July 7, 1959 J. P. BRUCK 2,893,175

SURFACING MACHINE

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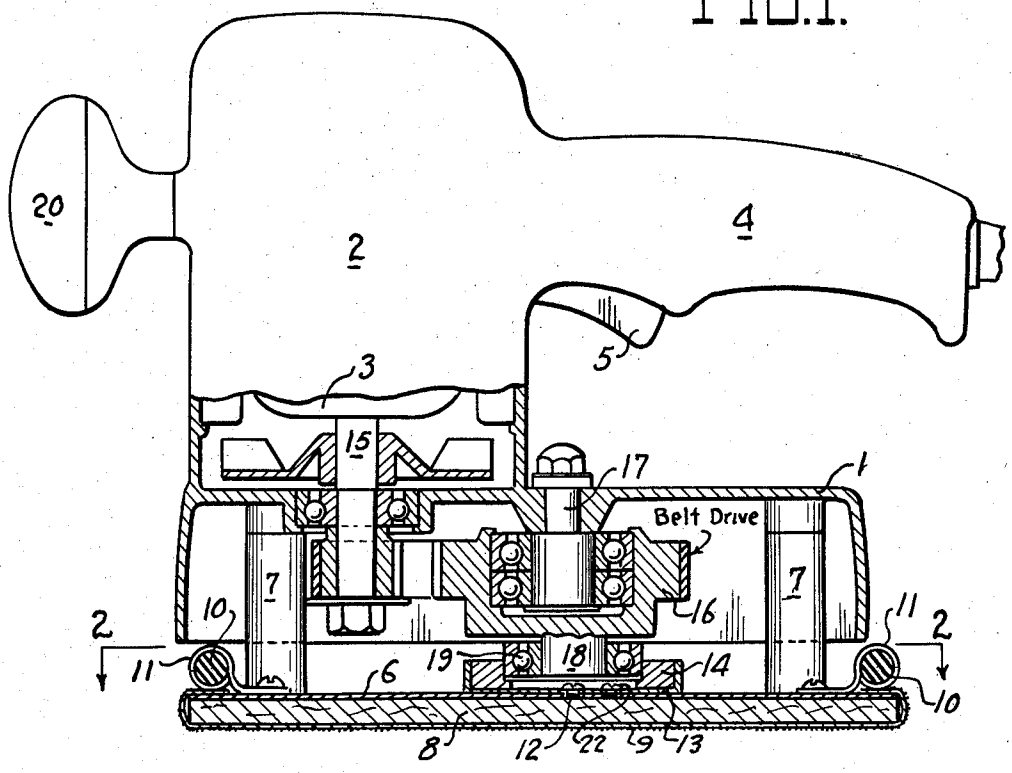
FIG. 1.



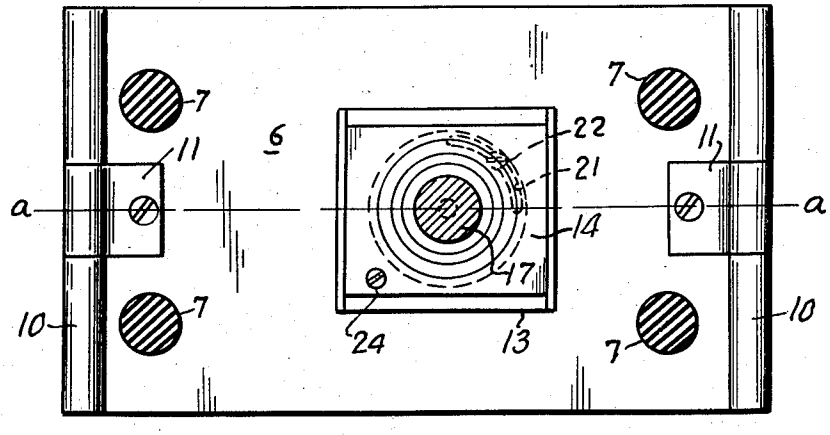


FIG. 2.

