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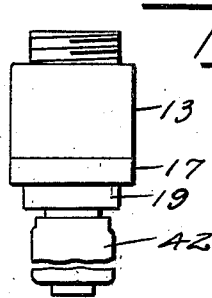
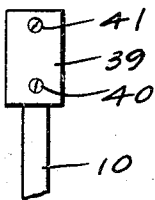
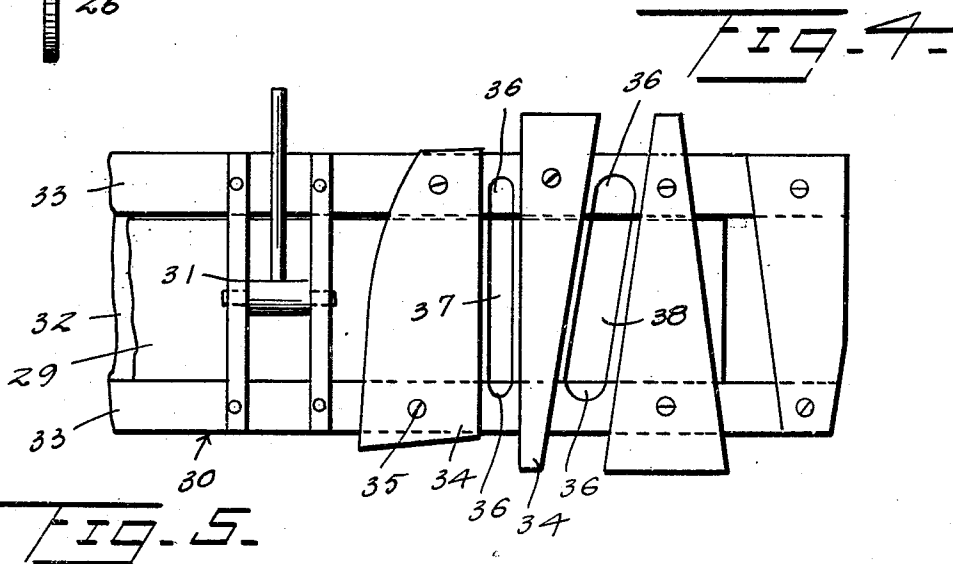
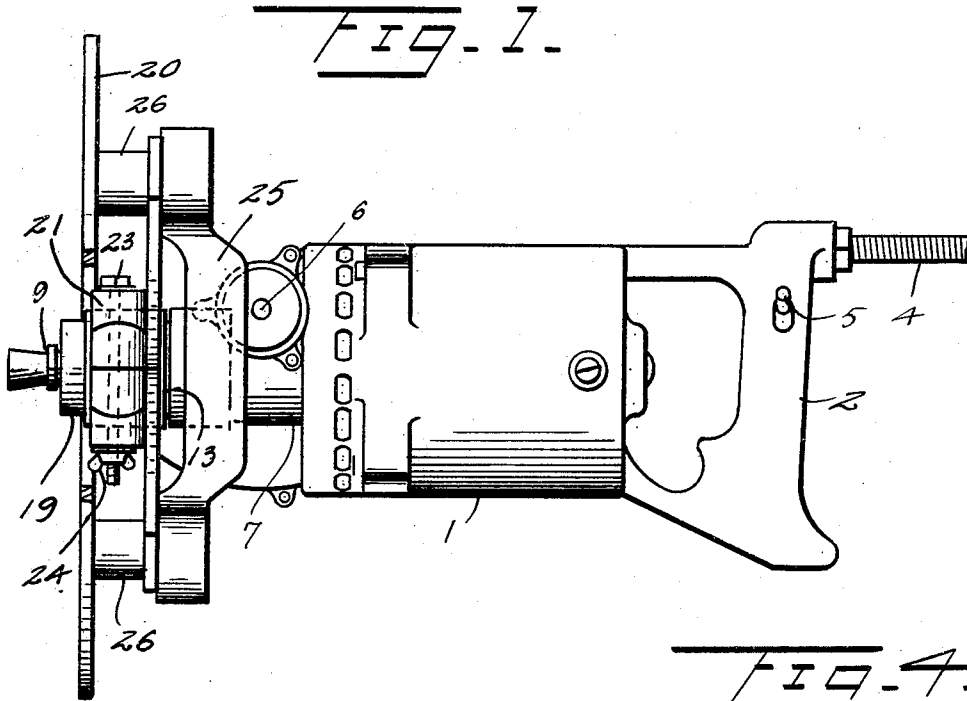
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1,772,833

