

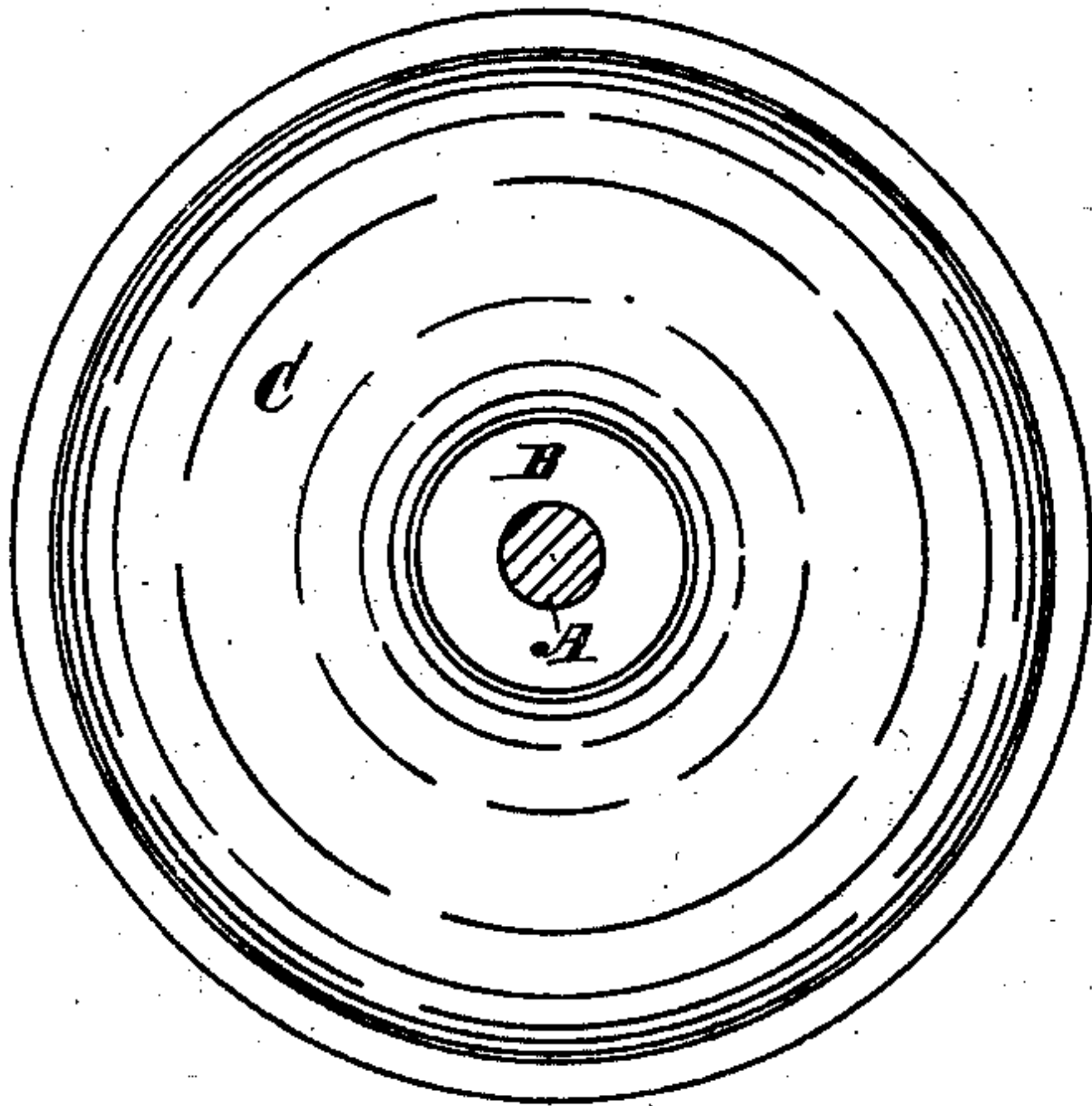
(No Model.)

