

No. 684,244.

Patented Oct. 8, 1901.

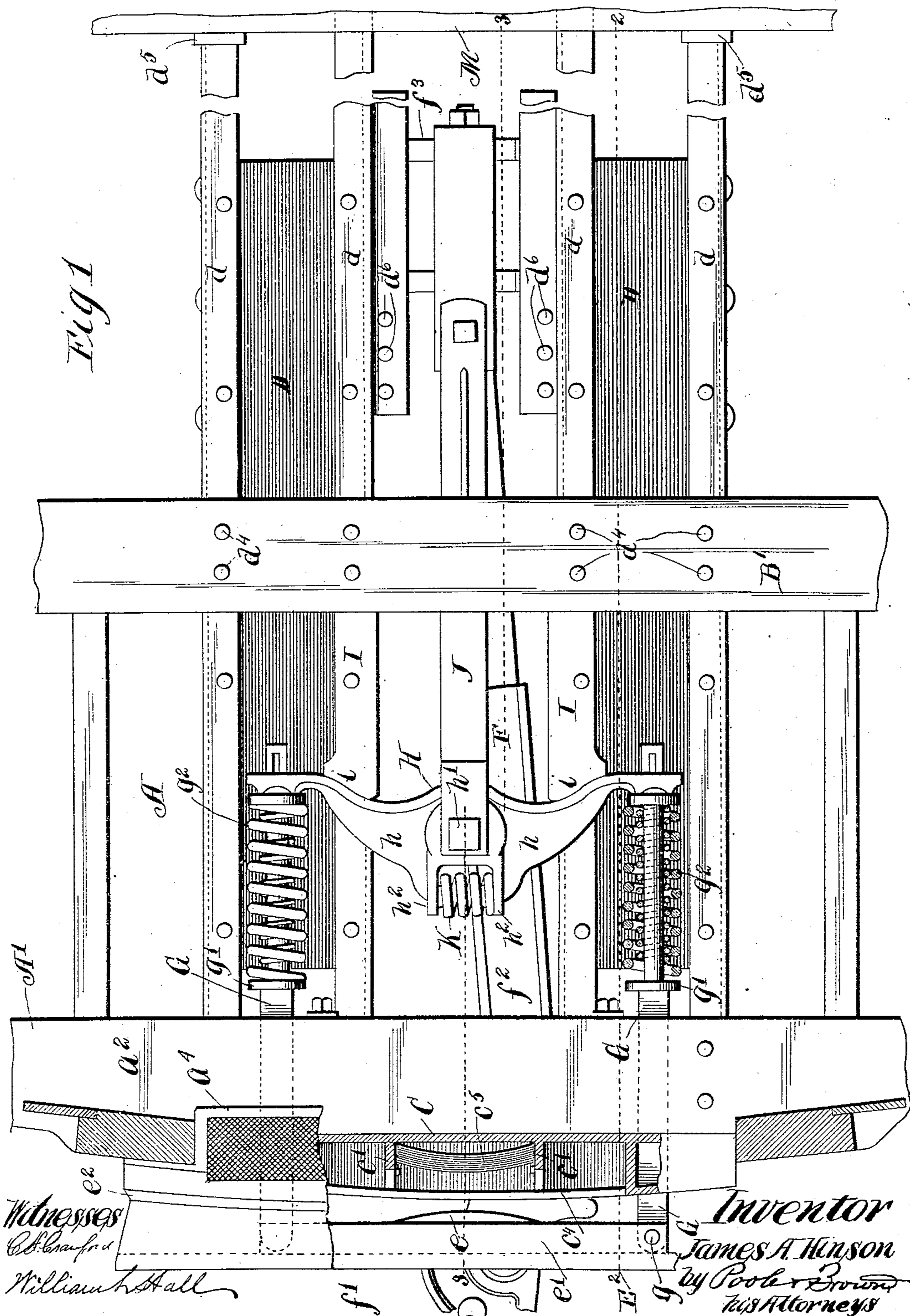
J. A. HINSON.

PLATFORM CONSTRUCTION FOR RAILWAY CARS.

(Application filed July 16, 1900.)

(No Model.)

