAMES A. HINSON, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Draft-Rigging for Car-Coupler Draw-Bars; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to draw-bar draft-rigging for car-couplers, and refers more specifically to devices for taking or absorbing the shock between the draw-bar and draft-sills in operation of coupling and in general usage and for also preventing or obviating the recoil of the parts under the action of the springs placed under tension.

The invention consists in the matters hereinafter set forth, and more particularly pointed out in the appended claims.

In the drawings, Figure 1 is a side elevation of one form of draft-rigging, showing my improvements applied thereto. Fig. 2 is an enlarged view of the principal features shown in Fig. 1, some of the parts being shown in section and others in side elevation. Fig. 3 is a top plan view of the construction shown in Fig. 1 with parts broken away to show the subjacent structure. Fig. 4 is a view of a fragmentary part of the device, illustrating a modification of the invention.

As shown in the drawings, A designates the draft-sills, which are attached to the under side of the forward ends of the longitudinal floor-sills B in any usual or preferred manner.

C designates the transverse end sill of the car-floor frame, and D the buffer-sill.

E designates the draw-bar of the coupler, which is located centrally between the draft-sills A. The outer end or draw-head E′ is supported below the buffer-sill by a stirrup *e* in the usual manner. To the inner end of said draw-bar is attached a yoke E^2, said yoke being herein shown as formed of a single piece of metal bent between its ends and which ends overlap and are secured to an enlargement or head *e′* at the inner end of the draw-bar. F F′ designate two coiled spiral springs, one within the other, which are located between the arms of said yoke and are held from vertical displacement by said arms. Said springs bear at their ends against follower-plates G, located at the forward and rearward ends of the yoke. The follower-plates G fit at their opposite ends in recesses or notches in the inner faces of draft-plates H, secured to the adjacent faces of the draft-sills, said plates having forwardly and rearwardly facing shoulders $h\ h'\ h^2\ h^3$, as indicated in dotted lines in Fig. 3, which limit the forward and rearward movements of said follower-plates in the usual manner.

The construction thus far described may have the form of any of the well-known patterns of draft-rigging of this general type and constitutes no part of the present invention.

The improvements which constitute my present invention consist of one or more laterally-movable spring-arms, the free end or ends of which swing toward and away from the draw-bar, the said free end or ends of the spring arm or arms and the draw-bar being provided with coacting parts, which when the draw-bar is suddenly moved either forwardly or rearwardly from its position of rest thrusts or forces the free end or ends of said spring arm or arms outwardly away from the draw-bar against resistance of the spring thereof, and thereby absorbs or counteracts the shock due to such movement of said draw-bar. Said spring-arms may either be made resilient in themselves to afford the yielding resistance to the inward and outward movements of the draw-bar or may be placed under the influence of independent resistance-springs. For the purpose of moving said spring-arms outwardly against the action of the spring thereof the draw-bar and spring-arms may carry oppositely-inclined coacting parts, or one of said parts may be so equipped and the other part provided with a bearing-roller engaging such oppositely-inclined surface of the opposing part. As herein shown, the spring-arms consist of the arms of a U-shaped leaf-spring I, which is attached at the center of its bow between two blocks J J′, carried by the draft-sills at the rear of the draw-bar and constituting a spring attaching-clip. Said block J is provided on its front face with a concave surface, and the block J′ is provided on its rear or adjacent face with a convex surface, between which

concave and convex surfaces the curved middle part of the spring I is confined. The blocks are herein shown as attached rigidly to the draft-sills by means of bolts j j'. The free ends of the arms of the spring I carry bearing-blocks I′, in each of which is mounted a bearing-roller I^2. Said bearing-rollers engage the outer faces of saddle-blocks K, which are attached to the outer faces of the arms of the yoke E^2. As herein shown, the saddle-blocks are provided with lugs k, which enter outwardly-opening sockets or recesses in the outer faces of said yoke-arms, and the blocks are also provided with lips or flanges, which overlap the margins of said yoke-arms to prevent lateral movement of the saddle-blocks on the yoke-arms. The outer faces of said saddle-blocks are formed of two oppositely-facing inclined surfaces k^2 k^3, which are so disposed as to provide between the same depressions in said blocks between the ends thereof. The parts are so arranged that the spring I bears with considerable pressure upon the saddle-blocks when the bearing-rollers I^2 occupy the depressed portions of said blocks, whereby said spring acts to hold the blocks against the yoke without the necessity of other fastening means.

The action of the device will be clear from the foregoing, but may be briefly stated as follows: Upon rearward movement of the coupling-bar, such as occurs in the act of coupling, the springs F F′ are compressed, and at the same time the oppositely-inclined saddle-blocks are carried backwardly, so as to bring the rearwardly-inclined surfaces k^2 of said blocks against the bearing-rollers I^2. The bearing-rollers and outer ends of the spring-arms are thereby spread outwardly against the resistance of the spring I, and said resistance combined with the resistance of the springs F F′ absorbs the shock due to the momentum imparted to the draw-bar. When said draw-bar is arrested, or, in other words, when the shock of the same has been completely absorbed by the springs and the compressive strain released, the draw-bar and parts carried thereby will be returned to their position of rest by the springs F F′. Any tendency of the springs thus released to carry the draw-bar past its central position and produce a recoil therein will be counteracted by the bearing-rollers I^2 encountering the forwardly-inclined surfaces k^3, whereby such recoil is reduced to a practical minimum.

