

A. B. McDONALD.
Vehicle-Hub.

No. 227,031.

Patented April 27, 1880.

Fig. 1.

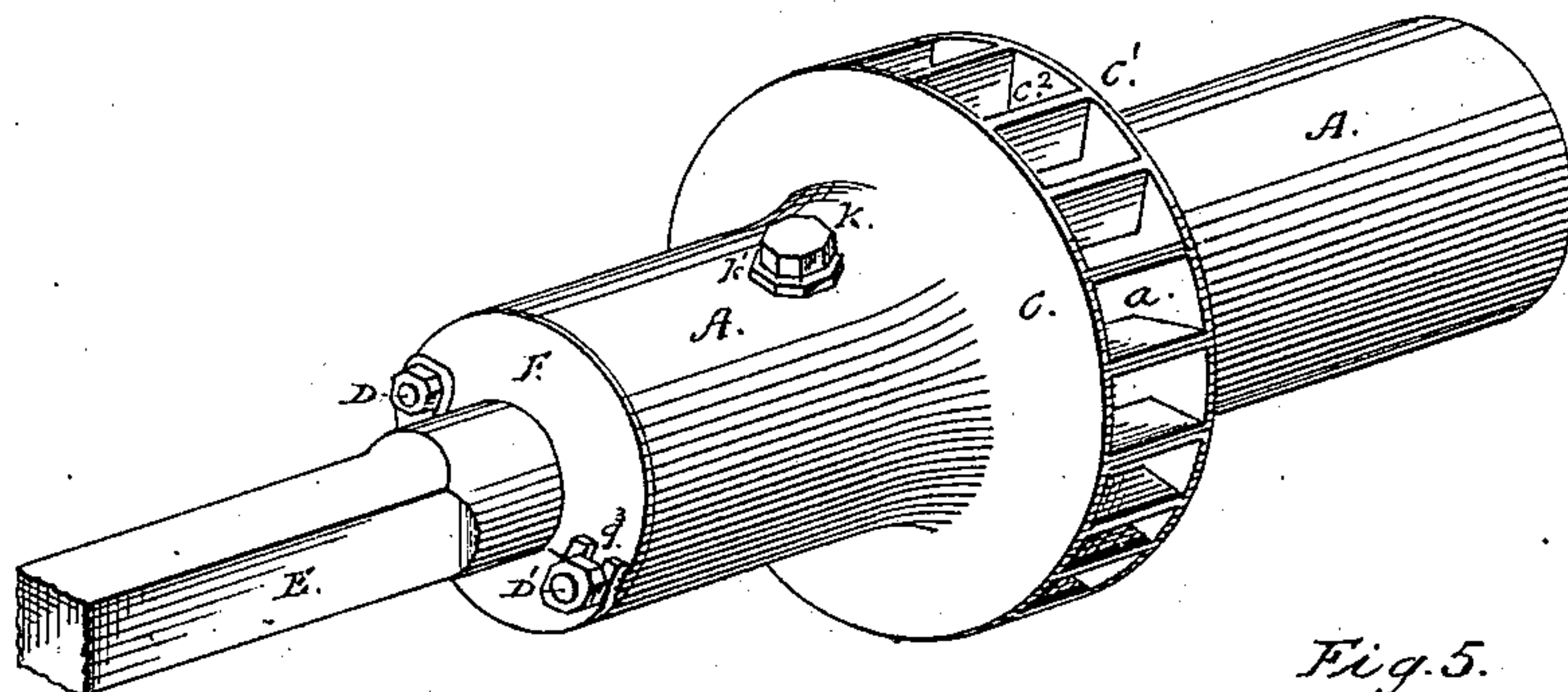


Fig. 5.