3 Sheets—Sheet 1.



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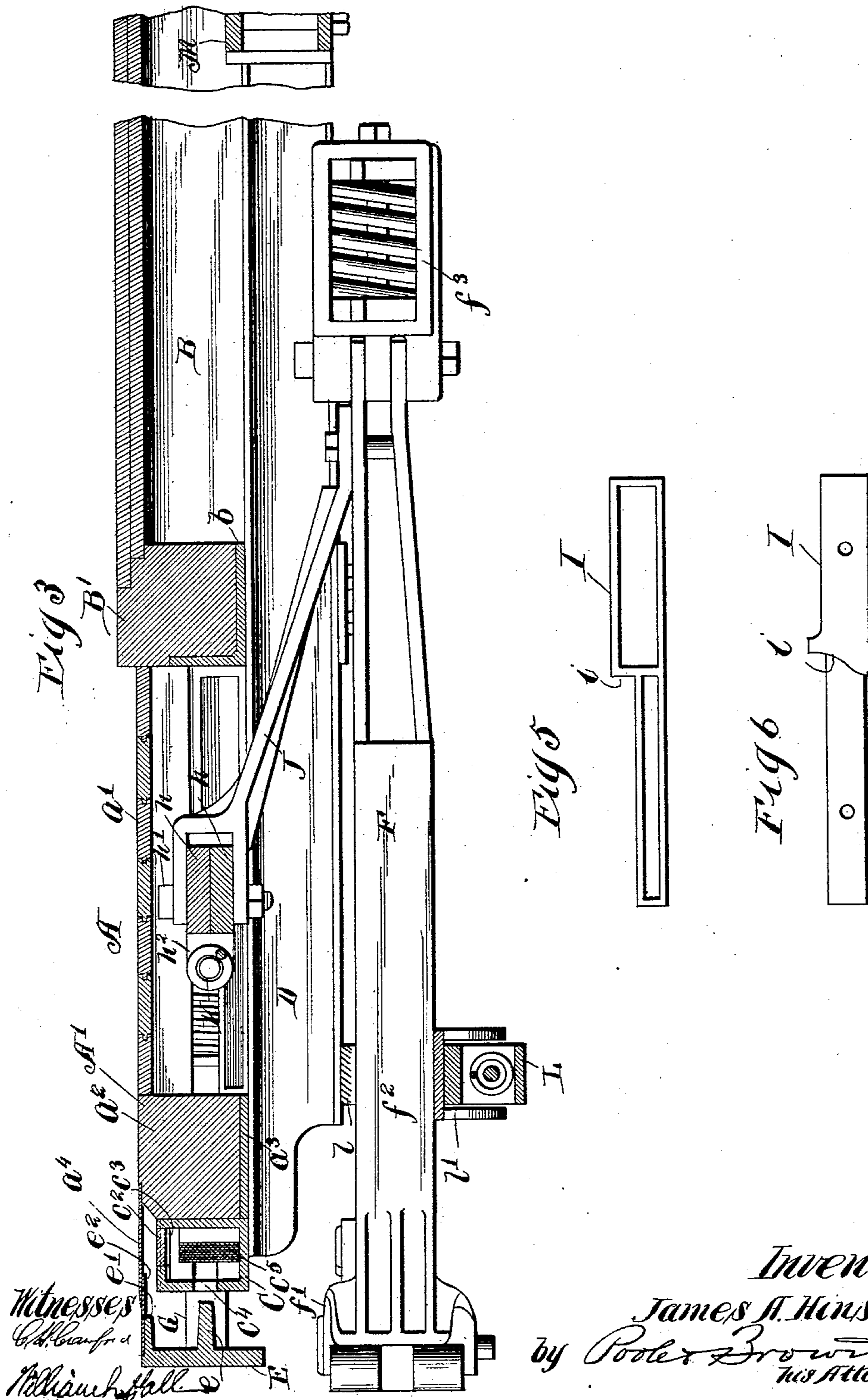
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3 Sheets—Sheet 3.



UNITED STATES PATENT OFFICE.

JAMES A. HINSON, OF CHICAGO, ILLINOIS.

PLATFORM CONSTRUCTION FOR RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 684,244, dated October 8, 1901.

Application filed July 16, 1900. Serial No. 23,697. (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 Platform Constructions for Railway-Cars; 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 metallic car-platforms, and especially to improvements in the framework which supports the car-platforms and transmits the shock of the buffers and the pull of the draw-bars to the main body of the car.

