

Jan. 5, 1932.

C. J. OLOFSON

1,839,253

GRINDING MECHANISM

Filed March 1, 1928

2 Sheets-Sheet 1

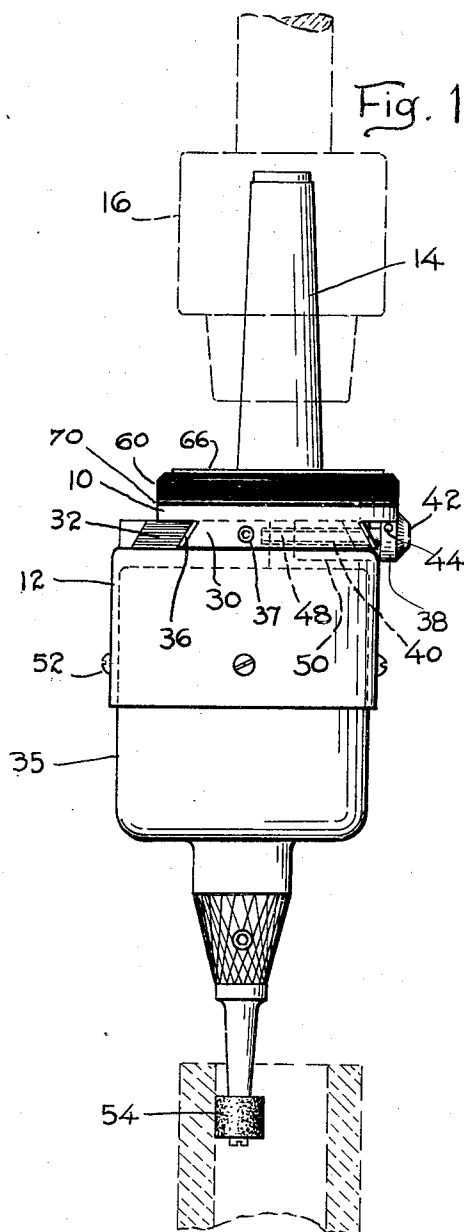
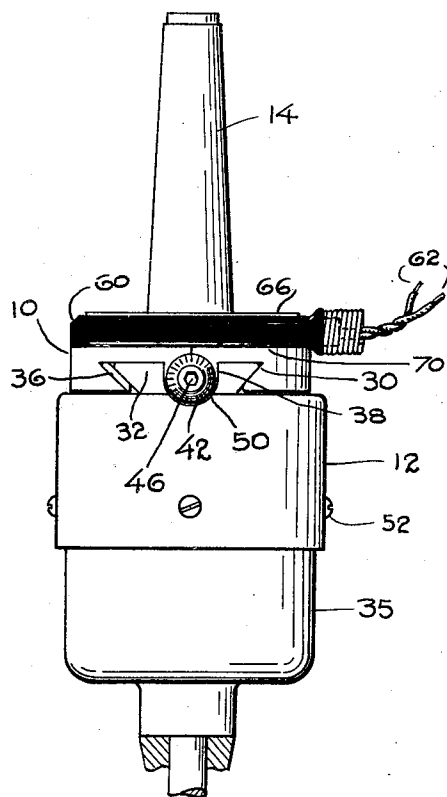


Fig. 2

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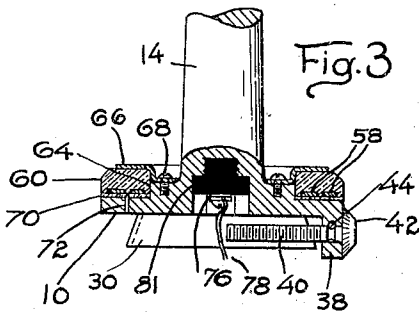


