

C. H. APPEL.

Improvement in Carriage Wheels.

No. 123,375:

Patented Feb. 6, 1872.

Fig. 1.

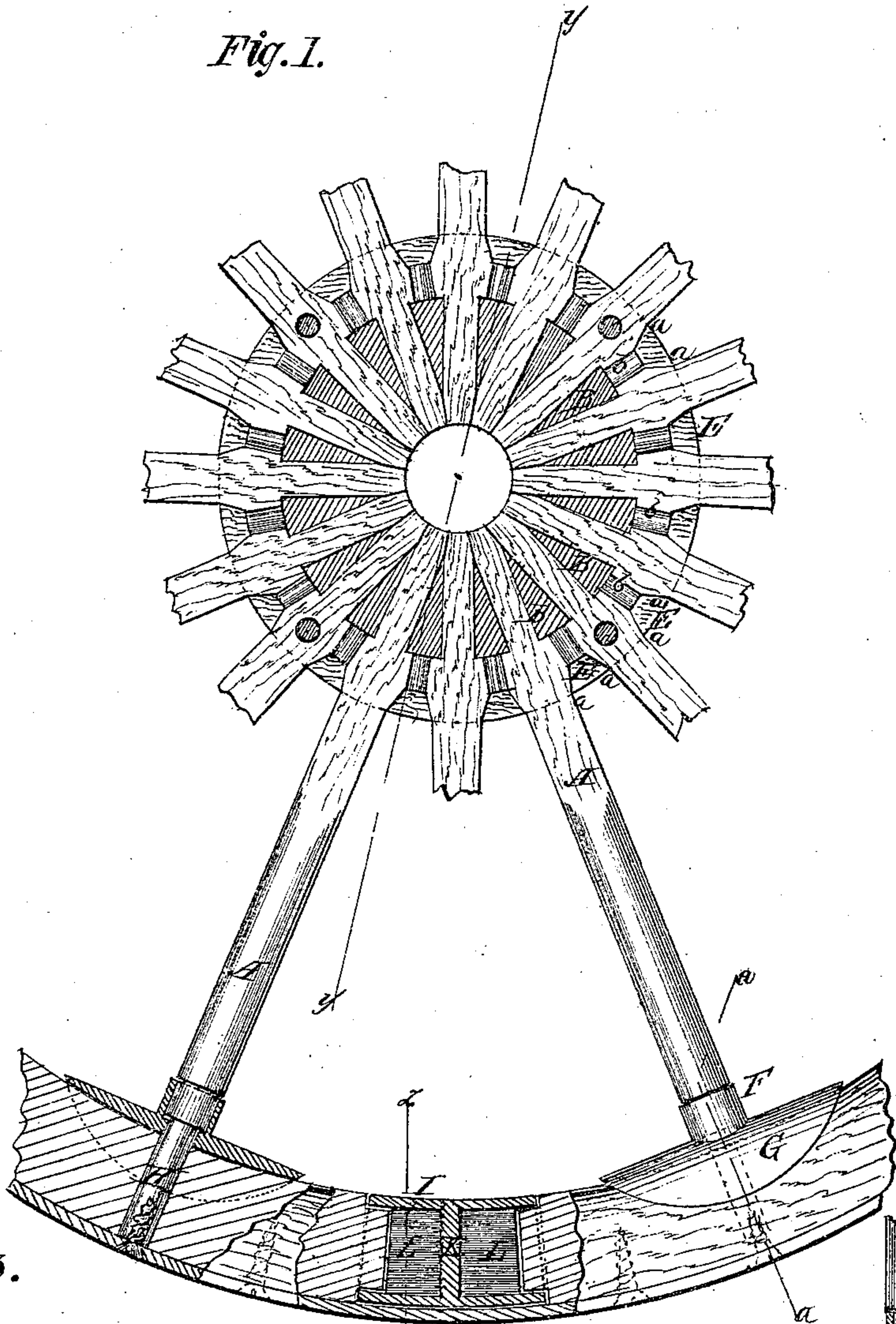


Fig. 4.

