

B. B. HOWARD.

Means of Attaching Hubs to Axles.

No. 158,639.

Patented Jan. 12, 1875.

Fig. 1.

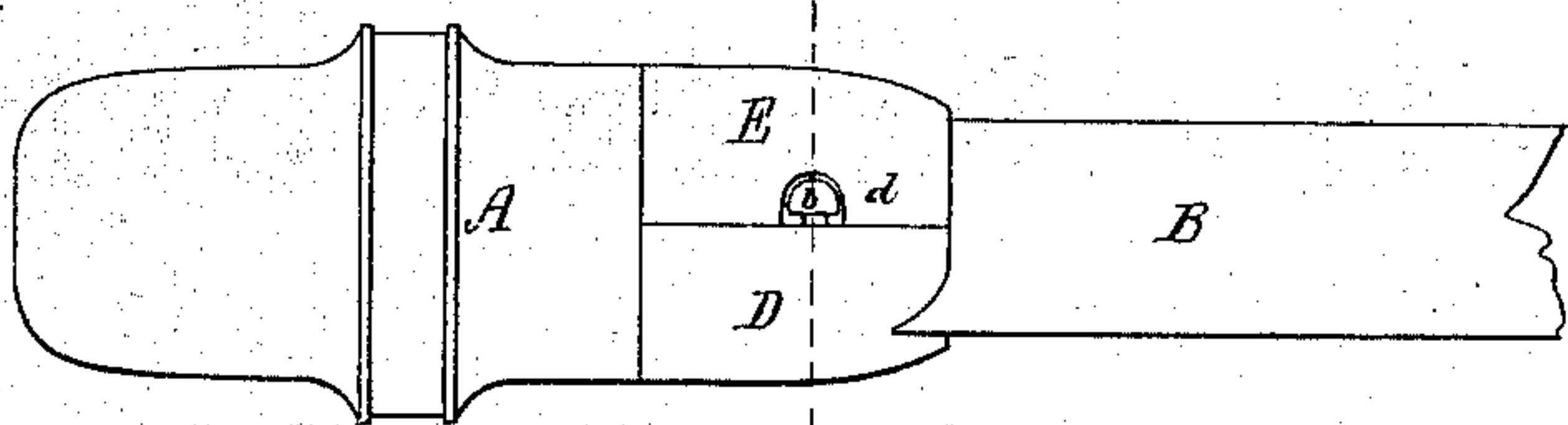


Fig. 2.

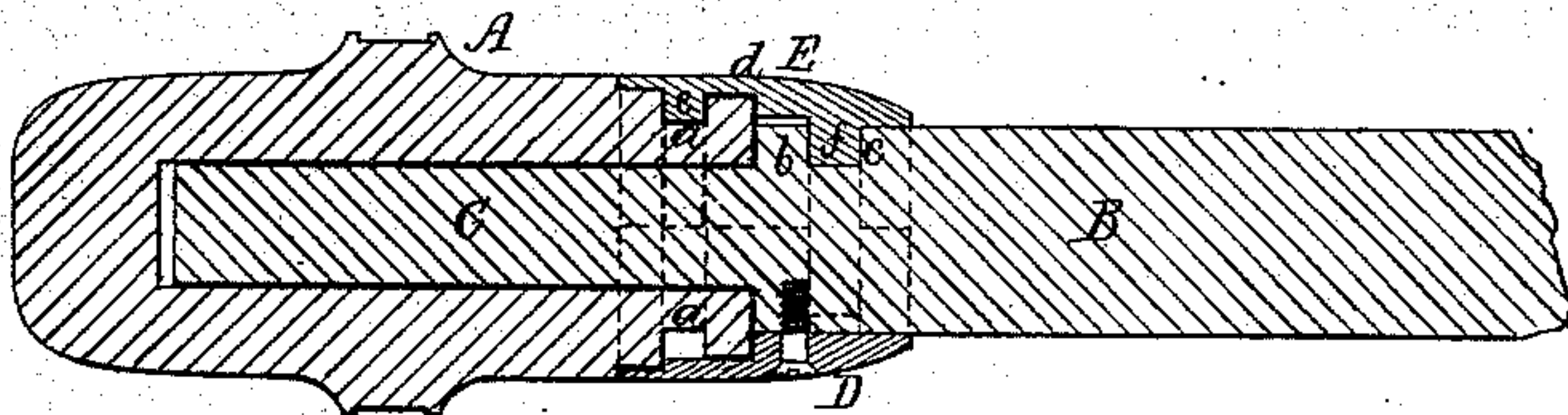


Fig. 3.

