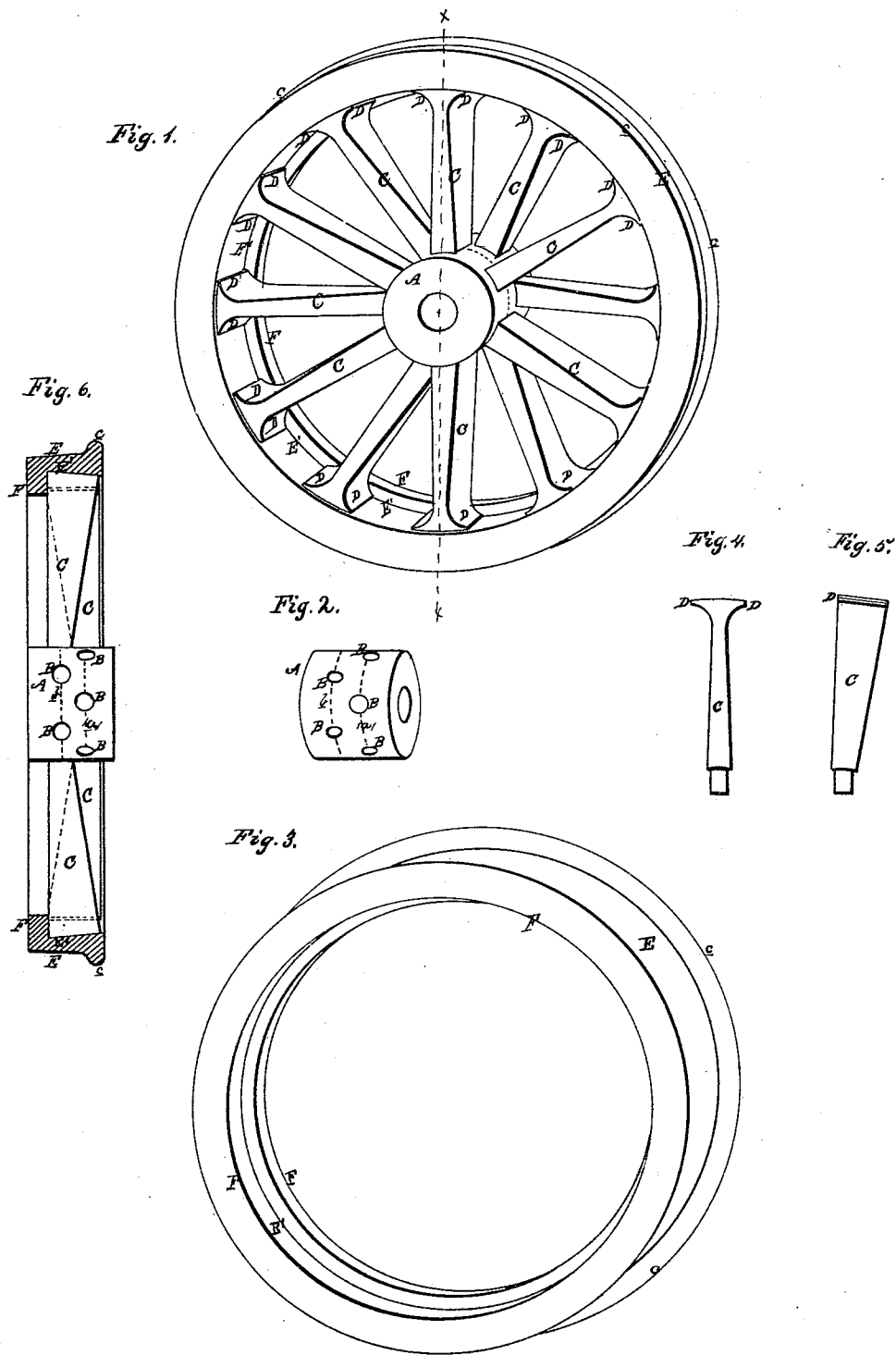


H. AIKEN.
WROUGHT IRON CAR WHEEL.

No. 7,676.

Patented Oct. 1, 1850.



UNITED STATES PATENT OFFICE.

HERRICK AIKEN, OF FRANKLIN, NEW HAMPSHIRE.

WROUGHT-IRON CAR-WHEEL.

Specification of Letters Patent No. 7,676, dated October 1, 1850.

To all whom it may concern:

Be it known that I, HERRICK AIKEN, of Franklin, in the county of Merrimac and State of New Hampshire, have invented a new and useful Improvement in Wrought-Iron Wheels for Railroad-Cars and Locomotives, which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.

