

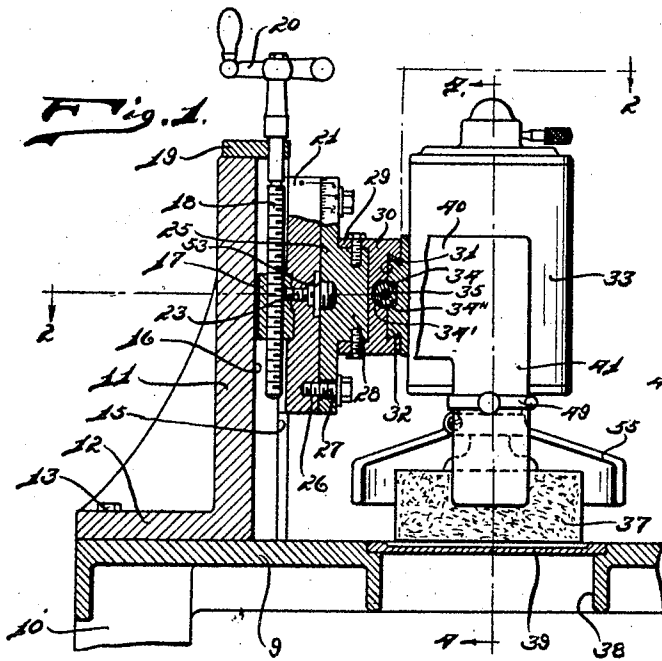
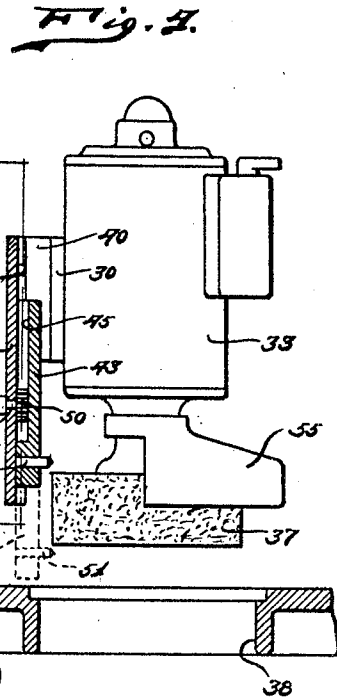
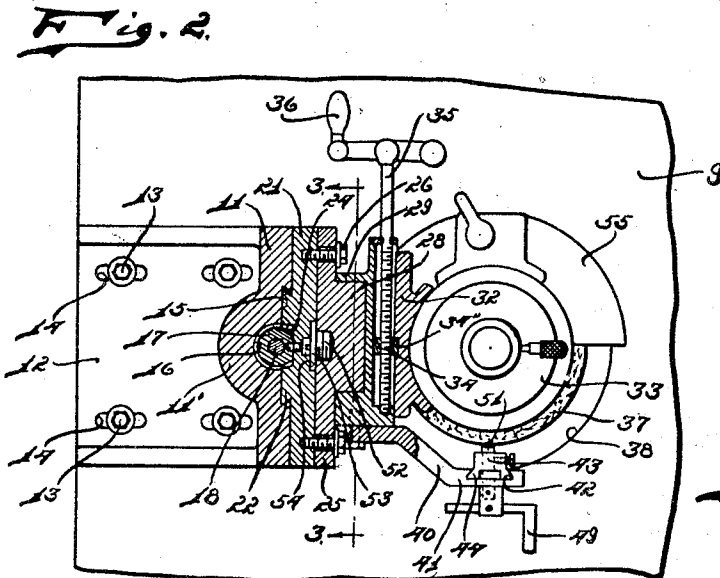
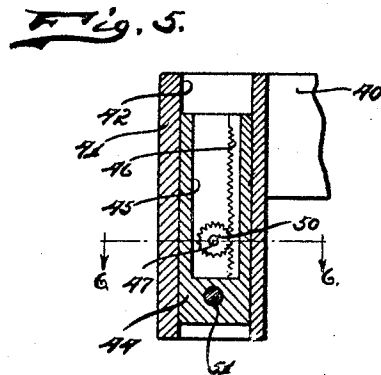
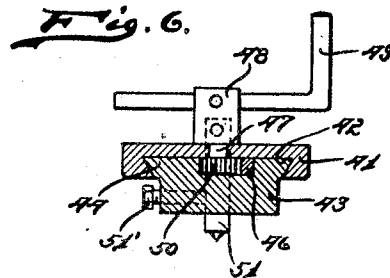
June 7, 1932.

