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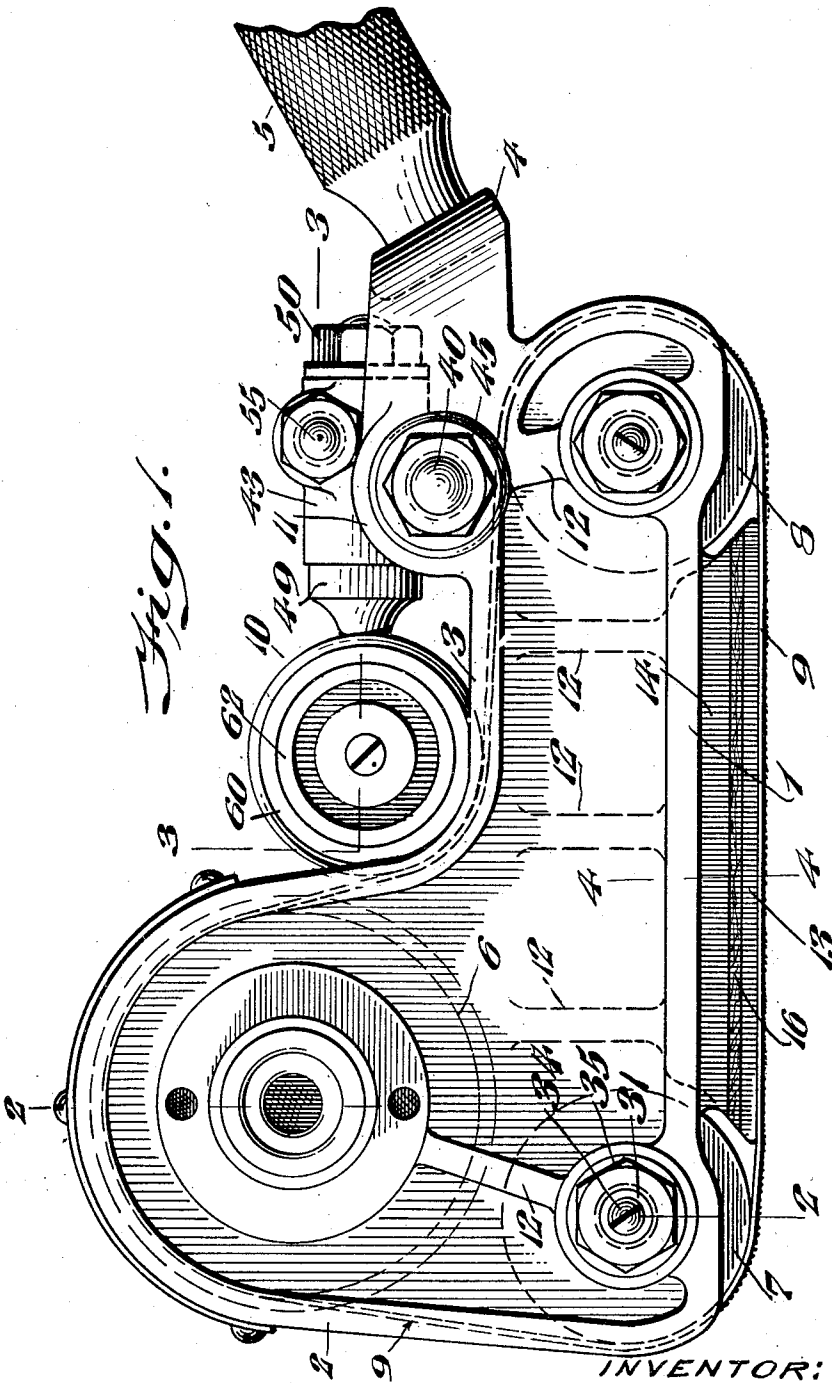
F. R. MOORE

1,825,883

GRINDING HEAD OR ATTACHMENT

Filed Nov. 18, 1929

3 Sheets-Sheet 1



INVENTOR:
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Oct. 6, 1931.