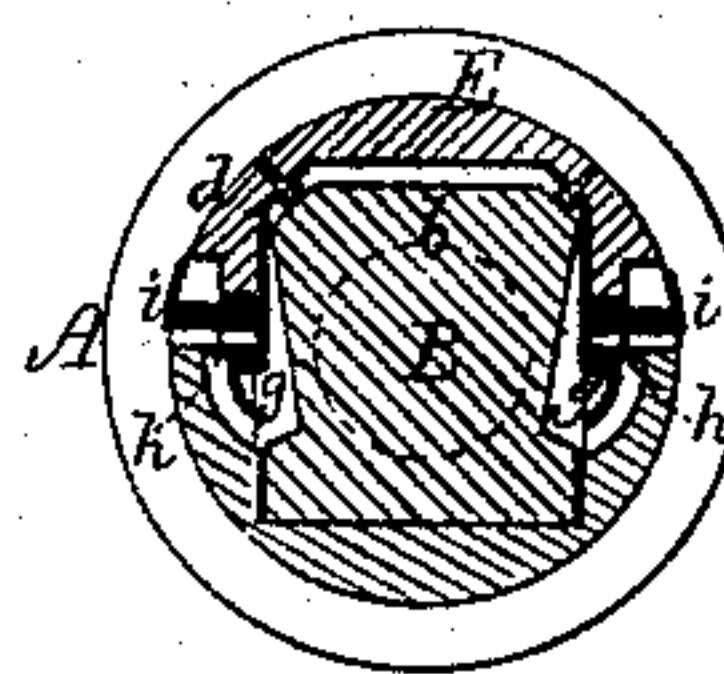


Fig. 4.

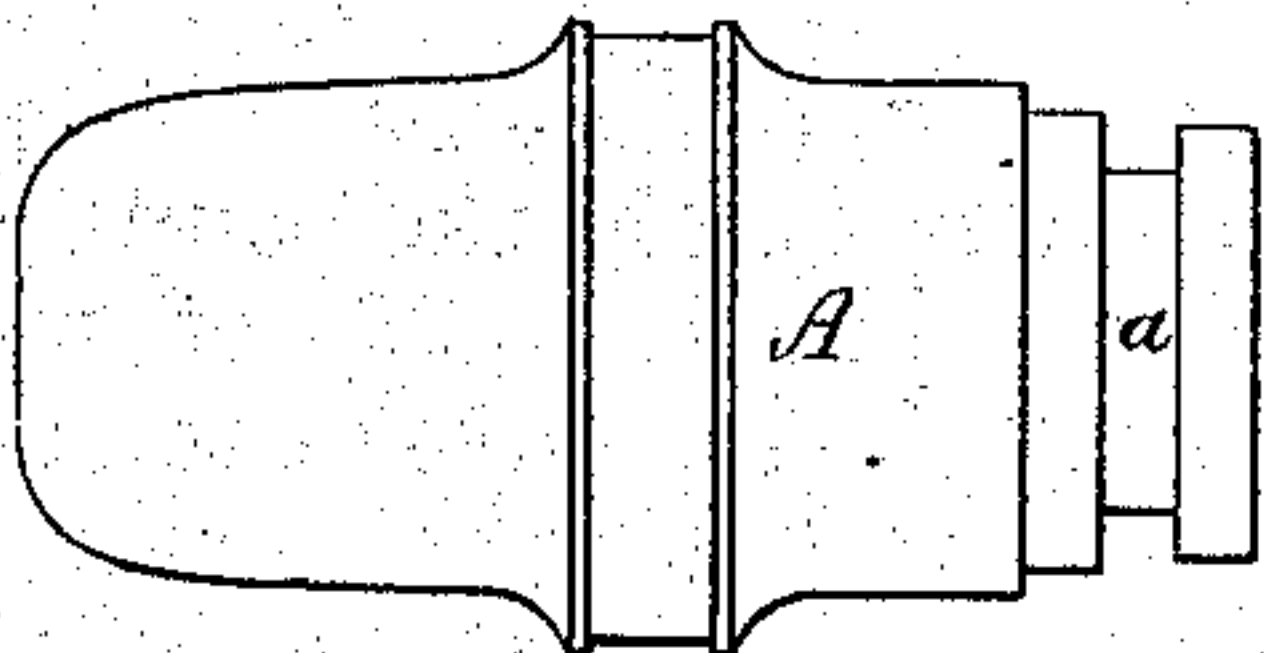


Fig. 5.