H. R. ALLEN.  
PULLEY.

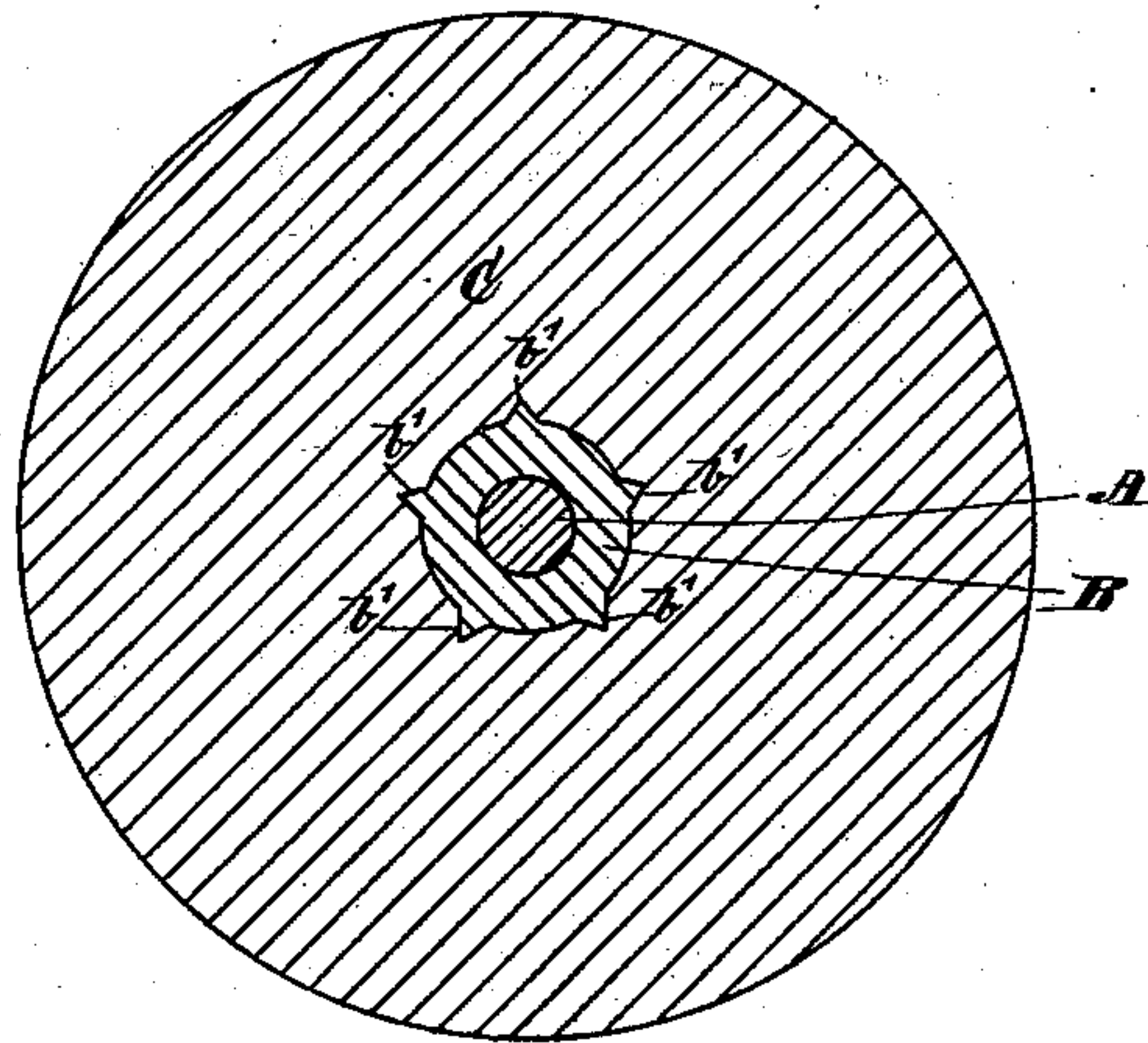
No. 260,350.

Patented July 4, 1882.

