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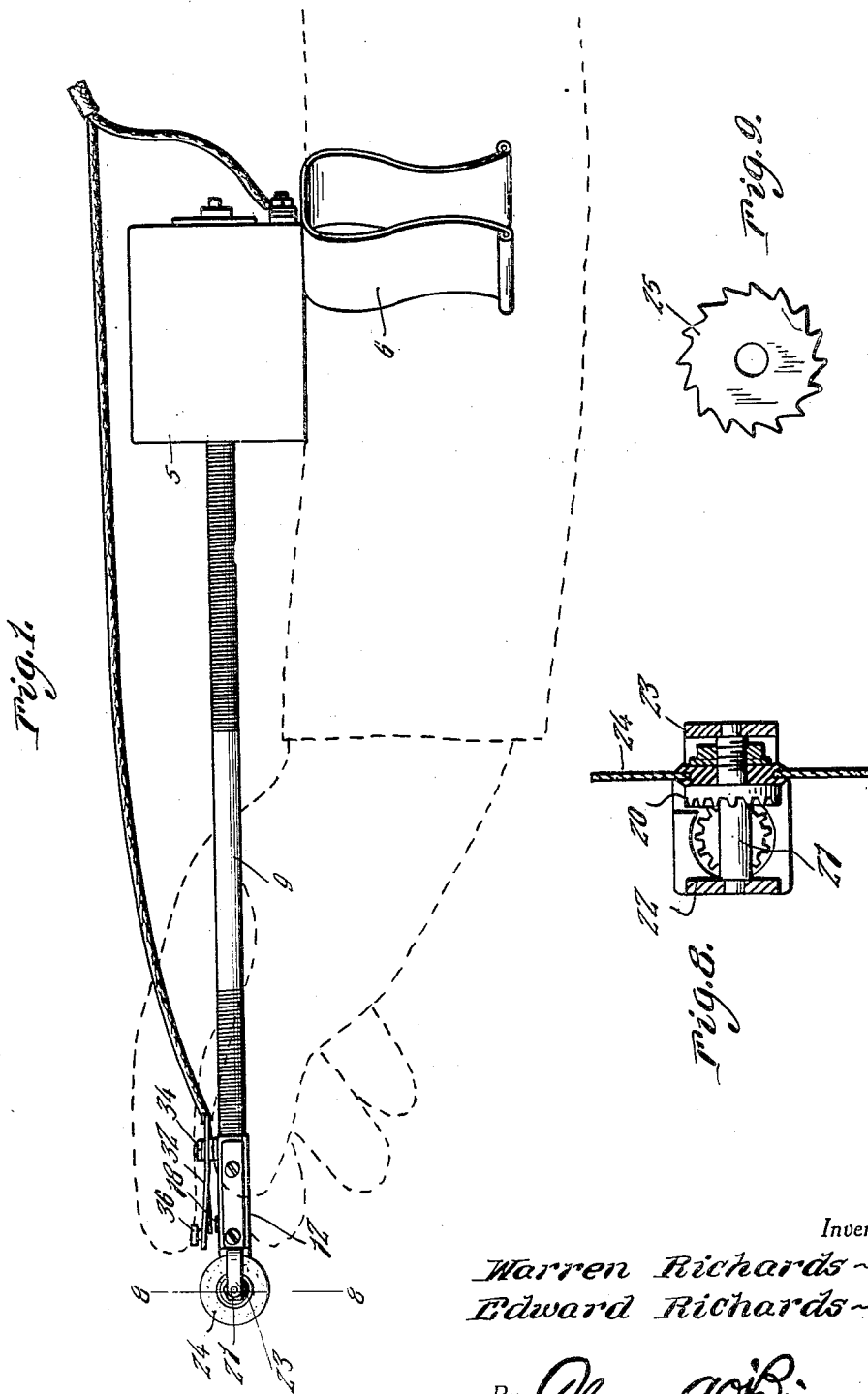
W. RICHARDS ET AL

