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UNITED STATES PATENT OFFICE.

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FIFTH-WHEEL.

SPECIFICATION forming part of Letters Patent No. 549,000, dated October 29, 1895.

Application filed October 18, 1894. Serial No. 526,289. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. MAUK, a citizen of the United States, residing at Williamsburg, in the county of Blair and State of Pennsylvania, have invented certain new and useful Improvements in Fifth-Wheels; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in fifth-wheels for carriages and other vehicles; and the objects of the invention are to connect the reach to the wheel in a manner to avoid wrenching the parts and breaking the king-bolt, to so connect the members of the wheel as to prevent rattling thereof and render the fifth-wheel noiseless in action, and to provide a rocking support for the head-block which sustains the front spring of the vehicle.

With these ends in view and such others as pertain to my invention it consists in the combination of devices and in the novel construction and arrangement of parts which will be hereinafter fully described and claimed.

To enable others to understand my invention I have illustrated the preferred embodiment thereof in the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a plan view of the fifth-wheel and the head-block for the front spring, the latter being omitted for the sake of clearness in illustrating the improvements. Fig. 2 is a vertical sectional view on the plane indicated by the dotted line xx of Fig. 1, taken longitudinally through the front axle, the bolster, and head-block. Fig. 3 is a vertical sectional view at right angles to Fig. 2 on the plane indicated by the dotted line yy of Fig. 1 and cutting the axle, bolster, and head-block transversely and reach longitudinally. Fig. 4 is a vertical sectional view through the combined clamp and bearing for the fifth-wheel and reach, the plane of the section being indicated by the dotted line zz of Fig. 1. Fig. 5 is a detail view of the bolster.

Like letters of reference denote corresponding parts in all the figures of the drawings.

A indicates the front axle.

B C are the upper and lower members, respectively, of the fifth-wheel.

D is the bolster rigidly united to and movable with the upper member B of the wheel.

E is the head-block which sustains the front spring on the bolster, and F is the reach which extends from the bolster and head-block through a clamp and bearing on the fifth-wheel to the rear axle of the vehicle, the rear end of the reach being connected or united to the rear axle in any suitable or desirable manner approved by those skilled in the art to which this invention relates.

The axle is of the ordinary construction. The lower member C of the fifth-wheel is provided at its ends with the pendent clips $c c$, which straddle the axle and are provided with the clamping-plates $c' c'$, that bear against the under side of the axle and are held or confined in place by the nuts $c'' c''$, screwed on the threaded legs of the clips $c c$, as clearly shown by Figs. 2 and 3 of the drawings.

The upper and lower members B C of the fifth-wheel are of the usual ring-like form, and they are arranged concentric with each other, so that the upper movable member B will ride or bear at all times upon the lower stationary member C, which is rigidly fastened to the axle in the manner described. This upper movable member of the fifth-wheel is provided near its ends with the seats $b b$, in which are fitted the ends of the bolster D, the latter being rigidly united to the upper wheel member B by the vertical bolts $b' b'$.

The bolster D is provided at its middle with the segmental cavities d' , and head-block E has rounded lugs e , which are shaped and proportioned to fit snugly in the segmental cavities d' of the bolster, so that the head-block can rock or turn on the bolster to enable the head-block to have a limited oscillating movement or play, and thereby relieve the strain on the front spring. The head-block is cushioned and sustained in its proper horizontal position above the bolster by means of the springs $E' E'$, which are interposed between the ends of the head-block and the bolster. These springs are contained or held within sockets formed in the opposing faces of the head-block and the bolster, and they are preferably made of metal coiled to the proper dimensions to snugly fit in the sockets. The segmental bearing-lug e is of such depth and so arranged in the segmental cavity d' of the bolster that the head-

block is projected a short distance above the holster, and thus the head-block is arranged so that its lower faces do not contact with the upper face of the bolster, whereby the head-block is permitted to have the limited rocking play on the bolster. The upper face of the head-block is made segmental or curved to afford a proper seat for the lower half of the spring, (not shown,) and this spring is held or confined on the head-block by means of the clamping-plate G and the yokes G', the latter straddling the plate G near the ends thereof and having their threaded ends connected by plates g, that are forced up against the lower side of the extensions g' of the head-block by means of the nuts g'', which are screwed on the threaded legs of the yokes G', as shown.