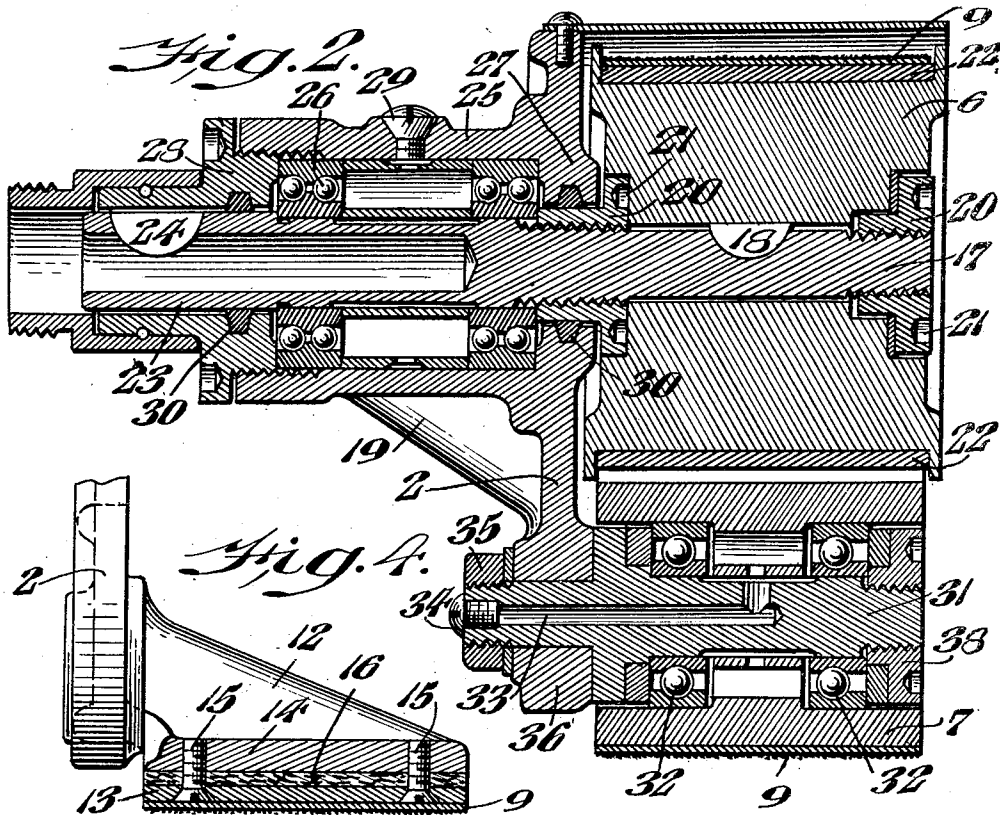
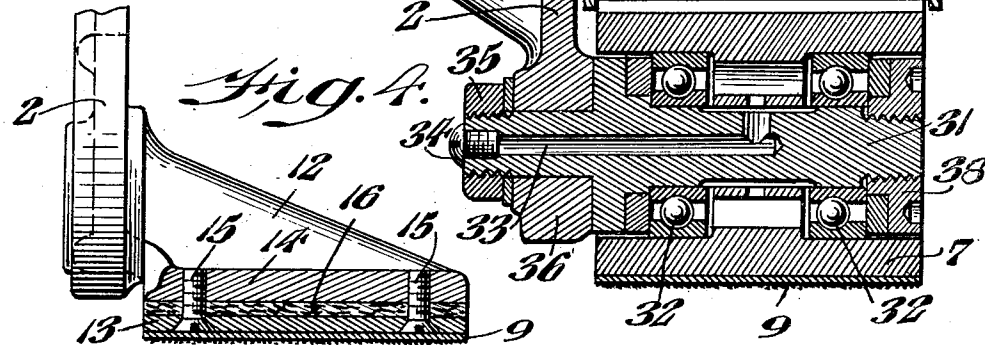
