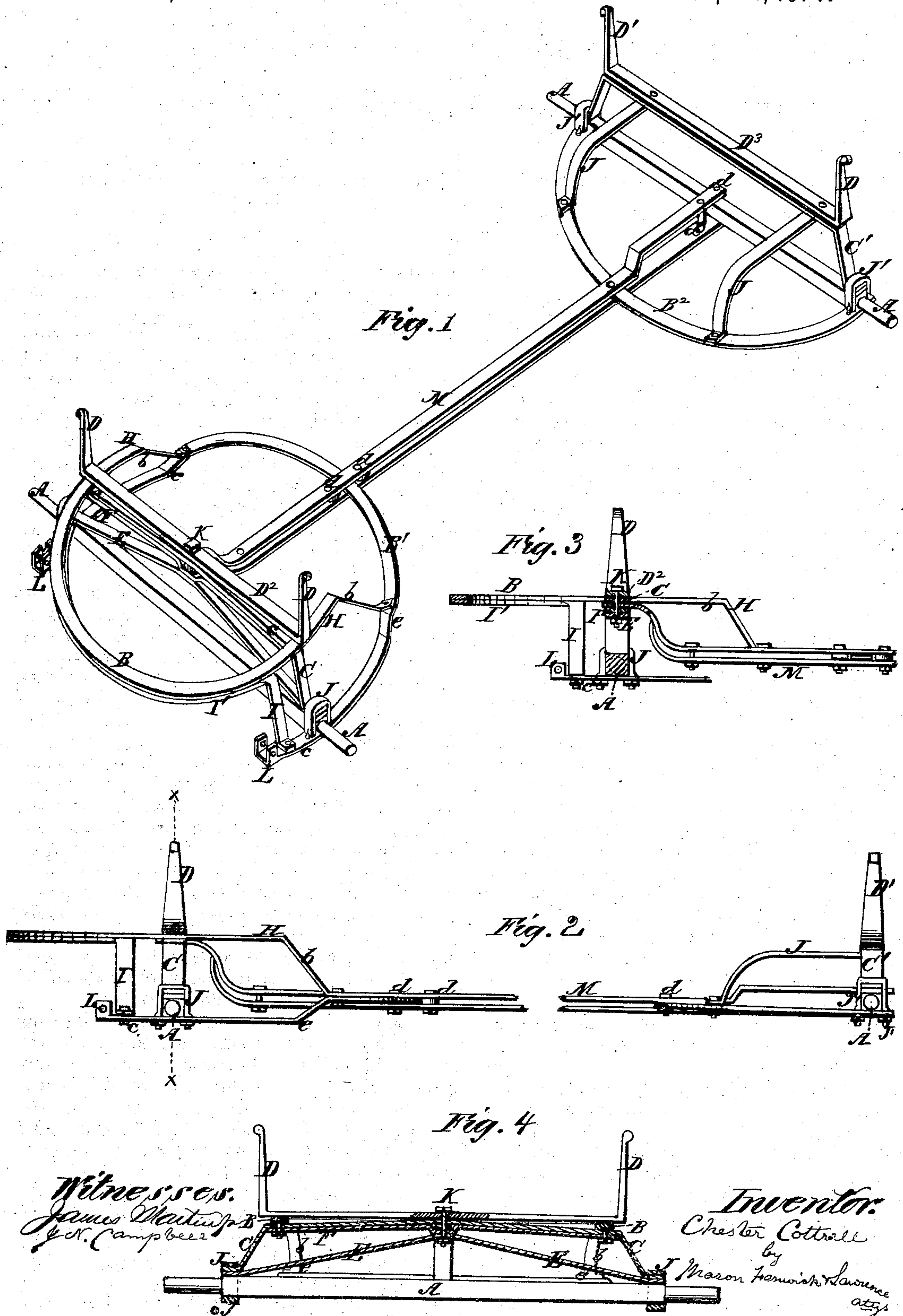


C. COTTRELL.
Running-Gear for Vehicles.

No. 154,541.

Patented Sept. 1, 1874.



Witnesses:
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UNITED STATES PATENT OFFICE.

CHESTER COTTRELL, OF MEREDITH, NEW YORK.

IMPROVEMENT IN RUNNING-GEARS FOR VEHICLES.