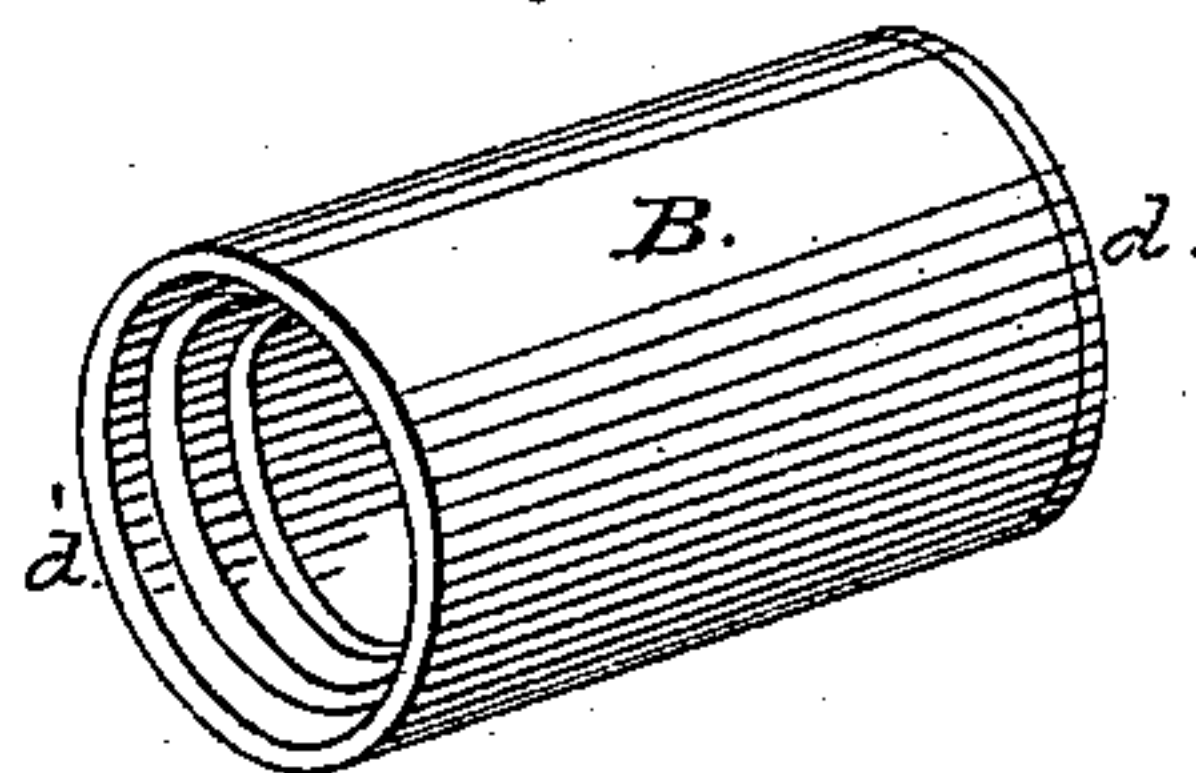


Fig. 4.