DADOING AND MORTISING ATTACHMENT FOR PORTABLE POWER TOOLS

Filed May 25, 1929

2 Sheets-Sheet 1



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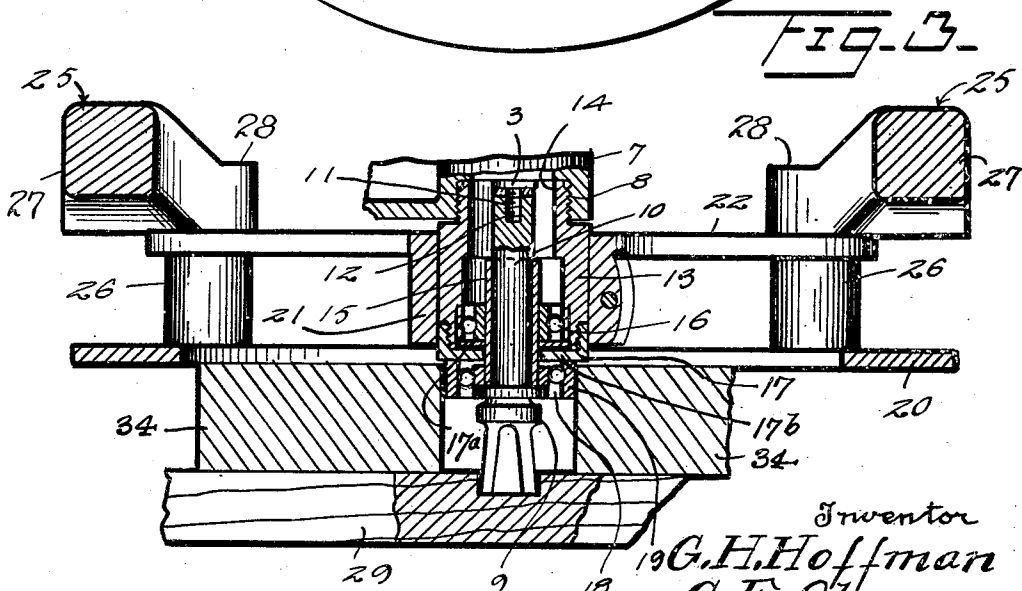
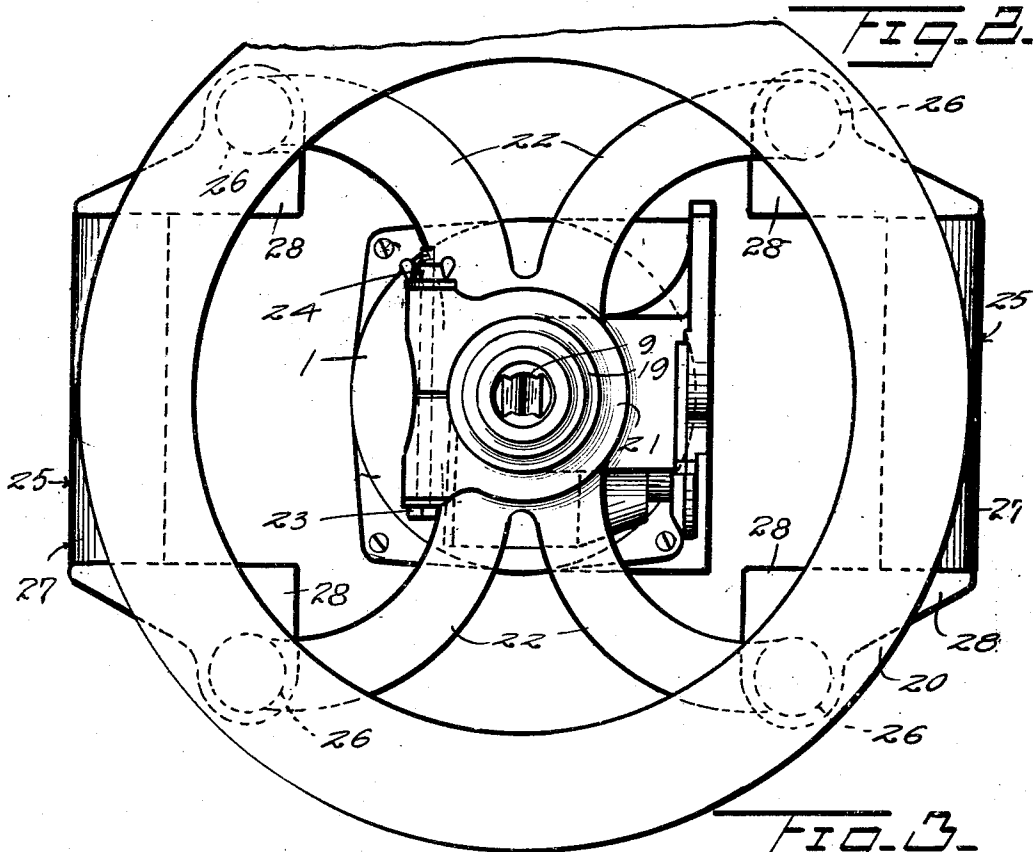
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DADOING AND MORTISING ATTACHMENT FOR PORTABLE POWER TOOLS