Fig. 3

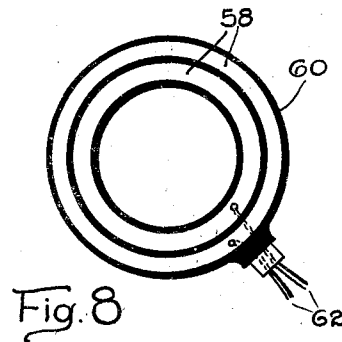


Fig. 8

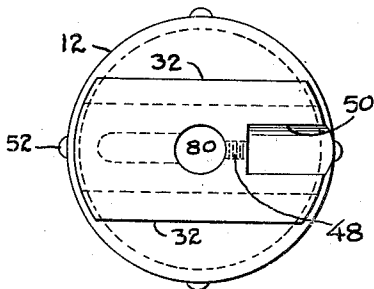


Fig. 5

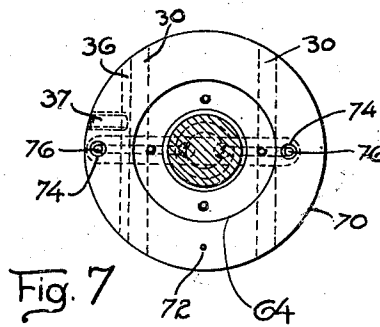


Fig. 7

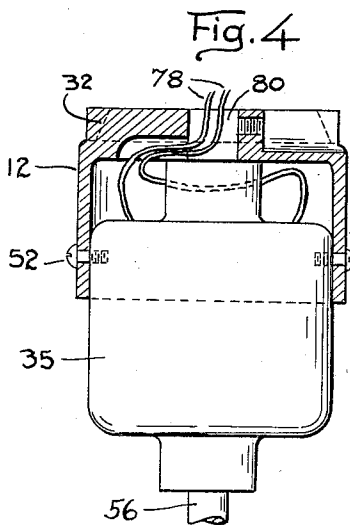


Fig. 4

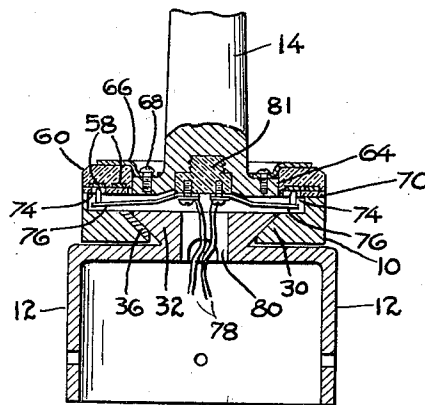


Fig. 6

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GRINDING MECHANISM

Application filed March 1, 1928. Serial No. 258,176.

My invention relates to grinding mechanism adapted for the grinding of a cylindrical bore wherein the grinding wheel is adapted to rotate about one axis and revolve about a second axis, the sweep of the grinding wheel about its axis of revolution adjusted to a determined length.

An object is to provide in mechanism of this type a shank member having a shank proper or spindle shaped to be received within a conventional chuck socket to rotate therewith and a motor carrier member supporting a motor upon the shaft of which or upon an extension of such shaft a grinding wheel is mounted, which motor carrier member is coupled with the shank member to be supported thereby and to rotate therewith and is adjustable eccentrically along a diametrical line of the shank member to determined adjusted positions. A meritorious feature lies in the provision of suitable adjusting mechanism readily operable to adjust the position of the carrier with respect to the shank.

It is the purpose of my invention to provide mechanism adapted to cooperate with conventional power machinery whereby the shank proper is readily receivable within conventional socket structures to be supported thereby and to rotate therewith and wherein an independent motor drive is provided to rotate the grinding element. This motor drive includes a self-contained motor unit supported by the shank member to rotate with the shank and adjustable readily with respect to the shank member to vary its grinding radius.

Other desirable advantages and meritorious features of my invention will more fully appear from the following description, appended claim and accompanying drawings, wherein—

Fig. 1 is an elevation of grinding mechanism embodying my invention.

Fig. 2 is an elevation partly broken away of a portion of the structure shown in Fig. 1 taken at right angles thereto.

Fig. 3 is an elevation partly in section of a fragment of the shank member.

Fig. 4 is a vertical sectional elevation of the

carrier member with the motor supported therein.

