

W. W. ANNABLE.  
PROCESS OF KEYWAY FORMING IN WHEELS OR THE LIKE AND PRODUCT THEREOF.  
APPLICATION FILED MAY 3, 1920.  
1,376,664. Patented May 3, 1921.

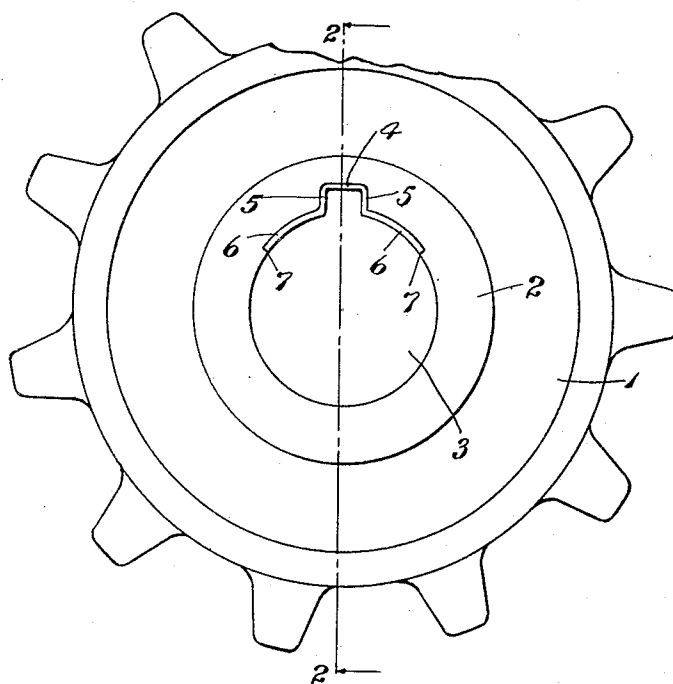


*Fig. 1.*

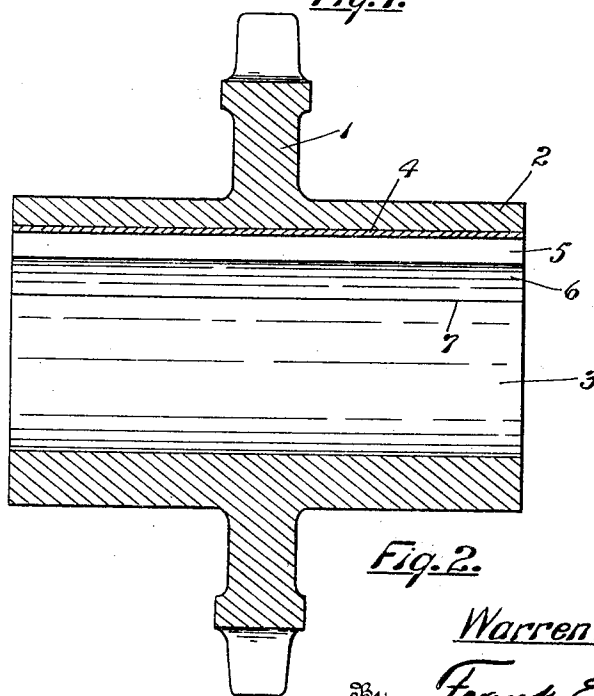


*Fig. 2.*

Inventor

*Warren W. Annable*

By

*Frank E. Linnauer Jr.*

Attorney

# UNITED STATES PATENT OFFICE.

WARREN W. ANNABLE, OF GRAND RAPIDS, MICHIGAN.

PROCESS OF KEYWAY-FORMING IN WHEELS OR THE LIKE AND PRODUCT THEREOF.

1,376,664.

Specification of Letters Patent.

Patented May 3, 1921.

Application filed May 3, 1920. Serial No. 378,545.

*To all whom it may concern:*

Be it known that I, WARREN W. ANNABLE, a citizen of the United States of America, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Processes of Keyway-Forming in Wheels or the like and Product Thereof; 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 a novel process or method of forming key ways in wheels or the like which are designed to be attached to shafts by means of connecting keys of the usual and well known construction. It is an object and purpose of the invention to form said key ways at a minimum of cost and with the complete elimination of machining which has heretofore been followed to make key ways, and to produce a complete wheel, pulley, or the like direct from the mold with a key way therein having smooth surfaces so that a key may be readily inserted therein or removed therefrom. For an understanding of the invention reference may be had to the following description, taken in connection with the accompanying drawing, in which,

Figure 1 is an elevation of a wheel made in accordance with my invention, and

Fig. 2 is a vertical section on the line 2—2, of Fig. 1.

Like reference characters refer to like parts in the different views of the drawing.

The wheel 1 is shown as a sprocket wheel, but it is to be understood that the invention is particularly concerned with the key way formation in the hub 2 and that whatever the structure attached to the hub may be, the invention is not altered thereby, being applicable to hubs of all types of wheels, pulleys, and the like. The hub has a cylindrical opening 3 therethrough so that the wheel may be attached to a suitable shaft, and the opening will conform to the shape of the shaft, tapering if the shaft tapers as is obvious.

A sheet metal member is cast in the hub, it being placed against a suitable chill which serves as a core to make the opening 3 through the hub. This member is of a length equal to the length of the hub and is formed by stamping or in any other suitable manner so as to make a key receiving recess bounded by a bottom portion 4 and sides 5 from which wings 6 extend in opposite directions, the same being curved to conform to the shape of the sides of the opening 3 through the hub whereby there is a smooth and practically unbroken surface made by the inner sides of the wings 6 and the curved sides of opening 3. The metal flows against the ends 7 of the wings in casting to produce this result.

The chill is of proper form to produce the opening through the hub and may be provided with a rib to enter the key way formed by portions 4 and 5 while the wings 6 bear against the chill at each side of such rib. The molten metal is poured into the mold and the finished product, after the chill is removed is complete and ready to attach to a shaft, the key way made in the sheet metal member having smooth sides and without any projecting nibs of metal which would gouge into the key and keep the same from entering properly or from being driven out. It has been customary heretofore to machine such key ways to make them smooth for the key, this involving a considerable cost as is obvious. And with my invention this item of expense is entirely eliminated.

The key ways may be of different shapes than that shown if desired, may be tapered from one end to the other depending upon what is wanted. The invention is a practical success and is in extensive use.

I claim:

1. The herein described process of forming finished key ways in wheels or the like which consists in forming a sheet metal member with a shape to receive a key and casting metal around the same to form the wheel hub, substantially as described.

2. The herein described process of forming finished key ways in hubs of wheels or

the like which consists in forming a key way from a piece of flat sheet metal and then casting a wheel hub around the same, substantially as described.

- 5 3. The herein described process of forming finished hubs of wheels or the like adapted for keyed attachment to shafts

which consists in forming a key way in a sheet metal member, placing said member against a chill in a mold, and casting the 10 hub around the chill and key way member, substantially as described.

In testimony whereof I affix my signature.

WARREN W. ANNABLE.