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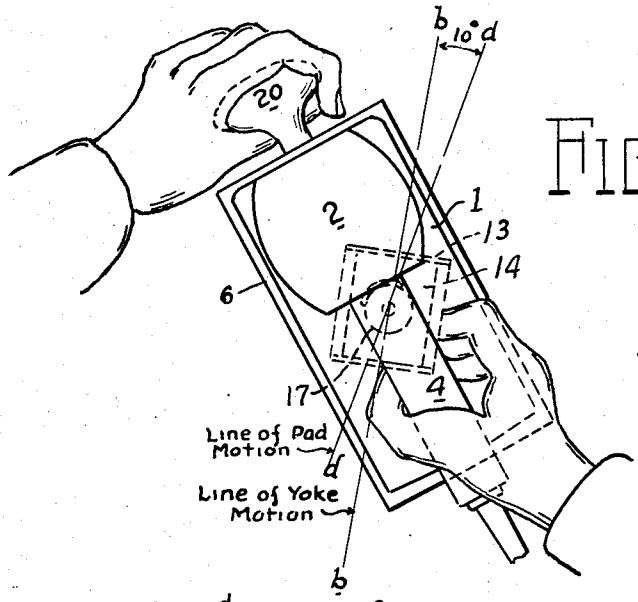
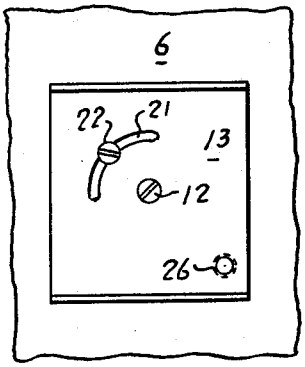


FIG. 3.

FIG. 6.



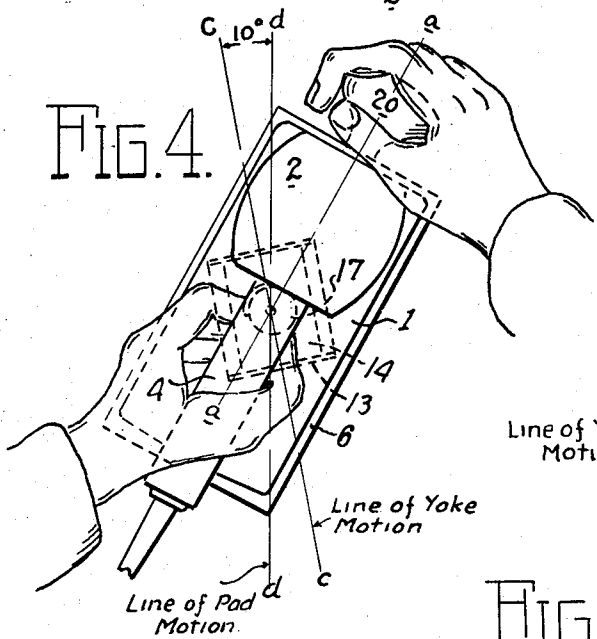


FIG. 4.

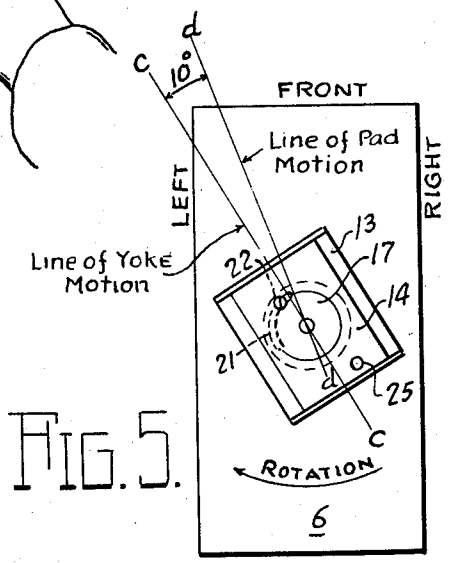


FIG. 5.

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SURFACING MACHINE

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Application December 19, 1957, Serial No. 703,970

10 Claims. (Cl. 51—170)

This invention relates to surfacing machines, and particularly to those of the power driven hand operated type, and its primary object is the provision in such a machine of improved means for translating a rotary movement of a part of the power means into a reciprocatory movement of the surfacing pad.

A further object of the invention is the provision of such a translating means that is adjustable to vary or angularly shift the line of reciprocatory movement of the surfacing pad to suit use by a right or a left hand person or to obtain the operation desired.

A further object of the invention is the provision of means for causing said movement translating means to impart an orbital instead of a reciprocatory movement to the pad.

Further objects and advantages of the invention will be apparent from the following detailed description, and from the accompanying drawings illustrating one embodiment thereof, and in which—

Fig. 1 is a central vertical section of the machine, with parts in full;

Fig. 2 is a section on the line 2—2 in Fig. 1, with the pad driving connection set for orbital movement of the pad;

Fig. 3 is a plan view of a machine set for diagonal movement of the pad as held by a right handed operator;

Fig. 4 is a plan view of the machine set for diagonal movement of the pad as held by a left handed operator;

Fig. 5 is a diametrical plan view of the pad, with its driving connection in the Fig. 4 position; and

Fig. 6 is a fragmentary view of the pad, with the channel member of the pad drive means in position for longitudinal straight-line reciprocatory movements thereof.

