

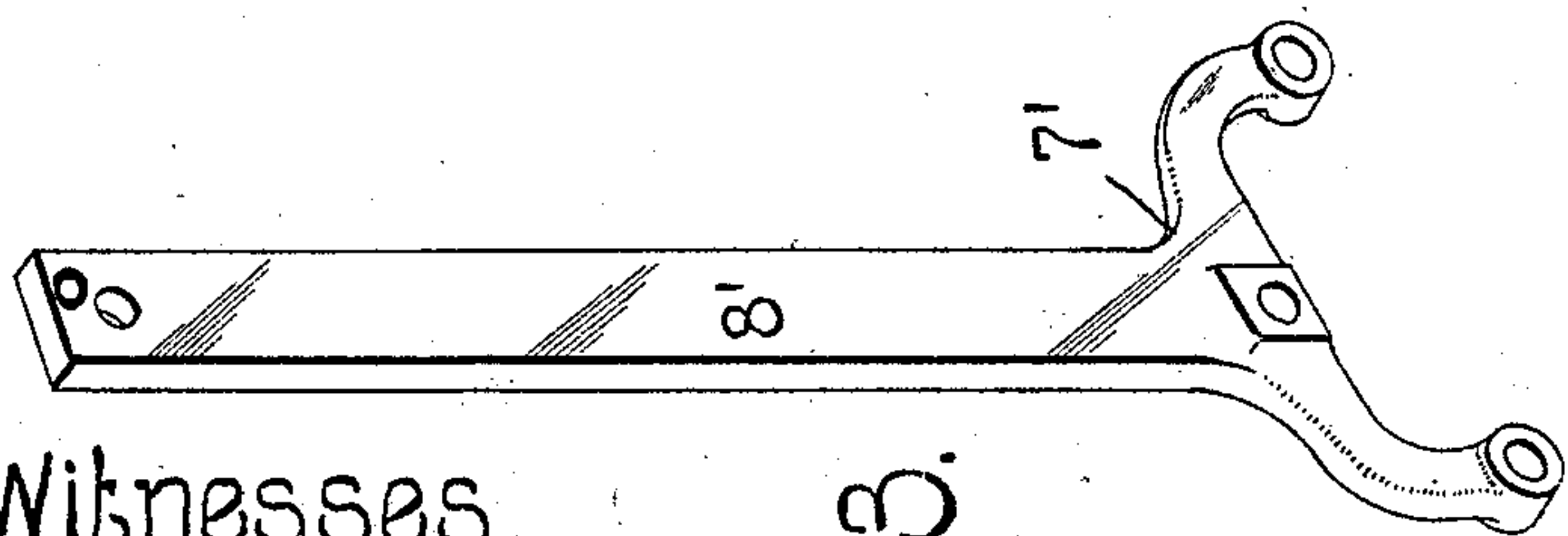
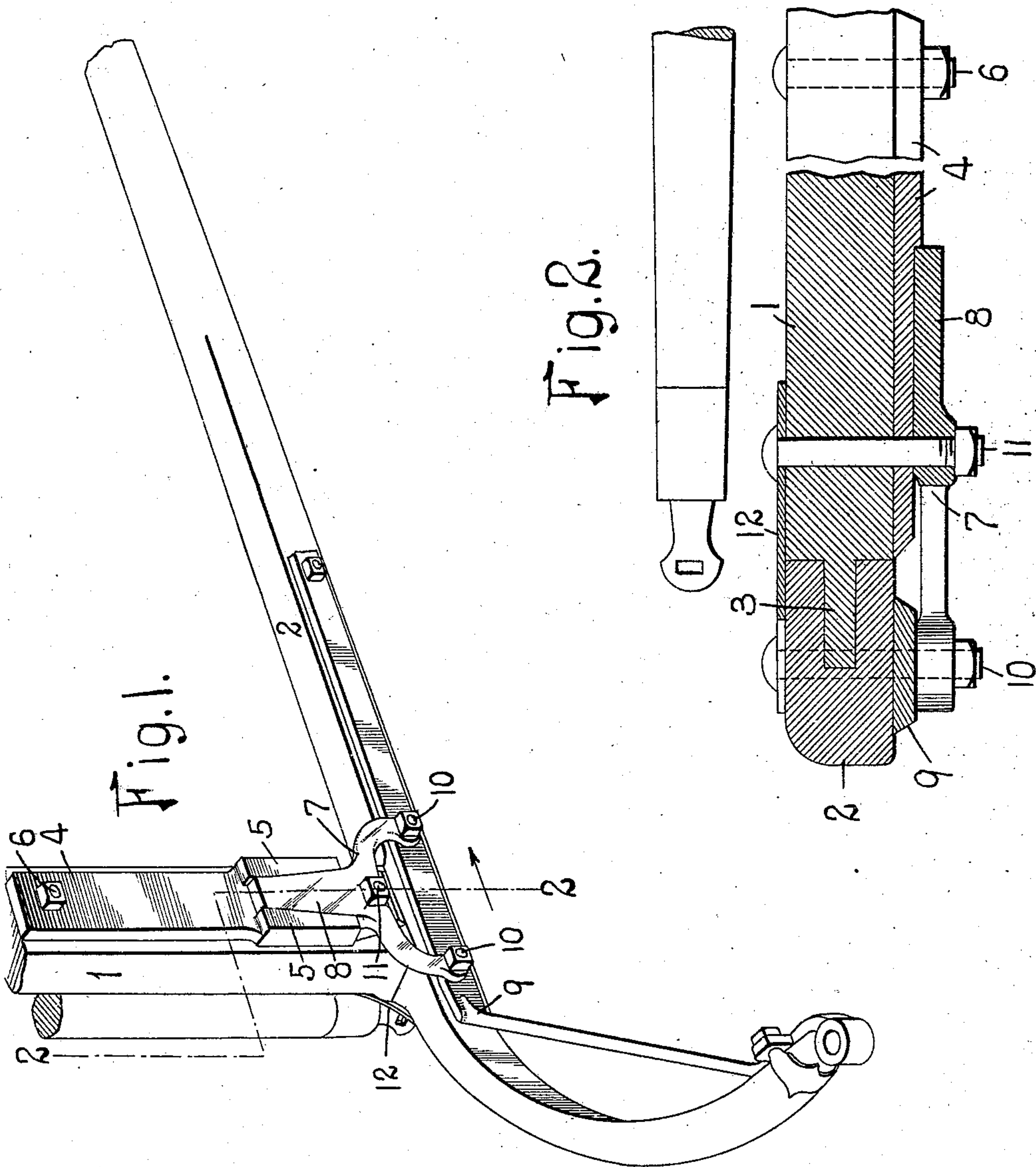
No. 842,309.