Fig. 5 is a plan of Fig. 4.

Fig. 6 is an elevation partly in section of a fragment of the shank with the carrier assembled thereon.

Fig. 7 is a plan of Fig. 3 with a portion of the device removed.

Fig. 8 is an underside view of the collector rings.

The grinding mechanism comprises primarily two distinct elements. One element is a shank member 10 having a tapered shank proper 14. This shank is here shown as being of tapered cylindrical form to fit a conventional spindle of a power machine to be supported thereby and to rotate therewith. The shank member has a head and upon the face of the head opposite the shank proper there is provided a dovetailed way 30 which extends diametrically with respect to the axis of the shank and a lug 38 depends at one end of this way to rotatably support an adjusting screw herein described.

This shank member is here shown as coupled up with a spindle 16 driven in any approved conventional manner.

There is a motor carrier member 12 of cup-shaped annular form and a motor 35 is supported therein by screws 52. An abrasive wheel 54 is here shown mounted upon a spindle 56 which is attached to the motor shaft 56 to rotate therewith. The motor shaft is normally positioned axially in line with the shank proper of the shank member when the carrier is coupled thereto.

The carrier 12 is provided with a dovetailed way 32 receivable within the way 30 of the shank member to couple the carrier to the shank member to be supported thereby and to rotate therewith.

An adjusting screw 40 provided with a dial 42 is journaled within the lug 38 for rotation. A locking pin 44 is shown holding this screw against axial movement. The screw is threaded into a threaded opening 48 in the dovetailed portion 32 of the motor carrier 12 so that the carrier may be adjustably moved through the way of the shank to various positions of eccentricity with respect to the

shank. The adjusting screw may be rotated through the use of a suitable tool inserted into the recess 46 thereof.

The cooperating way portion of the carrier 5 is cut out as at 50 about the opening for the adjusting screw and to a sufficient depth to permit the lug 38 of the shank to be received therein during adjustment of the device.

I have here shown a gib 36 interposed between one side of the way 30 and the adjacent side of the way 32 and held in place by a set screw 37.

The head of the shank is formed on its upper face with a peripheral annular shoulder 64 over which is journaled an annular ring of insulating material 60. This ring carries collector rings 58 which are connected by leads 62 with a suitable source of power supply as shown in the drawings. These lead wires 62 may be held or screwed to the stationary part of the machine to hold the annular ring 60 against rotation. This ring is held in place by a retaining collar 66 secured to the head of the shank by screws 68.

An insulating ring 70 is interposed between the ring 60 and the shank 10 to insulate the collector rings 58 from the shank. This insulating ring is held in position by a pin 72 shown in Fig. 3. The insulating ring is provided with an opening 74 through which spring brushes 76 contact the collector rings 58 completing the circuit through the motor 35 by means of the lead wires 78 which pass through an axial opening 80 in the carrier 12 to the motor connections. These brushes and lead wires are suitably supported by a plug 81 secured within the shank.

The ring 60 is freely mounted upon the head to permit rotation of the shank while the collector rings are held anchored by means of the anchorages provided for the wires 62. The motor carrier, with the motor assembled therein, is radially adjustable with respect to the shank through operation of the adjusting screw 40 and the extent of such adjustment may be accordingly measured through the vernier dial 42.

I claim:

Grinding mechanism comprising, in combination, a tapered shank member provided with a head, a peripheral groove extending about the base of said head, a retainer collar secured to said head and forming a channel about the peripheral wall thereof, collector rings rotatably journaled within said channel and insulated from said shank head, electrical brushes secured to the bottom of said head and extending radially thereof to contact said collector rings, a cup shaped motor carrier secured below said shank, means for moving said carrier across the bottom face thereof and securing the same in adjusted position, a motor carried within said carrier having an armature shaft depending centrally thereof, means for supplying current to

said collector rings, and means whereby said current is transmitted through said brushes to said motor.

In testimony whereof, I, CHARLES J. OLOFSON, sign this specification.

CHARLES J. OLOFSON.

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