

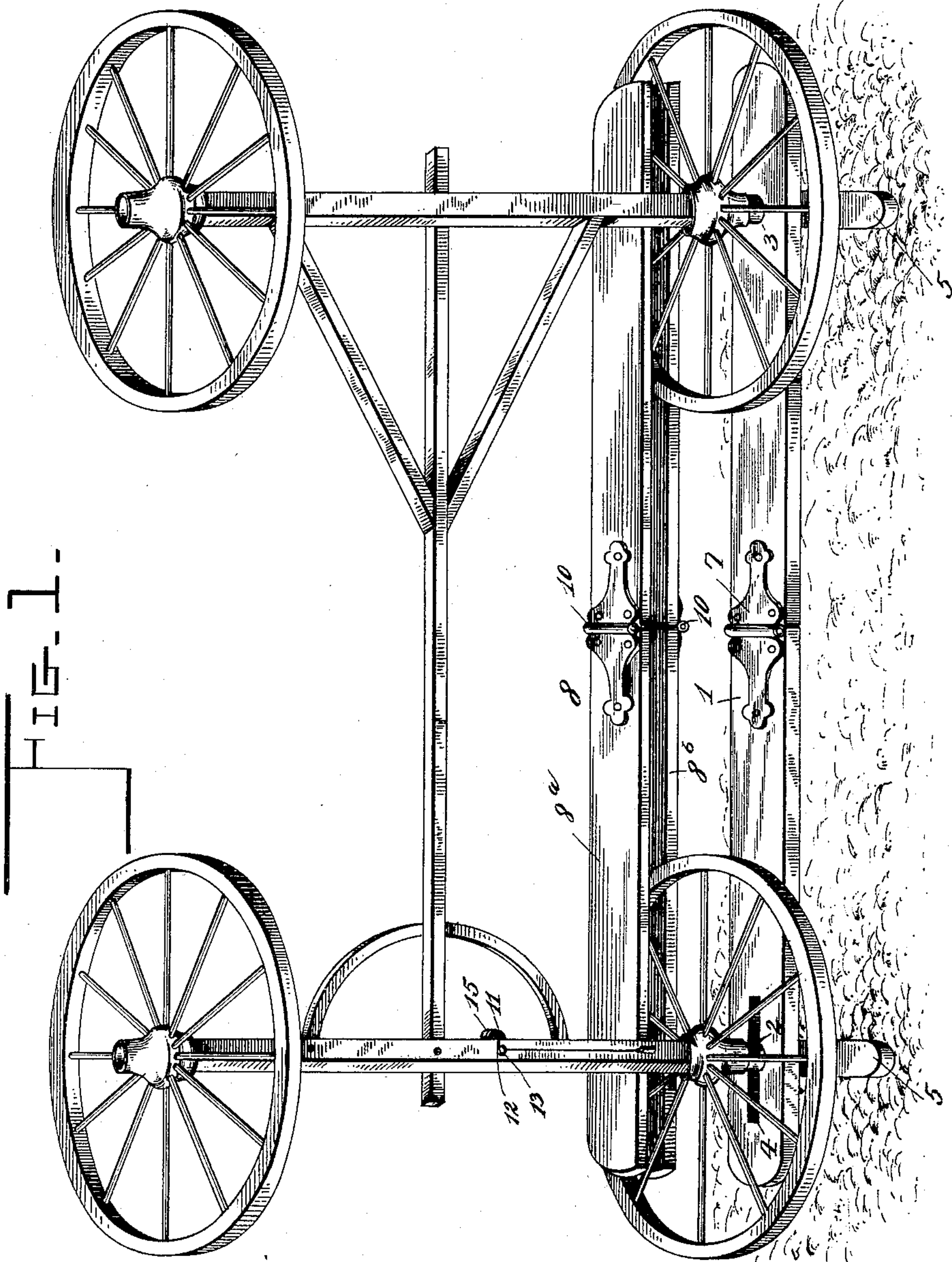
(No Model.)

2 Sheets—Sheet 1.

W. A. HAMMER.
AXLE REPAIRING APPARATUS.

No. 603,636.

Patented May 10, 1898.



Inventor

Witnesses

John F. Deufferwil - By his Attorneys,
[Signature]

Willie A. Hammer.

Chas. H. Snow & Co.

