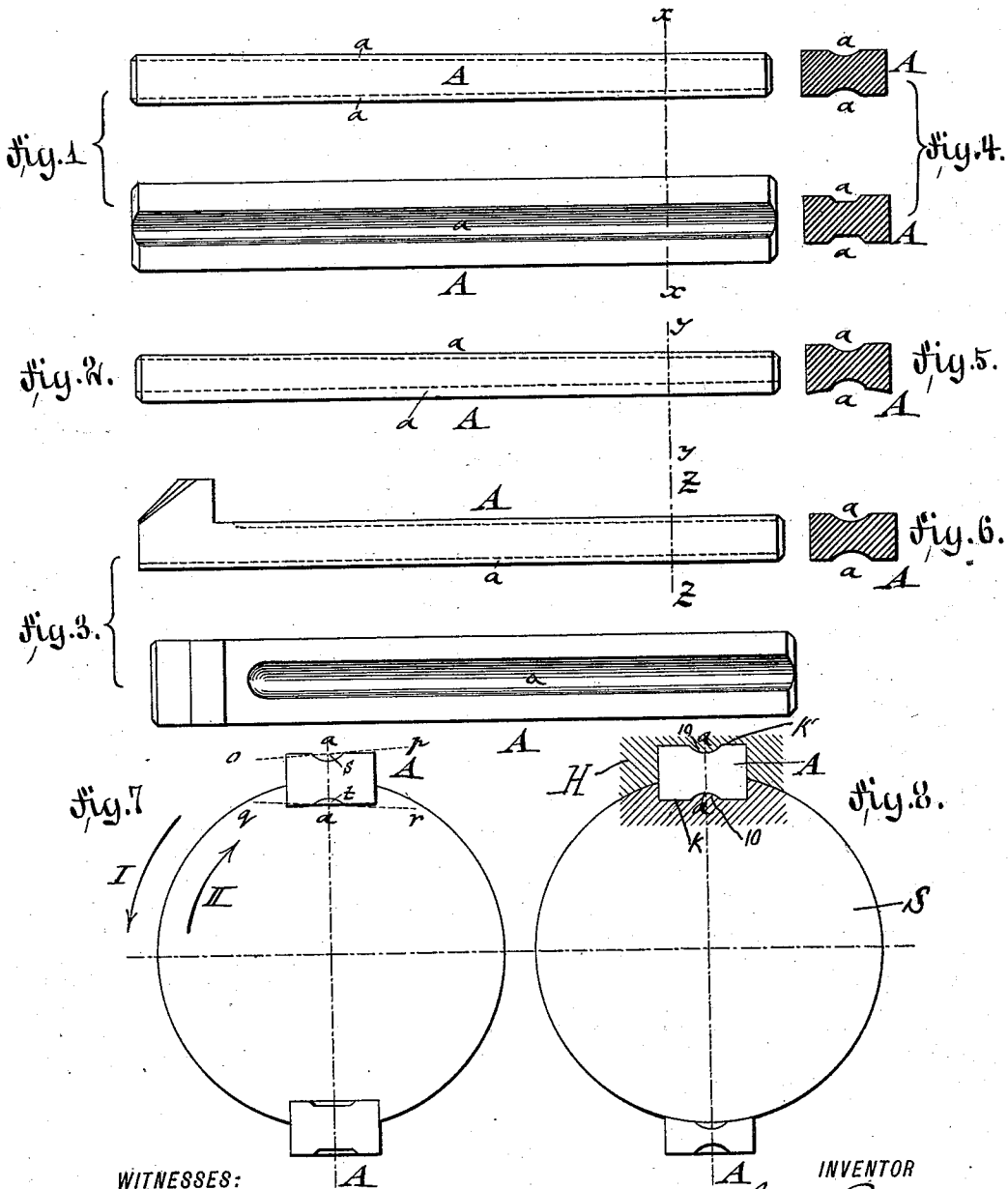


(No Model.)

J. ROEMMELE.
KEY FOR SHAFTING.

No. 423,701.

