Feb. 22, 1949. L. J. H. BALLINGER 2,462,710

ABRASIVE WHEEL GUARD

Filed July 17, 1946

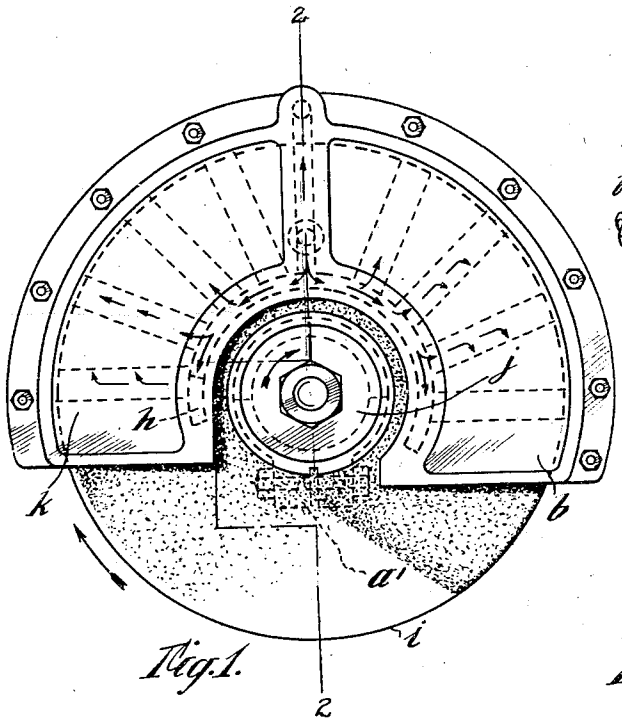


Fig. 1.

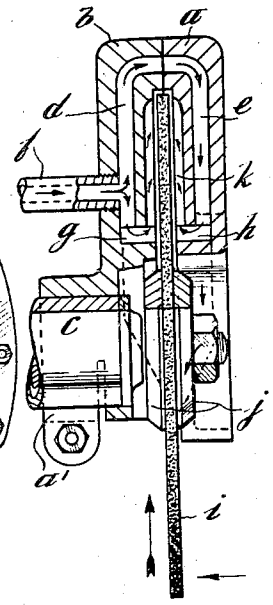


Fig. 2.

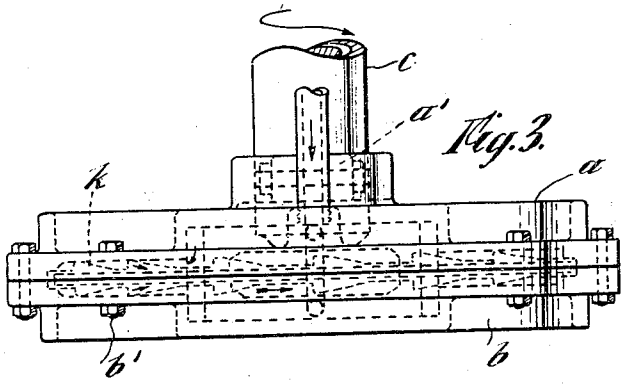
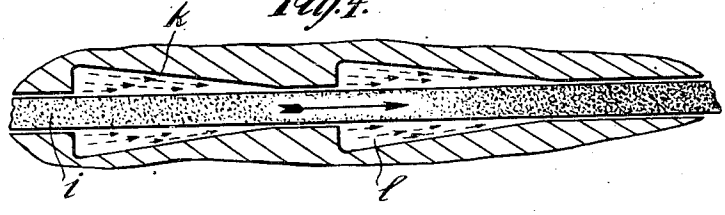


Fig. 3.

Fig. 4.



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ABRASIVE WHEEL GUARD

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2 Claims. (Cl. 51—267)

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This invention relates to a guard for a high speed abrasive wheel.

In accordance with the present invention I provide a guard for a high speed abrasive wheel having passages through which cooling fluid passes to the opposite faces of the abrasive wheel, the passages being open on the sides adjacent the wheel and contracting in cross-section in the direction of rotation of the wheel.

The accompanying drawings illustrate one form of guard made in accordance with the present invention, wherein:

Fig. 1 is a sectional elevation,

Fig. 2 is a section on line II—II, Fig. 1,

Fig. 3 is a plan, and

Fig. 4 is a developed detail.

As illustrated the guard is formed in two halves, *a*, *b*, one half *a* being clamped at *al* to the spindle housing *c*, the second half *b* being detachably attached at *bl* to the first half *a* for wheel removal.

Each half is formed with water passages *d*, *e*, connecting a water inlet *f* to circular portways *g*, *h*, formed on the inside guard faces against the side faces of the abrasive wheel *i* and reasonably near the outside diameter of the abrasive wheel support flanges *j*.

The circular portways *g*, *h*, connecting with wedge-shaped radial grooves *k* also formed on the inner faces of the abrasive wheel guard halves *a*, *b* the shape of the wedge having a special relation to the direction of rotation of the abrasive wheel, that is to say, pointing in the direction of that rotation.

The wedge-shaped grooves *k* need not be radial.

In operation water *l* flows via the water inlet *f* and passageways *d*, *e* to the circular portways *g*, *h*. When assisted by centrifugal force created by the speed of rotation of the abrasive wheel, the water *l* flows through the wedge-shaped radial grooves *k* outwards towards the outer periphery of the abrasive wheel *i*. The water also tends to follow the direction of rotation of the abrasive wheel *i*. Due to the relation of the wedge-shaped radial grooves *k* to the direction of rotation of the abrasive wheel *i*, water is impinged on each side of the rotating abrasive wheel *i*; the resultant of the action on the water is, therefore, at a tangent to the wheel. The water flows through and is deflected by the wedge shaped grooves *k* to produce axial pressure against both side faces of the abrasive wheel. Furthermore the stationary guard side faces form stationary reaction members on which the liquid pressure is built up between the guard and the wheel side faces, thereby pressure cooling the abrasive wheel and the liquid supporting the abrasive wheel.

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What I claim and desire to secure by Letters Patent is:

1. A guard for a high speed abrasive wheel formed in complementary sections, one section being clamped to the housing of the wheel spindle, another and complementary section being detachably attached to the first mentioned section, each section being formed with fluid passages connecting a fluid inlet to portways formed on the inside guard faces against the side faces of the abrasive wheel and reasonably near the outside diameter of flanges on the abrasive wheel support, the portways connecting with radial passages wedge shaped in cross section and open to the wheel on the sides adjacent the wheel and which contract in the direction of rotation of the wheel also formed on the inner faces of the abrasive wheel guard section, the apex of the contraction pointing in the direction of rotation of the abrasive wheel.

2. A guard for a high speed abrasive wheel formed in two halves, one half being clamped to the housing of the wheel spindle, the second half being detachably attached to the first half, each half being formed with water passages connecting a water inlet to circular portways formed on the inside guard faces adjacent the side faces of the abrasive wheel and reasonably near the outside diameter of flanges on the abrasive wheel support, the circular portways connecting with wedge-shaped radial passages also formed on the inner faces of the abrasive wheel guard halves open to the wheel on the sides adjacent the wheel, the apex of each wedge pointing in the direction of rotation of the abrasive wheel.

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