Referring to the drawings, 1 designates the body casing or frame of the machine which, in the present instance, is of inverted pan-shape and has on its front end portion a motor housing 2 for an electric operating motor 3. This housing has a handle 4 projecting rearwardly therefrom over its rear end, and the customary motor lead wires extend therethrough. The motor control switch trigger 5 is located at the inner end of the handle, as is customary in machines of this type.

The body casing 1 is supported above and united to a surfacing pad or platen 6 by a plurality of posts 7 of rubber or other suitable material, preferably of a resilient nature. The pad 6 is preferably of flat, stiff sheet-like material faced at its under side with a pad-like part 8 and over this is drawn a strip of sandpaper 9 or other suitable surfacing material. The ends of this material, in the present instance, are doubled over the respective ends of the pad 6 and clamped thereto by a bar 10 which, in turn, is held by a clamping finger 11 secured to the platen.

Mounted on the top of the pad 6 and held substantially centrally thereon for rotary adjustment by a center

screw 12 is an upwardly facing channel plate 13 forming a guide for the reciprocatory movements of a yoke block 14. The motor shaft 15 extends down into the body casing through its top and has suitable driving connection with a member 16 mounted for rotary movements on a vertical stub shaft 17 fixedly projecting down into the casing from its top approximately at its center.

The member 16 has at its lower end a stub shaft 18 that is eccentric to the axis of rotation of the member and connects with the block 14 through a bearing 19 therein whereby orbital movements of the stub shaft 18 impart reciprocatory movements to the block 14 in the guide channel 13. If the channel plate 13 is set, so that the relative reciprocatory movement of the block is crosswise of the platen 6, as shown in Fig. 2, then the consequent reciprocatory movement imparted to the channel and pad by rotation of the eccentric 18 is along the longitudinal center line *a—a* (Fig. 2) of the pad. This reciprocatory movement of the pad may be shifted to a diagonal line *b—b* at the right (Fig. 3) or to a diagonal line *c—c* at the left of the longitudinal center line *a—a* (Figs. 4 and 5). It is found in practice that this shifting of the pad movement is important as it not only facilitates and enhances the abrading action of the machine by combining a broad side with a longitudinal movement of the pad, but also renders the machine dependable for convenient holding by either a right or a left handed person. For right hand operation, the operator preferably adjusts the channel plate 13 to substantially the position shown in Fig. 3, so that the movement of the pad is generallly along a diagonal line *b—b* and he preferably grasps the handle 4 with his right hand and a knob 20 on the front end of the motor housing 2 with his left hand.

For left hand operation, the operator adjusts the channel 13 to substantially the position shown in Fig. 4, so that the movement of the pad 6 is generally along the diagonal line *c—c*, and preferably grasps the handle 4 with his left hand and the knob 20 with his right hand. The bottom of the channel 13 is provided with an arcuate slot 21 and a clamping screw 22 is projected through the slot and into the pad 6 to secure the channel in adjusted position.

It is found in practice that with the block 13 properly lubricated in its channel and the travel or stroke of the block approximately 3/16 of an inch, there is a variance, due probably to frictional action, of approximately 10° between the general line of movement of the block 13 in its guide channel 14 and the line of movement of the pad or platen 6. This variance is indicated, respectively, in Figs. 4 and 5 by the lines *b—b* and *c—c* representing the block movement and the lines *d—d* the pad or platen movement.

When a gyratory or orbital movement of the pad is desired, the channel 13 is secured in adjusted position to the pad 6 by a tightening of the screw 22, and a screw 24 is inserted through a hole 25 in the block 14 and engaged into a hole 26 in the channel, thus rigidly connecting the platen channel 13 and block 14 as a unit.

In operation, a right handed operator usually grasps the handle 4 in his right hand and the knob 20 in his left hand with the reciprocatory line of movement of the machine pad 6 diagonal thereto or substantially along the line *d—d* in Fig. 3 while the line of reciprocation of the yoke block 14 is substantially along the line *b—b*. To adapt the machine for use by a left handed operator, the channel 13 and yoke block 14 are shifted to the position shown in Fig. 4 so that the pad and yoke block movements are substantially along the lines *c—c* and *d—d*, respectively, in Fig. 4. For a straight longitudinal reciprocatory movement of the platen or pad 6, the channel 13 is set crosswise thereof as shown in Fig. 2,

and by locking the channel 13 and block 14 together in this position a gyratory or orbital movement of the pad is obtained.