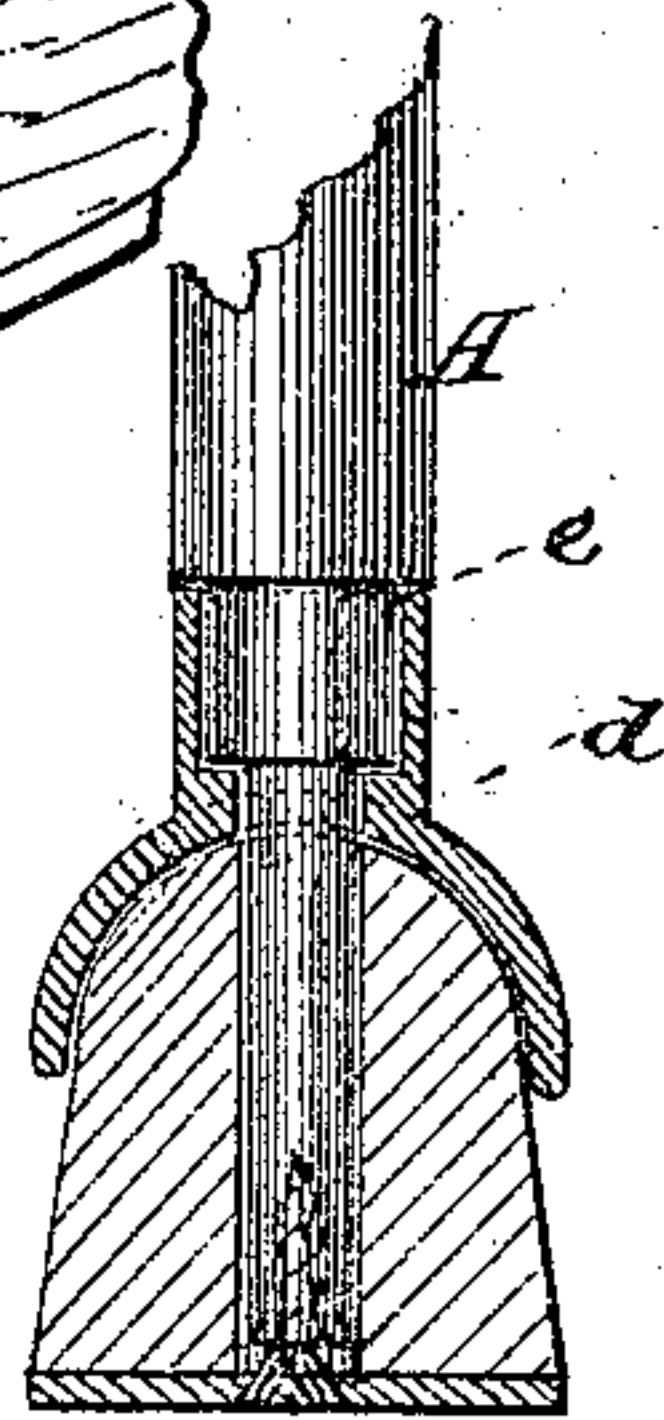


Fig. 3.

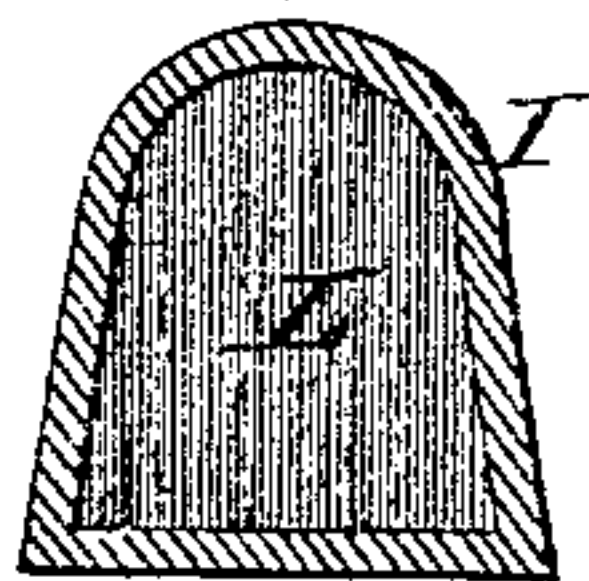
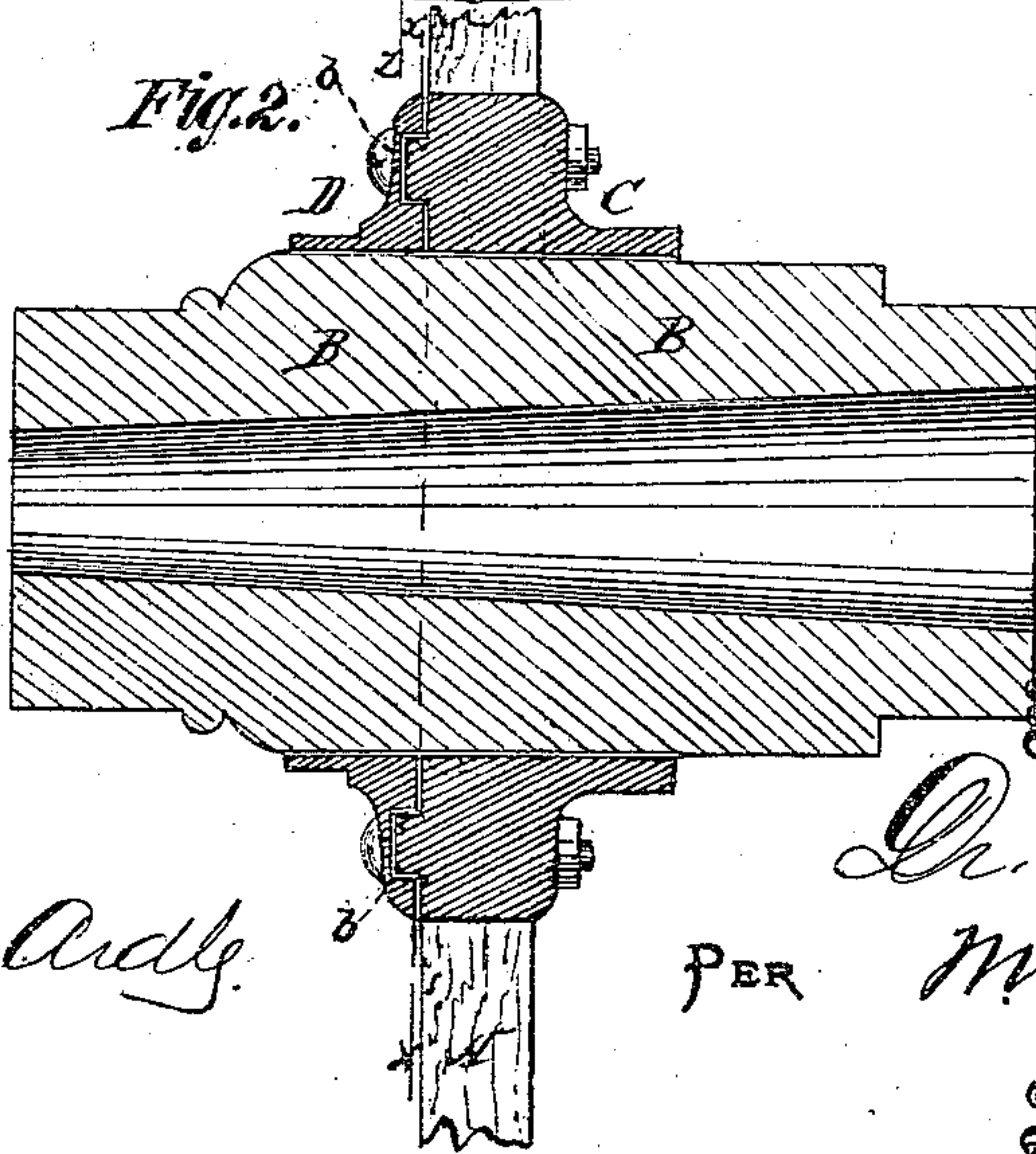