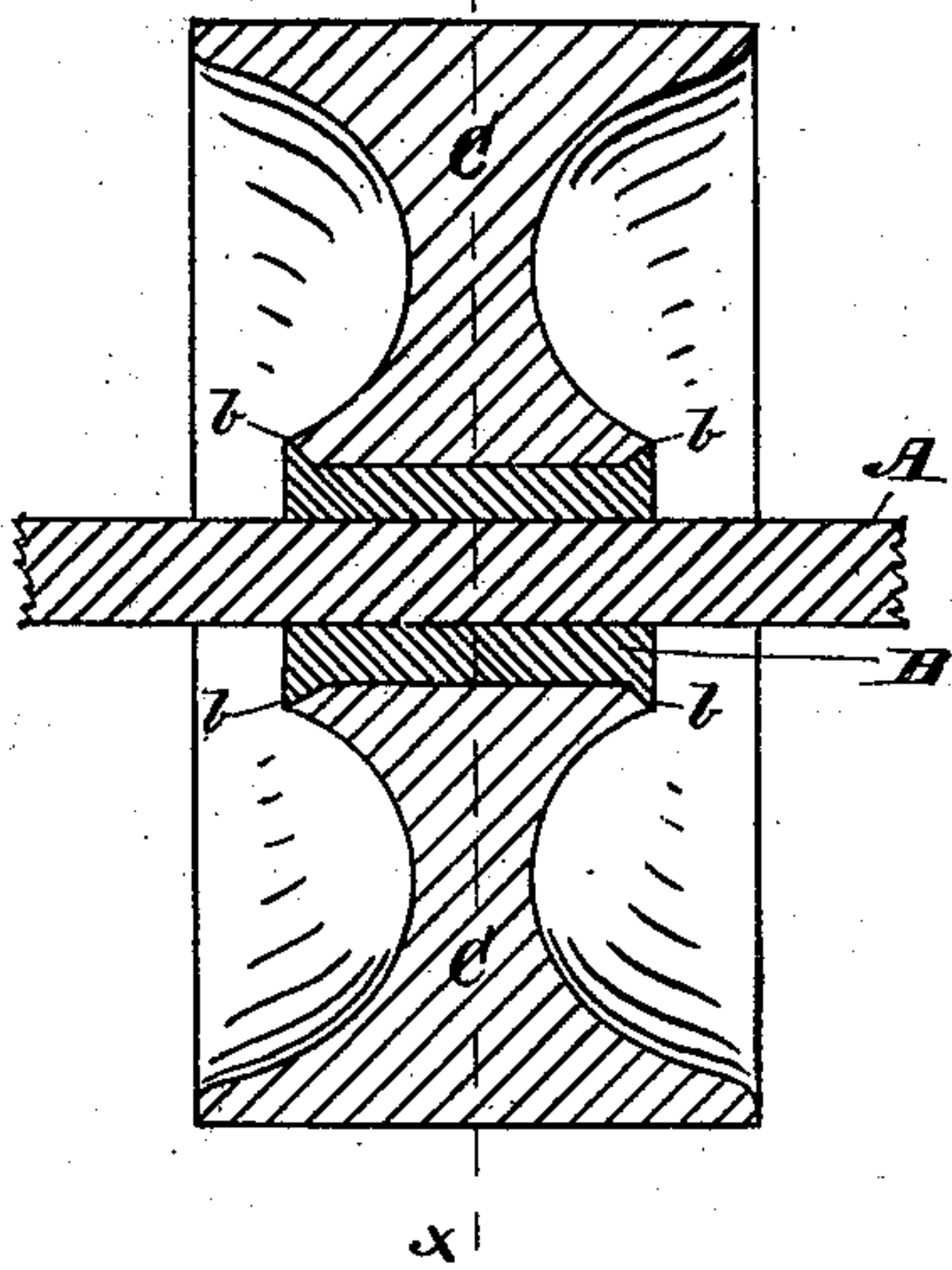
*Fig. 1.*



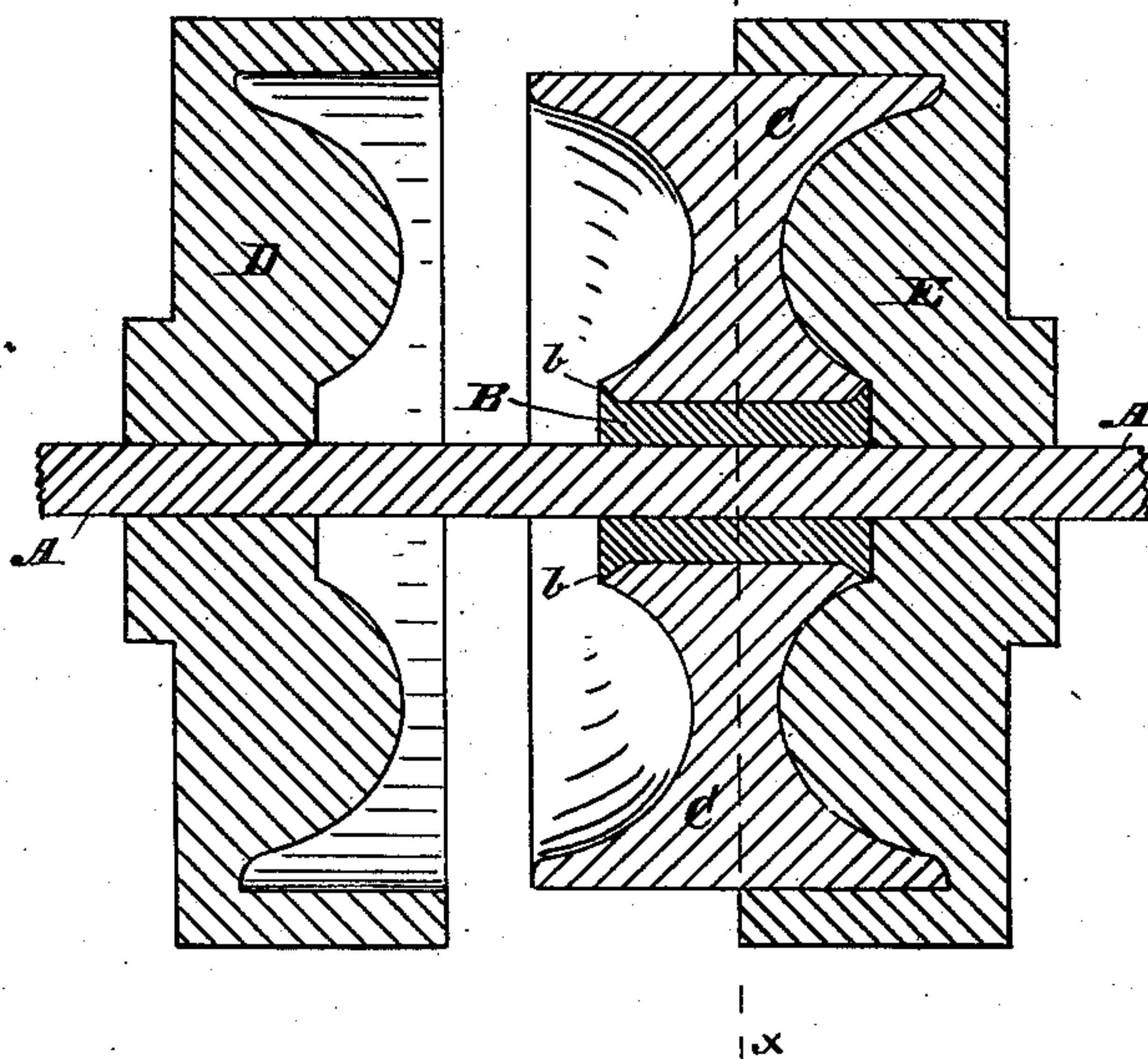
*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



WITNESSES.

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# UNITED STATES PATENT OFFICE.

HORACE R. ALLEN, OF INDIANAPOLIS, INDIANA.

