No. 848,997. PATENTED APR. 2, 1907.

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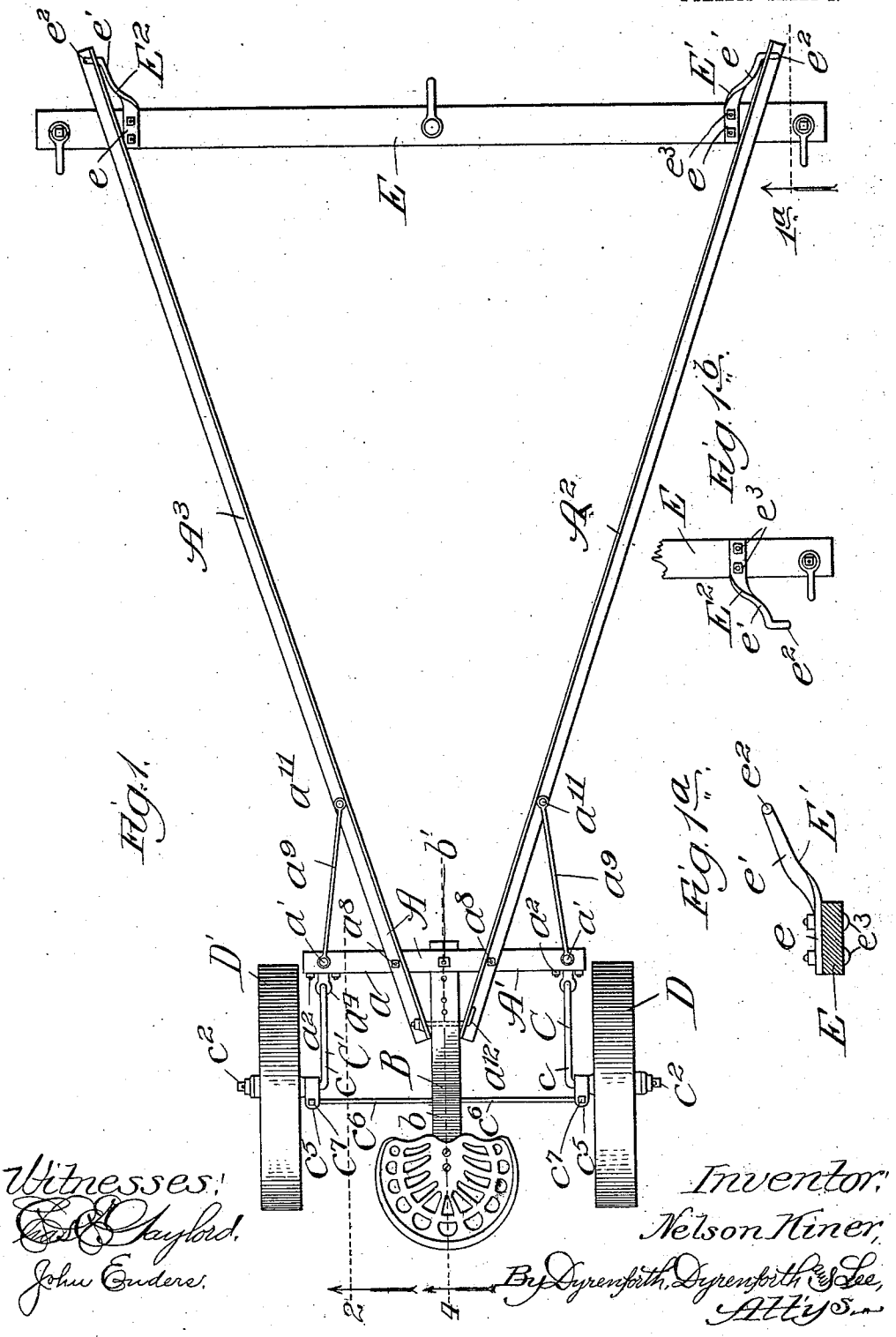
HARROW SULKY.

APPLICATION FILED APR. 17, 1906.