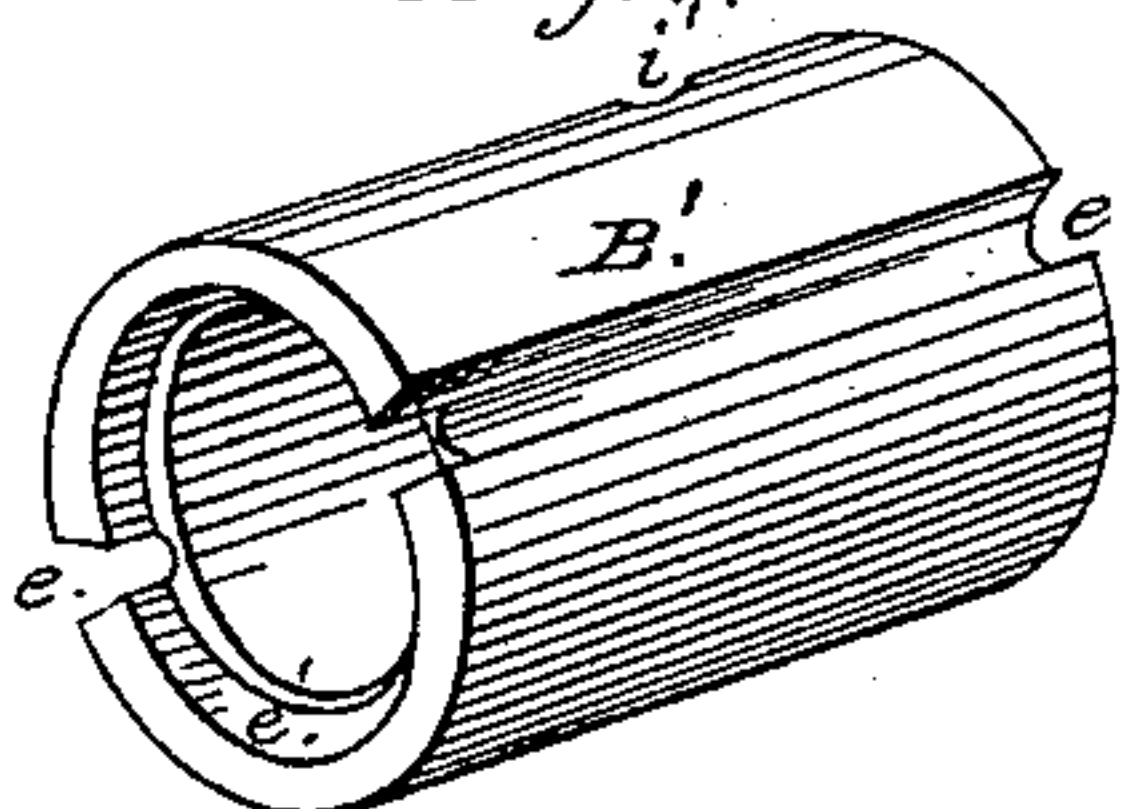


Fig. 2.