Patented Mar. 18, 1890.



WITNESSES:

W. N. Rosenbaum.
Henry Huber

INVENTOR

Julius Roemmele
BY *Georg Riegner*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

JULIUS ROEMMELE, OF FREIBURG, BADEN, GERMANY.

KEY FOR SHAFTING.

SPECIFICATION forming part of Letters Patent No. 423,701, dated March 18, 1890.

Application filed December 19, 1888. Serial No. 294,068. (No model.)

To all whom it may concern:

Be it known that I, JULIUS ROEMMELE, a citizen of the German Empire, residing at Freiburg, Grand Duchy of Baden and Empire of Germany, have invented certain new and useful Improvements in Keys for Shafting, of which the following is a specification.

This invention relates to an improved key for fastening pulleys, gear-wheels, &c., to shafts, which key can be fitted more easily for the key-seat and gives a greater resistance against torsion than the keys heretofore in use.

In the accompanying drawings, Figure 1 represents a side and top view of a key made according to my invention. Fig. 2 is a modified form of the same. Fig. 3 is a top view of an improved key provided with a key-nose. Figs. 4, 5, and 6 are vertical transverse sections of the key, respectively, on line $x x$, Fig. 1, line $y y$, Fig. 2, and line $z z$, Fig. 3. Fig. 7 is a vertical diagram of a shaft with the keys in position; and Fig. 8 is an end view of the shaft, partly in section, showing the keys in position.

Similar letters of reference indicate corresponding parts.

This improved key for fastening pulleys, gear-wheels, and other motion-transmitting mechanisms consists of a rectangular bar provided with central longitudinal grooves a on its opposite faces, said grooves forming a duplex arch curved in opposite directions, whereby the key presents arched bearing-surfaces to both wheel and shaft, so that its contact is firmer.

The arrangements of the grooves or the surfaces of the key has the advantage that the fitting of the same for the key-seats is greatly facilitated, as it enables the workman to produce an even surface, as only two-thirds of the surface have to be trued. As the bearing-surface of the key is grooved, the file is more easily guided and thereby a more even surface obtained and in less time than with the ordinary flat key. The second advantage of my improved key is that it furnishes a greater resistance against torsion, as its bearing-surface is placed at those points where it theoretically should be. This is illustrated in Fig. 7, in which the strain in opposite directions tends to cause the originally parallel upper and lower surfaces to form an angle on the dotted lines $o p$ and $q r$, (shown

in Fig. 7,) which shows that the key is exposed to a crushing strain at the points s and t .

That part of the fitted surface of the key which lies nearest to the center line of the same receives the least pressure, and hence resists least against torsion, and therefore it has been removed by arranging the central longitudinal top and bottom grooves a .

Heretofore it required skilled working-men to fit the key, so as to prevent it from rocking on the center, while with the grooved key this difficulty is entirely overcome.

In cases in which the key is exposed to a great strain the seat k of the shaft S and the key-seat k' of the hub H (a fragment of the latter being shown in Fig. 8) are each provided with a rib 10, as shown in Fig. 8, which ribs enter the arches of the key and give the structure a greater possible resistance against shearing strain without in the least weakening the boss of the pulley or wheel.

I am aware that keys grooved on one side have been used heretofore, also keys of dovetailed cross-section; but the object of such grooving and dovetailing is entirely different from the object of my key, which is grooved at both its upper and lower surface for the purpose of increasing thereby the resistance of the key against torsion.

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

1. A key for uniting a wheel and shaft, consisting of a rectangular bar provided with longitudinal grooves on its upper and lower sides, said grooves being disposed opposite each other centrally of the bar, forming a duplex arch curved in opposite directions, whereby the key presents arched bearings to both wheel and shaft.

2. The combination of a shaft having a key-face provided with a longitudinal rib, a hub having a key-face provided with a longitudinal rib, and a key provided with longitudinal grooves on its opposite sides, into which said ribs fit, substantially as described.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

JULIUS ROEMMELE.

Witnesses:

ALFRED KLINGELN,
WILHELM SUTTER.