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DADOING AND MORTISING ATTACHMENT FOR PORTABLE POWER TOOLS

Application filed May 25, 1929. Serial No. 366,048.

This invention relates to electrically operated hand saws, electrically operated portable drills, portable electric motors and the like, and has for one of its objects to provide means through the medium of which any of these machines may be readily adapted to be used for the purpose of dadoing and mortising window frames, door frames, cabinets, stair housing or any kind of woodwork where one piece must be recessed or grooved to receive another.

The invention has for a further object to provide means of the character stated which shall embody a dado or router bit adapted to be secured to the armature shaft of a machine of the character stated.

The invention has for a further object to provide means of the character stated which shall also include a running bearing for the dado or router bit adapted to be secured to the housing of the machine.

The invention has for a further object to provide means of the character stated which shall also include a guide rotatably associated with the dado or router bit and adapted to be used for the purpose of directing the bit in the path it is to follow to make the groove or recess.

The invention has for a further object to provide means of the character stated wherein the dado or router bit, the running bearing and the guide shall constitute a unit adapted to be applied to and removed from the machine as such.

The invention has for a further object to provide means of the character stated which shall also include a member adapted to constitute a rest for the machine while in use and adapted to permit the machine to be easily guided to cause the bit to follow the desired path.

The invention has for a still further object to provide means of the character stated wherein the rest and guide member shall be

adapted to be detachably connected to the bearing.

With the foregoing and other objects in view, the nature of which will appear as the description proceeds, the invention consists in the construction, combination and arrangement of parts hereinafter fully described and claimed, and illustrated in the accompanying drawings, wherein:—

Figure 1 is a view in side elevation of an electrically operated hand saw equipped with the dadoing and mortising means or attachment forming the subject matter of our invention;

Figure 2 is a bottom plan view of the machine and attachment;

Figure 3 is a sectional view taken on a vertical plane extending centrally through the attachment, the lower portion of the machine and the work;

Figure 4 is a top plan view of the work support; and

Figures 5 and 6 illustrate slight modifications of the attachment.