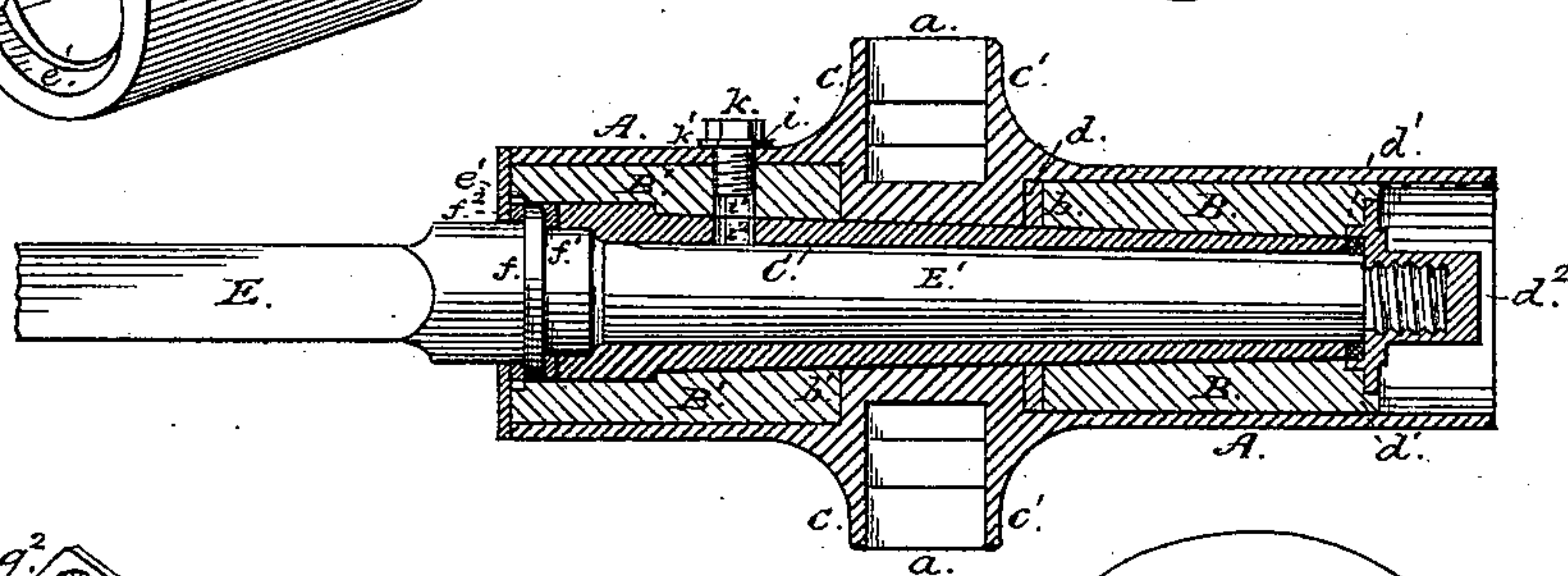


Fig. 6.

