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 GRINDING WHEEL CARRIER FOR HORIZONTAL SURFACE GRINDING MACHINES.
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1,373,193.

Patented Mar. 29, 1921.

FIG. 1.

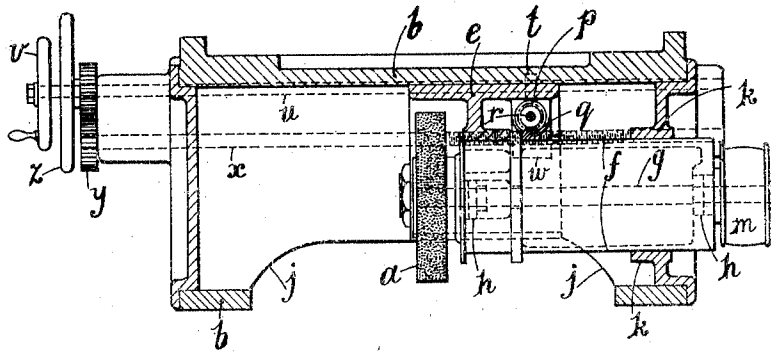


FIG. 2.

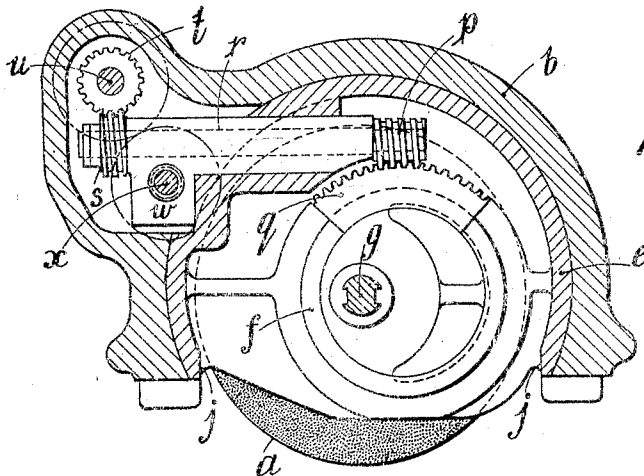
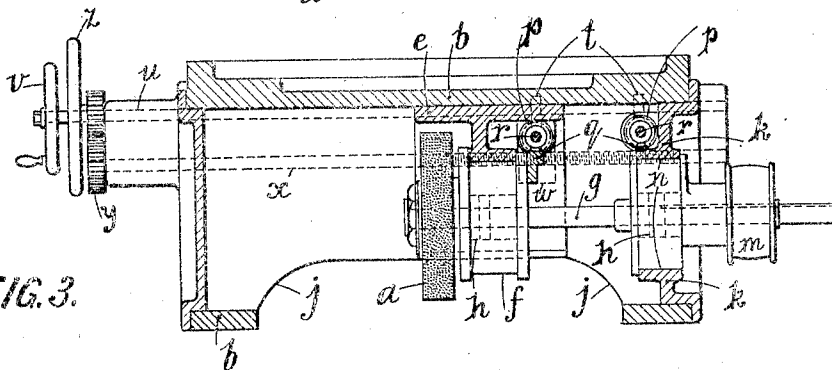


FIG. 3.



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GRINDING-WHEEL CARRIER FOR HORIZONTAL SURFACE-GRINDING MACHINES.

1,373,193.

Specification of Letters Patent. Patented Mar. 29, 1921.

Application filed December 10, 1920. Serial No. 429,740.

To all whom it may concern:

Be it known that I, THOMAS LUMSDEN, a subject of the King of Great Britain and Ireland, residing at Gateshead, in the county of Durham, England, have invented new and useful Improvements in Grinding-Wheel Carriers for Horizontal Surface-Grinding Machines, of which the following is a specification.

My invention relates to grinding wheel carriers for horizontal surface grinding machines of the kind wherein the grinding wheel (or wheels) is moved across the work, and either the wheel is lowered and raised to move it into and out of contact with the surface of the work, or the work is raised and lowered to move it into and out of contact with the wheel. The grinding wheel carrier of the present invention is, for example, applicable to horizontal surface grinding machines of the planer type wherein the wheel carrier is vertically adjustable and is supported by a housing or upright at each side of the reciprocating work table; to machines of the ring grinder type wherein the wheel carrier is not vertically adjustable and the work is carried by a revolving table which can be raised and lowered to move the work into and out of contact with the wheel; to machines of the type wherein the wheel carrier is not vertically adjustable and the work table both reciprocates and rises and falls.