I wish it understood that my invention is not limited to any specific construction, arrangement or form of the parts, as it is capable of numerous modifications and changes without departing from the spirit of the claims.

I claim:

1. In a machine of the class described having a body, a pad supporting the body for relative vibratory movements, and a power mechanism carried by the body and having an orbitally movable member adjacent to the pad, the provision on the pad of a channel part, means attaching said part for rotational adjustment on the pad, a yoke block guided for reciprocatory movement in the channel and engaged by said member to cause orbital movements of the member to impart vibratory movements to the pad relative to said body.

2. In a machine of the class described having a body, a pad supporting the body for relative vibratory movement, and a power mechanism carried by the body and having an orbitally movable member adjacent to the pad, the provision of a channel element mounted for rotational adjustment on the pad in the plane of the pad, means for holding said element in adjusted position on the pad, a yoke block guided for reciprocatory movement by said element, said member having a bearing in said element whereby orbital movement of the member imparts straight-line movements to the pad lengthwise or diagonal thereto depending on the position of adjustment of the channel.

3. In a machine of the class described having a body, a pad supporting the body for relative vibratory movement, and a power mechanism carried by the body and having an orbitally movable member adjacent to the pad, the provision of a channel element mounted for rotational adjustment on the pad in the plane thereof, means for holding said element in adjusted position on the pad, a yoke block guided for reciprocatory movement by said element, said member having a bearing in said element whereby orbital movement of the member imparts straight-line movements to the pad lengthwise or diagonal thereto depending on the position of adjustment of the channel, and means for securing said yoke block in fixed relation to the channel.

4. In a machine of the class described having a body, a pad supporting the body for relative vibratory movement, and a power mechanism carried by the body and having an orbitally movable member adjacent to the pad, the provision of a channel element mounted for rotational adjustment on the pad in the plane thereof, means for securing said element in various adjusted relations to the pad whereby its channel may be crosswise or in right or left diagonal relation to the platen, and a yoke block mounted in and guided for reciprocatory movements in the channel, said block having a bearing for said orbitally movable member whereby corresponding movements are imparted thereby to said block.

5. In a machine of the class described having a body, a pad supporting the body for relative vibratory movement, and a power mechanism carried by the body and having an orbitally movable member adjacent to the pad, the provision of a channel element mounted for rotational adjustment on the pad in the plane of the pad, means for securing said element in various adjusted relations to the pad whereby its channel may be crosswise or in right or left diagonal relation to the pad, and a yoke block mounted in and guided for reciprocatory movements in the channel, said block having a bearing for said orbitally movable member whereby corresponding movements are imparted thereby to said block, and releasable means for preventing relative movements of the channel element and yoke block.

6. In a surfacing machine having a body, a pad supporting the body by a plurality of resilient posts for relative vibratory movement, a power mechanism carried by the body and having an orbital movement member driven by the power mechanism adjacent the pad, the pad having a channel plate mounted on the top thereof in which is mounted the orbital movement member, means for rotatable adjustment of the channel plate on the pad.

7. In a surfacing machine having a body, a pad supporting the body by a plurality of resilient posts for relative vibratory movement, a power mechanism carried by the body, said power mechanism having an orbital movement member adjacent the pad, a channel plate mounted on the pad for rotatable adjustment in a plane of the pad, the orbital movement member being positioned in the channel plate on the pad, with means for securing said channel plate in various adjusted relation to the pad.

8. In a surfacing machine having a body, a pad supporting the body by a plurality of resilient posts, a power mechanism carried by the body terminating in a member having a stub shaft which is eccentric to the axis of rotation of the member, a block mounted on the top of the pad in which projects the eccentric stub shaft, the block being pivotally rotatable on the top of the pad with means for securing said block in various adjusted relation to the pad.

9. The structure according to claim 6 in which surfacing material is attached to the pad.

10. In a surfacing machine having a body, a pad supporting the body by a plurality of resilient posts, a power mechanism carried by the body terminating in a member having a stub shaft which is eccentric to the axis of rotation of the member, a channel plate mounted on the top of the pad, a yoke block mounted therein, the stub shaft projecting into the yoke block, said channel plate having in its middle a loose connection to the pad and an arcuate slot therein removed from said loose connection, a threaded member projecting through the arcuate slot into the pad whereby on tightening the threaded member the position of the channel plate can be fixedly varied in relation to the pad.

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