2 SHEETS—SHEET 1.



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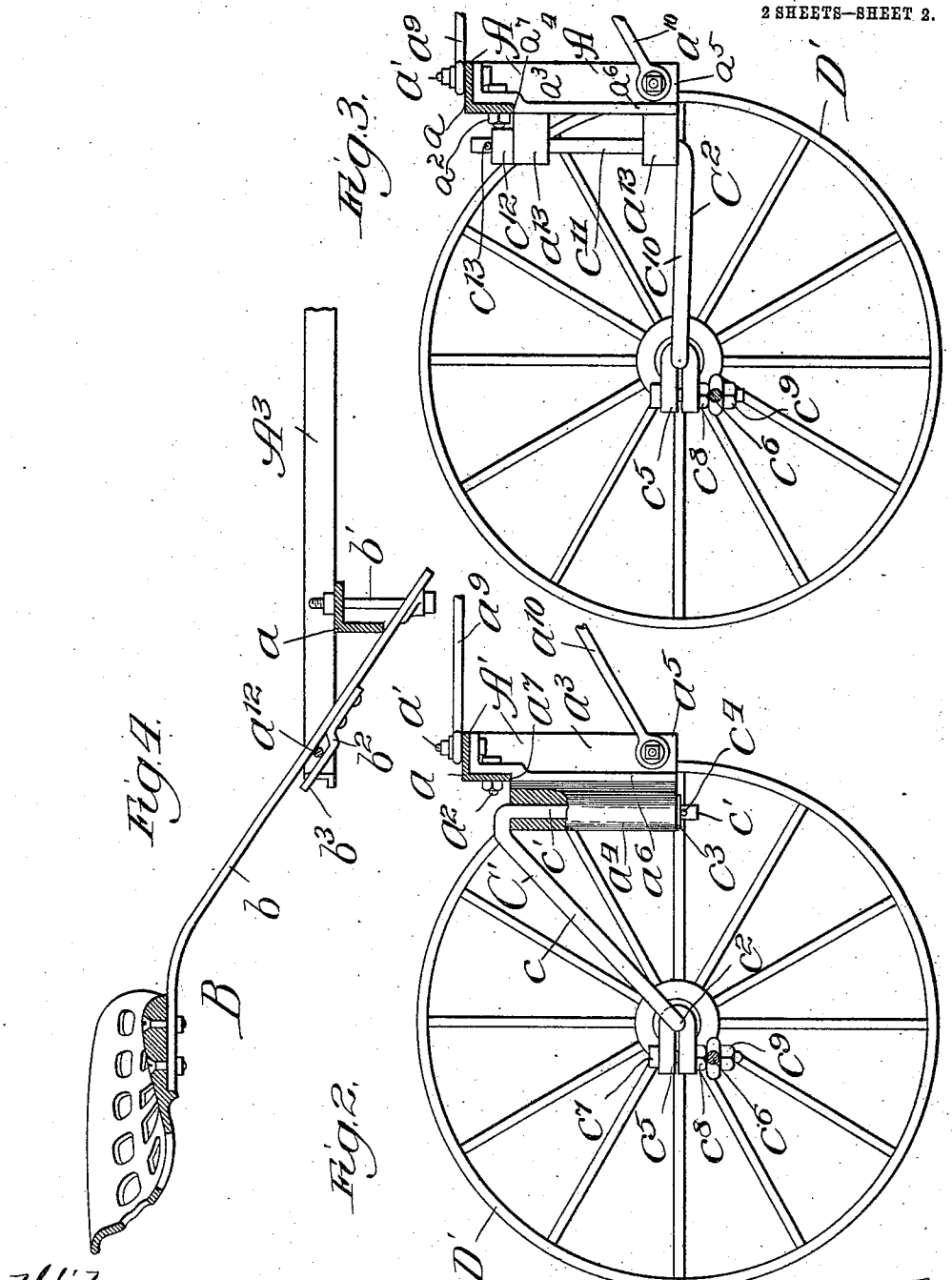

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UNITED STATES PATENT OFFICE.

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HARROW-SULKY.

No. 848,997. Specification of Letters Patent. Patented April 2, 1907.

