A. BALL.

Running Gear for Wagon.

No. 105,411. Patented July 19, 1870.

Fig. 1.

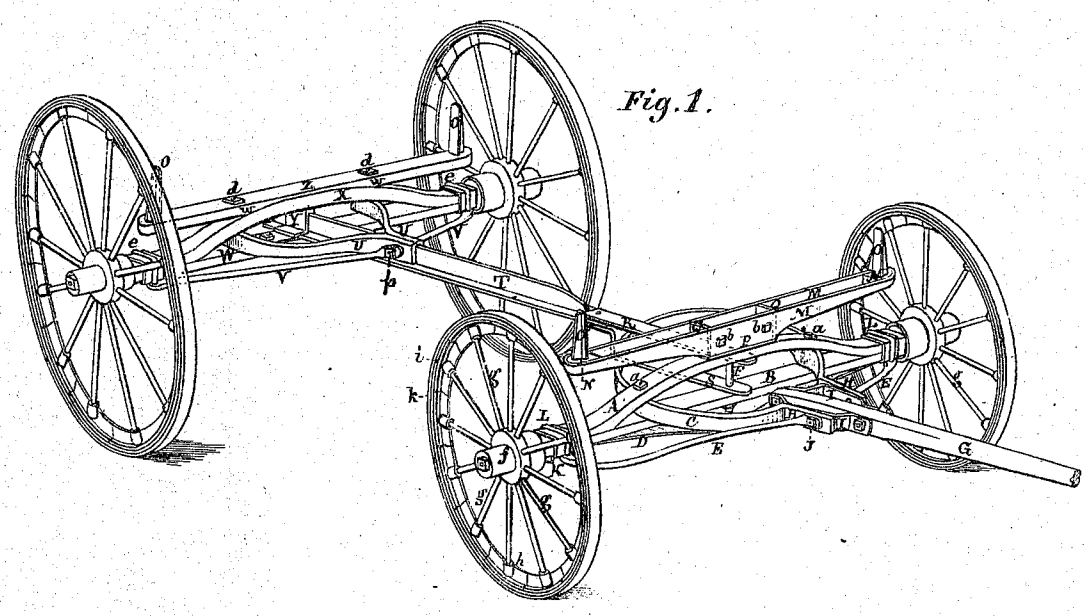


Fig. 2.

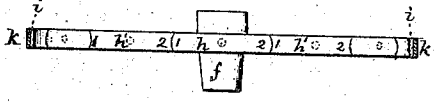
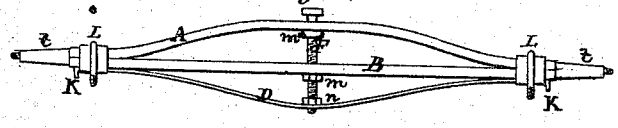


Fig. 3.



Witnesses.

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ALBERT BALL, OF CANTON, OHIO.

Letters Patent No. 105,411, *dated July* 19, 1870.

IMPROVEMENT IN IRON RUNNING-GEAR.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, ALBERT BALL, of Canton, Stark county, Ohio, have invented certain new and useful Improvements in Iron Wagons, and that the following is a full, clear, and exact specification thereof.

Nature and Objects of my Invention.

My invention relates to the particular construction and combination of material forming the running part of a wagon, by which the whole of such running part can be cheaply and economically constructed of wrought iron, by which great strength is combined with moderate weight; and

The first part of my invention relates to the combination of a wrought-iron axle-tree composed of a straight axle-bar, having an arch-plate arranged above it, and abutting against the spindle shoulders, with a circular wrought-iron hound secured by clamping-bolts between the two axle-tree pieces, and provided with a pivot tongue-bolt and tie-rods to the spindle shoulders at its open front end, said axle-tree pieces being clamped together by the king-bolt at the center, and said hound being curved like a hoop, so as to bring the edges of the hound against the axle-tree pieces, thus giving the axle-tree great capacity to resist transverse, lateral or torsional strain, and affording a construction which is easily worked in iron.

The second part of my invention relates to the combination of a tension-plate with the axle-tree, and with an elongated king-bolt, said tension-plate being arranged under the axle in the end axle-clip, and said king-bolt being passed through the axle and tension-plate, and having jam-nuts arranged on it to bear on the under sides of the axle and arch-piece, and the upper side of the tension-plate, by which the transverse capacity of the axle is materially increased, with a very small addition to its weight, and the load is transferred directly to the spindle-shoulders, without danger of springing the axle, in case of the wheel striking any obstacle.

