May 24, 1949. C. L. BLACKBURN 2,470,971

FRONT WHEEL AND STEERING APPARATUS FOR WAGONS

Filed Sept. 15, 1947 2 Sheets-Sheet 1

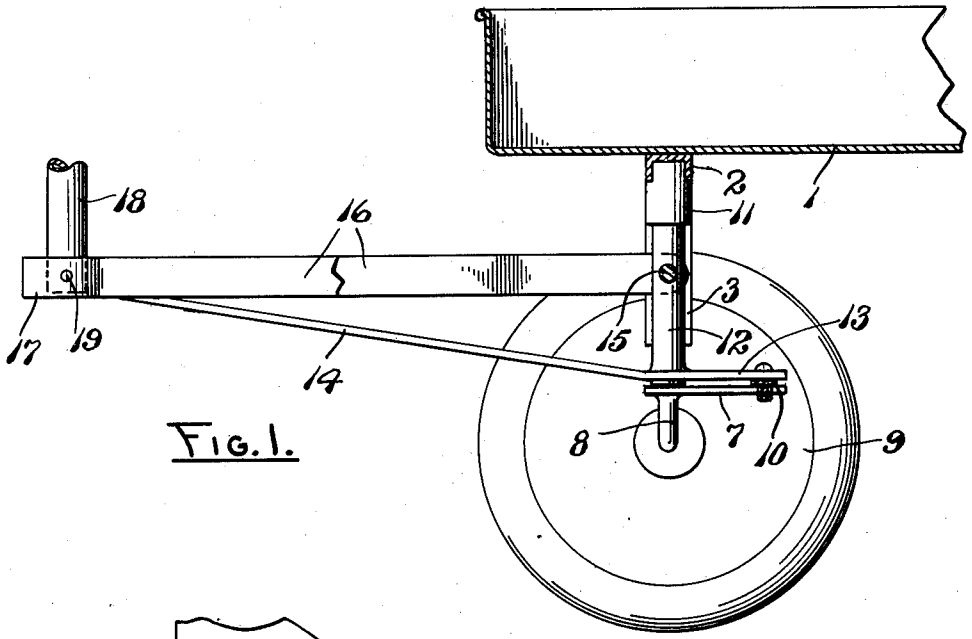


FIG. 1.

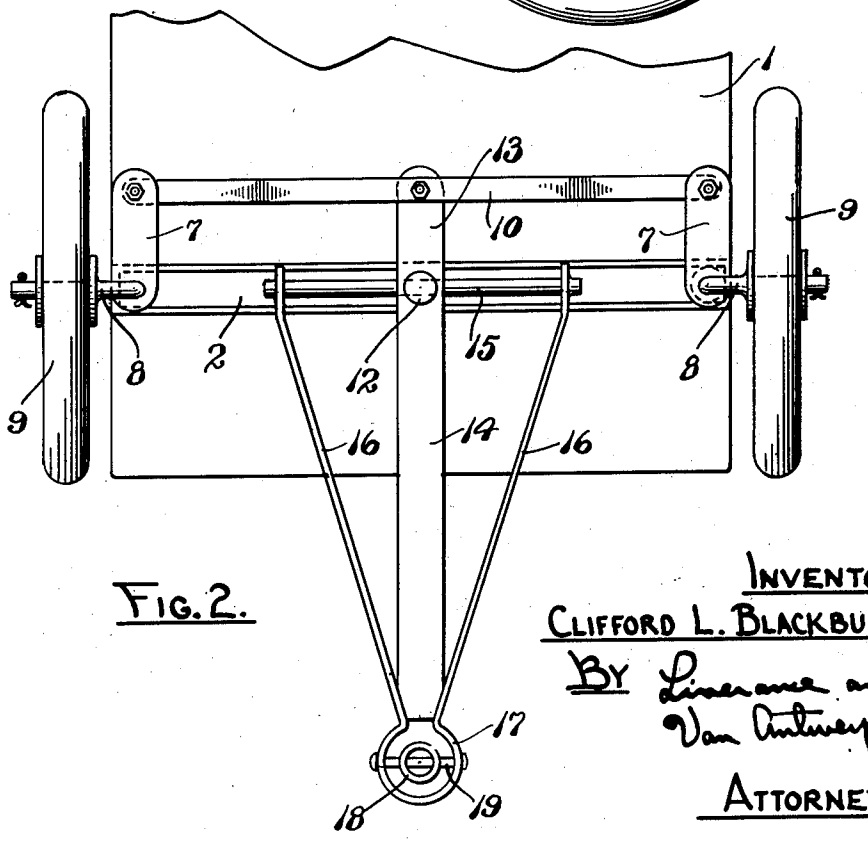


FIG. 2.

