

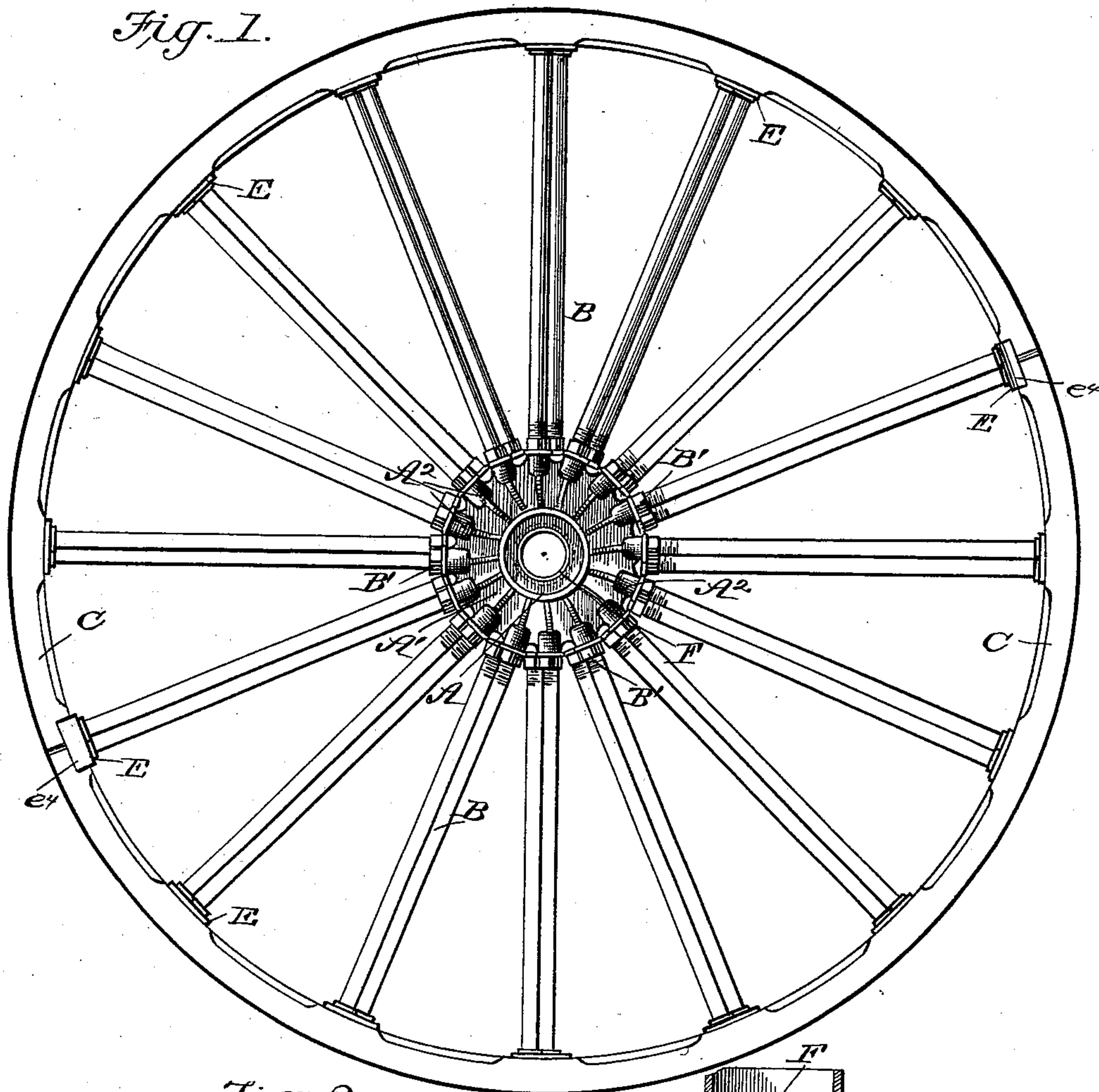
(No Model.)