The third part of my invention relates to the combination of a pair of offsetted tongue-straps, with the tongue and the circular hound, the several parts being constructed as is hereinafter shown, and being united by the pivot tongue-bolt, which passes through all of said parts, the object being to lessen the liability of breaking the pole, or of bending the circular hound, as well as to obtain a simple means of preventing the pole from hanging on the horses' necks.

The fourth part of my invention relates to the construction of the front or swinging bolster of two wrought-iron plates, placed edgewise, and secured to iron blocks at their ends, and having the upturned ends of the bolster-plate clamped between them near the center, by which I obtain a very simple and strong form of wrought-iron bolster.

The fifth part of my invention relates to the combination of a rear wagon axle-tree, composed of a straight axle-bar and an arch-plate, a pair of wrought-iron hound-pieces, placed edgewise, and clamped between the axle pieces, a pair of tie-rods extending from the front ends of the hound-pieces to the spindle shoulders, a wrought-iron reach of a ⊥-section, and a reach-collar, secured on the axle, and having the rear end of the reach arranged therein, the whole forming an economical and stiff construction of wrought-iron for the rear end of the running part.

The sixth part of my invention relates to the construction of a wrought-iron rear bolster, which is formed of plate-iron, which lies flat on the arch piece of the axle at the center, and has edge flanges at its ends, which fit down onto a portion of the arch-plate, so that, when the bolster is bolted to the arch-plate, it forms a very light and stiff construction, which can be made at a moderate cost.

The seventh part of my invention relates to an improved construction of wagon-wheel. Said wheel being constructed with an iron hub, into which are screwed iron spokes, on which are screwed iron felly-pieces, (one to each spoke,) which are made with concave ends and convex ends alternately, and which are encompassed with an ordinary tire, with or without an elastic seat, by which I obtain a wagon-wheel made wholly of iron, and of a moderate cost, and which can be readily taken to pieces and repaired whenever any portion becomes bent or broken.

Description of Accompanying Drawing.

Figure 1 is a perspective view of a wagon embodying my invention.

Figure 2 is a plan of one wheel.

Figure 3 is an elevation of the front axle.

General Description.

B is the front axle-bar, at the ends of which are welded the wheel-spindles *t t*, the collars of which are made square on the rear, so as to form shoulders for the ends of the arch piece A to abut against.

This arch-piece is conveniently made of channel-iron, which is of a ∩-shaped section, and it is curved into the general form shown, so that its central part forms a seat for the bolster-plate P.

The clips, L L, are placed around the ends of the arch-piece A and the axle-bar B, and are secured by nuts under a cross-piece placed under the axle.

The hound C is made of wrought iron, bent into a hoop form, and having its ends, H H, laid out straight to receive the tongue between them.

This hound is placed between the axle pieces A B,

as shown in fig. 1, where it is secured by clamping-bolts *a a*, which pass through said pieces, and through sockets or thickening pieces welded onto the hound C.

The tension-plate D has the lips K K turned down, at its ends, and is secured under the cross-pieces of the axle-clips L L, and the king-bolt F extends through the axle-pieces A B and tension-plate D, and is provided with the nuts *m' m n*, arranged as shown in fig. 3.

The tongue G has the tongue-plates or straps, I I, secured by bolts at its rear end, said tongue-straps being set off from the tongue, as shown, and extending along the tongue for some distance above and below the hound-ends H H, so as to lengthen the length of attachment between the tongue and hound, and lessen the danger of breaking the tongue off.

The tongue-straps I I fit between the hound-ends H H, and have a full bearing on the faces of said ends, and the pivot bolt J passes through said hound-ends, tongue-straps, and tongue, so that, by drawing up the nut on said bolt, the hound-ends may be made to hold the tongue-straps sufficiently close to support the forward end of the tongue, and prevent it from bearing on the horse's neck.

The bolster P M M consists of the bolster-plate P, which has the arms Q Q, upturned at its ends, and of the side plates M M, which are set up edgewise on the lower part of the plate P, which is made wider than the ends Q Q for this purpose.

The ends of the side plates M M are riveted or otherwise secured to the iron blocks N N, in which are secured the side brackets O O, and the centers of these plates are clamped by the bolts *b b* against the arms Q Q of the bolster-plate P.

The rear axle, W X, consists of the axle-bar W, having the wheel spindles at its ends, and of the arch-piece X, the two pieces being united in the manner described in the front axle.

The hound-pieces U U are of wrought-iron, and are placed edgewise between the axle-pieces W X, where they are secured by clamping-bolts *d d*, which pass through the-axle pieces and the swelled rear ends of the hound-pieces.

