

(No Model.)

A. J. FISHER.
PROCESS OF MANUFACTURING CAR WHEELS.

No. 521,787.

Patented June 26, 1894.

Fig. 1.

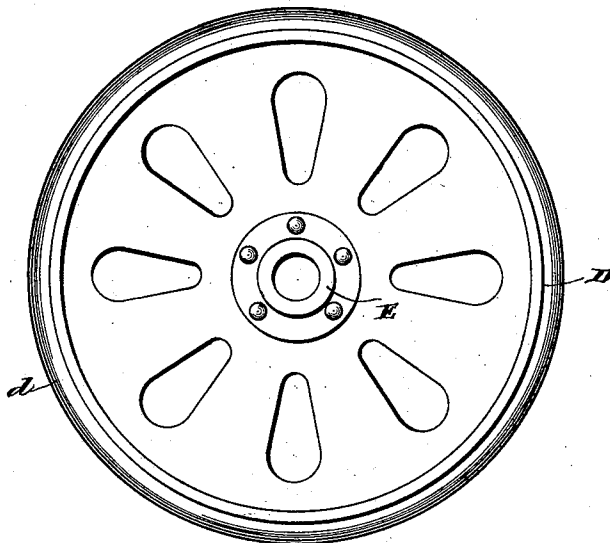


Fig. 2.

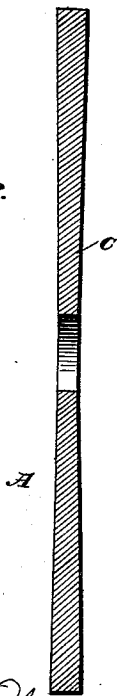


Fig. 3.

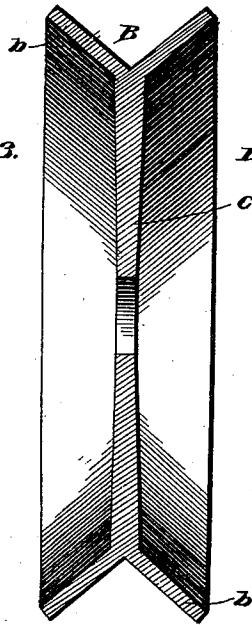
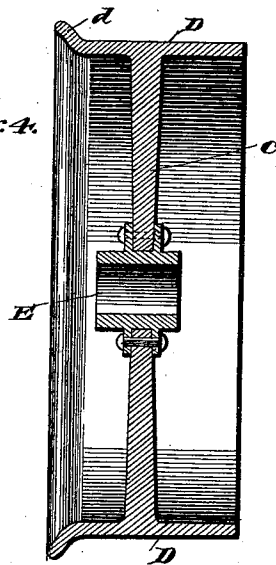


Fig. 4.



Witnesses

B. S. Ober

D. P. Wolhaupter

Inventor
Andrew J. Fisher
By his Attorneys,

C. Snow & Co.

UNITED STATES PATENT OFFICE.

ANDREW J. FISHER, OF BUDA, ILLINOIS.

PROCESS OF MANUFACTURING CAR-WHEELS.

SPECIFICATION forming part of Letters Patent No. 521,787, dated June 26, 1894.

Application filed June 4, 1892. Renewed May 17, 1894. Serial No. 511,615. (No specimens.)

To all whom it may concern:

Be it known that I, ANDREW J. FISHER, a citizen of the United States, residing at Buda, in the county of Bureau and State of Illinois, have invented a new and useful Process of Manufacturing Car-Wheels, of which the following is a specification.

This invention relates to car wheels; and it has for its object to provide a novel process for the manufacture thereof.

To this end the invention contemplates the manufacture of a car wheel out of a single disk or piece of metal, so that the same will possess exceptional strength and be far more durable than those ordinarily manufactured out of several pieces, and to so construct the wheel that the body or web thereof will be directly over the center of the rail and thus receive the bulk of the weight placed thereon.

With these and many other objects in view which will readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination and arrangement of parts hereinafter more fully described, illustrated and claimed.