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

In the drawings, Figure 1 is a plan view showing the sills, cross-beams, and buffer of the central portion of a car end and platform and draw-bar and buffer attached thereon. Fig. 2 is a vertical longitudinal section of said car end and platform, taken on line 2 2 of Fig. 1. Fig. 3 is a similar section, taken on line 3 3 of Fig. 1. Fig. 4 is an end elevation, partly broken away, of said platform with a portion of the coupling devices removed to give greater clearness of view. Figs. 5 and 6 are details showing a thrust-casting.

The device as a whole comprises a car-platform having a rigid metallic connection, adapted to convey the thrust of the buffer directly to the main sills of the car, said platform being supported in part on metallic draft-sills which convey the pull or draft of the coupler to the body-bolster of the car. Thereby the shock and strain of coupling and pulling are carried to the points designed especially to resist them, and thus the weakening effect of such forces is eliminated in a great measure from the car-body proper.

Referring to the drawings, A represents as a whole the end platform of the car, with an outer end sill or buffer-beam A' and the usual flooring a'. The lower face of said buffer-beam A' is in alinement, as shown in the drawings, with the lower face of the end sill B' and the main longitudinal sill B of the car

proper. The central portion of said buffer-beam A' is supported on two longitudinal draft-sills D, which extend from the outer edge of the platform beneath the main sills B of the car to the body-bolster M of the car-body proper. The form of said draft-sills D forms a salient feature of this present application, and the details thereof will be more particularly set forth later on. An extension-platform and buffer-plate, with connecting devices, extend from the outer face of said buffer-beam. Said buffer-beam A' is composite, comprising a wood beam a^2 , faced by a casting C. Said wood beam a^2 extends from side to side of the car-platform and rests on a horizontal metal plate a^3 , interposed between its lower face and the upper sides of the outer ends of the draft-sills D, said plate having the same width as said beam a^2 . Said casting C is hollow, with a depth equal to the thickness of the wood beam a^2 and with its outer perpendicular side or face slightly convex. Said hollow casting, hereinafter designated as the "buffer-spring box", is suitably fastened on the upper side of the outer ends of the draft-sills D against the central portion of the outer face of the wood beam a^2 of the platform and against the outer edge of the horizontal metal plate a^3 . Said spring-box has a central longitudinal compartment formed by two parallel cross-partitions c' on opposite sides of the center line of the platform and equidistant therefrom, extending from its inner to its outer wall. Access is had to said central compartment by means of a removable plate c^2 , which is locked in position in the upper wall of said spring-box by bolts c^3 , passing through semicircular slots or grooves in its end faces, or by other suitable means. An elongated horizontal slot c^4 extends across the face of the outer wall of said spring-box C. A plurality of leaf or elliptical springs c^5 are vertically secured in said central compartment, with their outer ends bearing against the inner wall of said box C and their crowns turned toward the outer wall of said box. Said springs are easily placed in position by means of the removable plate c^2 , which allows convenient access to the spring-compartment. A buffer-plate E' is supported in the usual manner on buffer-stems G, being spring-projected beyond the outer face of said spring-box