The bolster D is pivotally connected to the axle A by means of the king-bolt H. Instead of using a long king-bolt to pass through the axle, bolster, and head-block, as is sometimes used, I provide a short king-bolt and a peculiar construction for connecting the king-bolt to the bolster and axle-plate. The king-bolt H is made fast to the upper side of the clip h, from which the bolt extends in a vertical direction, the connection between the bolt and clip-plate being preferably effected by screwing the lower threaded end of the bolt H into a threaded opening or socket in the clip-plate h, as shown by Fig. 2 of the drawings. The upper headed end of the short king-bolt is fitted in a recess d'', formed in the lower side of the bolster. The king-bolt is connected to the bolster by means of the boss or protuberance d, which is made separate from the bolster and is rigidly fastened in a suitable way to the under or lower side of the bolster, said boss having an opening through which the king-bolt is passed. This boss depends a suitable distance below the bolster, and the top face of the axle-clip h is formed with a flat bearing, upon which the boss d of the bolster is adapted to bear, as shown by Fig. 2. The clip h straddles the axle at the middle, and the threaded legs thereof are connected by a clamping-plate h', against which bear the nuts h² h³, that are screwed on the threaded extremities of the clip h. This clamping-plate h' is furnished at its middle with a vertical pendent pivot pin or stud I, which is enlarged just below the plate h' to produce the flange i, and the pivot-lug I is threaded below the plain cylindrical part thereof, on which cylindrical part is fitted a brace J, which extends from the middle front part of the bolster to the rear clamp and saddle of the fifth-wheel, which will be hereinafter more fully described. The short king-bolt H passes through a vertical aperture formed in the pendent protuberance d and the bolster, and the head of this king-bolt is contained in a recess d'', which is formed at the bottom of the segmental cavity in the bolster, whereby the head of the king-bolt is adapted to bear against the lower face of the segmental bearing-lug e on the rocking head-

block. This rocking head-block E is constructed to receive the front end of the reach F, which serves to hold the head-block in place and which affords a pivot for the head-block to rock or turn upon.

The reach F is made of a substantial wooden bar, although metal may be used, if preferred, and the front end of the wooden reach-bar is equipped with a sleeve F', which extends in line with the wooden reach-bar and serves as a prolongation therefor. This sleeve is forked and provided at its rear end with a socket to receive the front end of the reach-bar, the parts being united together by transverse bolts, as shown in Fig. 3 of the drawings, and this metallic prolonged sleeve of the reach is fitted in a saddle-bearing of the fifth-wheel clamp K and in an aperture f, formed horizontally through the segmental bearing-lug e of the head-block and through the central part of the bolster D. The metallic sleeve F' of the reach is furnished with a collar or annular flange f' near its front end, which flange or collar f' bears against the rear side of the head-block, (see Fig. 3,) and the front end of the sleeve F' is threaded to receive the nut f'', which is screwed on the sleeve to bear against the front side of the segmental lug e of said head-block. The forked or bifurcated end of the sleeve F' is provided with top and under segmental bearing-shoulders m m', and the under bearing-shoulder m' rests or fits in a saddle M, formed integral with the upper member B of the fifth-wheel at the middle thereof. The upper bearing-shoulder m receives the clamp K, which is fitted snugly to the segmental shoulder m and which straddles the reach-bar and its sleeve F', and the ends of this clamp are enlarged at k k to rest squarely against the top plates K' K', which fit across the upper member B of the fifth-wheel. A lower plate K'' is provided to bear against the lower member C of the fifth-wheel, and these top and bottom plates K' K'' and the clamp K are united together by means of the vertical bolts L L, which pass through eyes in the clamp K and the plates K' K'', the threaded ends of the bolts also passing through openings in bifurcated ends j' j' of the brace J, fitted against the bottom plate K'' and receiving the nuts l', which draw the bolts down upon the clamp K and the plates, and which thus serve to confine the members B C of the fifth-wheel together and to hold the reach F in position on the upper member B of said fifth-wheel, and the reach being capable of a turning or oscillating play in the saddle M and clamp K and in the segmental lug e of the head-block to enable the rear axle to drop at either end without wrenching the parts of the fifth-wheel and straining or breaking the king-bolt.

It will be noted that the reach is clamped or held on the rear middle part of the fifth-wheel in a manner to prevent it from displacement, while permitting it to turn in the clamping devices, and that the reach-bolster

and head-block are pivotally connected together by the reach fitting in the segmental bearing-lug *e* of the head-block and the central part of the bolster, whereby the block is permitted to turn or rock on the reach and in the segmental cavity *d'* of the bolster, and the reach can also turn in the head-block to avoid wrenching the king-bolt, the collar and nut of the reach-sleeve *F'* serving to hold the lug *e* and the head-block against displacement laterally with respect to the bolster.

The members *B C* of the fifth-wheel are confined together by the clamping devices in a manner to permit the upper member *B* to move or turn freely on the lower member and yet prevent any looseness of the parts, and as a further precaution against rattling of the fifth-wheel members I provide an antirattler-pressure device *O*. This consists of a spindle *o*, which is provided at its upper extremity with a concaved head *o'*, adapted to take or bear against the lower face of the lower member *C* of the fifth-wheel, and this spindle is housed or contained within a sleeve *o''*, which is made integral with the lower bridge-plate *K''* of the clamp for the members of the fifth-wheel. (See Fig. 4.) Around the spindle *o* of the antirattler is fitted a cushion *o³*, preferably in the form of a rubber block, although a spiral spring may be used, and the spindle is held in place by being fitted in a socket or aperture in the plug or cap *O'*, which plug is externally screw-threaded to be screwed into the lower threaded portion of the sleeve *o''*, the upper end of the cap or plug *O'* bearing against the cushion *o³* to force the head of the spindle against the fifth-wheel member *C*, whereby the spindle and cushion operate to press the member *C* against the member *B* to prevent rattling of the parts, and any slack or looseness in the fifth-wheel members can be taken up by adjusting the cap or plug *O'*.