Fig. 2.



Witnesses:

P. C. Dieterich.  
Francis McAuley.

Inventor:

Dr. C. H. Appel.  
PER *Munn & Co.*  
Attorneys.



# UNITED STATES PATENT OFFICE.

CHARLES H. APPEL, OF ALLENTOWN, PENNSYLVANIA.

## IMPROVEMENT IN CARRIAGE-WHEELS.

Specification forming part of Letters Patent No. 123,375, dated February 6, 1872.

Specification describing a new and Improved Carriage-Wheel, invented by Dr. CHARLES H. APPEL, of Allentown, in the county of Lehigh and State of Pennsylvania.

My invention pertains to an improvement in the devices for securing the spokes of carriage-wheels in the sockets of their wooden hubs; the same consisting of a detachable metallic ring, constructed as hereinafter described.

Figure 1 is a sectional elevation of the hub on the line *x x* of Fig. 2, and sections of the spoke and felly-sockets and parts of the felly. Fig. 2 is a section on the line *y y* of Fig. 1. Fig. 3 is a section on the line *z z*; and Fig. 4 is a section on the line *a a*.

Similar letters of reference indicate corresponding parts.

The spokes A are mortised into the wooden part of the hub, and metallic collars C D, with lugs E, are fitted on the hub, one on each side of the spokes, with the lugs E between the spokes in the usual manner, except that I dovetail these lugs with the spokes, as clearly shown at *a* in Fig. 1, to prevent the spokes from working out; and I provide a tenon, *b*, on each lug to enter a corresponding socket in the other collar, to prevent one collar from turning independently of the other; also, to prevent the lugs breaking off by the wedging of the spokes. E is the metallic socket for the outer end of the spoke, with a curved base-

plate, G, fitted to the inner face of the felly, to hold it from lateral displacement. This is also like other sockets, except that, in order to prevent the felly from being split by the end pressure of the shoulder of the spoke against it, I provide the shoulders *d e* on it, and corresponding shoulders on the spoke, to resist this end pressure, which is distributed over a large area on the felly by the plate G. A tenon, H, of the spoke is passed through the felly, as in other cases. I is the metallic socketed coupling for the ends of the felly, having a dividing-plate, K, at the center; and L represents the India-rubber cushions, which I propose to have in these sockets, to expand and take up the slack in case the felly becomes loose, and to contract and give room for the felly to expand in case of swelling by being wet. Said cushions will be considerably compressed in the sockets when the wheel is put together.

I do not claim dovetailed lugs or holding devices in connection with a hub and spoke; but

What I do claim is—

The detachable metallic collar C and D, provided with the dovetailed lugs E, in combination with the spokes and wooden hub, all constructed and arranged as specified.

CHARLES H. APPEL.

Witnesses:

ELIAS MERTZ,  
HIRAM MERTZ.