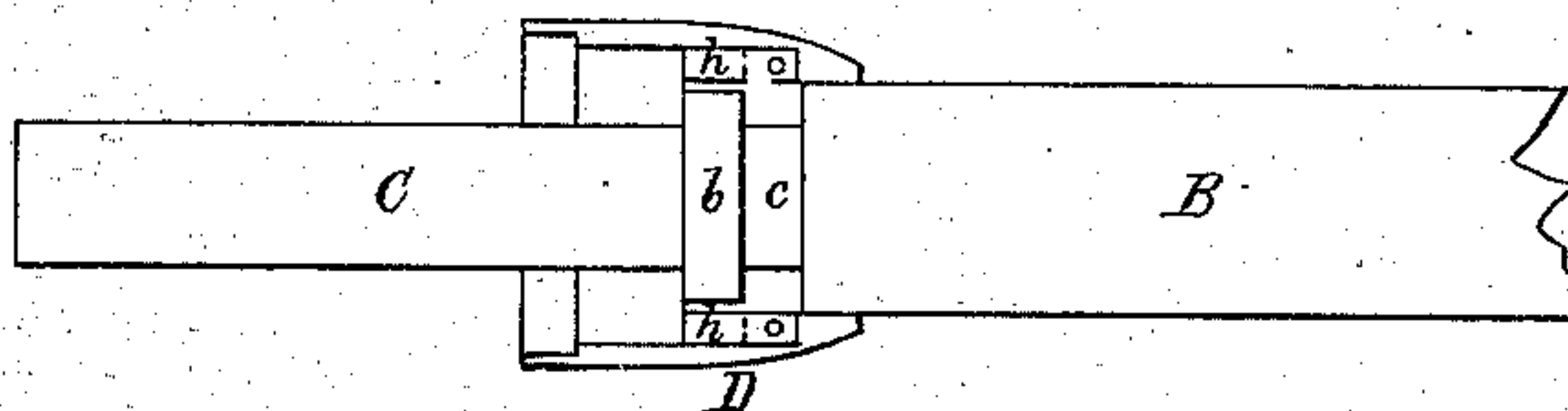


Fig. 6.

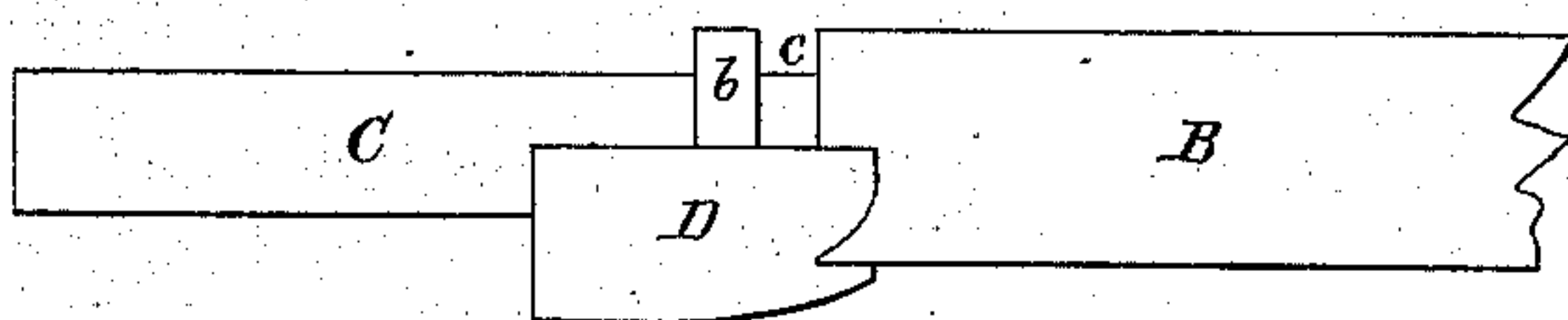


Fig. 7.

