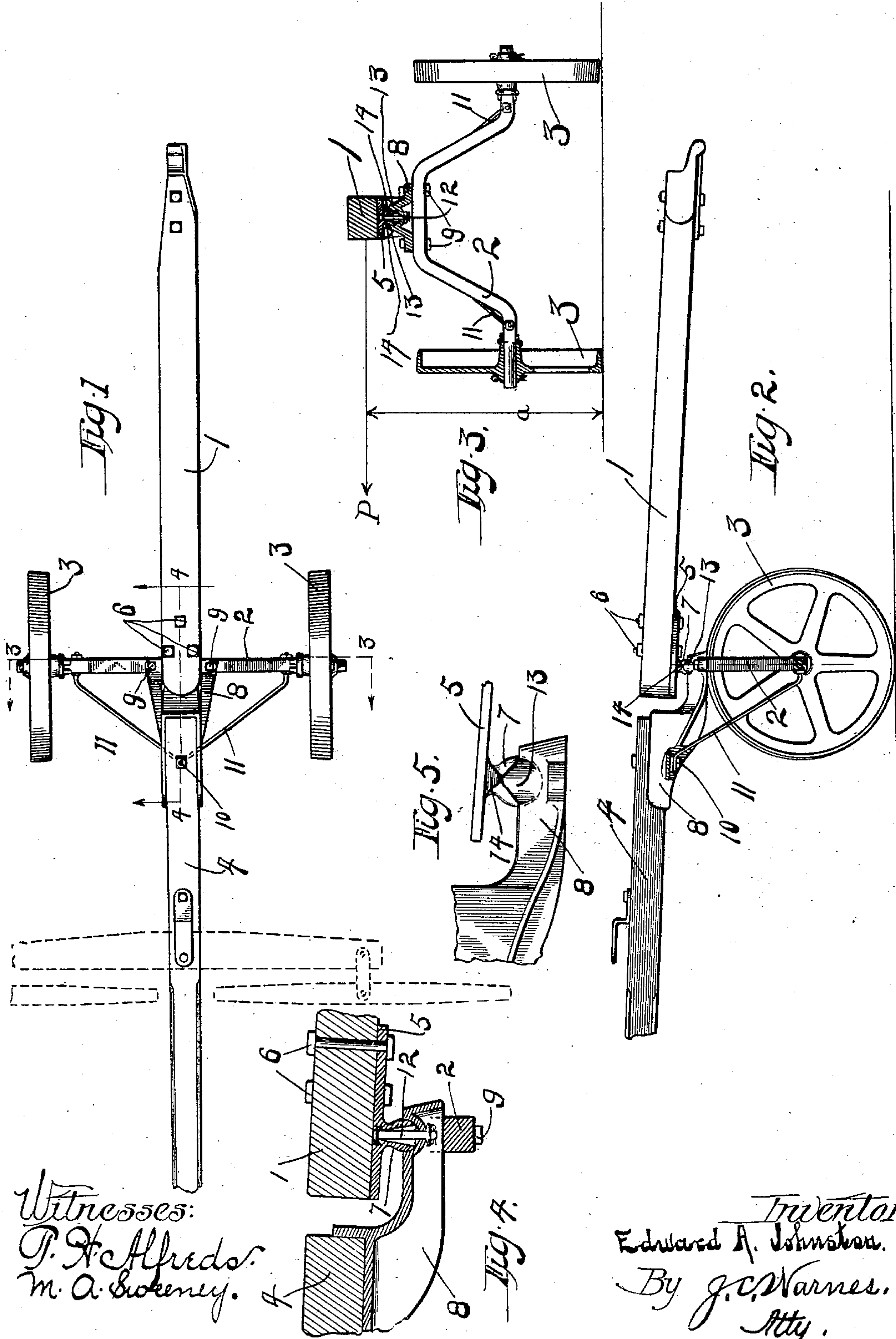


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E. A. JOHNSTON.
TONGUE TRUCK FOR HARVESTERS.
APPLICATION FILED APR. 1, 1904.