PATENTED JAN. 29, 1907.

F. C. FERRIS & G. S. TEBBETTS.

KNOCKDOWN VEHICLE SHAFT.

APPLICATION FILED JUNE 25, 1906.



Witnesses
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Fig. 3.

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UNITED STATES PATENT OFFICE.

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KNOCKDOWN VEHICLE-SHAFT.

No. 842,309.

Specification of Letters Patent.

Patented Jan. 29, 1907.

Application filed June 25, 1906. Serial No. 323,323.

To all whom it may concern:

Be it known that we, FREDERICK C. FERRIS and GEORGE S. TEBBETTS, citizens of the United States, residing at St. Louis, Missouri, have invented a certain new and useful Improvement in Knockdown Vehicle Shafts or Thills, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a perspective view of a portion of a pair of vehicle shafts or thills embodying the features of our invention. Fig. 2 is a sectional view taken on the line 2 2 of Fig. 1, and Fig. 3 shows a modified form of device for connecting the cross-bar to the shafts.

This invention relates to vehicle shafts or thills; and the object of our invention is to provide a pair of vehicle-shafts which are so constructed that after being completed at the factory—namely, painted and varnished—they can be shipped in “knockdown” form, thereby enabling the manufacturer to obtain a much lower freight classification than if the shafts were shipped assembled. When the shafts arrive at their destination, they can be assembled and fastened together by inserting a few bolts; and when assembled they are stronger and more rigid than a pair of shafts in which the cross-bar is permanently connected to the two shafts.

