(No Model.)

A. O. FRICK.

ART OF MAKING METALLIC SUSPENSION WHEELS BY CASTING.

No. 314,173. Patented Mar. 17, 1885.

Fig. 1.

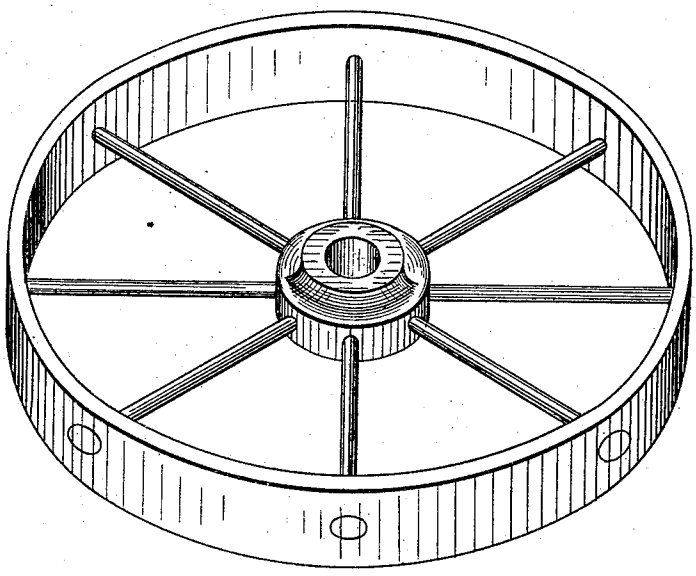
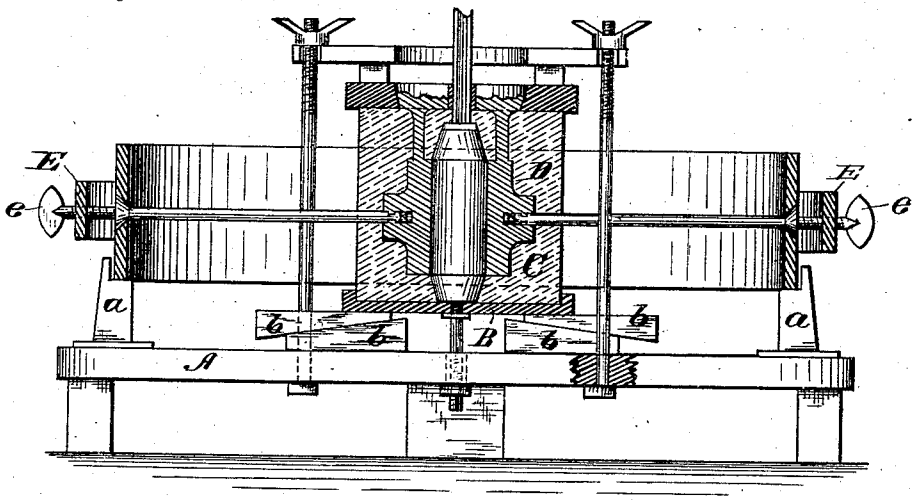


Fig. 3.



Fig. 2.



Witnesses:
Edw. T. Walker
W. W. Hannay

Inventor.
Abraham O. Frick
by his attorney
O. E. Sibley

N. PETERS. Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

ABRAHAM O. FRICK, OF WAYNESBOROUGH, PENNSYLVANIA.

ART OF MAKING METALLIC SUSPENSION-WHEELS BY CASTING.

SPECIFICATION forming part of Letters Patent No. 314,173, dated March 17, 1885.

Application filed October 18, 1884. (No model.)

To all whom it may concern:

Be it known that I, ABRAHAM O. FRICK, a citizen of the United States, residing at Waynesborough, in the county of Franklin and State of Pennsylvania, have invented certain new and useful Improvements in the Art of Making Metallic Suspension-Wheels; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to that art of making iron suspension-wheels according to which the nave is cast on the spokes and the shrinkage of the nave depended on for drawing the heads of the spokes firmly home into their seats in the rim.

I have ascertained that the strength and durability of the heavier types of iron suspension-wheels—such, for instance, as are used on portable and traction engines—are enhanced by increasing the initial strain beyond that due to the shrinkage of the nave.

My improvement therefore consists in casting the nave on the inner ends of the spokes, while their headed outer ends are at the same time firmly pressed home against the rim by mechanical pressure.

In order that my improvement in the art may be clearly understood, I will proceed to describe it as practiced by the aid of devices illustrated in the annexed drawings.

Figure 1 is a perspective view of an iron suspension-wheel. Fig. 2 illustrates the cross-nicked inner end of one of the spokes. Fig. 3 is an axial section of the wheel as it appears while the nave is cooling in the mold and the headed ends of the spokes and the rim are under mechanical pressure.

The molding-machine shown in the drawings consists of a suitable circular stand, A, at the center of which is mounted a circular platform, B, for supporting and centering the drag C of the flask or mold. Wedges *b b* are provided for vertically adjusting the platform B, so that the parting-line between the drag and the cope D may be located at the proper plane with respect to the spokes of wheel. A cross-bar and clamping-bolts are used to secure the cope to the drag. A series of standards, *a*, are arranged along the outer edge of the stand for supporting the rim of the wheel.

Besides the appliances already mentioned, I use what I term a "compression-ring," which is composed of a ring, E, somewhat larger in diameter than the rim of the wheel, and provided with as many screws *e* as there are spokes in the wheel, the screws being so distributed that the head of each spoke may be pressed home by a separate screw when the compression-ring is placed over the rim.

In practicing my invention with the appliances described, I first apply the headed spokes to the rim, and press them home very firmly by the screws by the compression-ring, so that the rim is under considerable compression-strain. The drag of the mold having been centered on platform B, I next place the compressed spoked rim on the standards and concentric with the drag of the mold, into which the inner ends of the spokes project. The drag is carefully adjusted, so that the mold may be tightly closed after the cope has been put on without suffering mutilation from the spokes. The molten iron is then poured into the mold around the inner ends of the spokes to form the nave. The shrinkage of the nave in cooling puts the spokes under tensile strain, and increases the compression-strain already on the rim.

Appliances other than those described may be used for practicing my invention.

I claim as my invention—

The described improvement in the art of making metallic suspension-wheels, which consists in casting the nave on the spokes, and at the same time firmly pressing their headed outer ends home against the rim.

In testimony whereof I affix my signature in presence of two witnesses.

ABRAHAM O. FRICK.

Witnesses:

EZRA FRICK,

D. M. GOOD, Jr.