NO MODEL.



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UNITED STATES PATENT OFFICE.

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TONGUE-TRUCK FOR HARVESTERS.

SPECIFICATION forming part of Letters Patent No. 763,403, dated June 28, 1904.

Application filed April 1, 1904. Serial No. 201,076. (No model.)

To all whom it may concern:

Be it known that I, EDWARD A. JOHNSTON, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Tongue-Trucks for Harvesters, of which the following is a complete specification.

The object of this invention is to overcome or counteract the tendency of the tongue-trucks to tip which is produced by the lateral stress to which they are subjected arising from the side draft of the machine. It is desirable to avoid this tipping tendency of the tongue-truck, first, because it will prevent the grainward wheel digging into the soil, and, secondly, it will insure contact with the ground of the stubbleward truck-wheel.

Referring to the drawings, Figure 1 represents a plan view of a tongue-truck and an ordinary stub-tongue of a harvester in connection therewith embodying my improvement. Fig. 2 is a side elevation of same. Fig. 3 is a transverse section of the tongue-truck in a plane adjacent to the axle, as indicated by the line 3 3 in Fig. 1, and with one of the truck-wheels shown in section. Fig. 4 is an enlarged longitudinal section showing in detail the construction of the articulating members connecting the stub-tongue and tongue-truck, as indicated by the line 4 4 in Fig. 1. Fig. 5 is a side elevation of the principal parts shown in Fig. 4, setting forth the construction of the ball-and-socket joint by which the tongue-truck and stub-tongue are connected and also the laterally-disposed cusps or lugs forming the secondary articulating-surfaces.

This invention consists, essentially, in providing laterally-disposed secondary engaging surfaces on the members forming the main articulating-surface, said secondary surfaces being adapted to register with each other only in a certain predetermined position.

The improvement might also be regarded as means to render an otherwise universally-flexible connection or joint between the stub-tongue of the harvester and a harvester-tongue truck rigid with respect to lateral movement

when in normal working position or rigid in a certain predetermined position.

The side draft of a harvester will subject the forward end of the stub-tongue to a grainwardly-acting stress or force P, as indicated by the arrow in Fig. 3, the moment of which about the point of contact of the grainward truck-wheel with the ground will be proportional to the height a of the stub-tongue above the ground. This force P normally exerts a tendency to upset or tip the truck, but is resisted by making the truck substantially rigid with respect to the stub-tongue when in normal working position, in consequence whereof the truck itself will be compelled to skid before any of the parts will yield to the lateral stress caused by the side draft of the machine, and in this way the lateral stress produced in the stub-tongue by the side draft of the machine is converted into a torsional stress in the stub-tongue.

In the drawings, 1 designates the stub-tongue of an ordinary harvester; 2, the arched axle of the tongue-truck on which the forward end of the said stub-tongue is supported; 3, the truck-wheels, journaled on said axle, and 4 the guiding-tongue of the tongue-truck. On the forward end of the stub-tongue 1 is the plate 5, secured thereto by the bolts 6. On the lower surface of this plate 5 is the downwardly-extending ball-shaped projection 7, which articulates with a corresponding socket in the upper surface of the bracket 8. This bracket 8 has sufficient lateral spread at its rearward end to afford strong and efficient connecting means with the arched axle 2, while its forward end terminates in a recess which is adapted to receive the tongue 4. The bolts 9 rigidly secure together the said bracket 8 and axle 2, while the bolt 10 fastens the rear end of the guiding-tongue in the recess of said casting 8. 11 11 are braces extending from a point near the wheels on said axle 2 to said casting 8, to which they are secured by means of the bolt 10.