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FRONT WHEEL AND STEERING APPARATUS FOR WAGONS

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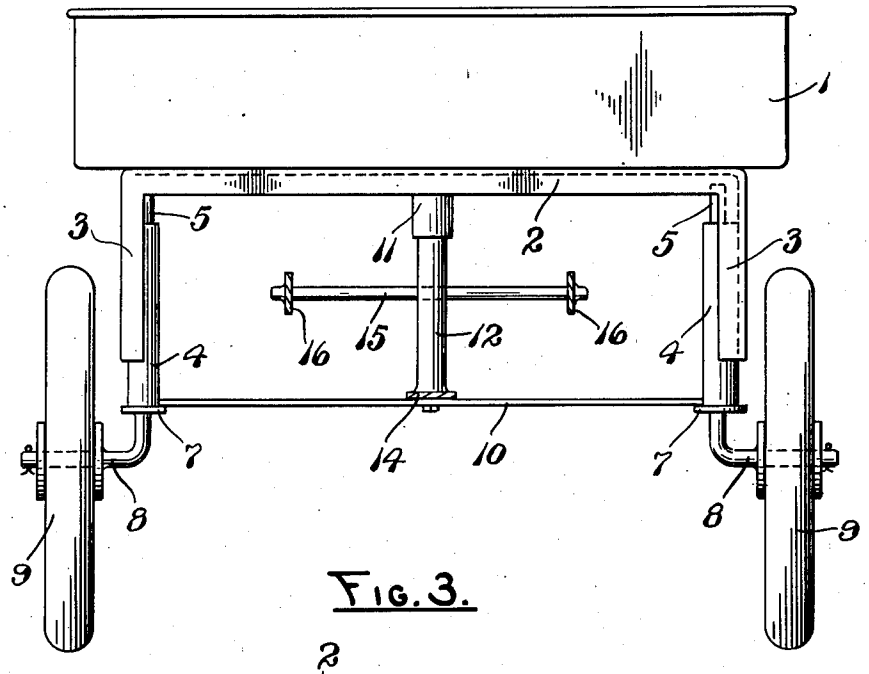


FIG. 3.

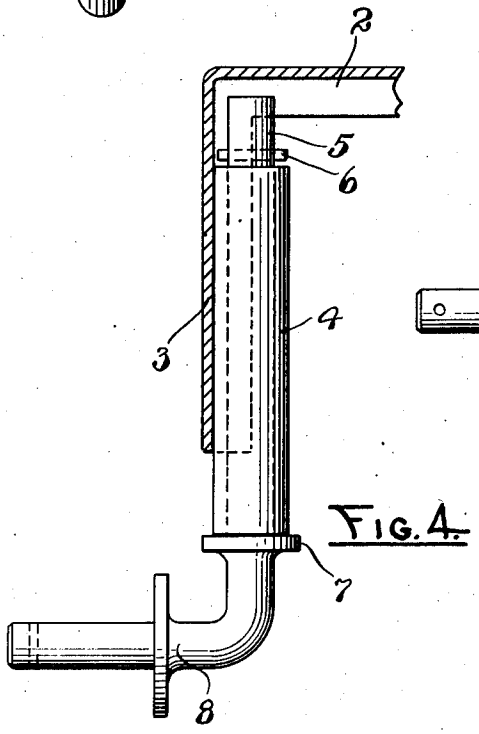


FIG. 4.

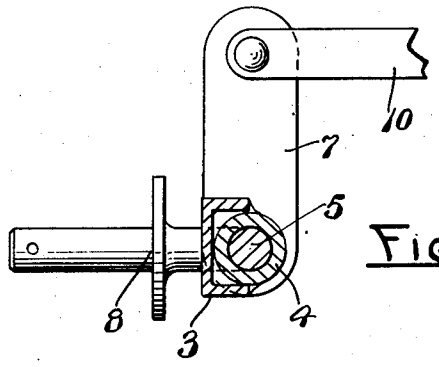


FIG. 5.

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UNITED STATES PATENT OFFICE

2,470,971

FRONT WHEEL AND STEERING APPARATUS FOR WAGONS

Clifford L. Blackburn, Grand Rapids, Mich.

Application September 15, 1947, Serial No. 774,051

2 Claims. (Cl. 280—87.01)

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This invention is for the production of a novel, practical, sturdy and durable front wheel mounting and steering apparatus for wagons, particularly wagons of the so-called express wagon type.

It is a primary object and purpose of the present invention to provide a front wheel mounting and steering unit, which may be secured at the under side and adjacent the front end of a wagon body, and by means of which the wagon may be pulled and its direction of movement readily changed. The structure is wholly of metal and may be economically built. It is particularly strong, sturdy and durable.

An understanding of the invention may be had from the following description, taken in connection with the accompanying drawings, in which,

Fig. 1 is a partial longitudinal vertical section and side elevation of the front end portion of a wagon equipped with my invention,

Fig. 2 is an under plan view thereof,

Fig. 3 is a front elevation with the tongue structure shown in transverse vertical section,

Fig. 4 is a fragmentary enlarged vertical section and elevation illustrating the mounting of one of the wheel spindles, and

Fig. 5 is a horizontal section through the structure shown in Fig. 4.