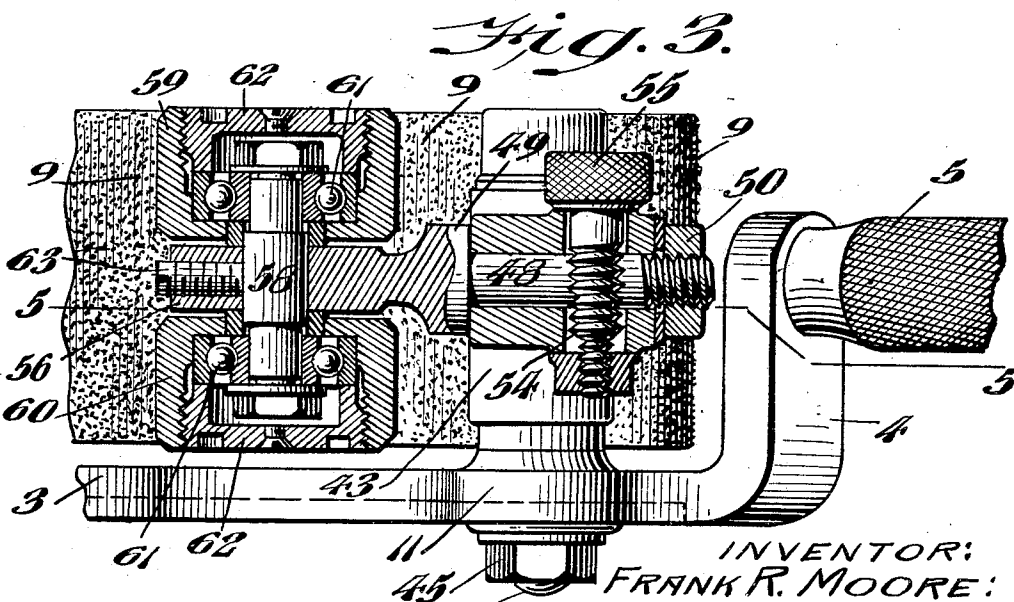
F. R. MOORE