Referring in detail to the drawings, 1 designates the casing or housing, 2 the handle and 3 the armature shaft of an electrically operated hand saw of well known construction. The conductors for the motor of the machine pass through a flexible tube 4 secured to the handle 2. The switch for the motor is arranged within the handle 2, and is under the control of a thumb lever 5 extending laterally beyond the handle. An arbor 6 driven from the armature shaft 3 through a gearing, not shown, supports the saw blade which is not shown as it is not used when the machine is equipped with our attachment. The front end of the casing 1 is reduced, as shown at 7, and the front end of said reduced portion is internally screw threaded as at 8. When the machine is equipped with its saw blade, the front end of the casing portion 7 is closed by a plug, not shown. To adapt the machine for the application thereto of our dadoing

and mortising attachment, it is only necessary to remove the saw blade and plug.

The attachment comprises a dado or router bit 9 having a shank 10 thereof provided in its upper end with a screw threaded socket 11 for engagement with the reduced screw threaded end 12 of the armature shaft 3, and a sleeve 13 surrounding the shank 10 and provided at its upper end with a reduced and externally screw threaded extension 14 which fits in the open end of the casing portion 7 and engages with the screw threads 8 thereof. A bushing 15 is secured to the shank 10, and a bearing 16 surrounds the bushing and is arranged within the lower end of the sleeve 13. The bearing 16 is supported within the sleeve 13 by a cap 17 which is threadedly engaged with the lower end of the sleeve. A metallic washer 17^a and a felt washer 17^b are arranged at the lower end of the sleeve 13 between the bearings 16 and the cap 17, and serve to prevent oil from leaking from the sleeve along the bushing 15. Anti-friction balls 18 arranged upon the shank 10 and bushing 15 at a point below the cap 17, support a ring 19 which serves as a guide for directing the bit 9 in the path which a groove or recess is to follow. As the guide ring 19 is rotatably supported by the balls 18, it rotates on the bit 9 with little or no friction.

The bit 9, the sleeve 13, and the bearings 16 and 18 constitute a unit, and may be easily and quickly applied to or removed from the armature shaft 3 and casing 7 as such.

The machine when in use is supported in a vertical or substantially vertical position with the bit 9 lowermost, and it is supported upon the work guide through the medium of a rest which comprises a flat ring 20, a split hub or collar 21 arranged slightly above and at the center of the ring, and arms 22 formed integrally with the ring and collar.

The rest is secured to the sleeve 13 through the medium of the collar 21. A bolt 23 carried by the collar 21 and a wing nut 24 carried by the bolt to contact with the collar, provide means by which the collar may be clamped on the sleeve 13.

To permit the machine to be manually controlled for advancing the bit 9 on the work, handles 25 are arranged at the upper side of the ring 20 and at opposite sides of the bit. The arms 22 have their inner ends connected to the upper end of the collar 21, and their outer ends are spaced from and connected to the ring 20 by studs 26. The grips 27 of the handles 25 are spaced above the ring 20 and the other ends of the arms 22, and the angular ends 28 of the handles extend inwardly and are connected to the outer ends of the arms.

The window frame member, door frame member or other member which is to be provided with grooves or recesses and designated 29, is mounted in a holder 30 and is se-

cured therein by a clamp 31. The holder 30 comprises a bottom 32 and sides 33, the work 29 being arranged upon the bottom between the sides. Pattern or guide strips 34 are secured as at 35 to the sides 33. The pattern strips 34 extend across the work 29 in relatively spaced relation, and each pair of said strips has opposing edges of such contour as to outline the grooves or recesses to be formed in the work. The sides 33 are provided between each pair of pattern strips 34 with recesses 36 forming in effect end extensions of the grooves or recesses to be formed in the work.

In practice, the machine is arranged upon the work holder 30 with the ring 20 resting upon a pair of the pattern strips 34, with the bit 9 in one of the recesses 36 and with the guide ring 19 arranged between and contacting with an edge of one of the guide strips.