Like reference characters refer to like parts in the different figures of the drawings.

The body 1, having a bottom and generally vertical sides and ends, of any conventional form, in practice will be pressed from sheet metal. At its front end portion and under side the wheel mounting and steering apparatus of my invention is secured.

In the structure, a length of channel iron has its two end portions bent downwardly to form a horizontal section 2 and two spaced downwardly extending legs 3. The bottom of the body 1 lies against the upper side of the horizontal channel section 2 and is permanently secured thereto in any suitable manner, by spot welding, riveting, or other equivalent means.

At the inner side of each of the downwardly extending legs 3, a vertical sleeve 4 is permanently secured in place, preferably by electric welding. The sleeves at their lower ends extend a short distance below the lower ends of the legs 3, and at their upper ends are shown as terminating a short distance below the upper section 2. A rod 5 extends upwardly through each of the sleeves 4, and each at its upper end portion above its associated sleeve may have a pin 6 (Fig. 4) pass therethrough over the upper end of the sleeve 4.

At the lower end of each rod 5 a steering

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knuckle and wheel spindle are connected. The connection is a permanent one and may be either integral or of parts permanently connected together so as to be in effect integral. The steering knuckle at the lower end of each of the rods 5 comprises a rearwardly extending flat arm 7, the width of which is greater than the diameter of the sleeve 4 and from which, directly below the lower end of the rod 5, a spindle 8 extends outwardly as shown. On the two spindles 8 the front wheels 9 are rotatably mounted. The lower ends of the two arms 7 are connected by a horizontal crossbar 10, which at its ends has pivotal connections to the arms 7.

At the mid-point of the upper section 2 of the channel member first described, a short vertical sleeve 11 is permanently welded or otherwise secured. A vertical rod 12 is rotatably received at its upper end portion in the sleeve and extends downwardly. At its lower end a flat bar is permanently secured, preferably by welding thereto. The rear portion of the bar forms an arm 13 which extends to and over the middle point of the horizontal bar 10 and has a pivotal connection thereto. The front end portion 14 of the bar extends forwardly and upwardly to a point in front of the wagon box 1.

A rod 15, horizontally positioned, extends through the vertical rod 12 and is permanently secured therewith. At its ends the rod 15 has a permanent welded or other equivalent connection to the rear ends of two sides 16 of a saddle formed from a single length of flat stock. The two sides 16 converge forwardly toward each other and join integrally with a generally circular loop 17. The forward end of the part 14 engages at the inner sides of the parts 16 (Fig. 2) and has a permanent welded connection therewith.

A handle or tongue 18 is pivotally connected by a horizontal transverse pin 19 with the loop 17, as shown in Figs. 1 and 2.

It is evident that when a change in direction is made, the rod 12 turns about its vertical axis, swinging the arm 13 to one side or the other dependent upon the direction moved, thereby simultaneously moving both arms 7 in the same direction and correspondingly changing the positions of the spindles 8 upon which the wheels 9 are mounted.

The structure is a particularly practical, novel and sturdy front unit for wagons of the type noted. Such front units may be manufactured and assembled complete and in the final build-

ing of a wagon, secured at the front portion of the under side of the wagon box.

The invention is defined in the appended claims and is to be considered comprehensive of all forms of structure coming within their scope.

I claim:

1. In a structure as described, a horizontal bar having a downwardly extending leg at each end thereof, a vertical sleeve secured to each leg, a rod rotatably mounted in and extending through each sleeve, a rearwardly extending arm connected to each rod, a second horizontal bar pivotally connected at its ends to said arms at their rear ends and extending between them, a wheel spindle secured at the lower end of each rod, each having an outwardly extending spindle portion on which a wheel may be rotatably mounted, a vertical rod rotatably connected at its upper end to said first mentioned bar substantially at the middle thereof, a bar secured at the lower end of said rod having an arm extending to the rear thereof, pivotal connections between said arm and said second horizontal bar, said bar secured at the lower end of the last mentioned rod extending upwardly and forwardly at its front portion, a horizontal rod connected with said last mentioned rod extending to either side thereof, a stirrup having sides, the rear ends of which are connected to the end of said horizontal rod, said sides extending forwardly and converging toward each other and joining with a substantially circular loop, said forwardly extending bar having connection with said sides adjacent the loop, and a tongue pivotally connected at one end with said loop and extending upwardly therefrom.

2. A structure as defined in claim 1, said first mentioned horizontal bar having a channel cross section, the flanges thereof extending downwardly and the flanges on the legs thereof extending inwardly, said vertical sleeves secured, one to each leg, lying between the flanges of said legs and permanently secured thereto, said vertical sleeves extending below the legs and at their upper ends terminating below said upper horizontal bar, and the rods passing through said sleeves, at their upper ends extending above said sleeves, and means connected with the upper end portion of said rods for retaining them against lengthwise disconnection from the sleeves.

CLIFFORD L. BLACKBURN.

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