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GRINDING HEAD OR ATTACHMENT

Filed Nov. 18, 1929

3 Sheets-Sheet 2



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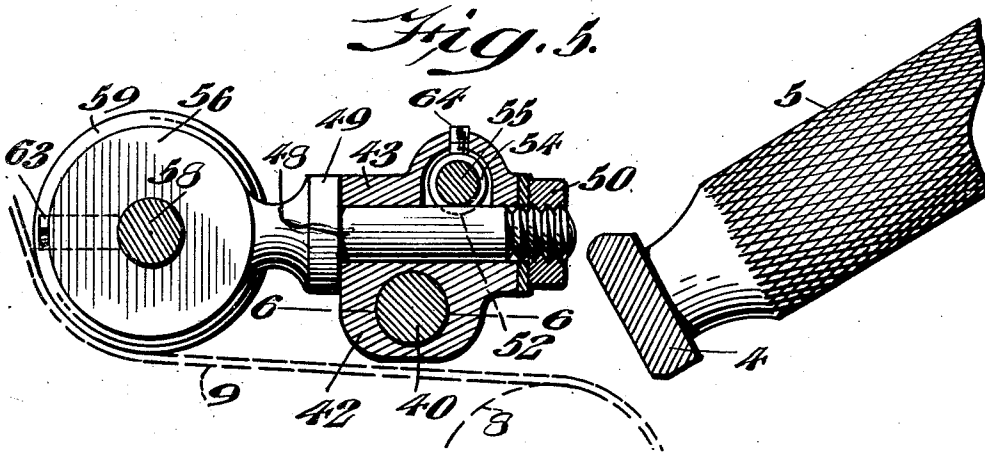
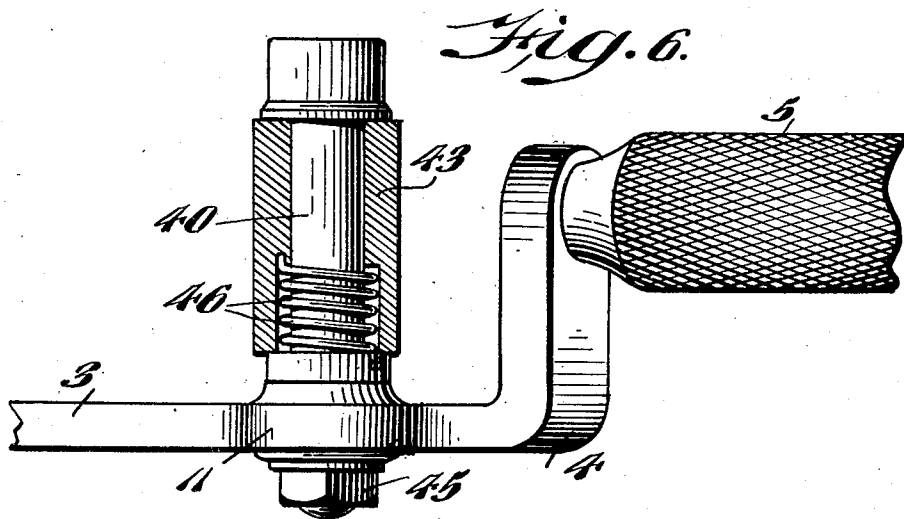
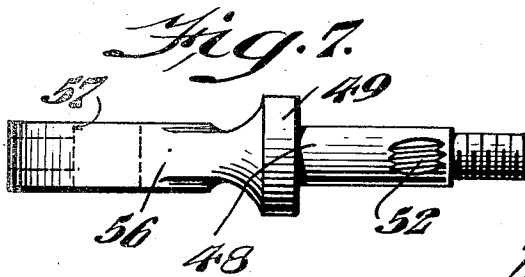
F. R. MOORE

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GRINDING HEAD OR ATTACHMENT

Filed Nov. 18, 1929

3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE

FRANK R. MOORE, OF UPPER DARBY, PENNSYLVANIA

GRINDING HEAD OR ATTACHMENT

Application filed November 18, 1929. Serial No. 407,823.

My invention relates to a new and useful grinding attachment which is adapted to be driven by any suitable source of power such as an electrical or compressed air motor or the like, and it relates more particularly to a novel structure of grinding attachment which is provided with an endless, plane, moving, abrasive surface of the general character set forth in my co-pending application for Letters Patent Serial No. 245,665, filed January 10, 1928, which has matured into patent number 1,717,995, issued June 18, 1929.

My present invention still further relates to a novel grinding attachment of an extremely simple, compact, and inexpensive construction and which will give highly accurate and efficient results.

My invention still further relates to a novel guiding attachment of the character stated wherein the abrasive moving belt is constantly tensioned and drawn taut to assure positive, equalized contact with the surface to be ground, or abraded.

To the above ends, my invention consists of a housing, a rotatable shaft mounted thereon and adapted to be connected to a source of power, an upper driving roll carried by said shaft, lower idle rolls carried by said housing, an endless abrasive belt carried by and traveling over said drive roll and said idle rolls, a tension roll carried by said housing adapted to bear upon said belt, a handle carried by said housing, and yielding connections intermediate said handle and said tension roll for transmitting pressure to said tension roll.

My invention further consists of means for equalizing and balancing said abrasive belt to maintain the latter properly balanced at all times with respect to the surface to be ground or abraded.

My invention further relates to various other novel features of construction and advantage, all as hereinafter described and claimed.

In the accompanying drawings:

Fig. 1 represents a side elevation of a grinding attachment embodying the invention.

Fig. 2 represents a cross section taken on line 2—2 of Fig. 1.

Fig. 3 represents a horizontal section taken on line 3—3 of Fig. 1.