The machine is now moved across the work through the medium of the handles 25 to form the groove or recess in the work, two of such grooves or recesses being shown in Figure 4 and designated 37 and 38, respectively. As the work 29 is clamped in the holder 30, and as the guide 19 on the bit 9 contacts with an edge of the pair of guide strips 34 upon which the machine is supported by the rest, the groove will be formed in the desired direction and at the desired point in the work. The recess 36 at one side of the work 29 allows the bit 9 to enter the work and the recess at the opposite side of the work allows the bit to leave the work.

If the armature shaft of the machine in connection with which the attachment is to be used is not provided with a reduced thread extension, the bit may be secured to the shaft through the medium of collar 39 shown in Figure 5. The collar is secured to the shank 10 of the bit by a set screw 40 and is adapted to be secured to the armature shaft by a set screw 41.

As shown in Figure 6, the attachment may be adapted, by slightly modifying the same, for the purpose of connecting a drill bit to the machine, and this modification consists merely in providing the shank 10 with a chuck 42 instead of the bit 9.

It should be understood from the foregoing description, taken in connection with the accompanying drawings, that the attachment shown in Figures 1, 2, 3 and 5 and the one shown in Figure 6 are simple, inexpensive and highly efficient, that straight, curved or any other form of groove or recess may be formed with the attachment shown in Figures 1 to 5, and that each of the attachments may be easily and quickly secured to and removed from an electrically operated hand saw, hand drill or the like.

While we have described the principle of the invention together with the structures which we now consider the preferred embodi-

ments thereof, we wish it understood that the structures shown are merely illustrative, and that such changes may be made therein as fall within the scope of the invention as claimed.

We claim:—

1. A tool of the character set forth, comprising an electric motor and the armature shaft thereof, a casing for the motor, a bit detachably connected to the shaft, a sleeve surrounding the bit and detachably connected to the casing, a bearing for the bit carried by the sleeve, and a rest secured to the sleeve and secured by the sleeve to the casing.

2. A tool of the character set forth, comprising an electric motor and the armature shaft thereof, a casing for the motor, a bit detachably connected to the shaft, a sleeve detachably connected to the casing and surrounding the bit, a bearing for the bit carried by the sleeve, a cap holding the bearing within the sleeve, washers positioned between the bearing and cap, a guide ring, and anti-friction means rotatably connecting the guide ring to the bit.

3. An attachment for a portable power tool, comprising a sleeve having an attaching element, a bit having a shank arranged within the sleeve and provided with an attaching element, a bushing mounted on the shank, a bearing arranged within the sleeve and on the bushing, a cap maintaining the bearing within the sleeve, a guide ring located outwardly of the cap, and anti-friction means for rotatably mounting the guide ring on the shank.

4. An attachment for a portable power tool, comprising a bit, a sleeve in which the bit is rotatably mounted and provided at its upper end with an attaching element, a flat ring, a split hub secured to the sleeve below the attaching element thereof, arms extending from the hub to the ring, means for securing the hub to the sleeve, and handles secured to the arms.

5. An attachment for a portable power tool, comprising a sleeve, a bushing arranged axially in the sleeve and having a portion thereof extending beyond one end of the sleeve, a bearing between the sleeve and bushing, a guide ring rotatably mounted on the bushing beyond said end of the sleeve, and a bit having a shank arranged in the bushing.

6. An attachment for a portable power tool, comprising a sleeve, a bushing arranged axially in the sleeve and having a portion thereof extending beyond one end of the sleeve, a bearing between the sleeve and bushing, a cap on said end of the sleeve and adapted to maintain the bearing in the sleeve, a guide ring rotatably mounted upon the bushing beyond the cap, and a bit having a shank arranged in the bushing.

7. An attachment for a portable power tool, comprising a bit, a sleeve in which the

bit is rotatably mounted and provided at its upper end with an attaching element, a hub secured to the sleeve below the attaching element thereof, arms extending outwardly from the upper end of the hub, posts extending downwardly from the outer ends of the arms, a ring secured to the lower ends of the posts, and handles secured to the upper ends of the posts.

In testimony whereof we hereunto affix our signatures.

GEORGE H. HOFFMAN.
GUSTAVE E. OLSON.

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