Feb. 23, 1932. K. JUNG 1,846,341

SURFACE GRINDING MACHINE

Filed Jan. 29, 1931

Fig. 1.

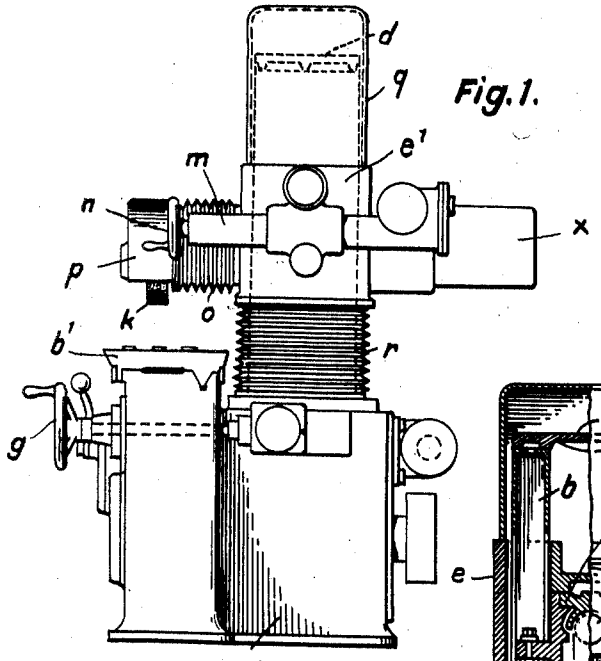


Fig. 2.

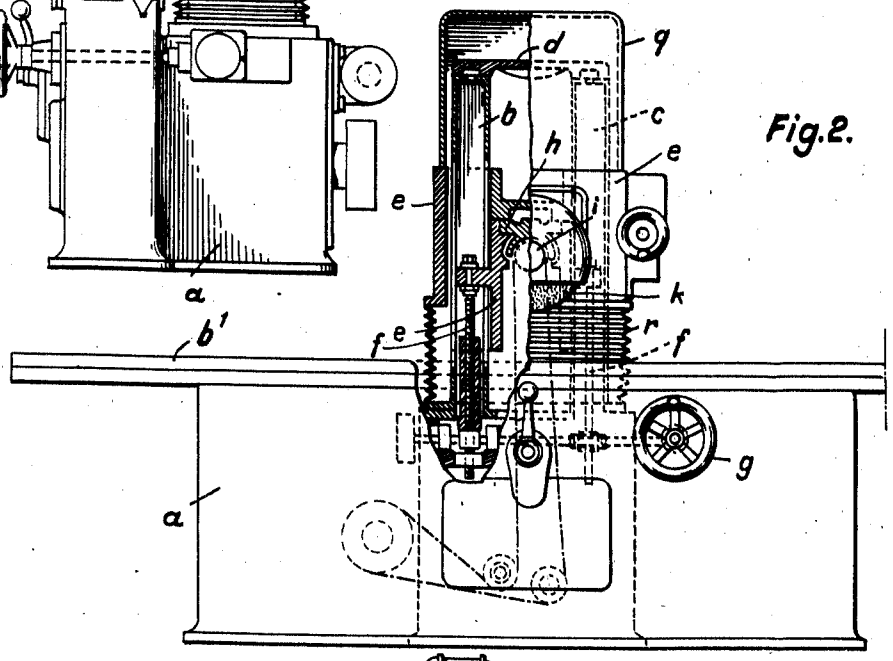
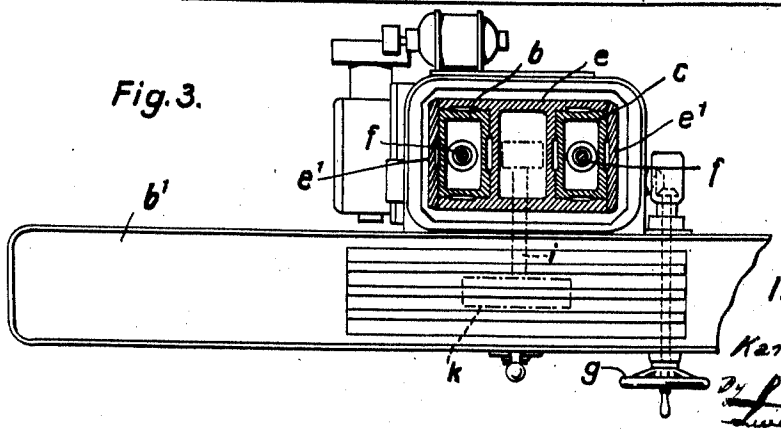


Fig. 3.



