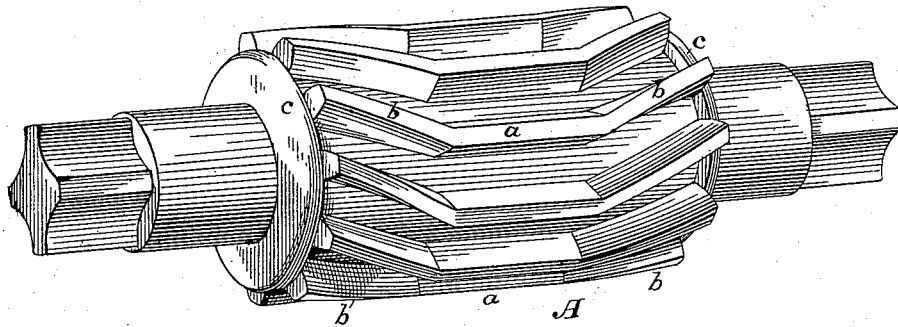


J. M. McCOY, Dec'd,  
F. McCOY, Administrator.  
Gear-Wheel.

No. 218,994.

Patented Aug. 26, 1879.



*Attest:*

Clarence Poole  
Jas. A. Payne.

*Inventor:*

Frank McCoy  
Administrator  
Geo. W. Alger  
Atty

# UNITED STATES PATENT OFFICE.

FRANK McCOY, OF BELLEFONTE, PENNSYLVANIA, (ADMINISTRATOR OF J. M. McCOY, DECEASED,) ASSIGNOR OF ONE-HALF HIS RIGHT TO WILLIAM R. JENKINS, JR., AND JOSEPH H. LINGLE, OF SAME PLACE.

## IMPROVEMENT IN GEAR-WHEELS.

Specification forming part of Letters Patent No. **218,994**, dated August 26, 1879; application filed June 24, 1879.

*To all whom it may concern:*

Be it known that JOHN M. McCOY, deceased, late of Bellefonte, in the county of Centre and State of Pennsylvania, did invent a new and useful Improvement in Gear-Wheels, of which the following is a full and exact description, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Heretofore, to gain an increase of strength in cog-wheels and pinions by changing the shape of the teeth, and to avoid the jar of the ordinary straight cog-teeth in meshing together, such teeth have been made of angular form, with the angles at the center of the wheel, and they have also been constructed in curved form; but with the first construction the teeth at the commencement of the bite engage to such a small extent and the strain is taken by so small a surface that they break when used for very heavy work, and with the second form the outer ends of the teeth have to be made thinner than the centers to bring the two sides of each tooth to the same radius, which weakens the teeth and causes them to break at the ends.

Now, the object of the invention of the said JOHN M. McCOY is to overcome these disadvantages, and to produce cog-teeth which will have greater and more uniform strength than the forms mentioned, and which will at the same time possess all the advantages of the angular and curved teeth in preserving the continuity of the strain by transferring the same from the ends of one tooth to the center of the next, and thus preventing any jar upon the teeth. This is accomplished by making the teeth with straight centers parallel with the axis of the cog-wheel, and with straight ends oblique to such axis, and forming two obtuse angles at their junction with the central portion. The centers are of sufficient length to take the strain without liability of breaking, while the oblique ends serve to transfer the strain to the center of the next tooth. The ends of the teeth, being straight, can be made of the same thickness as the centers, and the teeth thereby given equal strength throughout.

The invention of the said JOHN M. McCOY consists in this peculiar conformation of the cog-teeth of gear wheels and pinions.

In the drawing, a gear wheel or pinion is represented, in perspective, with the peculiar cog-teeth.

A is a gear wheel or pinion. The cog-teeth of this wheel have straight central portions, *a*, parallel with the axis of the wheel, and straight ends *b*, oblique to such axis, and forming obtuse angles with the central portions, the teeth being of equal thickness throughout. The edges of the different parts of the teeth are straight; but the sides of the teeth are cut in the most approved way to roll upon the teeth of a similar wheel meshing therewith. The central portions, *a*, are long enough to take the strain without breaking, while such strain traverses along the oblique ends *b* till it is taken by the center of the next tooth.

Thus it will be seen that there will be no jar in the engagement of the teeth, as is the case in the ordinary cog-wheel.

The teeth, being of greater length than the ordinary straight teeth, will have greater strength, in addition to the added strength given by the continued action of the strain.

The teeth, being of equal thickness, will be uniformly strong throughout.

Gear-wheels provided with these teeth are adapted for use in heavy machinery where there is great strain upon the wheels.

The ends of the teeth may be strengthened by flanges *c*, as shown; but these are not essential.

What is claimed as the invention of the said JOHN M. McCOY is—

A gear-wheel having teeth with straight central portions parallel with the axis of the wheel, and straight oblique ends, substantially as described.

This specification signed and witnessed this 13th day of May, 1879.

FRANK McCOY,

*Administrator of J. M. McCoy, deceased.*

Witnesses:

E. M. BLANCHARD,

ED. BLANCHARD.