Application filed April 17, 1906. Serial No. 312,131.

To all whom it may concern:

Be it known that I, NELSON KINER, a citizen of the United States, residing at Marseilles, in the county of Lasalle and State of Illinois, have invented new and useful Improvements in Harrow-Sulkies, of which the following is a specification.

My present invention is in the nature of an improvement on the harrow-sulky described in United States Letters Patent No. 765,846, granted to me July 26, 1904.

My primary object is to cheapen, lighten, and in other respects improve the sulky construction shown in said Letters Patent.

The invention is illustrated in its preferred embodiment in the accompanying drawings, in which—

Figure 1 represents a plan view of my improved sulky attached to draw-bar or evener of a harrow; Fig. 1^a, a section taken as indicated at line 1^a, Fig. 1; Fig. 1^b, a broken plan view illustrating a reversal of one of the attaching members employed for connecting the shafts or tongue members of the sulky with the evener of the harrow for the purpose of giving a long reach; Fig. 2, an enlarged broken vertical section taken as indicated at line 2 of Fig. 1; Fig. 3, a similar section showing a slight modification of the construction, and Fig. 4 a broken vertical section taken as indicated at line 4 of Fig. 1.

In the preferred construction, A represents a frame comprising a yoke or arch A′, shaft members A^2 A^3; B, a seat adjustably connected with the frame; C C′, caster-stems having vertical portions joined by swivel connections to the upright portions of the arch A′ and having at their lower ends outturned spindles, and D D′ wheels journaled on said spindles.

The arch A′ is preferably formed of an angle-bar *a*, having its ends firmly joined by bolts a' a^2 to the upper portions of vertical castings a^3, each of said castings having on its rear side a vertical perforate boss a^4, affording a bearing for the vertical portion of the casting-stem. The castings have forwardly-directed flanges a^5 and inwardly-directed flanges a^6, as shown. The upper ends of the castings are flanged to afford a seat for the angle-bar *a*, and the angle-bar has a forwardly-turned flange which rests upon the ends of the castings, and a downwardly-turned flange which bears against the flanges a^6 of the castings the castings being shouldered, as indicated at a^7, to afford bearings for the lower edge of the downturned flange of the bar *a*. The shaft members A^2 A^3 diverge in a forward direction and are joined near their rear ends by bolts a^8 to the bar *a*, upon which they rest. A pair of brace-rods a^9 connect the bar *a* at the upper ends of the castings with the shaft members, and a pair of upwardly and forwardly inclined brace-rods a^{10} join the lower portions of the castings to the shaft members, a pair of bolts a^{11} serving to connect both pairs of brace-rods to the shaft members. The rear ends of the shaft members are joined by a bolt a^{12}, upon which bears a seat-bar *b*, the forward end of the seat-bar passing beneath the angle-bar *a* and being connected therewith by a bolt b'. The forward end of the seat-bar has a series of perforations (shown in Fig. 1) to permit adjustment. To the under side of the seat-bar is applied a clip b^2, having a rearwardly-directed tongue b^3, which bears beneath the bolt a^{12}, so that the seat-bar is slidably connected with the bolt a^{12} to permit adjustment. The shaft members have outturned flanges which rest upon the cross-bar *a* and upturned flanges between which the seat-bar is confined.

Each of the caster-stems C C′ comprises in the preferred construction a forwardly and upwardly inclined body portion *c*, a downturned vertical portion c', and an outturned spindle portion c^2. Each member is preferably formed by bending a strong bar of circular cross-section into the shape shown in Figs. 1 and 2. The vertical portion c' of each member affords the swiveled portion of the stem and extends downwardly through the swiveled portion a^4 of the corresponding castings, it being equipped at its lower end with a collar c^3, secured by a pin c^4. The spindle portions c^2 of the stems are equipped at their bases with rearwardly-extending arms c^5, tied together by a rod c^6. Each arm c^5 may comprise a U-shape clip embracing the base of the spindle and firmly clamped thereto by a bolt c^7 and a nut c^8. The bolts preferably project beneath the nuts c^8 to receive the eyes of the tie-rod c^6, said eyes being confined between the nuts c^8 and nuts c^9. The rod c^6 is a substantial one, operating to cause the caster-stems to turn together and not independently of each other.