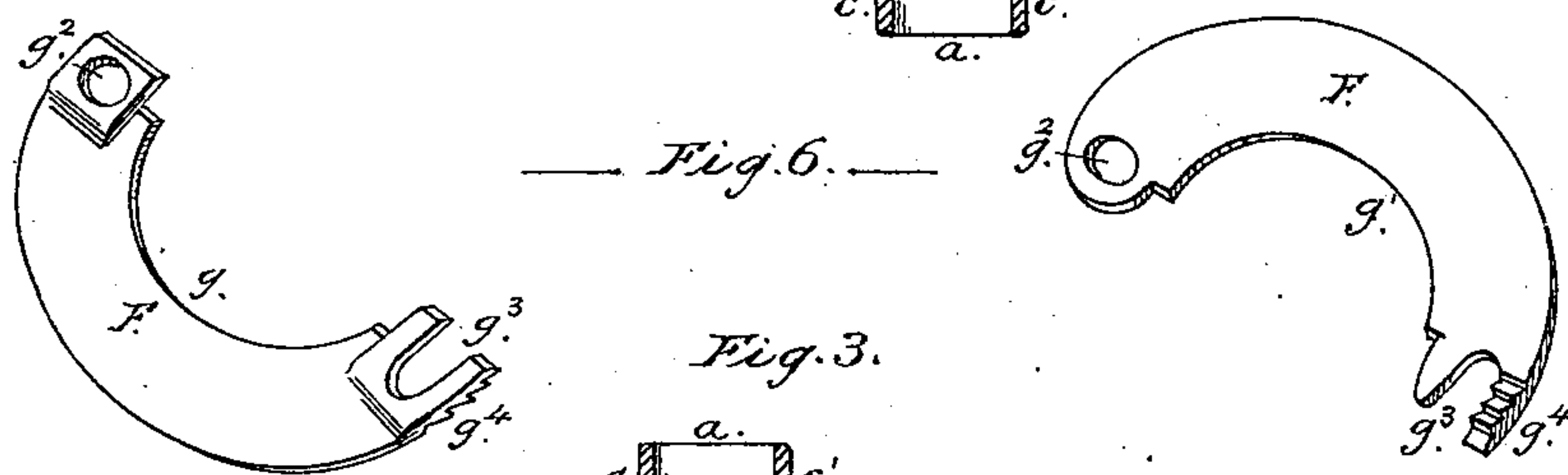
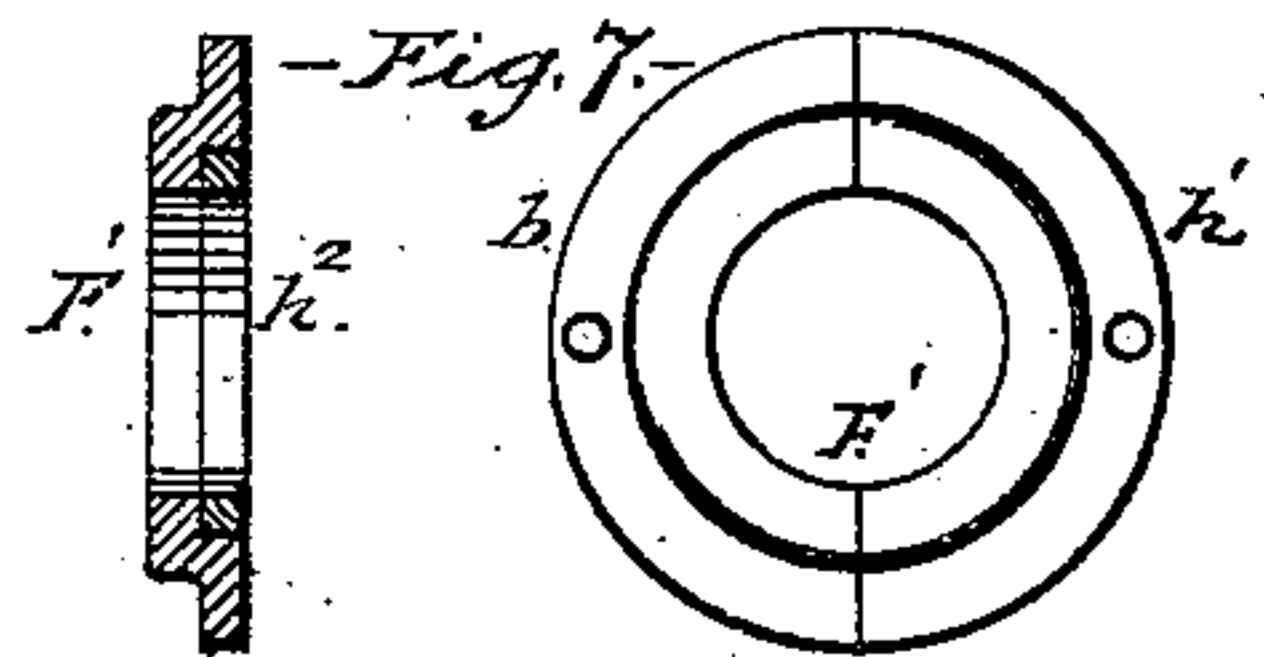
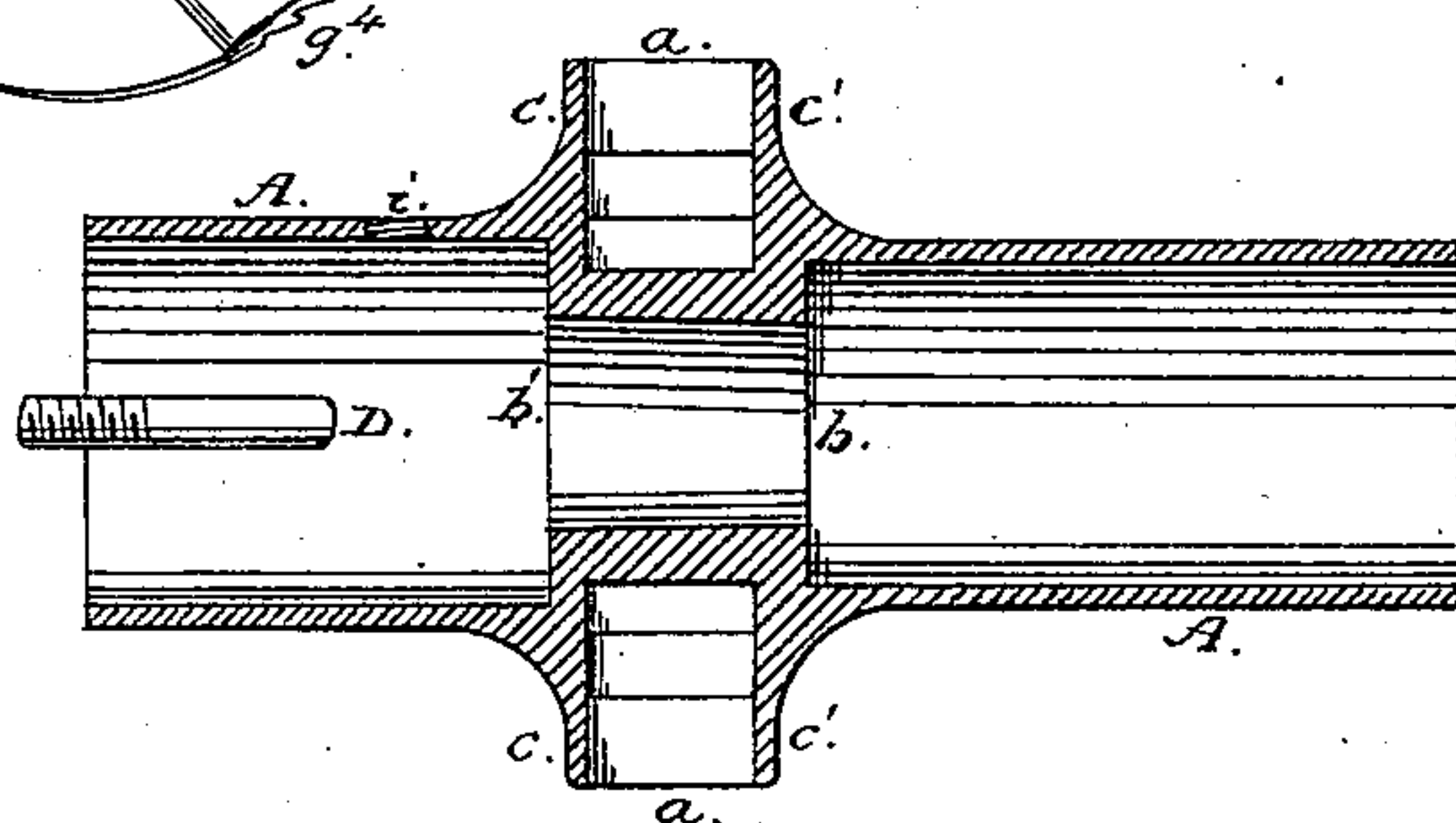