1,751,174

CUTTING AND GRINDING MECHANISM

Filed June 6, 1929

3 Sheets-Sheet 1



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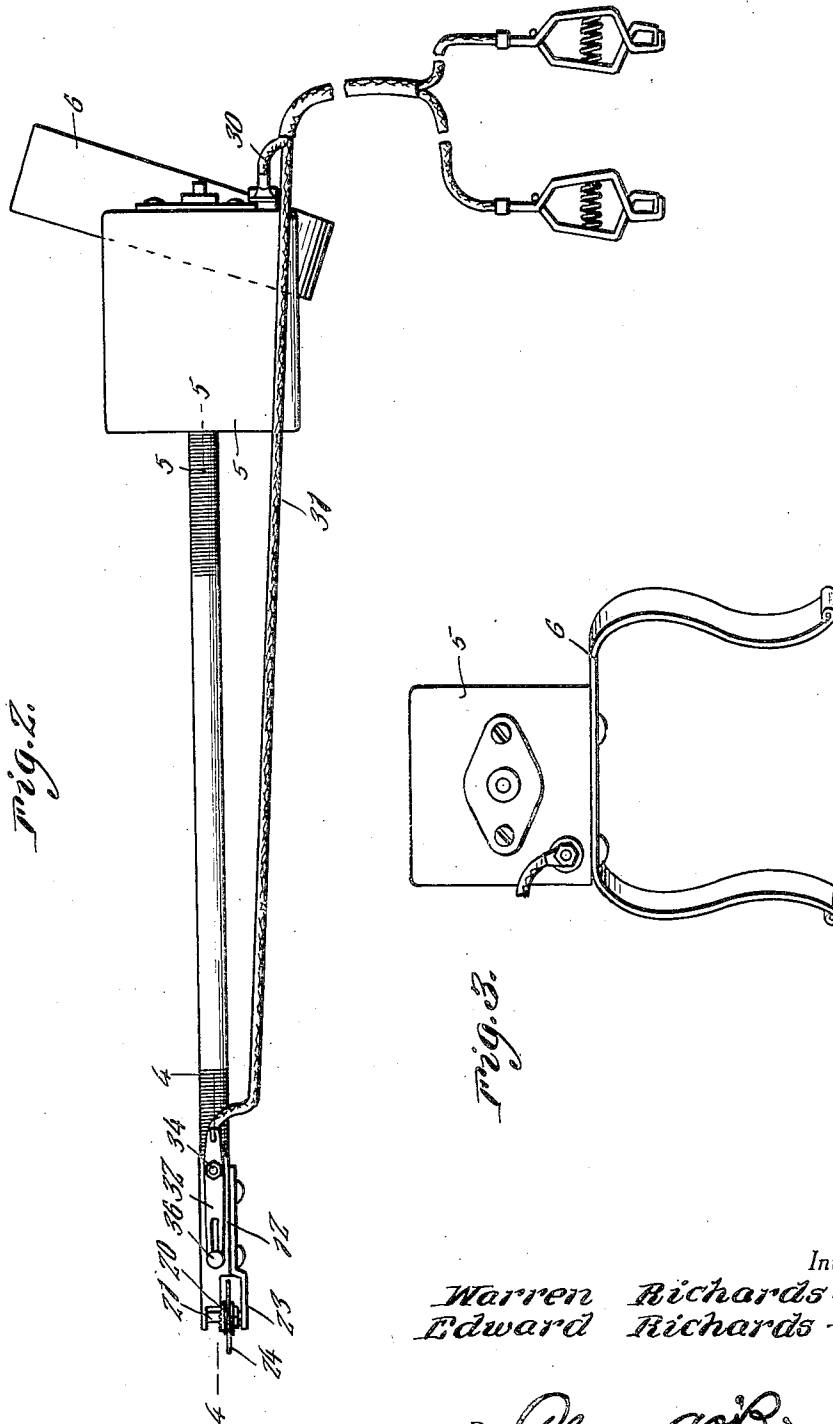
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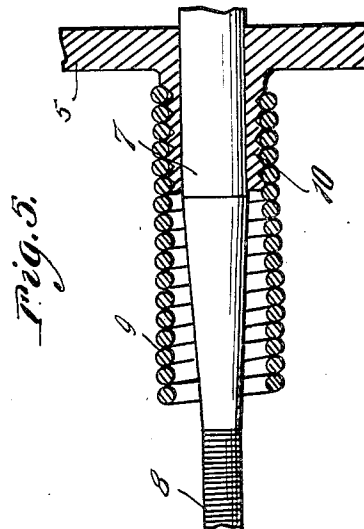
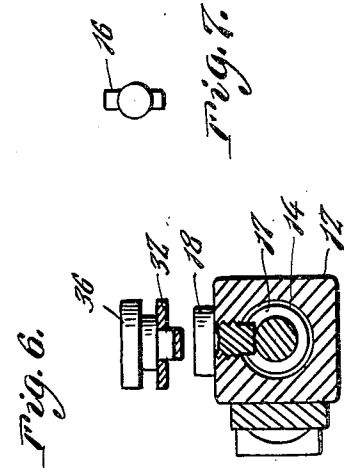
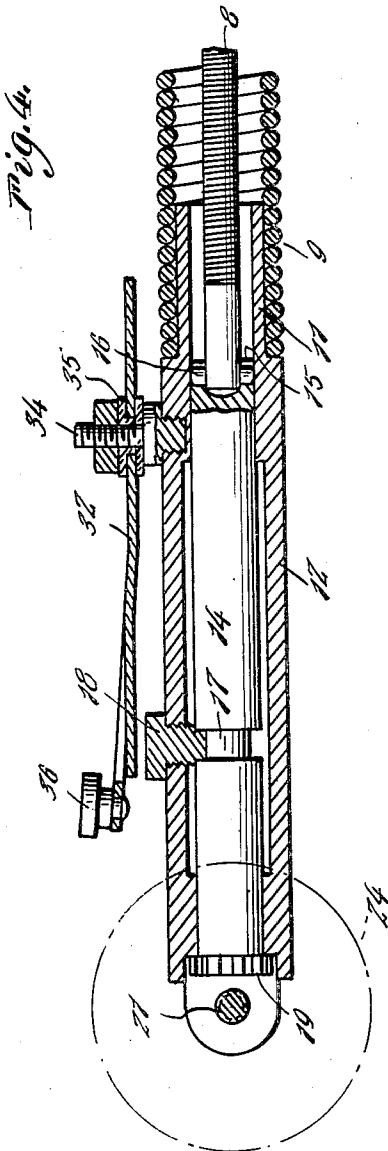
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3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE

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CUTTING AND GRINDING MECHANISM

Application filed June 6, 1929. Serial No. 368,830.