H. F. KOESTLIN

1,862,379

GRINDING MACHINE

Filed March 19, 1928



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## UNITED STATES PATENT OFFICE

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## GRINDING MACHINE

Application filed March 19, 1928. Serial No. 262,622.

My invention relates to a new and useful improvement in a grinding machine and particularly the mountings for the machine.

It is an object of the present invention to provide a machine of this class which may be vertically adjusted relatively to the work and also horizontally moved relatively to the work.

Another object of the invention is the provision in a grinding machine of this class of mountings whereby the machine may be tilted at an angle to the workpiece or the supporting bed for the workpiece to provide a grinding machine for grinding a taper.

Another object of the invention is the provision in a grinding machine of this class of easily operated means for dressing the grinding wheel and particularly for removing projections from the grinding wheel or localized depressions.

Another object of the invention is the provision of a mechanism of this class which will be simple in structure, economical of manufacture and highly efficient in use.

Another object of the invention is the provision of a machine of this class which will be easily and quickly assembled, easily operated and possessed of a minimum weight and with durability.

Other objects will appear hereinafter.

The invention consists in the combination and arrangement of parts hereinafter described and claimed.

The invention will be best understood by a reference to the accompanying drawing which forms a part of this specification and in which,

Fig. 1 is a side elevational view of the invention with parts broken away and parts shown in section.

Fig. 2 is a sectional view taken on line 2—2 of Fig. 1.

Fig. 3 is a fragmentary sectional view taken on line 3—3 of Fig. 2.

Fig. 4 is a view taken on line 4—4 of Fig. 1 showing parts in section and parts in side elevation.

Fig. 5 is a fragmentary sectional view taken on line 5—5 of Fig. 4.

Fig. 6 is a sectional view taken on line 6—6 of Fig. 5.

I have shown the invention mounted on a bed 9 which is supported by suitable legs 10, the invention either being secured to a bed of this class which may be portable or being portable itself, and adapted for mounting on various supporting bodies.

The invention comprises a standard 11 which is provided with a base 12 having slots 14 formed therein, through which project screws 13 for securing the base 12 to the bed 9. The standard 11 is formed partially cylindrical at its central portion 11' to provide a greater amount of body. Formed in the face of the standard 11, centrally thereof, is a dovetailed groove 15 having a cylindrical groove 16 formed centrally thereof and extending longitudinally of the standard 11. A nut 17 is adapted to engage in the groove 16, a threaded rod 18 being threaded into the nut 17 and passing through a cover 19 mounted on the standard 11, so that the rod 18 is rotatably mounted but fixed against longitudinal movement, a crank 20 being fixedly mounted on the rod 18 for effecting its rotation. A plate 21 is adapted to engage the grooved face of the standard 11 and is provided with a dovetailed tongue 22 slidably mounted in the dovetailed groove 15. A screw 23 is projected through the plate 21 and threaded into the nut 17 to securely lock the nut 17 in a recess 24 formed in the tongue 22, the side of the nut 17 engaging in the recess being provided with a flat as clearly appears in Fig. 2. The threading of the rod 18, therefore, will effect vertical movement of the plate 21. A disc 25 is provided with arcuate slots 27, through which are projected screws 26 which thread into the plate 21 and serve to mount the disc 25 on the plate 21. Projecting outwardly from the outer face of the disc 25 is a head 28 which is formed preferably square and adapted to engage in a cup-shaped member 29, projecting outwardly from the plate 30, which is provided on its outer face with a dovetailed groove 31 for the reception of the dovetailed tongue 32 which projects outwardly from the casing 33 of the motor. This casing 33 and the motor con-

tained therein are of a well known type of structure.

