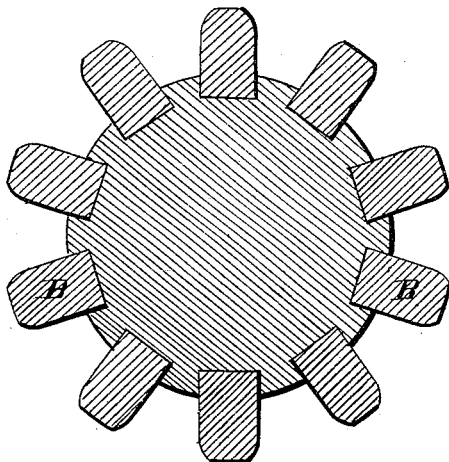


D. JONES.  
GEAR-WHEEL.

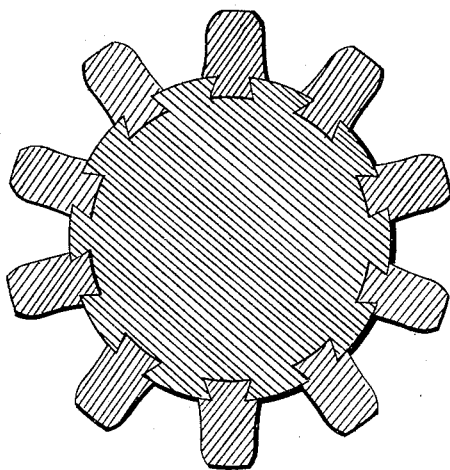
No. 191,155.

Patented May 22, 1877.

*Fig. 1.*



*Fig. 2.*



WITNESSES

*Ed. D. Nottingham,*  
*A. Wright.*

INVENTOR

*Davis Jones,*  
*By Seagett & Seagett*  
ATTORNEYS

# UNITED STATES PATENT OFFICE.

DAVID JONES, OF YOUNGSTOWN, OHIO.

## IMPROVEMENT IN GEAR-WHEELS.

Specification forming part of Letters Patent No. **191,155**, dated May 22, 1877; application filed March 27, 1877.

*To all whom it may concern :*

Be it known that I, DAVID JONES, of Youngstown, in the county of Mahoning and State of Ohio, have invented certain new and useful Improvements in Pinions or Gear-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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to improvements in pinions or gear-wheels; and consists in a pinion the spurs or teeth of which are of wrought-iron or of steel, and are secured to the cast-metal body of the pinion in the process of casting the latter.

In the drawing, Figure 1 represents a cross-section of a pinion embodying my invention. Fig. 2 represents a modification, in which the teeth are dovetailed into the body of the pinion.

The object of my invention is to make a light, strong, and durable pinion or gear-wheel, more especially the former, where strength and durability are essential. The invention, however, is applicable to all kinds of spur-wheels or gear-wheels. B represents the teeth, which may be of any size or shape, and are constructed of wrought-iron or steel. They are placed in the mold in their proper position in relation to each other and to the body of the pinion to be cast. The teeth may be heated, if desired, just before the process of casting takes place; but that is not an essential requisite, as the molten metal sufficiently heats them to produce the desired weld between the teeth and body of the pinion. When the wrought-iron or steel teeth are

placed in position, the molten metal is poured in the mold, flows around the shanks of the teeth, and a weld takes place between the two. When the whole mass has cooled, the teeth are firmly in position, and may then be finished in the usual manner. If desired, the shanks of the teeth may have a dovetail shape, as represented in Fig. 2, which offers an additional safeguard against any accidental displacement of the teeth. This, however, is not an essential element of my invention. Pinions and gear-wheels constructed according to my invention will last several times longer than those of ordinary construction without increased cost of production. As the wrought-iron is fibrous it has a tendency to wear smooth, instead of pitting, as is the case with cast-iron. Pinions constructed according to my invention run, therefore, smoother, and with less friction, are stronger and wear a great deal longer. The same result is likewise obtained when the teeth are formed of steel, which, by its hardness and fineness of structure, does not become pitted, as is the case with cast-iron.

What I claim as my invention, and desire to secure by Letters Patent, is—

A pinion or gear-wheel provided with wrought-iron or steel teeth, said teeth secured to the body of the pinion in the process of casting the latter, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

DAVID JONES.

Witnesses:

JAMES RUDGE,  
PHILIP EBERHART.