Specification forming part of Letters Patent No. **154,541**, dated September 1, 1874; application filed June 24, 1874.

To all whom it may concern:

Be it known that I, CHESTER COTTRELL, of Meredith, county of Delaware and State of New York, have invented a new and useful Improvement in Running-Gear of Vehicles; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing making part of this specification, in which—

Figure 1 is a perspective view of the running-gear of a wagon as improved by me, the wheels being removed. Fig. 2 is a side elevation of the same. Fig. 3 is a longitudinal section of the front axle and its connections. Fig. 4 is a transverse section in the line *xx* of Fig. 2.

The nature of my invention consists in a wagon-gear made, in the manner hereinafter specified, of bar metal, whereby great lightness, strength, and durability are obtained at a very slight cost.

To enable others skilled in the art to make and use my invention, I will proceed to describe it.

A A are the axles; B B¹ B², the semicircular pieces upon which the swinging parts of the gear move, and by which these parts are guided and stayed. C C' are the "risers," which support the standards D D¹ and their bars D² D³; E, an arched or double-inclined brace between the front axle and the base-bar F of the front riser. H H are braces or stays, formed by extending the front circle-piece B backward and downward, as at *b b*, so as to bolt firmly to the semicircular piece B¹. I I are braces between the forward-extended ends *c c* of the lower circular piece B¹ and the upper front semicircular piece B, as shown. J J are braces between the rear riser and the rear semicircular piece B². J' J' are clip-iron fastenings for uniting the ends of the front risers and of the braces, and firmly fastening the same, together with the axle, upon the lower front semicircular piece B¹, as shown. K is a king-pin or pivot for uniting together the standard-bar D², the stiffening-bar F, the double-inclined brace, and the reach M in such a way as to permit the front axle and its connections to swing around independently of the

standard-bar and of the reach; also, to permit the hind axle and reach, and the front and rear standard-bars, to swing around with the body of the wagon independently of the front axle. L L are perforated shaft-connecting irons, formed on the front extended ends of the lower semicircular piece. The reach M is made by doubling the iron and holding the pieces separated at certain points by shouldered bolts *d d*. The semicircular pieces B¹ B² fit in between the bars which form the reach, and the one, B², is bolted firmly in place at the middle of its length, and fastened by its ends to the axle by means of the clip-irons J' J', which fasten the back riser in position. The rear standard-bar D³ is bolted firmly to the back riser, as shown. The front end of the reach is made single, so as to pass in between the bar F and the front riser, and its back end is doubled, so as to receive the rear axle between its bars, as shown. The semicircular piece B¹ is bent at *e e*, in order that it shall be on a plane with the space between the bars of the reach, while those portions which are forward of these bends may be passed under the axle. The braces I, between the upper front semicircular piece B and the lower piece B¹, are formed upon a base-bar, I', of semicircular form, upon which and to which the said semicircular piece B is fitted firmly.

The wagon-gearing described may be made of bar metal, either iron or steel, one and a half inch wide by three-eighths of an inch thick. The axles should be about one-and-a-half-inch metal, with swelled shoulders.

It may be apparent from the drawings and the foregoing description that the parts are all so shaped and disposed, relatively, that great strength, lightness, and durability are obtained, and while this is so the parts are stayed in such a manner by one another that very little friction in the turning of one part upon another will be experienced.

What I claim as new is—

1. The running-gear for a wagon, constructed of bar metal, and consisting of the reach M, the semicircular pieces B B¹ B², the risers C C', the standards D D¹, and bars D² D³, the front double-inclined brace E, and braces I J H, the shaft-coupling irons L L, and the axles

A A, all combined substantially as and for the purpose set forth.

2. The semicircular piece B, having its rear ends bent downward, the semicircular piece B¹, having its front ends bent downward, the segmental piece I', having its ends bent downward, and the front riser C, having its ends bent downward, the inclined brace E, and the axle A, all of bar metal, and combined substantially in the manner shown and described.

3. The combination of the rear riser C', having its ends bent downward, the rear semicir-

cular piece B², the axle A, the braces J J, the reach M, doubled upon the axle, and the clips J J', substantially as and for the purpose described.

4. The shaft-coupling irons L L, wrought upon the forward ends of the semicircular piece B¹, substantially in the manner shown and described.

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Witnesses:

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