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SURFACE GRINDING MACHINE

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In grinding machines it is of primary importance that the spindle of the grinding wheel is firmly secured and does not oscillate, so as to render an exact grinding possible. To this end, it is customary to secure the grinder spindle to a vertically movable upright, whilst the work is positioned by arranging it on a cross support. These machines however have the disadvantage that only a relatively small grinding length is possible. If the length of the object to be ground is comparatively large, then the lateral projection is so great, that if it is a question of finishing heavy parts exactly, the transverse movement cannot be effected with sufficient precision. Machines are known in which the transverse movement of the grinding wheel is effected by a horizontally movable slide which carries the grinder spindle, the guide of this slide being fixed on one side to a vertically movable slide. This arrangement has the disadvantage in that in consequence of the fixing being on one side only, the rigidity is not very great and moreover, the slides are poorly protected against dust thrown off from each machine.

The present invention removes the inconvenience by providing two uprights for carrying the grinding wheel framing, between which it can move vertically. As a result of this rigid framing on both sides, the grinding wheel spindle can be made movable axially, so that the work slide need only move longitudinally, the auxiliary transverse motion being effected by the grinder itself.

It is known to provide tool operating machines including grinding machines, with several uprights between which the tool slide is situated and in which the tool holder is held on both side by the uprights. These machines, however, are not accessible laterally in consequence of the arrangement of the uprights, and the construction is not therefore suitable for surface grinders in which the operator must always be able to observe the slide carrying the work, and the grinder.

The present invention is distinguished from these already known machines in that the supports of both framings of the tool holder are disposed on the same side of the longitudinal slide.

The drawings show by way of example, one form of the invention of which:

Figure 1 is an end view,

Figure 2 is an elevation partly in section and

Figure 3 is a plan also partly in section.

In these drawings *a* is the frame of the machine on which the work slide *b'* is arranged so as to move longitudinally. The framing for the grinding disc spindle is mounted on the main frame, and consists preferably of two hollow rectangular pillars *b* and *c*, provided at the top with a bridge *d* for strengthening purposes. Between these two pillars is a slide *e* which can be adjusted vertically by two spindles *f*, which can be moved by a hand wheel *g*. In the slide *e* is arranged a transverse slide *h* which carries a spindle *i* for a grinding wheel *k*. The slide *b* is moved in the slide *e* in the direction of the spindle *i* by any suitable means, not shown in the drawings preferably by means of a spindle and nut. The spindle *i* is in a casing *m* and can be turned by means of a hand-wheel *n*. By turning this hand-wheel *n*, the slide *h* is accordingly displaced, and thus the transverse movement can be effected by hand. The slide *h* is also displaced automatically in the known manner transversely. By turning the hand-wheel *g* the slide *e* together with the slide *h* and the spindle *i* can be adjusted vertically in order to adjust the depth of the grinding.

Driving and similar details may be as desired and may be of known form.

The protection of the machine against dust is effected by a collapsible housing. In the drawings such a housing as shown at *o* serves to cover the spindle *i*. This housing is fixed to one side of a cover *p* for the grinding wheel, and to the slide *e*. This slide *e* as shown in Figure 3, completely surrounds the two uprights *b* and *c*, having the shape of a double T with a hollow centre part, and on the outer ends of the slide are fastened covers *e'*, thus forming a particularly rigid structure. In order to protect the mechanism in the interior of the pillar *b* against dust, the

slide body *e*, *e'* is provided at the upper end with a cover *q*, this being sufficiently tall to enable the vertical movement to be effected, and fastened to the lower end of the slide body and to the main frame is a collapsible housing *r*. In this way the whole of the mechanism is protected from the outside and any interruption due to grit dirt avoided. The cover *q* can be replaced by a collapsible housing if desired or by telescopic tubes or the like.

I claim:—

1. A surface grinding machine comprising in combination with the machine frame, two uprights arranged on said frame, a slide guided vertically between said uprights, a grinder guided transversely in said slide, a cap provided at the upper end of the slide, but permitting its necessary vertical movement, a bellows fixed on the under end of the slide and the frame respectively, said slide, cap and bellows embracing both uprights, and a work slide guided on said machine frame, said uprights being arranged on the same side of the work slide.

2. A surface grinding machine comprising in combination with the machine frame, two uprights arranged on said frame, a slide guided vertically between said uprights, a grinder guided transversely in said slide, a cap provided at the upper end of the slide, but permitting its necessary vertical movement, a bellows fixed on the under end of the slide and the frame respectively, said slide, cap and bellows embracing both uprights, a cover for the grinder, a second bellows arranged between and fixed on said slide and cover respectively, and a work slide guided on said machine frame, said uprights being arranged on the same side of the work slide.

In testimony whereof I have affixed my signature.

KARL JUNG.