Fig. 3.



Attest:
F. W. Howard
James A. Payne.

Inventor:
Alexander B. McDonald,
by Geo. W. Alger
Atty.

UNITED STATES PATENT OFFICE.

ALEXANDER B. McDONALD, OF OSWEGO, NEW YORK.

VEHICLE-HUB.

SPECIFICATION forming part of Letters Patent No. 227,031, dated April 27, 1880.

Application filed November 24, 1879.

To all whom it may concern:

Be it known that I, ALEXANDER B. McDONALD, of Oswego, in the county of Oswego and State of New York, have invented a new and useful Improvement in Vehicle-Hubs; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings and to the letters of reference marked thereon.

The object of this invention is the production of a metallic hub designed more especially for carriages, which can be manufactured more cheaply than the metallic hubs now upon the market, and will be light and durable and convenient in use; and my invention therein consists in the peculiar construction, arrangement, and combination of the several parts composing my hub, all as more fully hereinafter explained.

To enable others skilled in the art to manufacture my hub, I now describe the same in connection with the drawings, in which—

Figure 1 is a perspective view of the hub and a part of the axle; Fig. 2, a central longitudinal section of the same; Fig. 3, a central longitudinal section of the hub; Figs. 4 and 5, separate views of the removable wood cases; Figs. 6 and 7, separate views of the sand-plates.

Like letters denote corresponding parts in each figure.

A represents the shell of the hub, made in one piece of cast metal. This shell is cast quite thin, with the inside dimensions of the barrel of the hub larger than usual. To provide for the spoke-mortises *a* the central part of the shell A is sunk into the barrel, forming an annular chamber on the outside and two annular shoulders, *b b'*, on the inside of the barrel. Two flanges, *c c'*, are cast on the outside of the hub, one on each side of the annular chamber formed by the depressed shell, and bridge-pieces *c²*, connecting these flanges, complete the mortises for the spokes. The spoke-mortises, by projecting into the barrel of the hub, are stronger and better able to resist the strain brought by the spokes upon this portion of the hub. These mortises also form a complete metallic chamber to receive the ends of the spokes, so that the same will be completely protected from the oil or grease on the axle—a great advantage over ordinary hubs.