C. Said buffer-plate E comprises a flanged plate T-shaped in cross-section, whose web member comprises the vertical outer face of said flange-plate and whose central flange e is so fashioned and disposed as to pass through the slot c^4 in the outer face of the buffer-spring box C and come into operative contact with the crown of said elliptical springs c^5 when said buffer-plate is thrust back out of its normal position by heavy shock. The said buffer-plate E also has a lateral flange e' projecting from its rear face parallel to and a sufficient distance from the upper edge of said rear face to form a rabbet, in which a horizontal plate e^2 is laid and secured by flush-headed rivets to said flange e' . Said horizontal plate e^2 projects under and underlaps a similar horizontal plate a^4 , which is secured in a similar rabbet in the upper surface of the wood beam a^2 of the platform. Said plate e^2 , with its overlapping and practically flush connection, together with its correlative parts in a contiguous car, is adapted to cover the space between the platforms of said contiguous cars. The buffer-stems G are pivotally secured by suitable pivot-bolts g to lugs projecting from the rear face of said buffer-plate E' and pass through guide-apertures in said buffer-beam a^3 . They are provided with suitable collars g' , so placed as to be a short distance beyond the inner face of said buffer-beam a^3 when said rods G and buffer-plate E' are in their normal position. The outer ends of said buffer-rods G pass through apertures in the outer ends of a jointed yoke H. Spiral springs g^2 surround said rods G between said collar g' and the outer ends of said yoke H. Said yoke H consists of two arms h h , which are pivotally connected by a bolt h' at their inner ends. The rear faces of said arms bear or fulcrum against vertical shoulders i at points approximately midway between said pivoted ends and said outer ends, through which said buffer-stems pass and with which they have spring-pressed connection. Said vertical shoulders i are formed on thrust-castings I, which are secured to the upper faces of the draft-sills D and which extend from the inner face of the buffer-beam a^2 and the inner edge of the horizontal metal plate a^3 to the outer face of an angle-plate b , which faces the outer and lower sides of the end sill B of the car-body. Said thrust-castings, which may be of cast-steel or other suitable material, are flanged and ribbed to stand end compression and by the disposition above described abut at their outer ends against the metal plate a^3 and at their inner ends against the metal angle-plate b of the end sill B' of the car-body, thereby forming a direct metallic compression member conveying the thrust of said buffer and spring-box directly to the body-sills of said car. It also serves to convey the thrust of the buffer-stems and the yoke in the following manner: The pivot-bolt h' , which connects the inner end of said yoke-arms h , likewise pivotally-secures them to the outer end of a

push-bar J, which passes back beneath the end sill B' of the car and is secured at its rear end to the rear end of a draw-bar F. The pivotal connection of the two ends of the yoke-arms h is of a nature which permits the rotation of the said outer ends forward and toward each other, but does not permit their rotation back beyond the line which passes through said outer ends and pivot center when said arms are normally extended. In consequence of this peculiarity of construction the forward movement of the draw-bar and push-rod J moves the yoke H rigidly forward as a whole, the arms h remaining rigidly in line and compressing the springs g^2 of the buffer-stems, thereby shooting the buffer-plate forward. When the draw-bar, with its push-bar J, starts to move back, the yoke H as a whole moves back until the rear face of each of the yoke-arms h engages or fulcrums on the lug i on the casting I. The joint of the inner ends of said yoke-arms h then breaks, the yoke-arms become levers of the first class fulcrumed on the lugs i , and the outer ends of said yoke-arms consequently rotate forward against the buffer-stem springs g^2 , thereby pressing the buffer-plate out. To aid in restoring the yoke-arms to their normal position, a spiral spring K is inserted between the outer ends of two parallel lugs h^2 , each of which projects horizontally from the forward face of one of said arms h near its pivoted end. Said buffing device is the subject of Letters Patent granted me on December 5, 1899, No. 638,244, and is not claimed in this construction. Inasmuch as said yoke-arms fulcrum on the shoulders i of the thrust-castings I, all pressure on the buffer which does not throw it back into the buffer-spring box is conveyed to the main sills of the car through said thrust-castings I and angle-plate b .

The draw-bar F comprises the draw-head f' , the bar f^2 , and the connection f^3 . Its outer end, which is situated in the usual position below the platform-sill, is supported in the stirrup-iron L, which is bolted at either end to a plate l , which extends across the draft-sills between said stirrup-plate and the inwardly-projecting flanges of the side members of said draft-sills after the manner of a shim-plate. A saddle-block l' is interposed between the lower face of said draw-bar and the upper inner face of said stirrup-iron L and contains a spring device l^2 , by which said draw-bar is held normally in its proper position. The inner end of said draw-bar is supported by its connection f^3 , to which it has spring attachment. Said connection is suitably secured to the inner faces of the draft-sills D. Said draw-bar, with its connection, together with the stirrup-iron L and the saddle-block l' , constitute the subject of an application filed by me on the 6th day of February, 1900, Serial No. 4,244, and are not claimed in this application.

