(No Model.)

A. J. MORRISON.

WHEEL HUB.

No. 358,687. Patented Mar. 1, 1887.

Fig. 1.

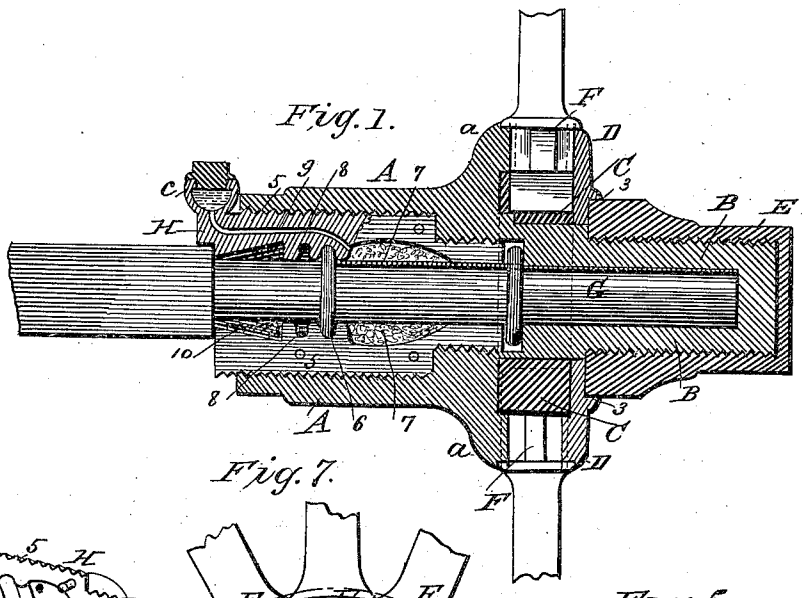


Fig. 7.

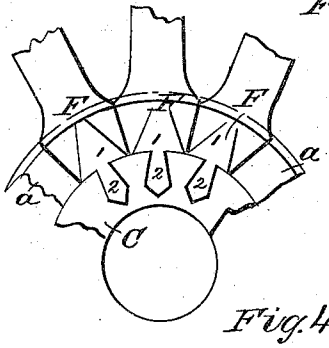
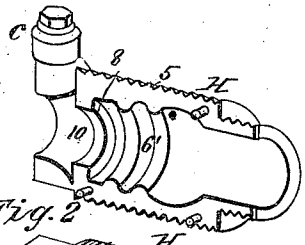


Fig. 2.



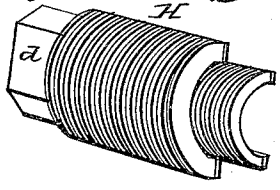


Fig. 5.

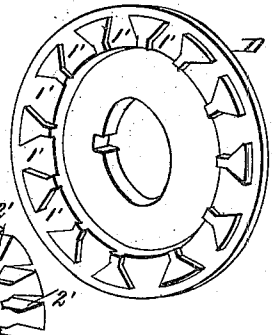


Fig. 4.

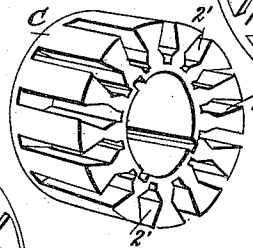


Fig. 3.

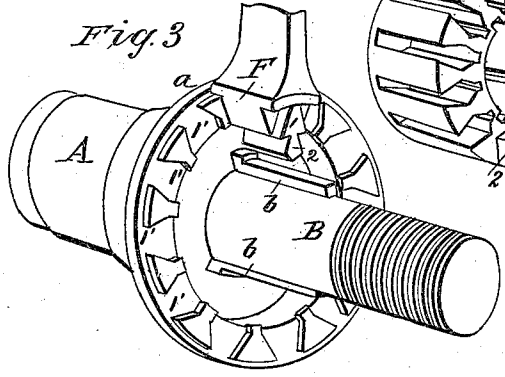


Fig. 6.

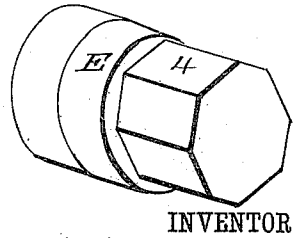
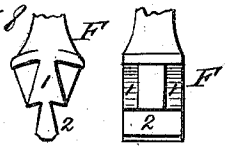


Fig. 8.



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UNITED STATES PATENT OFFICE.

ANDREW J. MORRISON, OF HOUGHTON, NEW YORK.

WHEEL-HUB.

SPECIFICATION forming part of Letters Patent No. 358,687, dated March 1, 1887.

Application filed August 27, 1886. Serial No. 211,990. (No model.)

To all whom it may concern:

Be it known that I, ANDREW J. MORRISON, of Houghton, in the county of Allegany and State of New York, have invented a new and useful Improvement in Carriage-Wheels, of which the following is a specification.

My improvement relates to the construction of the spoke-tenons, the hub proper having improved spoke-sockets, and an oil-box and sand-box, constructed and arranged as hereinafter described.

In accompanying drawings, Figure 1 is a central longitudinal section of the hub and connected parts. Fig. 2 is a perspective view of the oil-box, showing the outer side of one and inner side of the other part of the same. Fig. 3 is a perspective view of the main part of the hub and journal-box together with one of the spoke-tenons inserted in place. Fig. 4 is a perspective view of the detachable spoke-ring. Fig. 5 is a perspective view of the detachable hub-flange. Fig. 6 is a perspective view of the detachable nut forming the outer end of the hub. Fig. 7 is an elevation of a portion of the hub, showing the spoke-tenons in place. Fig. 8 is a side and front view of a spoke-tenon.