A nut 34 is adapted to engage in a horizontally disposed groove 34' formed in the plate 30 and the recess 34'' formed in the tongue 32. A threaded stem 35 is threaded through the nut 34 and rotatably mounted on the plate 30, so that it is fixed against longitudinal movement relatively to the plate 30. A crank 36 is fixedly mounted upon the stem 35 to effect rotation thereof. The arrangement is such that upon rotation of the stem 35 the casing 33 is moved horizontally, the direction of movement depending upon the direction of rotation of the stem 35. Secured to the plate 30 and projecting laterally outwardly therefrom is a bracket 40 having a downwardly turned plate-forming portion 41, on the inner face of which is formed a dovetailed, longitudinally extending groove 42 for the reception of the dovetailed tongue 44 projecting from one face of the tool retainer 43.

This tool retainer 43 is formed with a groove 45 on its inner face and at one side thereof there is mounted a rack bar 46 adapted to mesh with a pinion 50 which is fixedly mounted upon the shaft 47 which projects through the plate 41 and is provided with a head 48 carrying the crank 49 whereby the shaft 47 and the pinion 50 may be rotated. Projecting outwardly from one face of the tool carrier 43 is a diamond dressing tool 51 held in position by the set screw 51'.

Threaded into the inner face of the disc 25, centrally thereof, is a stud 52 carrying the disc 53 which is adapted to engage in a recess 54 formed in the face of the disc 21, the disc or head 53 serving as a bearing for supporting the disc 25 when rotated relatively to the disc 21.

A shield 55 is carried by the casing 33.

In operation, the workpiece is extended into the opening 38 and the grinding wheel 37 moved into engagement therewith for grinding purposes. By a rotation of the rod 35 the grinding wheel 37 may be adjusted horizontally relatively to the workpiece, and by a rotation of the rod 18 the grinding wheel may be adjusted vertically relatively to the workpiece.

When desired to perform face grinding, the plate 39 may be positioned over the opening 38. When it is desired to adjust the axis of the grinding wheel relatively to the workpiece, or the supporting bed, the screws 26 may be loosened to permit the desired rotation of the disc 25 relatively to the disc 21, the peripheries of these discs being graduated, as shown in Fig. 1, to indicate the degree of tilt. When the desired degree of tilt is attained the screws 26 may be tightened to retain the various parts in fixed relation.

When it is desired to dress the grinding wheel 37 or to remove depressions or projections therefrom at some localized point, the

diamond or dressing tool 51 is mounted in position as described, and brought into a position so as to contact with the periphery of the grinding wheel 37 when the member 35 is rotated in one direction sufficiently. When the contact has been made, the dressing tool or diamond 51 may be reciprocated axially of the grinding wheel 37 by a rotation of the shaft 47 alternately in different directions.

It is thus seen that I have provided a grinding machine which may be adjusted and horizontally moved relatively to the workpiece, and which is provided with a dressing tool which may be reciprocated axially of the grinding wheel.

While I have illustrated and described the preferred form of my invention, I do not wish to limit myself to the precise details of structure shown, but desire to avail myself of such variations and modifications as come within the scope of the appended claim.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

In a grinding machine of the class described, a supporting bed, a supporting standard, a vertically movable slide mounted on said standard, means to move said slide vertically, a head pivotally secured to said slide and adjustable about a horizontal axis, a driving means slidably carried by said head, means to move said driving means horizontally relative to said head, a grinding wheel mounted on and rotatable by said driving means, said grinding wheel lying in a horizontal plane, a bracket secured to and projecting outwardly from said head, a dressing tool carried by said bracket, and means for moving said dressing tool vertically relative to said bracket and grinding wheel.

In testimony whereof I have signed the foregoing specification.

HERMAN F. KOESTLIN.