Referring now especially to the draft-sills D and their construction and arrangement,

said sills, as shown in the drawings, are two in number and are secured to the bottom faces of the main sills B of the car. Their outer ends project a sufficient distance from the end cross-sill B' of the car proper to give the requisite width to the car-platform A and carry thereon the spring-box C and the buffer-beam A' of said car-platform. They extend beneath the car-body on the lower faces of the said main sills B to the body-bolster M. Each of said draft-sills D consists of two side members d and a central member d' . Said side members d are made of channel-bars, preferably of steel, and, as shown in the drawings, are arranged with their flanges d^2 turned inwardly. The central member d' is likewise a channel-bar, whose flanges d^3 are suitably secured to the web members of said channel-bars d along the center line thereof approximately. Said draft-sill D is thereby in effect a built-up T-beam, whose flange members are the channel-bars d , with their flanges d^2 turned inwardly toward the center line of said T-beam and whose web member comprises the channel-bar d' , centrally secured between the flanges of said side channels by rivets or bolts passing through its flanges and their webs. Said web member, however, does not extend the entire length of said sill D, its inner or rear end being a considerable distance from the inner face of said body-bolster M. It is obvious, however, that the component parts of said sills may be of different form than that specified—*i. e.*, channel—as they may be T-beams or any convenient commercial shape, and I do not limit myself to any special form. Inasmuch as the connections of the buffer and coupler as designed put a slight part of the thrust of the buffer and all of the pull of the coupler upon said draft-sills D, means are provided to transmit this directly to the body-bolster and thereby eliminate, as far as possible, any shearing effect upon the bolts which secure said draft-sills and attach them to the main sills B of the car proper and likewise take the strain of the draft from the main sills. The outer channels of said draft-sills are arranged to bear against buttress-plates d^5 , which are inserted between the ends of said outer channels and the outer face of the body-bolster of the car, said buttress-plates being suitably recessed to receive the ends of said channels, said recesses thereby also preventing vertical displacement of said plates. Thereby any thrust of the buffer which may be transmitted through the buffer-stem g , yoke-arms h , push-rod J, and interposed springs to said draft-sill D is communicated directly to the body-bolster and does not have a shearing effect upon the supporting-bolts of said draft-sills D. Likewise the pull of the draw-bar F is communicated through its connection f^3 to said draft-sills D, which are arranged to be secured to said body-bolster by bolts d^6 or other suitable means, which pass through said body-bolster

and through the upper and lower flanges of the inner side members of said draft-sills. By this form of construction the shock of the buffers when cars are coupled and the irregularities of stress which arise from the swaying of the cars and the angular relations into which they are thrown as they pass around curves or oscillate while under high rates of speed are transmitted directly to the main sills and body-bolster of the car, thereby saving the platform portions of the frame from the weakening effects of such stresses and movements. The form of the draft-sill unites simplicity of construction with great rigidity, the design being especially adapted to withstand end pressure, while the position and design of the castings against which the yoke-arms fulcrum and the buffer-beam of the platform bears convey the shock of coupling directly to the body-sills of the car, thereby relieving the draft-sills of said pressure.

I claim as my invention—

1. In a railway-car construction, a platform-frame comprising a plurality of metal beams projecting in pairs beyond the car end sill, a beam between each pair having its flanges secured to the webs thereof, and a buffer-beam secured to the outer ends of the beams.

2. In railway-car construction, a platform-frame comprising two pairs of channel-beams projecting beyond the car end sill, a channel-beam between each pair having its flanges secured to the webs thereof, and a buffer-beam secured to the outer ends of the beams.

3. In railway-car construction, a platform-frame comprising two pairs of channel-beams projecting beyond the car end sill, a channel-beam between each pair having its flanges secured to the webs thereof, the outer side channel-beam of each pair bearing against the side of the body-bolster of said car, and the inner side channel-beam passing through said body-bolster and being rigidly secured thereto, and a buffer-beam secured to the end of the beams.

4. In railway-car construction, a platform-frame comprising a plurality of metal beams projecting in pairs beyond the car end sill, a buffer-beam secured on the ends of said pairs, and thrust-castings supported, one on each pair of said beams, bearing with their outer ends against the rear face of said buffer-beam and against a plate bearing against the buffer-spring box and with their inner ends against metal plates on the outer face of the car-body end sill, said castings being flanged and ribbed to stand end compression.

5. In railway-car construction, a platform-frame comprising a plurality of metal beams projecting from the car end sill, a buffer-beam, and thrust-castings interposed between said buffer-beam and the car end sill, said castings being supported on said metal beams, and having shoulders having spring-pressed lever engagement with the car-buffer whereby the thrust of said buffer is conveyed to the car main sills.

6. A metallic platform-frame for a railway-car, comprising longitudinal metal beams projecting in pairs beyond the car end sill, a metal beam between each pair secured to the webs of said longitudinal beams by its flanges, and a buffer-beam comprising a buffer-spring-box casting backed by a wood beam secured to the outer ends of said longitudinal beams, said buffer-beam bearing against thrust-castings interposed between its inner face and the main sills of said car.