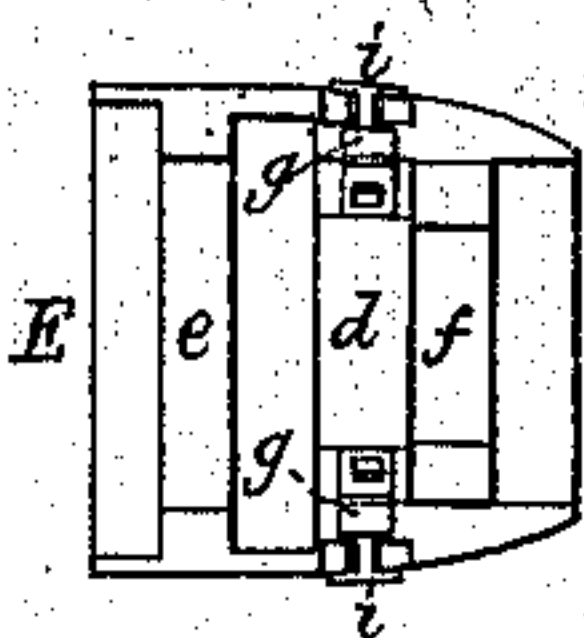


Fig. 9.

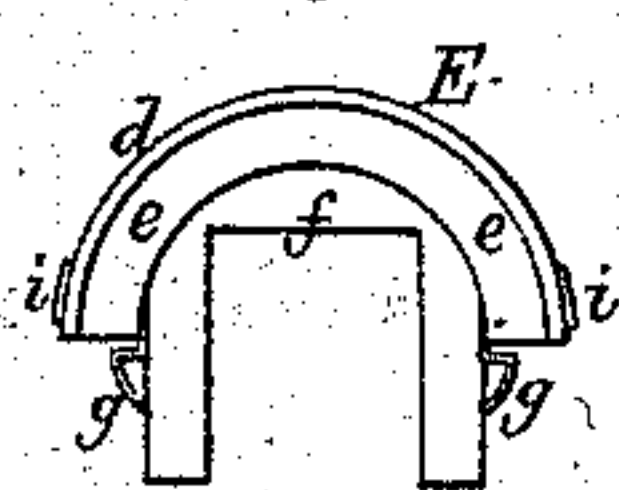


Fig. 8.

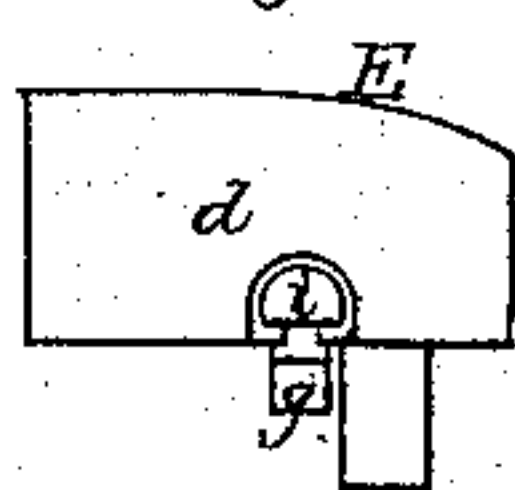


Fig. 10.

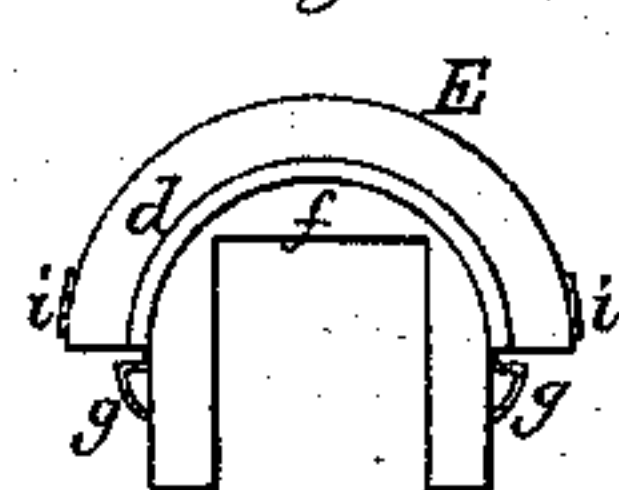


Fig. 11.