The present invention relates generally to a grinding and cutting mechanism and more particularly to a machine for facing braker points and undercutting mica. The machine is designed particularly for the purpose of refacing braker points on their own center or without removing them from the braker box and also for the purpose of replacing the grinding wheel with the steel cutting wheel for the purpose of lowering the mica on a generator commutator.

The mechanism aims to provide simplicity in construction, durability, ease of manipulation, convenience, reliability and efficiency.

With the above and numerous other objects in view as will appear as the description proceeds, the invention resides in certain novel features of construction, and in the combination and arrangement of parts as will be hereinafter more fully described and claimed.

In the drawing:

Figure 1 is a side elevation of the mechanism embodying the features of our invention,

Figure 2 is a top plan view thereof,

Figure 3 is a rear elevation thereof,

Figure 4 is an enlarged longitudinal section taken substantially on the line 4—4 of Figure 2,

Figure 5 is an enlarged detail section taken substantially on the line 5—5 of Figure 2,

Figure 6 is a transverse section taken substantially on the line 6—6 of Figure 4,

Figure 7 is an end view of the flexible shaft,

Figure 8 is a sectional view taken substantially on the line 8—8 of Figure 1, and

Figure 9 is a plan view of the cutter which may replace the fiber disk.

Referring to the drawing in detail it will be seen that the numeral 5 denotes an electric motor mounted on spaced spring clip 6 to engage over the arm as is clearly illustrated in Figure 1.

The armature shaft 7 of the motor 5 has a flexible shaft 8 secured thereto and covered by a flexible sheath 9 which fits over at one end a bearing 10 projecting from the motor 5 and at the other end projects over the reduced extension 11 of an elongated housing 12 in which is journaled a shaft 14 having a

notched end 15 for receiving the end of the flexible shaft provided with cross pins 16.

The shaft 14 is provided with an annular channel 17 into which projects a screw 18 in the housing 12 to prevent end play of the shaft 14. A gear 19 is mounted on the forward end of the shaft 14 and meshes with a crown gear 20 mounted on a shaft 1 journaled in an ear 22 projecting from the forward end of the housing and a removable bracket 23 on one side of the housing.

A fiber disk 24 or a cutting disk 25 may be mounted on the shaft 22. The electric motor 5 is grounded to the flexible shaft and has a lead 30 extending therefrom. A lead 31 is attached to a spring contact 32 mounted on a bolt 34 engaged in the housing.

The spring contact 32 is insulated from the bolt 34 as at 35. An operating insulator knob 36 is mounted on the extremity of the spring so that this spring 32 may be pushed into engagement with the screw 18 thereby completing the circuit so that electrical energization will be caused in the motor for operating the flexible shaft and causing the turning of the disk on the shaft 21 as will be quite apparent.

Thus it will be seen that the housing may be conveniently manipulated between the fingers of the hand of the arm on which the clip is engaged.

From the above detailed description it will be seen that we have devised a mechanism which is exceedingly simple in its construction, inexpensive to manufacture, strong and durable, compact and convenient in its arrangement of parts, and thoroughly efficient and reliable in its use and operation.

The present embodiment of the invention, however, has been disclosed in considerable detail merely for the purposes of exemplification since in actual practice it attains the features of advantage enumerated as desirable in the statement of the invention and the above description.

It will be apparent that changes in the details of construction, and in the combination and arrangement of parts may be resorted to without departing from the spirit or scope of

the invention as hereinafter claimed or sacrificing any of its advantages.

Having thus described our invention, what we claim as new is:

5 In a mechanism of the class described, an electric motor, a substantially inverted U-shaped resilient metallic clip for mounting the motor on the arm of an operator, a flexible shaft operatively connected with the motor,
10 flexible sheathing about the flexible shaft, an elongated housing connected to the sheath, a shaft in the housing connected with the flexible shaft, a gear on the shaft in the housing, an ear projecting from the housing, a removable bracket mounted on the side of the housing, a shaft journaled between the ear and the bracket, and a gear on the last mentioned shaft meshing with the first mentioned gear,
15 a spring contact, means for mounting the spring contact on the housing, and insulating it therefrom, a headed screw threaded in the housing and extending into a groove on the shaft in the housing in a manner to prevent longitudinal movement of said shaft therein,
20 said head adapted to be engaged by the spring contact when the latter is depressed, and means electrically connecting the spring contact with the electric motor to control the energization thereof.

30 In testimony whereof we affix our signatures.

WARREN RICHARDS.
EDWARD RICHARDS.

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