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PATENTED OCT. 1, 1907.

C. VON BECHTOLSHEIM.
WEDGE CONNECTION BETWEEN AXLE TREE AND NAVE.
APPLICATION FILED SEPT. 11, 1905.

Fig. 1.

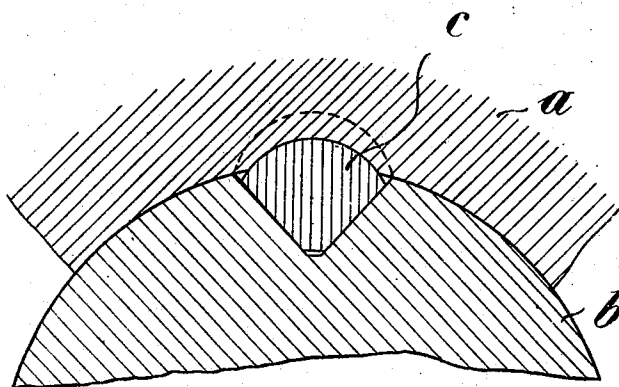


Fig. 2.

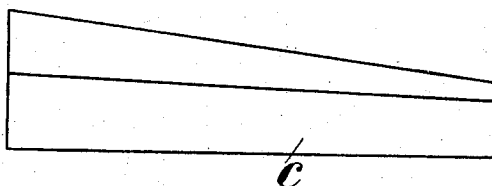
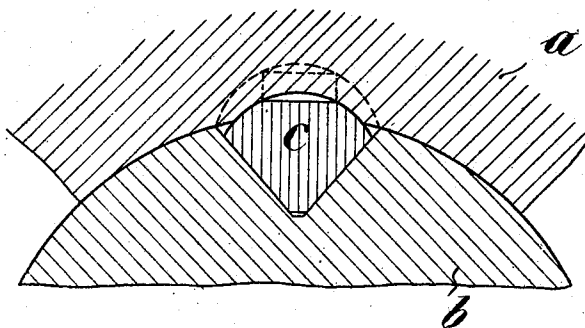


Fig. 3.



Witnesses:
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UNITED STATES PATENT OFFICE.

CLEMENS VON BECHTOLSHEIM, OF MUNICH, GERMANY.

WEDGE CONNECTION BETWEEN AXLETREES AND NAVES.

No. 867,468.

Specification of Letters Patent.

Patented Oct. 1, 1907.

Application filed September 11, 1905. Serial No. 278,046.

To all whom it may concern:

Be it known that I, CLEMENS VON BECHTOLSHEIM, a subject of the King of Bavaria, and a resident of Maria Theresiastrasse 27, Munich, Germany, have invented certain new and useful Improvements in Wedge Connections Between Axletrees and Naves, of which the following is a specification.

Prior key-connections between a shaft and the nave of a machine-part do not permit tightening in the direction of the transmission of force. It is true that it has been suggested to obtain such tightening, by placing the key diagonally, but in such instance one met with the difficulty, that the grooves could not be cut in the nave in such a manner that they exactly corresponded to the faces of the key.

The present invention relates to a key-connection which is adapted to be tightened in the direction of the force by longitudinal movement of the key and which is easily made and need not be reworked.

The accompanying drawing shows two embodiments of the invention.

Figure 1 is a section through a key-connection; Fig. 2 is a side view of the key; and Fig. 3 is a section through a slightly different embodiment of the key-connection.

In the embodiment shown in Figs. 1 and 2, the key groove in the nave *a* of a machine part, which is to be keyed to another machine part, such as a shaft *b*, is formed with a curved wall, while the key seat in the shaft *b* has straight flat walls and is of tapering cross-section. The key *c* is convexed or curved on the side towards the nave *a* and towards the shaft *b* the key has two plane faces set at an angle to each other and parallel to the longitudinal axis of the key.

The groove in the nave *a* and the convex or curved face of the key *c* extend at an inclination in the longitudinal direction in order that the key can become jammed when driven or shifted in the longitudinal direction. The groove or key seat in the shaft *b* is, however, uniform throughout its entire length. This key-connection makes it possible to tighten the parts in the direction of the force acting on the connected machine-parts, and, to accomplish this purpose, the key is moved in the longitudinal direction, thereby causing the opposing faces of the key and of the groove in the nave *a* to come into intimate contact with each other. The grooves in the parts *a* and *b* are easily cut and the key *c* can be easily made. Further the grooves and the key do not require any re-working in order to produce a secure key-connection. Such key-connections are, however, perfect only when the radii of the concave

curved surfaces exactly geometrically correspond to the radii of the convex curved surfaces. This, however, cannot be done in practice. The radius of the curvature of the key is generally a little less than the radius of the curvature of the groove in the nave *a*. Consequently the key will contact perfectly at its top only and on change of pressure, such as by frequent changing of direction of rotation of two connected machine-parts, a gradual loosening of the connection is likely to take place. The key is, therefore, preferably flattened at the top, as shown in Fig. 3, so as to produce an interrupted curved contacting face between the key and nave. In both embodiments the smaller end of the key is towards the observer while the larger end of the key is hidden behind the nave and indicated in dotted lines in Figs. 1 and 3.

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

1. A key connection comprising a part provided with a groove formed of two flat faces disposed at an angle to each other; a nave part provided with a curved groove arranged at an inclination to the groove in the first mentioned part; and a key having on one side a pair of plane faces arranged at an angle to each other and fitting the first named groove and having on the opposite side a curved face fitting the second named groove and inclined longitudinally of the key relatively to the faces on the first mentioned side.

2. A key having one side wedge shaped and formed by a pair of plane faces arranged at an angle to each other and having on its opposite side a convex face inclined longitudinally of the key.

3. A key connection comprising a part provided with a groove formed of two flat faces disposed at an angle to each other; a nave part provided with a curved groove arranged at an inclination to the groove in the first mentioned part; and a key having on one side a pair of plane faces arranged at an angle to each other and fitting the first named groove, and having on the opposite side a curved face fitting the second named groove and inclined longitudinally of the key relatively to the faces on the first-mentioned side; said curved face of the key having an interrupted portion at its top.

4. A key having on one side a pair of plane faces arranged at an angle to each other, and having on its opposite side a curved face inclined longitudinally of the key; said curved face of the key having an interrupted portion at its top.

5. A key having a face parallel to the axis of the key and a convex face inclined relatively to the first named face and provided with an interrupted portion.

In testimony whereof I affix my signature in presence of two witnesses.

CLEMENS VON BECHTOLSHEIM.

Witnesses:

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