A grinding wheel carrier in accordance with this invention comprises a cylindrical cross rail wherein is mounted an axially sliding member which supports the grinding wheel spindle, said cross rail and sliding member partially surrounding the wheel, which arrangement provides a very well supported grinding wheel wherein the thrust is taken directly against the cross rail. The grinding wheel spindle may be eccentrically mounted in a ram rotatively mounted in the sliding member within the cross rail, rotary adjustment of said ram lowering and raising the wheel to move it into and out of contact with the surface of the work.

In the accompanying drawings, Figure 1 is a central vertical section of one construction of grinding wheel carrier in accordance with my invention; Fig. 2 is a cross section thereof drawn to a larger scale; and Fig. 3 is a similar view to Fig. 1 illustrating a modification.

Referring to the drawings, in the construction illustrated in Figs. 1 and 2, the grinding wheel *a* is supported by a carrier comprising a cross rail *b* bored out cylindrically and provided with an internal axially sliding piston-like member *e*. The sliding member *e* carries one end of a ram *f*, the axis of which is parallel to but is preferably eccentric from the axis of the sliding member *e* and cross rail *b*. The wheel spindle *g* is mounted in bearings *h* disposed eccentrically in said ram, the grinding wheel *a* being surrounded and directly supported by the sliding member *e* and the cross rail *b* which are cut away at *j* to uncover the lower portion of the periphery of the wheel. The end of the ram *f* farther from the wheel *a* is supported by a fixed bearing *k* within and carried by the cross rail *b* through which the ram is free to slide. The wheel spindle *g* is rotated by a belt-driven pulley *m* keyed on the end of the spindle *g* opposite to the wheel *a*.

Means, such as a worm wheel *p* engaging a worm sector *q* on the ram *f* and mounted on a spindle *r* carried by the sliding member *e* and provided with a screw wheel *s* engaging a complementary screw wheel *t* on a shaft *u* rotatable by a handwheel *v*, are provided for rotatively adjusting the ram *f* to lower and raise the wheel *a* relatively to the axis of the cross rail *b* and so move the wheel into and out of contact with the surface of the work.

Where the cross traverse of the wheel is considerable, the ram *f* may, as shown in Fig. 3, be short in length and wholly supported by the sliding member *e*, the pulley end of the spindle *g* being eccentrically mounted in similar fashion in a carrier *n* in the fixed bearing *k* carried by the cross rail *b*, in which case the spindle *g* slides through the belt pulley *m* but is keyed thereto. In this construction, both the ram *f* and the carrier *n* are provided with worm sectors *q* each of which is engaged by a worm wheel *p* on a shaft *r* provided with a screw wheel *s* engaged by a complementary screw wheel *t*, both wheels *t* being mounted on the shaft *u* so that both the ram *f* and the carrier *n* can be rotatively adjusted equally and simultaneously by rotating the shaft *u*.

The screw wheels *t* are keyed to the shaft *u* but are free to slide thereon to suit the travel of the sliding member *e*.

Any convenient known means may be provided for reciprocating the sliding member *e* axially within the cross rail *b* to give cross-traversing motion to the wheel *a*. In the construction illustrated, the sliding member *e* is provided with a nut *w* engaging a threaded shaft *x* restrained from endwise movement, said shaft being rotatable through gear wheel *y* by a handwheel *z*.

My invention is applicable to grinding wheel carriers for horizontal surface grinding machines having a plurality of grinding wheels as well as to carriers for machines having a single wheel.

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

1. A grinding wheel carrier for a horizontal surface grinding machine comprising a cylindrical cross rail, an axially sliding member mounted therewithin, means for reciprocating said member, a spindle supported by said sliding member, a grinding wheel mounted on said spindle, and means for rotating said spindle, said cross rail and said sliding member partially surrounding said grinding wheel.

2. A grinding wheel carrier for a horizontal surface grinding machine comprising a cylindrical cross rail, an axially sliding member mounted therewithin, means for

reciprocating said member, a ram mounted for rotation in said sliding member, a spindle eccentrically mounted in said ram, means for angularly adjusting said ram to lower and raise said spindle relatively to the axis of said cross rail, a grinding wheel mounted on said spindle, and means for rotating said spindle, said cross rail and said sliding member partially surrounding said grinding wheel.

3. A grinding wheel carrier for a horizontal surface grinding machine comprising a cylindrical cross rail, an axially sliding member mounted therewithin, means for reciprocating said member, a ram mounted for rotation in said sliding member, a carrier member mounted for rotation in said cross rail, an eccentrically mounted spindle one end of which is carried by said ram and the other end by said carrier member, means for simultaneously angularly adjusting said ram and said carrier member to lower and raise said spindle relatively to the axis of said cross rail, a grinding wheel mounted on said spindle, and means for rotating said spindle, said cross rail and said sliding member partially surrounding said grinding wheel.

In testimony whereof I have signed my name to this specification.

THOMAS LUMSDEN.