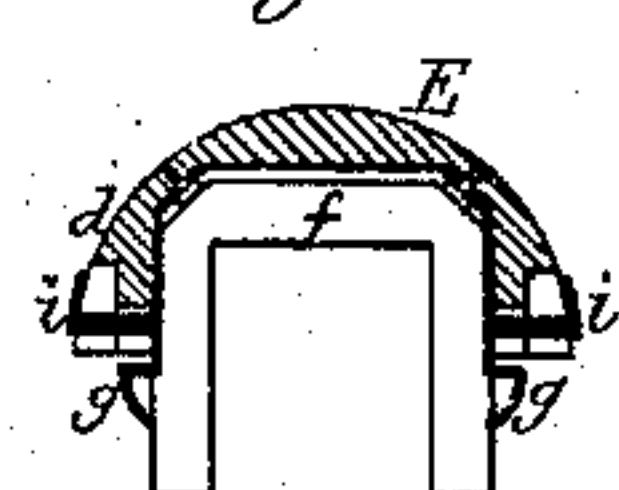
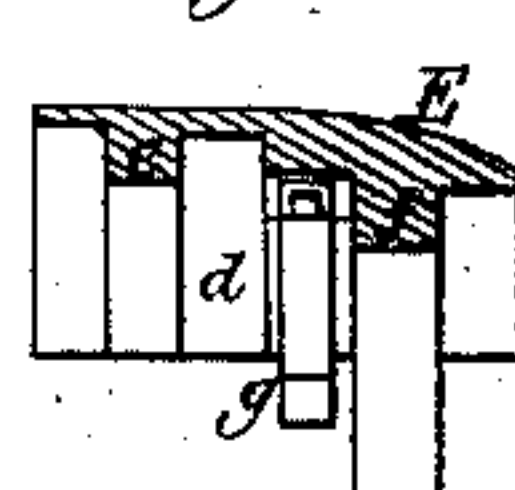


Fig. 12.



Witnesses.

S. V. Piper
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Benj. B. Howard.

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R. H. Eddy

UNITED STATES PATENT OFFICE.

BENJAMIN B. HOWARD, OF WEST BRIDGEWATER, MASSACHUSETTS.

IMPROVEMENT IN MEANS OF ATTACHING HUBS TO AXLES.

Specification forming part of Letters Patent No. **158,639**, dated January 12, 1875; application filed November 4, 1874.

To all whom it may concern:

Be it known that I, BENJAMIN B. HOWARD, of West Bridgewater, of the county of Plymouth and State of Massachusetts, have invented a new and useful Improvement in Carriage Wheels and Axles; and do hereby declare the same to be fully described in the following specification and represented in the accompanying drawings, of which—

Figure 1 denotes a side view, Fig. 2 a longitudinal section, and Fig. 3 a transverse section, of an axle and a wheel-hub provided with my invention. Fig. 4 is a top view of the hub. Fig. 5 is a top view, and Fig. 6 a side view, of the shoe and the axle and its journal. Fig. 7 is an under-side view, Fig. 8 a side elevation, Fig. 9 a front-end view, Fig. 10 a rear-end view, Fig. 11 a transverse section, and Fig. 12 a longitudinal section, of the coupling of the axle and hub.

In carrying out my invention I form, in and around the hub A, near its rear end, a groove, *a*. I also form in the axle B, in rear of or near to the shoulder *b* of the journal C, another groove, *c*, which I prefer should go simply horizontally across the top of the axle, and vertically down its opposite sides. To the axle I fix a shoe or semicircular case or box, D, to extend from it and lap on the hub, so as to cover and go underneath the groove *a*, all as shown. Finally, I apply to said box or shoe and the hub and axle a coupling, E, consisting of a semicircular cap or cover, *d*, provided on its inner surface with two flanges, *e* *f*, one being to extend into the groove *a* and

the other into the groove *c*. This cap and coupling E I provide with two spring-latches, *g* *g*, applied to opposite sides of it, to catch into recesses or upon catches *h* *h* made in the shoe D, in order to hold the coupling down to the said shoe. The knobs *i* *i* of these latches are to go through the sides of the coupling, in order for such latches to be moved inward by the thumb and finger of the hand of a person, for unlocking the coupling prior to raising it out of engagement with the hub and the axle. The shoe and the coupling keep the dust out of the hub, which may be closed at its outer end. The coupling and the grooves of the hub and the axle serve to keep the hub in engagement with the axle. By removing the coupling from the shoe the hub may be readily drawn off the journal of the axle. When the parts are in engagement the wheel can readily revolve upon the journal.

I do not claim, in combination with a hub-sleeve and its axle, two half-boxes or a shoe and cap constructed and applied thereto.

I claim—

The hub A and the axle B, provided with the grooves *a* and *c*, in combination with the shoe D, fixed to the axle, and the removable coupling-cap E, provided with the flanges *e* *f* to enter said grooves, and the latches *g* *g* to connect it with the shoe, all as and for the purpose set forth.

BENJAMIN B. HOWARD.

Witnesses:

R. H. EDDY,
J. R. SNOW.