S. CARNES.  
WHEEL.

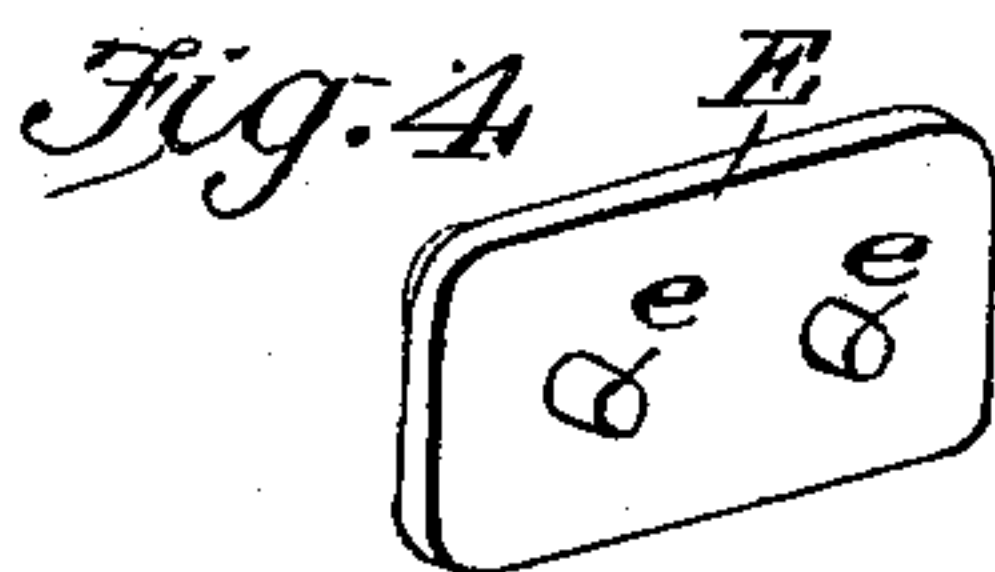
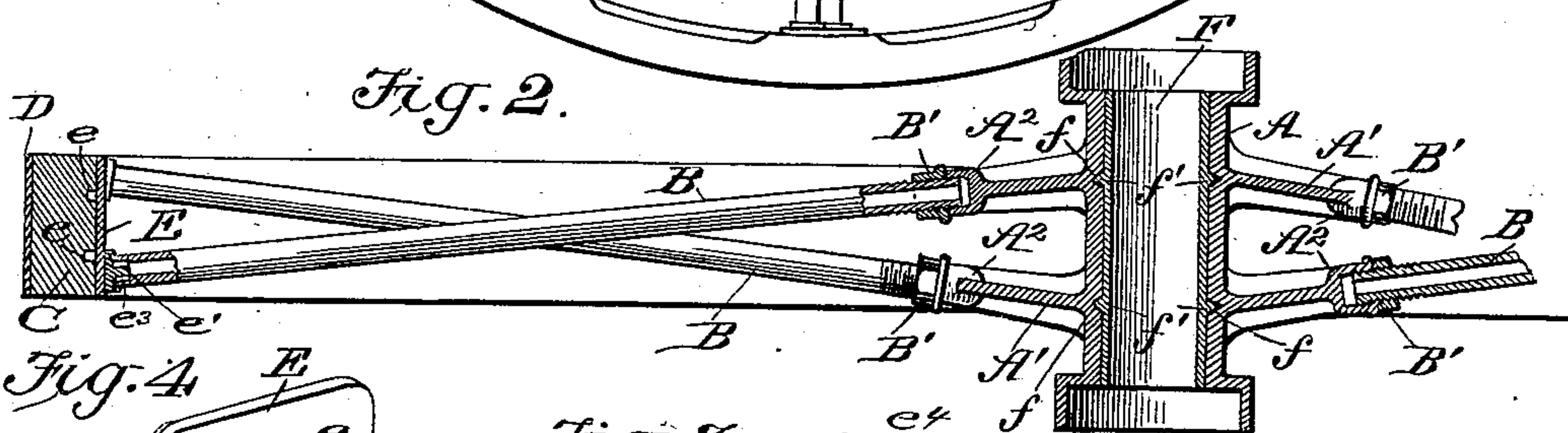
No. 560,970.

Patented May 26, 1896.