Figure 1, is a perspective view of a car-wheel constructed after my improved plan. Fig. 2, is a perspective view of the hub of ditto, detached from the wheel. Fig. 3, is a perspective view of the rim of the wheel. Fig. 4 is a side elevation of one of the spokes detached. Fig. 5 is a front elevation of ditto. Fig. 6 is a vertical section of the wheel at the line *x, x*, of Fig. 1.

Similar letters in the figures refer to corresponding parts.

My improvement is designed to make the wheels of railroad cars and locomotives, stronger and more durable, and of less weight than the cast iron wheels now used, thus guarding against the accidents to human life and property, frequently caused by the breaking of the wheels at present used, and by dispensing with much weight of metal, enabling them to be more easily propelled over the track.

To enable others skilled in the art to make and use my improved wheel I will proceed to describe its construction.

The hub A, of the wheel is made of wrought iron of the usual or most approved form, and contains a series of radial holes B, extending from the periphery toward the center a suitable distance, and formed on parallel lines around the periphery, at equal distances apart, and in such relation to each other, that the holes on one of the parallel lines shall be situated immediately opposite the spaces between those on the other line. Into these holes B, are inserted the inner ends of wrought iron spokes C, rounded at their ends so as to exactly fit the holes and form shoulders which rest against the periphery of the hub and increased to double their width and decreased to one-half their thickness, at their outer extremities, where they are provided with curved projections or arms D on their sides. The under sides of the spokes arranged on the inner line (*a*) on the hub, and the outer sides of the spokes on the outer line (*b*)

of the same, are at right angles with the axis of the wheel, and their other or tapered sides form an angle of about 10 degrees with the same as represented in Fig. 6.

The rim E of the wheel is likewise made of wrought iron, and is made similar to the ordinary car wheel on its outer periphery, and is provided with the usual flanch (*c*). On its inner periphery, instead of being made parallel to the periphery of the hub, and plain, it is beveled or increased in diameter as it approaches the outer face of the wheel, and has a flange F projecting inward from its largest diameter, on a line with the outer face of the wheel, against which the inner sides of the outer extremities of the spokes, and the projections or flanges D on the same, rest; the ends of said spokes, and the projections or arms D on their sides, being beveled and made convex on their outer surface, to correspond with the inner periphery of the rim which fits against the same. The flange F serves the double purpose of strengthening the rim of the wheel and confining the spokes, and in connection with the beveled surfaces of the rim of the wheel, and the spokes and projections or flanges on their sides, render it impossible for the rim to have the slightest lateral movement.

A small flange, or a number of small projections, may be formed on the inner surface of the rim of the wheel, to match similar recesses or projections, on the projections or arms on the ends of the spokes, to secure the spokes and rim firmly together, instead of connecting them in the manner described above, but the employment of the flange F, and bevel surfaces on the rim and spokes, is deemed the simplest, least expensive, and most secure method of uniting them together.

The mode of securing the parts together is as follows:—The hub A, is heated to expand the iron and enlarge the holes B, in the periphery of the same, and while in a heated state the spokes C, are inserted in the holes and securely confined by the hub cooling and contracting upon them. The hub with the spokes thus attached is then placed in a lathe, and the outer surfaces of the ends of the spokes and the projections or arms D on the same, are turned smooth and made to correspond with each other, and with the bevel E' on the inner periphery of the rim E of the wheel, which is likewise

turned in a lathe. The rim is then heated, and enlarged or expanded in size, in a corresponding degree, to admit the spokes and hub, which are inserted within the rim in the proper relation to the same; the outer sides of the spokes and the projections or arms on the ends of the same being placed against the flange F on the rim. When the rim cools it contracts upon the spokes C, and the projections or arms D on the ends of the same and securely confines the same between the beveled inner periphery E' of the rim E, and the flange F on the same, and embraces all the parts firmly together,—thus forming a substantial, durable and light car wheel, (which may be finished if desired, by turning the outer surface of the rim and flanch (c) in a lathe), not liable to breakage from the causes which

frequently break the usual cast iron wheels in use, and otherwise free from their objectionable features.

I do not claim either of the parts of the wheel separately considered; but

What I do claim, is—

The combination of the rim E with the arms D at the ends of the spokes C, by means of the inner flange F and bevel E' between the flange and opposite side of the rim.

In testimony whereof I have hereunto signed my name before two subscribing witnesses.

HERRICK AIKEN.

Witnesses:

LUND WASHINGTON,
HARRY C. B. DENNISON.