In the accompanying drawings;—Figure 1 is a side elevation of a car wheel constructed in accordance with this invention. Fig. 2 is a vertical sectional view of the blank disk from which the wheel is cut and pressed. Fig. 3 is a similar view of the first step in forming the wheel from the blank. Fig. 4 is a similar view of the completed wheel.

Referring to the accompanying drawings;—A represents a blank disk of metal, of suitable thickness to adapt it for the construction of a car wheel. The first step in the method of constructing or forming the car wheel from such blank, is to split the said disk edgewise by cutting as at B, to any suitable depth, to form the equal split portions, *b*, as illustrated in Fig. 3, thus leaving the unsplit portion or web C of the wheel directly under the center of the split. This operation is performed by means of suitable cutting devices, and the split portions *b* formed by said operation are next flanged under pressure to the form illustrated in Fig. 4. By suitable devices, the said split portions resulting from the splitting of the disk are flanged into the flat tread D, having the annular tread flange *d*, surrounding one edge of the same to conform to the shape

of ordinary car wheels. Now it will be readily observed that when the wheel is flanged into its completed shape, the web C previously referred to will be directly over the center of the rail, and is formed by flanging or pressing out the split portions *b*. Such a disposition of the web or body of the wheel to the flat tread thereof, provides a construction which places the entire weight or strain, placed upon the wheel, upon such web or body, and inasmuch as the same is slightly at one side of the flat tread, it therefore is directly over the rail. An ordinary hub E is subsequently bolted to the center of the web to complete the entire car wheel.

In manufacturing the wheel from a single blank disk A, it is to be particularly observed that the method or process involved is essentially different from other processes employed for manufacturing wheels out of blanks of metal, and particularly such methods or processes where the blank is spread out or wrought, or spun. The spinning out of blank pieces of metal, is done by the forcing of the metal into any desired shape by means of a pattern already formed, as in all kinds of brass work and soft metals, and in such processes, special spinning tools are employed for upsetting the edge of the metal, and forcing or pressing the metal into the shape desired by what is practically the method of forging. None of these methods are available for carrying out the process employed by me, inasmuch as the same involves an entirely different principle from forging or spinning, in that I split the edge of the metal disk A, by means of a suitable cutting device or knife, which cuts into the disk edgewise the desired depth, so as to virtually form two duplicate edge pieces, which are forced or spread out laterally at right angles to the web of the disk, so that the same can be conveniently flanged into the necessary car-wheel shape. It will therefore be seen that in cutting into a blank disk edgewise, a novel method is involved for preparing the metal disks for flanging, and thereby forming a car wheel out of a single piece of metal.

It has just been specifically stated that the first step in the manufacture of the wheel, is the splitting of the blank disk of metal edgewise to a suitable depth, by means of a cutter

or knife which pierces the edge of the disk as it is revolved thereagainst, so that the disk is split into separate equal split portions or wings. It is therefore necessary to spread out these wings or split portions so as to form the tread of the wheel as well as the flange thereof, and in order to secure this result, I then substitute for the cutting device a die flanging roller, which is so constructed that when the split portions or wings of the disk are spread out flat against the same, such wings or split portions will form a flat tread and will be turned up at one edge to form the flange of the wheel. This die roller is arranged adjacent to the circumference of the split disk which is revolved in any suitable lathe or machine, so that the wings or split portions of the disk will be at an angle to the face of the roller, thereby rendering it only necessary to force the roller against the split edge of the disk under pressure, by means of which the wings or split portions are spread out laterally to conform to the shape of the spreading roller die, and therefore to the con-

figuration of an ordinary car wheel. The success of this operation does not depend for its success upon the malleability of the metal employed but upon the specific steps set forth.

The many advantages of the herein described improvements will be at once apparent to those skilled in the art.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

The herein-described process of manufacturing car wheels, which consists in splitting a circular blank disk edgewise, during rotation, by cutting into the circumference thereof, and finally spreading out the separate split portions, during the rotation of the disk, under a die pressure, substantially as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

ANDREW J. FISHER.

Witnesses:

S. TOOMEY,

THOMAS STONE.