

June 11, 1940.

E. B. GEORGE

2,204,486

SURFACING MACHINE ABRASIVE SHEET HOLDER

Filed Sept. 9, 1939

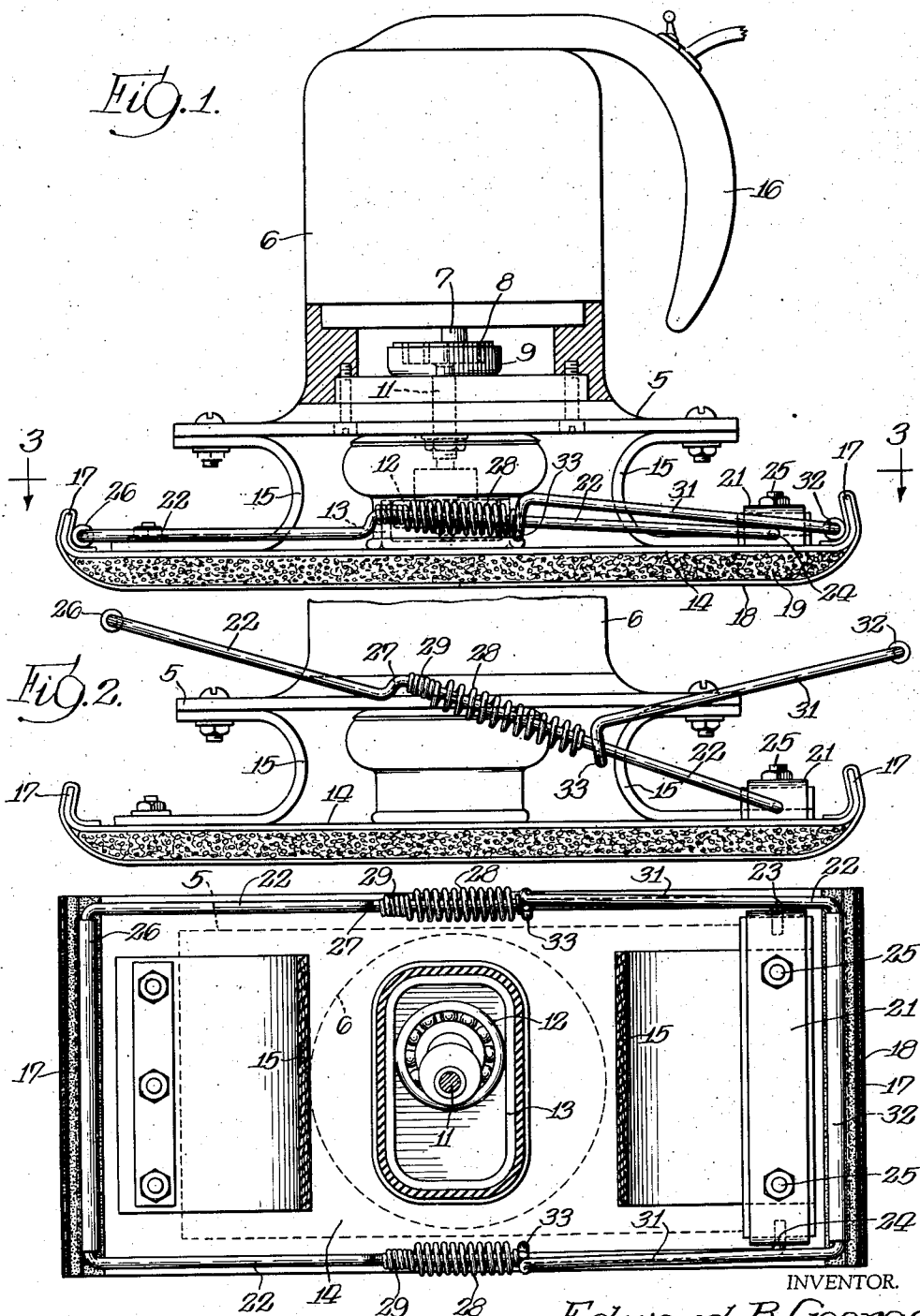


Fig. 3.

INVENTOR.
BY *Edward B. George,*
Chas. Wilson
ATTORNEY.

UNITED STATES PATENT OFFICE

2,204,486

SURFACING MACHINE ABRASIVE SHEET
HOLDER

Edward B. George, Chicago, Ill.

Application September 9, 1939, Serial No. 294,124

6 Claims. (Cl. 51-189)

This invention relates to surfacing machines of the general type exemplified in my pending application Serial No. 216,004, filed June 27, 1938, and more particularly to an improved means for detachably clamping and holding the abrasive sheet to the plate or frame by which the sheet is carried.

A primary purpose of my invention is to provide means for securely clamping and holding the sheet in position so that it will not work loose or become detached during operation of the machine. In conjunction with the foregoing purpose, my novel means is designed to be easily manipulated for the release of the sheet when replacement thereof as the result of wear becomes necessary and also easily manipulated into locking position to hold the replaced sheet against displacement.

To facilitate an understanding of my invention, a preferred embodiment thereof is illustrated on the accompanying drawing, referring to which:

Fig. 1 is a side elevation partially in section of a surfacing machine equipped with my invention;

Fig. 2 is a similar view showing the sheet locking means in released position; and

Fig. 3 is a sectional view on the line 3-3 of Fig. 1.