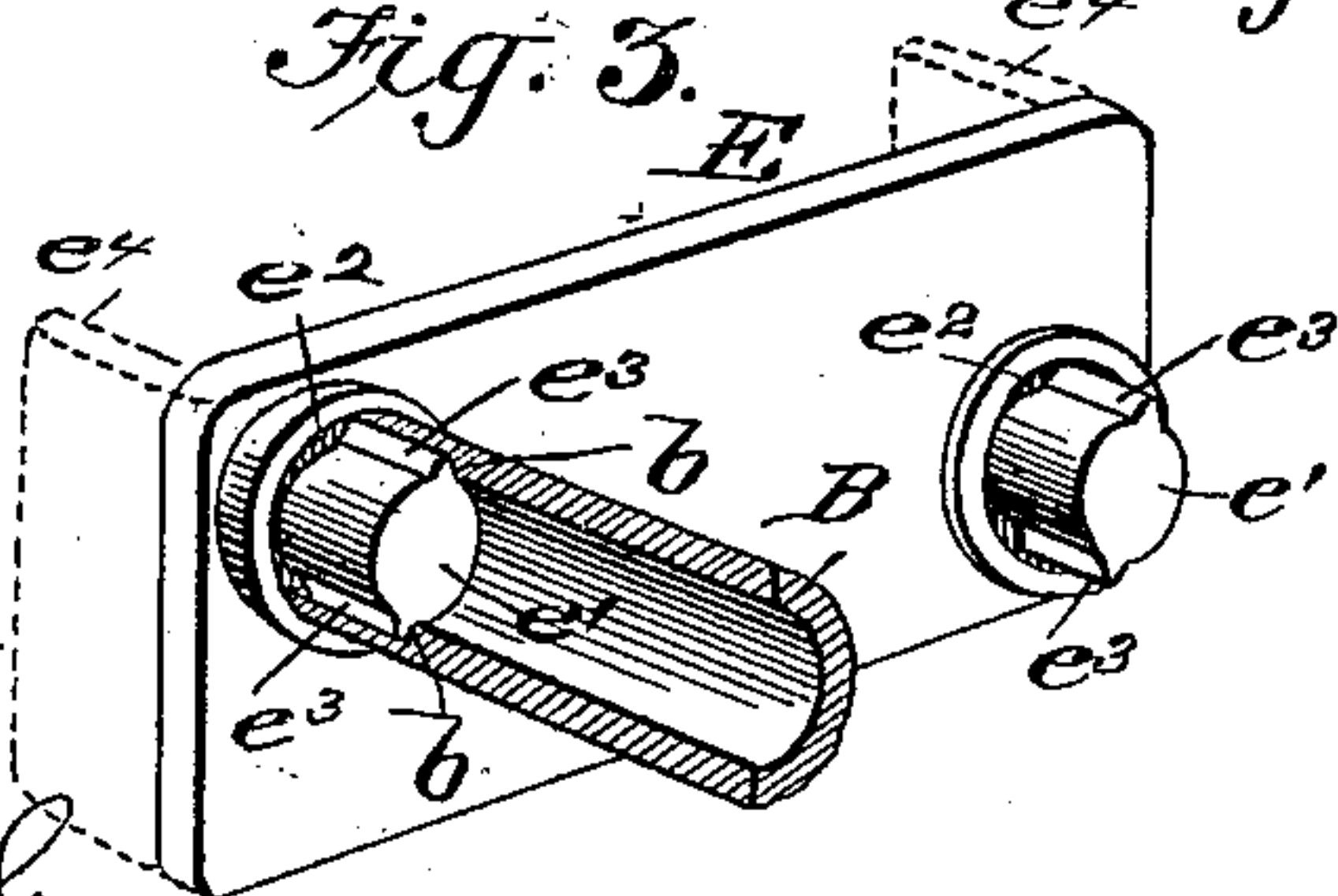
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



WITNESSES:

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INVENTOR

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# UNITED STATES PATENT OFFICE.

SAMUEL CARNES, OF VIENNA, GEORGIA.

## WHEEL.

SPECIFICATION forming part of Letters Patent No. 560,970, dated May 26, 1896.

Application filed October 25, 1895. Serial No. 566,807. (No model.)