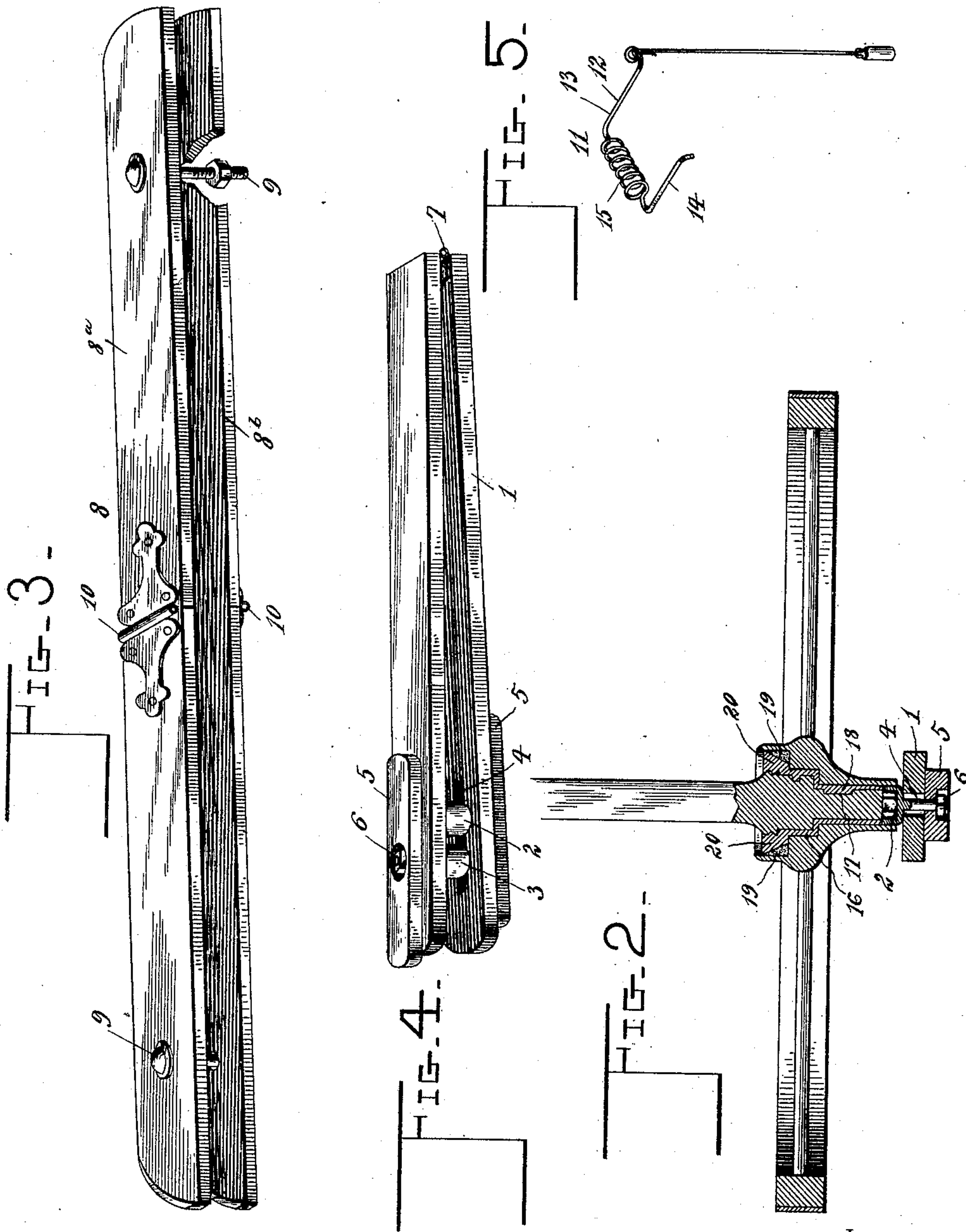
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UNITED STATES PATENT OFFICE.

WILLIE ALICE HAMMER, OF FAIRLIE, TEXAS.

AXLE-REPAIRING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 603,636, dated May 10, 1898.

Application filed September 18, 1897. Serial No. 652,154. (No model.)

To all whom it may concern:

Be it known that I, WILLIE ALICE HAMMER, a citizen of the United States, residing at Fairlie, in the county of Hunt and State of Texas, have invented a new and useful Axle-Repairing Apparatus, of which the following is a specification.