To this end we have devised a pair of vehicle-shafts in which the cross-bar is removably connected to the shafts in a novel manner, which enables said members to be taken apart and put together without marring the paint or varnish.

Referring to Figs. 1 and 2 of the drawings, which represent the preferred form of our invention, 1 designates the cross-bar, which is mortised into the shafts 2. As shown in Fig. 2, the tongues 3 on the opposite ends of the cross-bar do not extend entirely through the shafts to the outer side faces thereof in the manner in which vehicle-shafts are usually constructed, so that when the shafts are assembled the paint and varnish on the outer faces of the shafts will not be marred, as would be apt to occur if the tongues extended clear through the shafts. Metal bars 4, provided with lugs or flanges 5, having their in-

ner faces inclined, are connected to the underneath face of the cross-bar by bolts 6, and connected to each shaft is a substantially V-shaped metal device 7, having its shank 8 tapered and fitting snugly between the lugs 5 on the bars 4, which are connected to the cross-bar. A heel-brace iron 9 is connected to the underneath face of each shaft, and the V-shaped device 7 is connected to the underneath face of the shaft outside of the heel-brace iron by bolts 10, which pass clear through the shaft and the heel-brace iron.

For connecting the V-shaped devices 7 of each shaft to the cross-bar removable bolts 11 are employed, which bolts extend through the cross-bar and through plates 12, that are permanently connected to the upper face of each shaft by the same bolts 10 which connect the V-shaped device 7 to the shaft. This manner of removably connecting the cross-bar to the shafts produces a pair of shafts which are stronger and more rigid than ones in which the cross-bar and shafts are permanently connected together, and by simply removing the bolts 11 the cross-bar can be withdrawn from the shafts, so that they can be shipped in knockdown form.

In addition to obtaining a low freight classification it is possible to pack the shafts much better and more economically, and when one shaft of a pair gets broken it can be replaced by a perfect one with very little trouble. Furthermore, shafts constructed in this manner occupy much less space in shipping and in customers' warehouses and can also be better protected from damage in shipping and in storage.

In Fig. 3 we have shown a modified form of device 7' for connecting the cross-bar to the shafts, said device being provided with a long shank 8', which lies against the underneath face of the cross-bar and is connected thereto by two bolts, the bar 4, having the lugs 5, being dispensed with in this form.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. A pair of vehicle-shafts comprising two shafts and a removable cross-bar provided with tongues which enter openings in said shafts and terminate short of the outer side faces of said shafts, members permanently connected to the shafts, cooperating mem-

bers permanently connected to the cross-bar, and removable devices extending through the cross-bar and the members which are connected to the shafts; substantially as described.

2. A pair of vehicle-shafts comprising two shafts and a removable cross-bar, members connected to the underneath face of the cross-bar, said members being provided with shoulders having inclined faces, devices permanently connected to the shafts and provided with tapered shanks which engage the shoulders on the members connected to the cross-bar, and removable bolts extending through the cross-bar and the shanks of said devices; substantially as described.

3. A pair of vehicle-shafts comprising two shafts and a removable cross-bar, devices connected to the upper and lower faces of each shaft and having laterally-extending portions which engage the upper and lower faces of the cross-bar, members connected to the cross-bar and provided with shoulders

which coöperate with the laterally-extending portions of one of said pair of devices, and removable bolts extending through the cross-bar and through said laterally-extending portions; substantially as described.

4. A pair of vehicle-shafts consisting of two shafts and a removable cross-bar, heel-brace irons connected to the underneath faces of said shafts, devices connected to the shafts beneath said irons and provided with shanks, members connected to the cross-bar and provided with shoulders which coöperate with said shanks, and removable bolts extending through the cross-bar and through said shanks; substantially as described.

In testimony whereof we hereunto affix our signatures, in the presence of two witnesses, this 20th day of June, 1906.

FREDERICK C. FERRIS.
GEORGE S. TEBBETTS.

Witnesses:

WELLS L. CHURCH,
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