The reach-collar Y is bolted to the axle-bar W, and through it passes the reach T, which is made of rolled iron, of a ⊥-section, and to which the rear hound-pieces U U are secured by a bolt, *p*, as shown in fig. 1.

The front end of the reach T extends over the circular hound C, and has the plate R secured on it, which rests under the arch-piece A, and the plate S is riveted to the under side of the reach T, and extends under the hound C to the upper side of the axle-bar B, and the king-bolt F passes through both these plates, thus effecting a solid connection between the front and rear parts of the wagon.

The side braces E E extend from the circular hound ends H H, where they are secured by the pivot-bolt J to the axle-clips L L, and the side braces V V extend from the hound-bolt *p* to the axle-clips *e e*, thus giving a solid lateral brace to each end of each axle.

The rear bolster *z* is made of plate-iron, and has the flanges, *w w*, turned down at its edges, as shown.

The central portion of this bolster lies flat on the central part of the arch-piece X, and the flanges *w w* fit onto a portion of said arch-piece, and the bolster is secured in this position by the bolts *d d*, and, if desired, by a bolt through the center of the bolster and arch piece.

The side brackets O O are secured by bolts in their ends at the ends of the bolster *z*, and said brackets, as well as the front brackets, can be conveniently made of malleable iron.

Blocks can be secured under the ends of the bolster *z* to rest on the clips *e e* or arch-piece X, if found desirable for heavy loads.

The wheels *f g k* consist of the iron hub *f*, into which are secured the iron spokes *g g*, which can be made either of solid round iron, or of iron gas-pipe.

The felly-pieces *h* are made of iron, one to each spoke, and are screwed on the spokes in a manner similar to that of screwing on a nut.

In order to allow of one felly piece, *h* turning past the adjacent pieces, *h' h'*, in screwing it onto the spoke *g*, I curve the ends, 1 and 2, of the piece *h*, to the arc of a circle, having its center at the spoke *g*, and make the adjacent ends, 1 and 2, of the pieces *h' h'* of a corresponding concave form, from which it is seen that the piece *h* will readily turn past the pieces *h' h'*, until it is brought to a bearing on said pieces by screwing it down on the spoke.

To preserve the felly from the effects of violent impact, caused by the wheel striking a stone or other obstacle, I place a layer of leather or rubber, *i*, around the felly *h*, and then shrink on the tire *k*, in an ordinary manner.

Claims.

Having thus fully described my invention—

What I claim therein as new, and desire to secure by Letters Patent, is—

1. The combination of the axle-bar B, arch-piece A, and circular hound D, provided with flat tongue ends H H, said hound being secured by clamping-bolts *a a* between the axle-pieces A B, and the several parts being constructed and arranged as and for the purpose specified.

2. The combination of the axle A B, clips L L, tension-plate D with lips K, and elongated king-bolt F with jam-nuts *m' m n*, the several parts being arranged as and for the purpose specified.

3. The combination of the circular hound C, with flat ends H H, off-setted tongue-straps I I, tongue G, and pivot-bolt J, said tongue-straps extending along the tongue above and below the hound-ends H H, and the several parts being constructed and arranged as and for the purpose specified.

4. The front wagon-bolster herein described, the same consisting of the bolster-plate P, having the arms Q Q upturned at its ends, and the side plates M M, secured to the blocks N N, at their ends, and clamped to the arms Q Q by the bolts *b b*, the several parts being arranged substantially as and for the purpose specified.

5. The combination of the axle-bar W, arch piece X, hound-pieces U U, tie-rods V V, ⊥-iron reach T, and reach collar Y, the several parts being constructed, arranged, and combined as and for the purpose specified.

The wrought-iron rear bolster *z*, provided with the edge flanges *w w*, and fitting on the arch piece X, to which it is secured by two or more clamping-bolts, substantially as and for the purpose specified.

7. The felly piece *h*, provided with the convex ends 1 2, in combination with the felly pieces *h' h'*, having their adjacent ends, 1 and 2, made in a corresponding concave form, substantially as and for the purpose specified.

8. The wheel herein described, the same consisting of the iron hub *f*, iron spokes *g g*, iron felly pieces *h*, (one to each spoke,) leather or rubber tire-seat *i*, and tire *k*, the several parts being arranged and united in the manner and for the purpose specified.

As evidence of the foregoing, witness my hand this 28th day of June, A. D. 1870.

ALBERT BALL.

Witnesses:

JOB ABBOTT,

J. MCKENNEY.