Two tubular cases, B B', are placed in the barrel of the hub, one on each side of the depressed center of the shell, and abut against the shoulders *b b'*. In these cases the metallic axle-box C is held and so supported as to be entirely out of contact with the shell A.

The case B, which is situated in the outer end of the shell, has a leather or other elastic packing-ring, *d*, secured to its inner end, to abut against the shoulder *b* and yield slightly to the pressure of the nut on the end of the axle. The outer end of this case B has two steps, *d'*, cut on its inside to receive the nut *d²* on the end of the axle and allow the flange of the same to revolve therein out of contact with the shell of the hub. The wood case B', placed in the inner end of the shell, is hollowed out to receive the axle-box C, and has grooves or steps *e'* on its inside to receive the enlarged end of such axle-box. Two or more bolts, D D', with screw-threaded ends, are secured rigidly in the barrel of the shell near its inner end, projecting a short distance beyond such end of the shell. Longitudinal grooves *e* are cut in the outer surface of the wood case B' to receive these bolts and to allow the case to slide easily in and out of the shell. The wood cases B B', receiving from the axle-box all the strain brought upon the axle, yield slightly to the pressure, transmitting it only partly to the shell, thus relieving the shell and doing away with the great rigidity which has been heretofore a disadvantage in metallic hubs. These wood cases are also adapted to be removed and others with a different bore substituted therefor, whereby in the same shell axles with different sizes and styles of spindles can be used.

E is the axle, the spindle E' of which is passed through the axle-box and held by the nut *d²* on its outer end. The inner end of the spindle is provided with a shoulder, *f*, which bears against the inner end of the axle-box, a packing-ring, *f'*, being interposed between such shoulder and axle-box, and another packing-ring, *f²*, is slipped over the axle on the other side of the said shoulder *f*, the said packing-ring *f²* being about flush with the end of the case B'. A sand-plate is secured around the axle to the inner end of the shell by the bolts D D'.

When the axle is held in the box by a nut

on its outer end I prefer to use the jointed sand-plate F, (shown in Fig. 6.) This sand-plate is constructed in two parts, g g' , each having a hole, g^2 , in one end and a fork, g^3 , in the other. The forked end g^3 of each part of the sand-plate is provided with serrations g^4 , which coincide when the plates are brought together. These plates are secured around the axle by suitable nuts on the bolts D D', and it will be seen that by unscrewing the nut securing the forked ends of the plates the parts of this sand-plate can be swung out of the way to allow the wheel to be removed, or, by unloosing both nuts, can be taken off of the axle without disturbing the wheel; but when the axle is secured in the box only at the inner end of the hub, by means of the shoulder f or otherwise, I use the sand-plate F, (shown in Fig. 7,) which is composed of a flat annular plate, b , an annular plate, h' , with a raised center, and an intervening packing-ring, h^2 . These are placed on the axle before the axle is welded together, and are secured rigidly to the shell A by the bolts D D'. This sand-plate F' forms an axle-collar of sufficient strength to hold the wheel on the axle. The sand-plates keep the sand and dirt from the spindle and retain the oil on the bearing.

A screw-threaded hole, i , as shown in Fig. 3, is made in the shell A, preferably inside of the spokes, and holes $i' i^2$, coinciding with each other and with the hole i , are bored in the wood case B' and the axle-box, (shown in Fig. 2 of the drawings.) Through the said hole i the axle can be lubricated without removing the wheel. A screw, k , is adapted to be screwed into the hole i to close this hole, and an elastic rubber washer, k' , is placed under the head of the said screw to hold the screw from becoming loose and allow it to be easily removed.

Having thus fully described my invention and explained some of its advantages, what I claim as new therein, and desire to secure by Letters Patent, is—

A vehicle-hub wherein are combined the metallic shell A, chambers a , cases B B', axle-box C, sand-plate F, bolts D D', openings $i i' i^2$, washer k' , and screw k , all constructed and arranged substantially as described and shown.

This specification signed and witnessed this 21st day of October, 1879.

ALEXANDER B. McDONALD.

Witnesses:

THOS. H. WENTWORTH, Jr.,
D. P. LESTER.