The shaft members A^2 A^3 are preferably connected at their front ends to the evener E of the harrow by means of members E′ E^2. Each of the members E′ E^2 comprises a base portion *e*, an inclined portion *e′*, and a laterally-presented stud e^2. The base portions are secured to the evener by bolts e^3. The extremities of the shaft members are provided with perforations which receive the studs e^2. The shaft members are sufficiently yielding to enable them to be sprung apart to permit the studs to enter the perforations. In Figs. 1 and 1^a the members E′ E^2 are shown projecting forwardly from the evener E. In Fig. 1^b the member E^2 is shown reversed and transferred to the opposite end of the evener; and it will be understood that by reversing and transferring both members the length of reach of the sulky may be increased to accommodate a larger size harrow located between the wheels of the sulky and the evener E.

In the modification shown in Fig. 3 the construction is very similar to the construction already described. The castings A^4 are modified so as to present two perforate lugs a^{13}, and the caster-stems C^2 are modified to present a horizontal portion c^{10} and upturned vertical portions c^{11}. The upturned portions c^{11} constitute the swivel portions and are equipped at their upper ends with collars c^{12}, secured by pins c^{13}, the collars resting upon the upper lugs a^{13}. The spindle portions of the caster-stems are equipped with arms c^5, as before, and said arms are connected by the rod c^6, as before.

From the foregoing description it will be understood that the tongue of the sulky extends over the harrow and is so attached to the draw-bar as to permit the tongue to swing in a vertical plane with relation to the draw-bar. When a turn is made with the harrow, the axis of the tongue remains in a plane at right angles to the plane of the draw-bar, and the stems C C′ turn in unison to maintain the body of the sulky directly in the rear of the center of the harrow. The provision of arms at the bases of the spindles of the caster-stems and the connection between said arms insures the simultaneous movement of the caster-stems with little strain upon the parts even in passing over very rough ground. As has been indicated, the seat is adjustable forwardly and rearwardly to enable the sulky to be properly balanced according to the weight of the driver. The construction is well adapted to secure the greatest strength and durability with the least possible weight, a sulky thoroughly adapted to ordinary farm purposes being provided with a weight considerably less than one hundred pounds.

The foregoing detailed description has been given for clearness of understanding only and is not to be regarded as in the nature of an undue limitation.

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

1. In a sulky of the character described, the combination of a frame having tongue members adapted to be secured at different points on the machine to which it is to be attached, a seat connected with said frame, a pair of wheels, a pair of caster-stems having swivel connection with said frame and provided with spindles upon which said wheels are journaled, and means tying said caster-stems together at the base portions of the spindles, for the purpose set forth.

2. In a sulky of the character described, the combination of a frame having a tongue, a seat connected to said frame, a pair of wheels, a pair of caster-stems having swivel connection with said frame and equipped with spindles upon which said wheels are journaled, a pair of arms on the base portions of said spindles, and a rod joining said arms, for the purpose set forth.

3. In a sulky of the character described, the combination of a frame having a pair of vertical bearings for caster-stems, a pair of caster-stems having downturned ends swiveled in said bearings and having their rear portions equipped with outwardly-projecting spindles, a pair of arms joined to said caster-stems at the base portions of said spindles, and a rod connecting said arms.

4. In a sulky of the character described, the combination of a frame having an arch with a cross member, a pair of diverging shaft members supported on said cross member and extending in the rear thereof, and a seat adjustably connected with the rear portions of said shaft members and with said cross member.

5. In a sulky of the character described, the combination of a frame having an arch comprising a pair of castings provided on their rear sides with perforate swivel-lugs, a cross member joining the upper ends of said castings, a pair of forwardly-diverging shaft members extending across said cross member, brace members joining said cross member and castings to said shaft members, a seat connected with the rear end portions of said shaft members and with said cross member, and caster-stems having vertical swivel portions received by the perforate lugs of said castings.

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