7. In a railway-car, a buffer comprising a vertical plate provided with a horizontal flange extending from its rear face and a horizontal rearwardly-projecting plate secured on the upper edge of said vertical plate, said buffer being supported on buffer-stems, and a buffer-beam provided with guide-apertures for said buffer-stems, comprising a wood beam extending from side to side of the car-platform faced by a buffer-spring box comprising a casting having a slot in its outer face to allow the passage of said buffer-flange and a central compartment containing springs adapted to engage said buffer-flange, said wood beam having a horizontal plate projecting from a rabbet in its upper face and overlapping the horizontal rearwardly-projecting plate of said buffer, said overlapping plates with their corresponding parts in a contiguous car being adapted to afford practically flush connections across the space between the flooring of the car-platforms.

8. A buffer-beam for a railway-car, comprising a wood beam extending from side to side of the platform, and a buffer-spring box secured to the outer face of said wood beam, said buffer-spring box being a casting having a central compartment formed by two cross-partitions, said compartment containing a plurality of elliptical leaf-springs with their crowns turned toward its outer face, said buffer-beam having a horizontal plate extending from the upper front edge of said wood beam adapted to slidably overlap a horizontal buffer-plate, a horizontal slot in its face adapted to allow the passage of the car-buffer into engagement with said springs, and a horizontal plate on the lower face of said wood beam extending from the spring-box to the rear face of said beam.

9. A metallic platform-frame for a railway-car, comprising four longitudinal metal beams flanged and webbed, extending in pairs from the body-bolster of said car to the end of the car-platform, a webbed and flanged metal beam between each of said pairs whose flanges are secured to the webs of said longitudinal beams, the outer of said longitudinal beams bearing with their inner ends against the side of said body-bolster, and the inner of said longitudinal beams having their inner ends rigidly secured to said bolster, a buffer-beam comprising a buffer-spring box backed by a wood beam and secured on the outer ends of

said longitudinal beams, and thrust-castings secured to said longitudinal beams between said buffer-beam and the main sills of said car, said thrust-castings bearing with their outer ends against said wood beam and a horizontal plate between said spring-box and said castings, and with their inner ends against an angle-plate secured against the sills of said car.

10. In a railway-car platform, the combination of a coupler with four channel-beams extending from the body-bolster beyond the car end sill in pairs, each pair being joined by a channel-beam secured by its flanges to the webs thereof, the outer of said channel-beams each abutting against the said body-bolster and the inner of each of said channel-beams passing through said bolster and having rigid connection therewith, and said channel-beams having spring-pressed connection with said coupler whereby the thrust and pull of said coupler are conveyed to the body-bolster.

11. In a railway-car platform, the combination of draft-sills, draw-bar, buffer, buffer-stems, yoke, yoke push-rod, and buffer-beam with thrust-castings secured on said draft-sills interposed between said buffer-beam and the car main sills, having shoulders adapted to engage the arms of said yoke whereby the thrust of said buffer is conveyed to said main sills.

12. In a railway-car, the combination of draft-sills, draw-bar, buffer, buffer-beam, buffer-stems, yoke, and yoke push-rod with thrust-castings, horizontal metal plates interposed between the forward ends of said thrust-castings and the buffer-beam-spring box, and angle-plates interposed between the rear ends of said thrust-castings and the car main sills, said thrust-castings being provided with shoulders engaging the arms of said yoke.

13. In a railway-car-platform rigging, a pair of buffer-springs, a wood beam extending from side to side of the platform, a casting longitudinally extending along the outer side or face of said wood beam and containing a compartment intermediate relatively to the buffer-springs, said compartment having an opening in its outer wall, an auxiliary spring in said compartment comprising a plurality of leaf-spring plates with their crowns turned toward said opening, a buffer-plate normally in engagement with said buffer-springs and having a projection on its inner face normally apart from but adapted to engage said auxiliary spring through said opening.

In testimony that I claim the foregoing as my invention I affix my signature, in presence of two witnesses, this 5th day of July, A. D. 1900.

JAMES A. HINSON.

Witnesses:

GERTRUDE BOYCE,
C. HENRY CRAWFORD.