The action of the device in the forward movement of the draw-bar from its central position, as when the middle of a train passes over the highest point of a grade or hill or when the train is suddenly started, will be like that before described, excepting that the movements of the parts will be reversed and the tendency to the recoil will be overcome by the bearing-rollers encountering the rearwardly-inclined faces k^2 of the saddle-blocks.

In Fig. 4 I have shown a modification of the coacting parts between the forward ends of the spring-arms and the parts carried by the draw-bar yoke. In this construction the saddle-blocks K are provided with four oppositely-inclined surfaces k^4 k^5 k^6 k^7 and are engaged by bearing-blocks K′, having inclined surfaces corresponding to the inclined surfaces k^4 to k^7, inclusive, of the blocks K. Said bearing-blocks K′ are detachably connected with heads I^3, attached to the outer or free ends of the springs I, said blocks being for this purpose provided with lugs k^8, which engage grooves or sockets on the inner face of said head. In the operation of this construction the free ends of the spring I are moved outwardly when the saddle-blocks are moved either forwardly or rearwardly with respect to the bearing-block K′, the strength of the spring I, together with the springs F F′, resisting such longitudinal movement of the draw-bar and saddle-blocks, as in the construction before described.

If the springs F F′ act as preliminary springs to be brought under compression before the spring I is brought under compression, the saddle-block (shown in Figs. 1 and 2) may be constructed with a short horizontal bearing-surface at its lowest part, whereby the initial movement of the draw-bar and saddle-block will have no effect on the spring I. The construction shown in Fig. 4 may be similarly constructed.

The construction herein shown is very simple in its details, economical to manufacture, and having but few parts is not liable to get easily out of order. At the same time the construction is capable of being made to possess ample resisting powers to any shocks which may be brought thereon.

I claim as my invention—

1. A draft-rigging for cars comprising a draw-bar, a spring therefor which is compressible in a direction parallel to the direction of movement of the draw-bar, a spring-arm the outer or free end of which is movable toward and from the draw-bar, and coacting parts on the spring-arm and draw-bar acting to give lateral movement to said arm against its spring resistance through longitudinal movement of said draw-bar.

2. A draft-rigging for cars comprising a draw-bar, a spring therefor which is compressible in a direction parallel to the direction of movement of the draw-bar, two spring-arms, one on each side of the draw-bar, the outer or free ends of which are movable laterally toward and away from the draw-bar, and coacting parts on said spring-arms and draw-bar acting to give lateral movement to said arms against their spring resistance through longitudinal movement of said draw-bar.

3. A draft-rigging for cars comprising a draw-bar, a spring therefor which is compressible in a direction parallel to the direction of movement of the draw-bar, two spring-arms, the free ends of which are movable laterally toward and away from the draw-bar,

and coacting parts on said spring-arms and the draw-bar embracing oppositely-inclined surfaces on one of said parts, whereby longitudinal movement of said draw-bar acts to give lateral movement to said spring-arms against the spring resistance thereof.

4. A draft-rigging for cars comprising a draw-bar, a spring therefor which is compressible in a direction parallel to the direction of movement of the draw-bar, two spring-arms the outer or free ends of which are movable laterally toward and away from the draw-bar, and coacting parts on said spring-arms and draw-bar, embracing oppositely-inclined surfaces on one of said parts and a bearing-roller carried by the other of said parts.

5. A draft-rigging for cars comprising draft-sills, a draw-bar, a draw-bar spring, a U-shaped spring supported between the draft-sills, the arms of which pass on both sides of the draw-bar, and coacting parts between the arms of said spring and the draw-bar acting to give lateral movement to the said arms away from each other against the spring resistance thereof through longitudinal movement of the draw-bar.

6. A draft-rigging for cars comprising draft-sills, a draw-bar, a draw-bar spring, a U-shaped spring, a clip supported between the draft-sills and engaging said U-shaped spring at the central part thereof, the arms of said spring being located on opposite sides of the draw-bar, and movable toward and away from said draw-bar, and coacting parts between said arms and the draw-bar, embracing oppositely-inclined surfaces on one of said parts.

7. A draft-rigging for cars comprising draft-sills, a draw-bar, a draw-bar spring, a U-shaped spring which is supported on said draft-sills, bearing-rollers on the outer or free ends of said spring, and saddle-blocks carried by the draw-bar having oppositely-inclined surfaces adapted for engagement by said bearing-rollers.

8. A draft-rigging for cars comprising draft-sills, a draw-bar, a draw-bar spring, a U-shaped spring which is supported between its ends on the draft-sills, saddle-blocks provided with lugs which enter sockets in the outer faces of the draw-bar yoke-arms and are provided on their outer faces with oppositely-inclined surfaces, and bearing parts carried by the said spring-arms adapted to engage said inclined surfaces, said spring-arms acting to hold said bearing-blocks in place with respect to the draw-bar yoke.

In testimony that I claim the foregoing as my invention I affix my signature, in presence of two witnesses, this 21st day of May, A. D. 1901.

JAMES A. HINSON.

Witnesses:
WILLIAM L. HALL,
GERTRUDE BRYCE.