## PULLEY.

SPECIFICATION forming part of Letters Patent No. 260,350, dated July 4, 1882.

Application filed December 6, 1881. (No model.)

*To all whom it may concern:*

Be it known that I, HORACE R. ALLEN, of the city of Indianapolis, county of Marion, and State of Indiana, have invented certain new and useful Improvements in Construction of and Process of Manufacturing Pulleys, of which the following is a specification.

The object of my said invention is to produce a pulley for belts, &c., from paper-pulp, which shall possess all the requirements of strength and durability which ordinary pulleys do. This object is accomplished by providing a powerful press the dies of which shall be of the shape and size of the desired pulley, centrally mounting a metal hub therein, and compressing the pulp around said hub in said mold until the required solidity is obtained.

Referring to the accompanying drawings, which are made a part hereof, and on which similar letters of reference indicate similar parts, Figure 1 is a side elevation of a pulley produced in accordance with my improved process; Fig. 2, a section thereof, taken transversely of its hub; Fig. 3, a section taken longitudinally of said hub; and Fig. 4, a view similar to Fig. 2, including the mold, the several parts being drawn to illustrate said mold particularly and the pulley only incidentally.

In said drawings, the portions marked A represent the shaft on which the pulley is mounted; B, the hub or metal portion of said pulley; C, the outer or paper portion thereof, and D E the two halves of the mold wherein said paper portion is formed.

The shaft A is simply a piece of ordinary shafting, and needs no special description in this connection.

The hub B is of the general form of ordinary hubs, as shown, but is preferably provided with rings *b* and ridges *b'* to insure the certain retention of the paper part thereon and prevent its becoming loose or its hold uncertain.

The paper portion C is of the general form, outside, of ordinary web-centered pulleys. Being formed directly upon the hub B, it of course fits closely over the ridges and irregularities in its surface, and is thereby in effect integral therewith.

The molds D E may be in two pieces, as shown, or in such other number as is most convenient, size and other particulars considered. It is preferably constructed to be mounted on the shaft of the proposed pulley and to be exactly centered thereon.

The process of forming my improved wheel is as follows: The hub B is first bored out and finished ready for use. It is then mounted on the shaft A, which should be of the same size as that upon which the pulley is ultimately to be used. The molds are then also mounted upon the shaft A, (the bore of the hubs of said molds being of the same size as that of the hub to the pulley,) and the paper-pulp inserted. A powerful pressure is then brought to bear on the molds by any of the well-known means employed in analogous processes, and the result, in the proper time, is a perfectly-finished pulley, ready for use without further labor or expense.

The hubs of pulleys of this character, however, like those of ordinary pulleys, can be bored out to fit a larger shaft, after the pulley is formed, and this may be often necessary to be done when pulleys of the same size are to be placed on different-sized shafts, or when the size of the shaft is not known at the time of making the pulley.

A pulley of this character has nearly the strength and evenness of one formed wholly from iron, its lightness is about equal to that of wood, while the cost of manufacture is much less than that of either. It cannot warp or split, as wooden pulleys do, nor can it be broken by such a blow as would ordinarily ruin one made of cast-iron.

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

1. A belt or friction pulley for machinery, formed either partly or wholly by being pressed from pulp, substantially as set forth.

2. A belt or friction pulley for machinery, formed of a metal hub and an outer portion pressed around the same, substantially as specified.

3. A belt or friction pulley formed of a metal hub, B, having rings or ridges or such like

projections, and pulp pressed around said hub  
and filling the irregularities in its outer sur-  
face, whereby said pulp portion is held im-  
movable on said metal hub, all substantially  
5 as shown and specified.

4. The process of forming pulleys which  
consists in mounting a hub and molds upon a  
shaft and filling the intervening space with  
pulp, and subjecting the same to pressure, sub-  
10 stantially as set forth.

In witness whereof I have hereunto set my  
hand and seal, at Indianapolis, Indiana, this  
3d day of December, A. D. 1881.

HORACE R. ALLEN. [L. S.]

In presence of—

SALLIE DAVISON,  
C. BRADFORD.