The ball projection 7 on the plate 5 is held in position in the socket in the rear end of the casting 8 by means of the bolt 12. To pro-

vide for the required amount of movement of this joint, the aperture in the said bolt portion 7 of the joint is made conical, the diameter increasing downwardly, so that limited movement is provided in any direction, and to admit of such movement by the said bolt 12 its seat in the plate 5 is made convex, as shown in Fig. 4.

On either side of the socket in the rear end of the casting 8 are the upwardly-projecting cusps or lugs 13, and on the plate 5, secured to the forward end of the stub-tongue 1, are the corresponding downwardly - projecting cusps 14, adapted to register with the said cusps 13 when the tongue of the truck and the stub-tongue occupy positions longitudinally coincident or in normal working position. These cusps or lugs when they register with each other will operate to prevent independent tipping laterally of the two members, but will not prevent movement of the tongue of the truck in a vertical plane. When, however, the tongue is deflected, as in turning a corner, the cusps will no longer register with each other, and the axle of the truck will be free to turn under the stub-tongue and to conform to the surface of the ground whatever the irregularities thereof may be. If these cusps or lugs 13 and 14, which form the secondary articulating-surfaces of the connecting members, were provided with contacting surfaces consisting of planes of a considerable extent, then this would prevent any movement in a vertical plane of the guiding-tongue of the truck when the secondary surfaces register. Hence it is desirable to have these cusps or lugs terminate in curved surfaces, as shown.

Ordinarily the side draft of the machine is converted into a torsional stress in the stub-tongue through the cusps or lugs on the stub-bleward side mutually contacting, and hence lugs on this side alone would accomplish the end sought for; but for symmetry secondary contacting surfaces are placed on either side of the ball-and-socket joints.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In combination, a stub-tongue for harvesters, a tongue-truck, articulating connecting means interposed therebetween and secondary articulating-surfaces adapted to register with each other when the said tongue-truck and stub-tongue occupy a certain predetermined position, substantially as described.

2. In combination, a stub-tongue for harvesters, a tongue-truck, articulating means interposed therebetween, and secondary articulating-surfaces adapted to register with each other only when the said tongue-truck

and stub-tongue are practically longitudinally coincident, substantially as described.

3. In combination, a stub-tongue for harvesters, a tongue-truck, articulating connecting means interposed therebetween, secondary articulating-surfaces laterally disposed with respect to the said articulating means, said articulating-surfaces adapted to register with each other only when the said tongue-truck and stub-tongue are practically longitudinally coincident, substantially as described.

4. In combination, a stub-tongue for harvesters, a tongue-truck, articulating connecting means consisting of a ball-and-socket joint, means for sustaining the members of said joint in their proper relative position, and corresponding projecting cusps laterally disposed with respect to said ball-and-socket joint, the said corresponding cusps being in effect integral with the members forming said ball-and-socket joint and adapted to register with each other only when the said stub-tongue and tongue-truck are substantially longitudinally coincident, substantially as described.

5. In combination with a stub-tongue for harvesters and a tongue-truck, connecting means forming a universally-flexible joint and means for rendering said joint rigid with respect to lateral movement thereof when the said stub-tongue and tongue-truck are longitudinally coincident, substantially as described.

6. In combination, a stub-tongue for harvesters provided on its forward end with a plate, a tongue-truck comprising an arch-shaped axle, supporting-wheels journaled thereon, a bracket rigidly secured to said arched axle and terminating at its forward end in a recess adapted to receive the guiding-tongue and a guiding-tongue, and connecting means between the said stub-tongue and tongue-truck consisting of a downwardly-extending ball-shaped projection integral with the plate which is secured to the forward end of the said stub-tongue, a corresponding socket in said bracket said socket located immediately above the said arched axle, means for holding the said ball-shaped projection in its socket, downwardly-projecting cusps adjacent to the said ball-shaped projection said cusps being laterally disposed with respect to the longitudinal axle of the truck and corresponding upwardly-projecting cusps on the said bracket adjacent to the socket formed therein, substantially as described.

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