*To all whom it may concern:*

Be it known that I, SAMUEL CARNES, a citizen of the United States, residing at Vienna, in the county of Dooly and State of Georgia, have invented certain new and useful Improvements in Wheels, of which the following specification contains a full, clear, and exact description, reference being had to the accompanying drawing.

10 The invention consists in the construction and combination of parts hereinafter described and claimed.

A represents the hub, which is formed in a single casting and provided with end flanges A' A', each having a series of peripheral spoke-sockets A<sup>2</sup> to receive the inner ends of the tubular spokes B. The inner ends of the spokes are threaded and enter freely the said sockets A<sup>2</sup>, and exterior to the sockets the spokes are provided with adjusting-nuts B', by means of which the spokes may be moved in and out.

C represents the felly, made in sections, as usual, and D is the ordinary tire. The inner face of the felly, radially opposite each pair of sockets A<sup>2</sup>, is provided with a pair of transversely-alined apertures to receive the studs or pins *e*, formed on the spoke-clips E. These clips E are castings and are formed with said pins *e*, and also with pins *e'* on their opposite faces, to enter the outer ends of the spokes. The pins *e'* are provided on opposite sides with A-shaped tongues *e*<sup>3</sup>, which fit corresponding recesses *b* in the interior of the outer ends of the spokes B. Thus the spokes will be held from rotation when the nuts B' are operated. Concentric with these pins *e'* I form shallow annular recesses *e*<sup>2</sup>, into which fit the outer ends of the spokes, which are thus braced both within and without. By tightening up the nuts B' the spokes will be moved outwardly and the felly expanded to firmly tighten the tire. By an opposite adjustment of the nuts any spoke may be allowed to enter its sockets A<sup>2</sup> sufficiently far to allow its outer end to be disengaged from the clip-pin *e'* and recess *e*<sup>2</sup>.

50 The clips E, which register with the felly-joints, are formed with end flanges *e*<sup>4</sup>, which embrace the opposite sides of the felly-sections at the joint and thus hold the wedges in place.

The spokes, it will be noticed, are arranged in pairs, each pair crossing between their ends, so that one spoke will extend from the outer hub-flange to the inner pin and recess of the clip E, while its mate will extend from the inner hub-flange to the outer pin and recess of said clip. Thus a very strong and well-braced wheel will be afforded.

60 F represents a composition box that is cast in the bore of the hub A, the interior of which is provided with two annular V-shaped grooves *f*, directly in the plane of the two spoke-flanges, and into these grooves the metal enters and forms the annular locking tongues or ribs *f'*. Such a box will not wear the axle and will last a long time. When eventually worn out, the boxes may be renewed. This construction, while shown as applied to a vehicle-wheel, may also be applied in the construction of water-wheels.

75 Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination with the hub having annular flanges provided with peripheral spoke-sockets, and the tire and felly, of the clips having pins entering recesses in the felly and having pins and concentric recesses on their opposite sides and the spokes entering the hub-recesses and there provided with nuts for adjusting them outwardly into engagement with the clip-pins and recesses, substantially as set forth.

2. The combination with the hub having two series of peripheral spoke-sockets and the felly-clips having pins provided with side tongues or ribs, of the tubular spokes mounted at their inner ends in the spoke-sockets and having internal recesses at their outer ends to engage the tongues or ribs when the pins enter the spokes, substantially as set forth.

3. In a wheel, the spoke-clip having a pair of attaching-pins on one side and a pair of spoke-engaging pins on its opposite side provided with tongues or ribs, substantially as set forth.

4. In a wheel, the spoke-clip having a pair of pins or studs on each face and annular spoke-recesses concentric with the spoke-engaging pins, substantially as set forth.

5. In a wheel, the spoke-clip having end flanges for the sides of the felly, a pair of pins

to enter the felly and a second pair of spoke-engaging pins on its opposite face; each spoke-pin being surrounded at its base by an annular recess, substantially as set forth.

- 5 6. A wheel, consisting in the cast hub having integral end flanges provided with peripheral sockets, pairs of crossed spokes entering said sockets at their inner ends and

provided with adjusting-nuts, the felly and tire and clips on the felly each having a pair 10 of spoke-engaging pins and recesses, substantially as set forth.

SAMUEL CARNES.

Witnesses:

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