My invention relates to axle-repairing apparatus, and has for its object to provide a simple and efficient construction and arrangement of parts for facilitating the repairing of worn axles without the removal of the wheels or the axles from the vehicle-body, said apparatus being so constructed as to support the vehicle in a proper position for filling the interval between the axle-box and the spindle with Babbitt metal or equivalent material.

Further objects and advantages of this invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 is a perspective view of an apparatus constructed in accordance with my invention applied in the operative position to a vehicle, the latter being in position for the introduction of the metal filling. Fig. 2 is a central sectional view of one of the bearings. Fig. 3 is a detail view in perspective of the wheel-clamp. Fig. 4 is a similar view of the spindle-support in its folded position. Fig. 5 is a similar view of the plumb for insuring the vertical position of the spindles.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

In proceeding to repair worn vehicle-bearings it is my object to so arrange and support the parts of a vehicle that Babbitt or equivalent metal may be poured into the inner ends of the wheel-boxes to fill the interval between the inner surfaces of said boxes and the surfaces of the spindles. In order to accomplish this object, I employ a spindle-support 1, consisting of a bar which is adapted to rest upon a horizontal surface, as the ground or floor, and is provided contiguous to its extremities with spindle-seats 2 and 3, one of which is adjustable longitudinally of the bar, and preferably has its stem fitted in a longitudinal slot 4 in the bar. In the con-

struction illustrated the stems of the spindle-seats are extended through the bar 1 and also through pivotal sills 5, adapted to be arranged transversely with relation to the bar and held in place by nuts 6, threaded upon the lower extremities of the stems of said spindle-seats. In order to facilitate the folding of this supporting-bar when not in use, said sills are adapted to swing to a position parallel with the bar, and to further facilitate folding the bar it is jointed at an intermediate point to form sections connected by a hinge 7.

In practice the vehicle of which the bearings are to be repaired is arranged with the extremities of its axle-spindles upon one side in said seats, the vehicle being turned upon its side, whereby the axles occupy vertical positions; but in order to prevent the sills from turning or becoming displaced during the introduction of the molten metal I provide a wheel-clamp 8, consisting of twin parallel bars 8^a 8^b, secured together at intervals by bolts 9 and adapted to be arranged, respectively, upon opposite sides of the front and rear wheels upon one side of the vehicle and to be held in tight frictional contact therewith by the tightening of said bolts. Obviously this operation of clamping the wheels must be accomplished prior to turning the vehicle upon its side, and in order to facilitate the folding of the clamp each member thereof is preferably of sectional construction, with the members connected by hinges 10.

After the vehicle has been turned to said position it is necessary to accurately plumb the axles in order that the molten metal when introduced into the wheel-boxes may flow uniformly around the spindles, and to accomplish this I employ a plumb 11, consisting of a flexibly-suspended weight, connected with a clip 12 for engaging the axle. In the construction illustrated the clip consists of approximately opposite front and rear arms 13 and 14, to the former of which is connected said weight, the arms being connected by an expansion coiled spring 15. Obviously the spring provides for the separation of the front and rear arms to properly engage axles of different thicknesses.

When by means of the plumb the axles have been arranged in a truly vertical position, the

molten metal may be introduced at the inner ends of the wheel-boxes and allowed to entirely fill the interval between the surfaces of said box and spindle, whereupon, after cooling, the spindle is provided with a sheath or sleeve 16, constituting a new spindle-surface; but in order to prevent this sleeve from turning upon the spindle the latter, prior to the operation, should be thoroughly cleaned and provided with one or more grooves or depressions 17, whereby when the molten metal has flowed into the axle-box it will also fill said depressions and thereby form keys 18.

