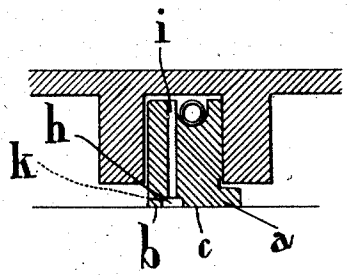
C. A. PARSONS, S. S. COOK AND L. M. DOUGLAS.

CARBON GLAND.

APPLICATION FILED JULY 19, 1919.

1,334,393. Patented Mar. 23, 1920.



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CHARLES ALGERNON PARSONS, STANLEY SMITH COOK, AND LOUIS MORTIMER DOUGLAS, OF NEWCASTLE-UPON-TYNE, ENGLAND; SAID COOK AND SAID DOUGLAS ASSIGNORS TO SAID PARSONS.

CARBON GLAND.

1,334,393. Specification of Letters Patent. Patented Mar. 23, 1920.

Application filed July 19, 1919. Serial No. 312,056.

To all whom it may concern:

Be it known that we, CHARLES ALGERNON PARSONS, K. C. B., STANLEY SMITH COOK, and LOUIS MORTIMER DOUGLAS, all subjects of the King of Great Britain and Ireland, and all residing at Heaton Works, Newcastle-upon-Tyne, in the county of Northumberland, England, have invented certain new and useful Improvements in Carbon Glands, of which the following is a specification.

This invention relates to carbon glands for packing rotating shafts of the type consisting of a carbon ring divided radially into a number of arc-shaped portions which bear independently on the shaft, and essentially to the type indicated in co-pending application No. 257,080 in which the gland rings are made of L shaped cross-section with the extension along the shaft toward the low pressure side, for the purpose of placing the carbon sectors in radial equilibrium under steam pressure to reduce or eliminate the rubbing friction between the shaft and the carbon.

In such glands the carbon ring is pressed by the high pressure steam in a direction parallel to the shaft axis against the inwardly projecting flange of the casing on the low pressure side, but as there is necessarily a space between this flange and the shaft the steam has a tendency to cause each portion of the ring to tilt in such a manner that the edge of the working face at the high pressure end is forced hard on the shaft and thus prevents the ingress of the small quantity of steam essential to form a film between the carbon and the shaft so as to produce the cushioning effect necessary to minimize the friction.

The object of the invention is to provide means whereby the tilting of the ring portions is minimized and is prevented from having the above mentioned harmful effects.

The invention consists in providing, in a carbon ring of the type indicated, a circumferential groove in the face next the shaft, this groove being placed in communication with the high-pressure steam and separating the working face of the ring from a circumferential strip bearing on the shaft at the high pressure side of the ring.

The invention further consists in the improved carbon gland hereinafter described.

The invention is shown in the accompanying drawing which represents the carbon gland in section.

In carrying the invention into effect, an L shaped ring *a* of the kind described in co-pending application No. 257,080 is employed, the projecting toe, which is less extended than those shown on the glands described in the above mentioned specification, being toward the low pressure side. The ring is extended toward the high pressure side, the extension consisting of a circumferential strip *b* bearing on the shaft, which is of the nature of an extension of the working face *c*, and a circumferential groove *h* which separates the circumferential strip from the proper working face *c* of the ring. This groove is placed in communication with the high pressure steam by any suitable means such as a number of short grooves *k* parallel to the axis of the shaft, a number of radial ducts *i* also leading from the groove *h* to the high pressure steam space around the outside periphery of the ring but either the grooves *k* or ducts *i* may be omitted. With rings of this type, the tilting is lessened and tends to take place about the circumferential strip *b* which bears on the shaft at the high pressure side of the ring, and to lift slightly from the shaft the whole of the working surface *c* of the ring portion so as to admit the slight film of steam necessary to prevent heavy rubbing friction.

Having now described our invention, what we claim as new and desire to secure by Letters Patent is:—

1. In carbon and like glands for rotating shafts comprising a plurality of radially divided rings each having an extension projecting along the shaft, providing a circumferential groove in the face next the shaft, this groove being placed in communication

with the high pressure steam and separating the working face of the ring from a circumferential strip bearing on the shaft at the high pressure side of the ring.

2. In a gland as set forth in claim 1, grooves on the internal surface of the circumferential strip and radial ducts in each ring whereby steam is conducted to the circumferential groove, substantially as described.

In testimony whereof we have signed our names to this specification.

CHARLES ALGERNON PARSONS.
STANLEY SMITH COOK.
LOUIS MORTIMER DOUGLAS.