The brace *J* is bent to extend beneath the axle from the front bolster to the rear middle part of the fifth-wheel, said brace being pivoted at an intermediate point of its length on the pendent stud or pin *I* of the clip *h*. The front end of the brace is fastened to a horizontal bracket-lug *J'*, which extends from the front side of the bolster and which is rigidly united to or made integral with the bolster, the front upper end of the brace being threaded to receive the nut *j''*. The rear end of the brace is forked to provide the arms *j' j''*, which are applied against the lower side of the bridge-plate *K''* and which receive the nuts *l' l''* of the bolts *L L*, by which the parts of the fifth-wheel clamp are held together. The head-block and reach are also braced by the rod or bar *P*, the front end of which is bolted, as at *p*, to the middle of the clamping-plate *G*. The rear end of this upper brace *P* is passed through a vertical lug *q*, which is integral with the saddle-clamp yoke *K*. This lug *q* rises vertically from the clamp-yoke *K* a suitable distance to receive

the brace-rod *P*, and said rear end of the rod *P* is threaded to receive the two nuts *Q Q'*, which bear against the respective sides of the lug *q*, whereby the brace is securely fastened to the lug *b*.

The operation and advantages of my improved fifth-wheel will be readily understood and appreciated by those skilled in the art to which the invention relates from the foregoing description, taken in connection with the drawings.

I am aware that changes in the form and proportion of parts and in the details of construction of the devices herein shown and described as an embodiment of my invention can be made by a skilled mechanic without departing from the spirit or sacrificing the advantages thereof, and I therefore reserve the right to make such modifications as fairly fall within the scope of the invention.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination with an axle, of the clip *h* fastened to the axle, a bolster provided with a pivotal lug, a head block *E* having pivotal lugs which project downwardly and embrace the similar pivotal lug on the bolster, the reach passing through the pivotal lugs of the bolster and the head block, a king bolt fastened to the clip *h* and securing the bolster to the axle, and cushion springs interposed between the head block and the bolster, substantially as described.

2. The combination with a fifth wheel and a bolster, of a rocking headblock mounted on the bolster, a saddle and clamp carried by the fifth wheel, a reach, and a shouldered sleeve fitted in said saddle and clamp to turn therein and having its front end connected to the bolster and headblock to pivotally connect the headblock to the bolster, substantially as and for the purposes described.

3. The combination with an axle, and a fifth wheel, of a clip fastened to the axle and having a pendent stud *I*, a bolster pivotally connected to the clip, a rocking head block, a saddle and clamp carried by the fifth wheel, a reach and an angular brace *J* pivoted on the stud *I* and having its front end fastened to the bolster and its rear end fastened to the clamp on the fifth wheel, substantially as and for the purposes described.

4. The combination with a fifth wheel, of the fixed saddle, *M*, carried by the upper member of the fifth wheel, a head block, a reach, the clamping yoke *K* which straddles the reach, and a bridge plate fitted against the lower member of the fifth wheel and bolted to the clamping yoke, substantially as and for the purposes described.

5. The combination with a fifth wheel, and a reach, of the reach saddle carried by the upper member of the fifth wheel, a clamping yoke fitted over the reach, the bridge plate fitted against the lower member of the fifth wheel and bolted to the clamping yoke, and a

cushioned spindle carried by the clamping plate to bear against the fifth wheel, substantially as and for the purposes described.

6. The combination with a fifth wheel, a reach, and a saddle and clamp carried by the fifth wheel for supporting the reach, of the bridge plate K'' bolted to the clamp and provided with a pendent sleeve, a headed spindle fitted in the sleeve and normally pressed
10 by an elastic device against the fifth wheel, and an adjustable plug or cap fitted to the sleeve and bearing against the elastic cushion, substantially as described.

7. The combination with a rocking head
15 block, a bolster, and a fifth wheel, of the sad-

dle M carried by the fifth wheel, a reach, the clamping yoke fitted over the reach, a bridge plate fitted against the lower side of the fifth wheel, bolts connecting the clamp and bridge plate, the brace J pivoted to the axle and
20 connected at its ends to the bolster and the bridge plate, and a top brace P fastened to the head block and the clamping yoke, substantially as described.

In testimony whereof I affix my signature
25 in presence of two witnesses.

GEORGE W. MAUK.

Witnesses:

JAMES C. ISENBERG,
ANDREW MOCK.