After adjusting the wheel-clamp and spacing the axle-seats on the base to correspond with the interval between the axles the vehicle is canted to dispose the extremities of the axle-spindles in the cups of the seats, whereupon the bearing of the outer ends of the hub-sleeves or the shoulders usually provided at the outer ends of the hubs upon the axle-nuts will dispose the wheels respectively in planes perpendicular to the axles; but in order that there may be no tendency upon the part of the wheels to occupy positions at an angle to the axle and also in order to insure the uniform flowing of the molten metal around the spindles it is desirable to plumb the axles with the means provided for that purpose or other means analogous thereto. After having attained the desired vertical position of the axles they may be so held, manually, during the pouring operation, or they may be fastened by any suitable apparatus. (Not shown, and consequently no part of my present invention.) The specific form illustrated in the drawings is desirable by reason of the facility with which it can be applied to the axles and also by reason of the simplicity of its construction, the same being applicable to axles of various constructions and sizes without affecting its efficiency in the capacity of indicating a vertical position of the axles. It is obvious that the wheel-clamp, in addition to preventing rotary movement of the wheels during the repairing operation, prevents the swinging of the front or steering axle of the vehicle, and hence maintains the parts firmly in the proper position for seating the axle extremities in the cups.

Furthermore, I have found in practice that it is desirable in order to facilitate the removal of the wheels after the operation, as above indicated, to fit in the inner end of each hub a forming-strip 19, of pasteboard or equivalent material, of cross-sectionally tapered or wedge-shaped construction. The exterior surface of this forming-strip accurately fits the inner surface of the hub, while the inner surface thereof is beveled to produce a beveled shoulder on the sleeve formed by the Babbitt metal, and this beveled surface has the further effect of causing oil, which works inwardly upon the axle-spindle, to flow back upon the spindle to avoid waste; also, the abrupt inner surface of the enlarge-

ment or collar 20, constructed within the forming-strip, constitutes a dust-guard to prevent sand and other foreign substances from gaining access to the surface of the spindle.

It frequently happens that the axle-box has become interiorly scored or grooved by sand or foreign substances which have worked into the same, and in order to prevent the molten metal from gaining access to these grooves and thus forming keys to prevent the wheel from turning upon the spindle I have found it necessary in certain cases to cover such depressions, as by means of paper, temporarily fastened by an adhesive material to the inner surface of the axle-box.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having described my invention, what I claim is—

1. An axle-repairing apparatus, having a supporting-bar provided with spaced caps for supporting the extremities of the front and rear axle-spindles, in combination with means for securing the wheels which are mounted upon said spindles from accidental displacement, substantially as specified.

2. An axle-repairing apparatus, having a supporting-bar provided with spaced spindle-seats for supporting the extremities of front and rear axle-spindles, one of said seats being adjustable longitudinally of the bar, and means for securing the adjustable seat at the desired adjustment, in combination with means for clamping the wheels which are mounted upon said front and rear axle-spindles, to prevent accidental displacement, substantially as specified.

3. An axle-repairing apparatus, having a supporting-bar provided with seats to receive the extremities of the front and rear axle-spindles, one of which is adjustable longitudinally of the bar, means for securing the adjustable spindle-seat at the desired adjustment, and pivotal sills mounted upon the bar for lateral extension to prevent displacement thereof, substantially as specified.

4. An axle-repairing apparatus, having a supporting-bar provided with spaced seats to receive the extremities of front and rear axle-spindles, and pivotal sills fulcrumed in the transverse planes of said seats and adapted to be extended laterally to project beyond the side edges of the supporting-bar, said bar being of sectional construction and having its members hingedly connected for folding, substantially as specified.

5. An axle-repairing apparatus having a wheel-clamp provided with means for simultaneously engaging front and rear vehicle-wheels to prevent rotary movement thereof upon their spindles and also prevent pivotal movement of the front-wheel axle, in combination with means for seating the axles of the

wheels when in an upright position, substantially as specified.

5 6. An axle-repairing apparatus having a wheel-clamp comprising sectional cooperating clamp-bars, the members of which are hingedly connected for folding in opposite directions, and adjusting devices for securing said bars in frictional contact with opposite sides of front and rear vehicle-wheels, in combination with means for seating the extremities of the axles of said wheels when said axles are in an upright position, substantially as specified.

15 7. In an axle-repairing apparatus, the combination with axle-supporting and wheel-clamping devices, of a plumb for indicating the vertical position of the wheel-axles, and

means for attaching said plumb to an axle, substantially as specified.

8. In an apparatus of the class described, 20 the combination with axle-supporting and wheel-clamping devices, of a plumb having a clip provided with front and rear arms connected by an expansion coiled spring and adapted to bear respectively upon opposite 25 side surfaces of a wheel-axle, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

WILLIE ALICE HAMMER.

Witnesses:

G. W. MAGEE,

T. J. WEATHERSBY.