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P. Davis,

Casting Car Wheels.

Patented July 29, 1834.

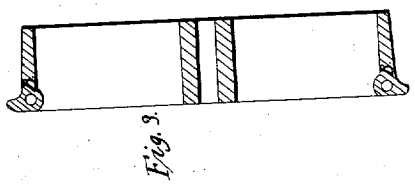


Fig. 3.

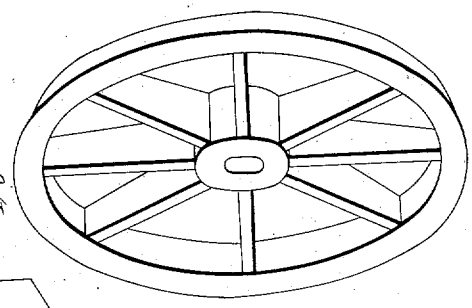


Fig. 4.

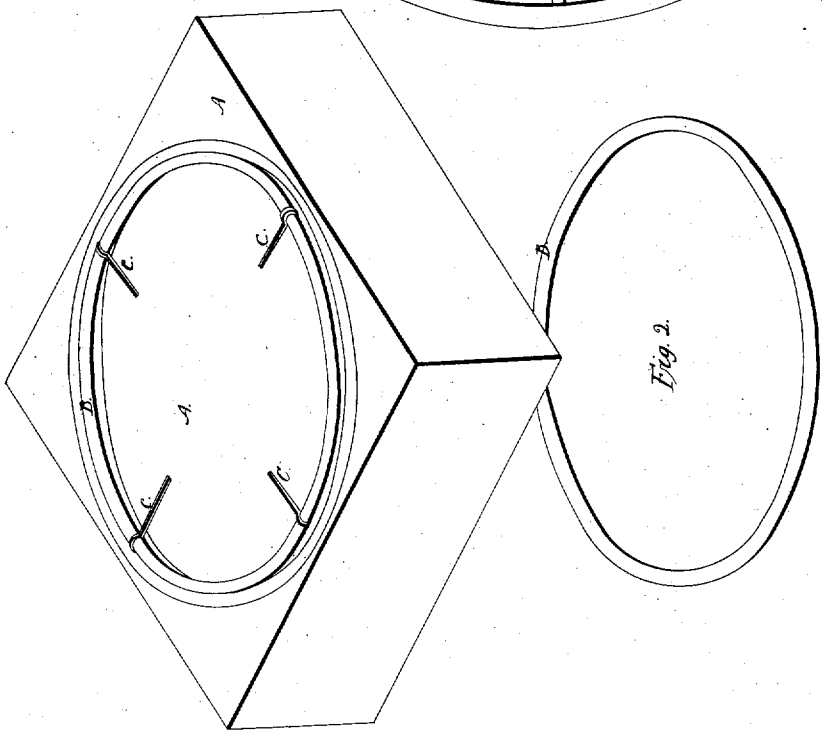


Fig. 1.

Fig. 2.

July 29. 1834

Phineas Davis Baltimore City

Letters Patent July 29. 1834.

The Schedule referred to in these Letters Patent and making part of the same containing a description in the words of the said Phineas Davis himself of his improvement in the mode of Chilling Cast iron wheels for Railroad Cars and Carriages.

Whereas it has been found that in the casting of wheels called Chilled wheels for Railroad Cars that the part of the wheel which is most liable to wear namely the rim or circle between the nave of the wheel and the flanch, is usually less hard than the other parts for the obvious reason that the metal there is less rapidly cooled by the chill. Now be it known that I Phineas Davis of the city of Baltimore in the State of Maryland have invented a new and improved mode of chilling such wheels by the adding in the form of a hoop or ring of wrought iron made and placed in the flask or mould at the time of casting in a way to be presently set forth & have succeeded in removing this difficulty and do hereby declare that the following is a full and exact description thereof.

Those acquainted with the business of casting iron are aware that the operation of chilling consists in placing within the mould, so as to make a part thereof a piece or pieces of iron which when the metal is poured in rapidly cools that portion with which it is in contact and renders it hard in the casting of wheels for rail road Cars, the chill consists of an iron hoop of considerable thickness and with which the whole face of the wheel including the flanch and part of the tread is in contact but from its form as I have already indicated there is one part of it namely the bend with the flanch which is less rapidly cooled than the others. To remedy this difficulty & supply what may be denominated an inferior chill this consists of an iron hoop or ring which is usually some what more than one inch in diameter giving to the hoop or ring such a diameter as that when laid on the flask and the casting made to be surrounded

by and completely intended within the cast Metal, and to stand about
half an inch within the Surface of that part of the wheel which forms the
outer circumference of the Spoke & Nave part of the Centre thereof. But as in
Horizontal Wheels of the sizes of such wheels the Iron ring would be
apt to be thrown inside by only a thin shell of Metal, I form a Hook or Head
Projection or Thickness opposite thereto on the inside of the pattern of the
wheel, which will cause the Metal to cover it about three eighths of an inch
Such formers are well acquainted with the means of supporting such
Cores as the before described ring within the flask, so that they may be
imbedded within the cast Metal, Which I have adopted of
effecting this Iron ring, which is the following, I take four strips of iron which
may be 1 or 2 an inch thick & of an inch broad, and 4 or 5 inches long
these I punch a hole in each end of each of these I bend round the ring so as to clasp it tightly
the remainder of the strip forming a Hook or clasp which I hook upon
the round in the lower flask, these clasps stand at equal distances apart
round from in the inner circumference of the wheel. Nevertheless in the inner circumference of the wheel. Nevertheless
a pattern must be so made that the parting of the sand in the flask will
coincide with the centre of the ring, leaving Part of the usual Projection
round the inside, (in making the mould. The ring before being placed in
the mould should be very well cleaned bright by filing or otherwise
& must also be heated very little above the temperature of boiling water to
dispel any moisture or other evaporable matter which might otherwise
cause Bursting. The casting should be performed immediately
after placing the ring in the flask, Although I have described the mode
of procedure in casting me in other parts of the process for forming wheels
by which are included a ring of wrought iron, I do not claim
this process as including any part of my invention but I do claim the
using a hoop or ring of wrought iron to be laid in a cast in the
form of a cast wheel in such manner as to operate as an ultimate
strength & support rapidly and conveniently & hinder the part which shall
remain under the name of the Centre or Nave from Warping &c. I claim no more.

Witness William Hatfield
John Ed Brown

James Davis

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