The machine generally comprises a base 5 carrying a housing 6 in which is mounted a motor, the drive shaft 7 of which is equipped with a pinion 8 driving an internal gear 9 mounted on a shaft 11 which at its lower end carries a crank on which a ball bearing ring 12 is mounted. This ring is disposed within an open topped, upwardly projecting guideway 13 fixed to the upper face of the pad-carrying plate or frame 14. Through this drive mechanism the rotation of the motor shaft 7 is converted into an endwise reciprocatory movement of the plate 14. This plate is connected with the motor base 5 through flexible connections 15 which permit the reciprocatory movements of the pad plate to take place without transmitting excessive vibrations to the handle 16 of the motor housing which is grasped by the hand of the operator. The structure thus far briefly described is explained more in detail in my pending application above mentioned.

The ends of the pad plate 14 are turned upwardly and slightly inwardly, as indicated at 17, and the ends of the abrasive sheet 18 are folded over these upturned ends, as illustrated in the drawing.

A resilient pad 19 of sponge rubber or other

suitable material is interposed between the plate 14 and the abrasive sheet 18. A metallic member 21, which also acts as a clamp for the lower end of one of the flexible connections 15, has its ends downturned and provided with openings to receive the inturned ends of a U-shaped holding member 22 which is thereby pivoted at the points 23 and 24 to the member 21, which in turn is rigidly fixed to the plate 14 by the bolts 25. The holding member 22 is of such length that it can be forced under pressure beneath the inturned end 17 of the plate 14 at the left of the device viewing Fig. 1 to thereby clamp the folded end of the abrasive sheet against displacement. A roller 26 mounted on the transversely extending end portion of the clamping member facilitates the positioning of the clamping member in operative relation to the plate end 17 and its removal therefrom, and also assists in the clamping of the abrasive sheet in position.

Intermediate their ends, the legs of the clamping member 22 are offset, as indicated in 27, and in proximity to the offset a coiled expansion spring 28 is anchored on each leg at 29. The expanded position of these springs is shown in Fig. 2. A second clamping member 31 of U-shape also provided on its cross member with a roller 32 has its free ends looped around member 22, as indicated at 33. When this member is disposed in operative position with its roller 32 in cooperative relation with the right hand, upturned end 17 of the pad plate, the roller 32 is urged into clamping position by springs 28, as illustrated in Figs. 1 and 3.

In mounting an abrasive sheet upon the machine, the right hand end is first folded over the upward extension 17 of the plate 14, whereupon the member 31 is forced to the left against the action of springs 28 until the roller 32 can be pressed down into the position shown in Fig. 1 where it is held by the springs 28. The opposite end of the sheet is then folded over the left hand, upturned end of the plate, whereupon roller 26 is pressed down into clamping position. It will be noted that clamping member 22 when in clamping position is slightly bowed upwardly intermediate its ends, and being made of stiff wire, this slight bending of the legs of the member provides sufficient resiliency to maintain the roller 26 snugly clamped against the cooperating end of the pad plate. In this manner both ends of the abrasive sheet are firmly clamped and held in position during the operation of the machine. To release the sheet a reversal of the operations above described is followed.

It will be apparent from the foregoing that I have provided a simple and inexpensive means for positively and effectively locking the abrasive sheet in working position, and that sheet can be quickly and easily released for removal when necessary. The holding device is simple in construction, reliable in operation, and can be readily manipulated from locking to unlocking position and vice versa.

The structural details illustrated and described are obviously capable of considerable modification within the scope of the invention as defined in the following claims.

I claim:

1. A device of the character described comprising a plate having upturned ends, a holding member pivoted on said plate in position to clampingly cooperate with one of said ends, a second holding member mounted on said first member and adapted to clampingly cooperate with the other end of said plate, and spring means interposed between said members for yieldingly urging said members apart.

2. In a holder for an abrasive sheet, the combination of a member having upwardly and inwardly turned ends, a U-shaped clamping member pivoted at its open end to said first-mentioned member in position to clampingly cooperate with one of said upturned ends, a second U-shaped member connected at its open end to said first U-shaped member, and springs interposed between said members.

3. In an abrasive sheet holding device, the combination of a plate having upwardly and inwardly turned ends, a U-shaped holding member

pivoted on said plate in position to clampingly cooperate with one of said upturned ends, a second U-shaped clamping member mounted on said first clamping member in position to clampingly cooperate with the other of said upturned ends, and springs for yieldingly urging the ends of said clamping members apart.

4. In an abrasive sheet holding device, the combination of a plate having upturned ends, a clamping member pivoted on said plate and provided with a roller adapted to clampingly cooperate with one of said upturned ends, a second clamping member mounted on said first clamping member and provided with a roller adapted to cooperate with the other of said upturned ends, and spring means tending to urge said rollers into clamping position.

5. In a surfacing machine, the combination of a pad plate provided with upturned ends, a U-shaped member pivoted on said plate and provided with a roller, a second U-shaped member mounted on said first member and provided with a roller, and spring means for inducing a relative separation between said rollers.

6. In a surfacing machine, the combination of a plate having upwardly and inwardly turned ends, an abrasive sheet having its ends folded over said upturned ends, and a holding device comprising a pair of U-shaped members, one of said members being pivoted on said plate and the other being slidably mounted on said one member and expansion springs interposed between said members.

EDWARD B. GEORGE.