The hub is composed of the following parts: The inner portion, A, having the annular flange *a* and journal-box B, all of which are cast in one piece, the detachable ring C, the detachable annular flange D, and the hollow nut E.

The spoke-tenons F have two dovetails, 1 and 2. The lower dovetail, 2, extends across and thus includes the entire end of the tenon; but the upper dovetail, 1, is formed by cutting away only a part of the thickness of the tenon. In other words, the upper dovetail consists of lateral shoulders 1 1. When the spokes are placed, as shown in the drawings, their inclined sides abut. The hub-flange *a* has dovetail spoke-sockets 1′ formed in its inner vertical side, and these receive the correspondingly-shaped shoulders 1 formed on the spoke-tenon. The detachable flange D has similar sockets, 1′, in inner side, to receive the shoulders 2 on the other side of the tenons. The ring C has sockets 2′ for receiving the lower dovetail, 2, of the spoke-tenon. The ends of this ring enter recesses in the part A and flange D. The ring C and flange D are prevented from turning on the box B by means of keys or feathers *b* formed on the latter.

In putting up the wheel, the spoke-tenons are forced laterally into the sockets in ring C and flange *a*. The flange D is then forced up until the spoke-shoulders 1 enter its sockets 1′. This is effected by screwing the hollow nut E on the box A. The flange D has a shallow recess, 3, to receive the inner end of the nut, and the latter has an octagonal portion, 4, to facilitate the use of a wrench in screwing it on or off the box A.

It is apparent that by detaching the nut E and flange D any spoke may be removed and another substituted whenever required without necessitating removal of the tire and felly, as in wheels of the usual construction. The journal-box A is closed at its outer end, and the journal G fits in that portion of the bore which extends beyond the point where the spoke ring is located. The remaining part of the journal is inclosed by an oil-box, H, which is made in halves, or formed of two equal longitudinal parts, 5 5. The meeting edges of these parts are lined with leather or rubber to prevent escape of oil, and provided with dowel-pins to hold the parts together in the proper relation. The inner end of the box H is reduced in diameter, and both this portion and the body of the box are screw-threaded exteriorly, so that the box may be screwed into the hub part B. The journal has a beveled collar, 6, that fits in a corresponding annular socket or groove, 6′, in the oil-box H. On the inner side of this groove the box is recessed, thus forming a chamber in which cotton waste 7 is packed for the purpose of absorbing the oil used for lubrication. On the outer side of the groove 6′ is a small or narrow chamber or groove, 8, which receives any oil that may escape past the collar 6 from the oil-chamber containing the waste 7.

Oil is supplied to chamber 8 through a passage, 9, Fig. 1, leading from the cup *c*, which is attached to the upper side and outer end of one of the parts of the box H. Thus oil may be supplied whenever required without removing the oil-box H from the hub proper or the hub from the journal.

It is designed to make the chamber 8 sufficiently capacious to contain a quantity of oil.

The outer end, *d*, of the oil-box H has a conical recess, 10, which is packed with cotton waste to prevent access of dust to the oil-box and journal-bearing. This part *d* is therefore in effect a sand-box, adapted to hold waste or equivalent material for arresting dust.

The spoke-tenons and corresponding spoke-sockets are to be properly beveled, so as to give the wheel the proper dish required before the tire is set.

The combined hub and boxes, except the spoke-ring, are to be made of iron, steel, or brass. The spoke-ring is to be made of wood, compressed paper, or wood pulp pressed into form. The spokes are to be made of the same material.

Among the advantages claimed for this wheel are the following: First, no oil can escape from the hub, therefore a less quantity is required for lubrication; second, wiping or cleaning oil and sand from the extension of the hub is dispensed with; third, no dust or sand can enter the hub, and hence none can wear upon the spindle; fourth, the spindle needs no wiping, as the waste in the oil-box gathers all gum that may be in the oil; fifth, the hub never requires boring out nor the journal-box to be forced in; sixth, there is no danger of any setting of wheels or journals, as there is ample capacity for thorough lubrication, enough oil being carried to last for many days; seventh, no buggy jack or wrench is needed when oiling this wheel, since it is not removed from the axle, but oiled through a cut attached to hub; eighth, the wheel is prevented from coming off the axle or from shucking back and forth by the non-bearing ring on the journal just beneath the spoke-ring, also by the oval ring bearing at the shoulder that fits in a corresponding oval groove or socket in box H; ninth, the spokes cannot become loose, since they cannot work in or out, owing to the shoulders and dovetailed tenons. If they should get loose from shrinkage, they can be tightened by screwing the hollow nut or front end of hub against the spoke-flange, thereby pressing it up tightly against the spokes.

What I claim is—

1. The combination of the spoke-tenons having a double dovetail with the flange *a*, the detachable flange D, having dovetail sockets 1′, and the ring C, having dovetail sockets 2′, as shown and described.

2. A spoke-tenon having the lower dovetail, 2, and upper dovetailed shoulders, 1, in combination with a hub having corresponding sockets to receive the same.

3. The combination, with the hub part A and detached flange D, recessed, as specified, and the journal-box B, having the keys *b*, of the detachable spoke-socket ring C, having grooves to receive said keys, as shown and described.

4. The combination, with the hub and journal-box threaded internally, of the two-part detachable oil-box screw-threaded exteriorly and adapted to fit said hub and box, as shown and described.

5. The oil-box made in two longitudinal parts and having an oil-cup, oil-passage, and oil and waste chamber, as shown and described.

6. The combination of the axle-journal having a collar, as specified, with the oil-box having a groove to receive said collar, and an oil and waste chamber formed in the box on the inner side of said groove, as shown and described.

7. The oil-box provided with the extension having a conical recess internally to receive waste, and thereby constitute a sand-box, as shown and described.

ANDREW J. MORRISON.

Witnesses:
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S. R. ABRAMS.