Fig. 4 represents a fragmentary view in cross section taken on line 4—4 of Fig. 1.

Fig. 5 represents a section on line 5—5 of Fig. 3.

Figs. 6 and 7 represent details of construction hereinafter further referred to.

For the purpose of illustrating my invention I have shown in the accompanying drawings one form thereof which is at present preferred by me, since the same has been found in practice to give satisfactory and reliable results, although it is to be understood that the various instrumentalities of which my invention consists can be variously arranged and organized and that my invention is not limited to the precise arrangement and organization of the instrumentalities as herein shown and described.

Referring to the drawings, in which like reference characters indicate like parts, Fig. 1 illustrates a grinding attachment carried preferably by an integral, substantially triangular housing, comprising the lower, horizontal portion 1, the front vertical portion 2, and the upper angular or deflected portion 3 which terminates in the rear deflected or offset arm 4, which carries the manipulating handle 5. The frame or housing carries the upper, front driven roll 6 and the lower front and rear idle rolls 7 and 8. 9 designates an endless abrasive belt passing over and driven by the driven roll 6 and passing over the idle rolls 7 and 8, said belt being tensioned by the tension roll construction 10, which is carried by the extension 11 of the frame portion 3. The frame or housing is provided with the reinforcing ribs 12 for adding strength and rigidity to the construction. The effective or lower horizontally disposed operative tread portion of the belt 9 is backed by the juxtaposed plate 13, which is secured to the bottom plate 14 by the countersunk screws 15, there being a pad 16 of felt or other yielding material interposed between the plates 13 and 14, as will be understood from Figs. 1 and 4.

Referring to Fig. 2, it will be seen that the front upper driven roll 6 is keyed to the shaft

17 as at 18, said roll being disposed between the retaining collars or nuts 20, which are threaded to the shaft 17 and which are provided with the holes 21 for the application thereto of a spanner wrench or similar implement, whereby said collars may be tightened or loosened. In order to insure positive drive of the belt 9 by the roll 6, I provide the annular band 22 which frictionally engages the underside of said belt. The rear end 23 of the shaft 17 is hollow and is adapted to receive the shaft of the propelling motor (not shown) to which it is adapted to be keyed at 24. The hollow rear portion 23 of the shaft 17 is journaled within a tubular extension 25 integral with the front vertical frame member 2, and in which are disposed the anti-friction ball bearings 26, which abut at one end thereof against the shoulder 27 formed on the front vertical frame 2 and at their rear end against the retaining sleeve or nut 28, which is threaded into the tubular extension 25, as will be understood from Fig. 2. 29 designates a screw which may be removed in order to lubricate the ball bearings 26, the lubricant being retained in said bearings by means of the front and rear packings 30. The front idle roll 7 is mounted upon the bearing shaft 31, which is provided with the anti-friction ball bearings 32, which are lubricated through the port 33 when the screw 34 is removed. The front roll 7 is secured in position by means of the nut 35 engaging the boss 36 at the bottom of the front frame member 2 and by the threaded collar 38, as will be understood from Fig. 2. The construction of the rear idle roller 8 at the right hand portion of Fig. 1 is substantially identical with the construction of the roller 8 shown in Fig. 4, and therefore needs no further description.

In Fig. 3 I have illustrated in detail the construction of the tension roller 10 from which it will be seen that a bolt 40 functioning as an axle passes through an upper extension 11 of the frame member 3 and extends through the lower boss 42 of the casing 43, said bolt being retained in position by the nut 45. 46 designates a spring for retaining the casing 43 in any desired position. Transversely through the casing 43 extends the bearing shaft 48 which is provided with a boss 49 and is engaged at its outer end by the threaded nut 50. The top of the shaft 48 is provided with the longitudinal screw threads 52, which are adapted to be engaged by the threads 54 of the screw 55 for a purpose hereinafter set forth. The shaft 48 is provided at its rear end with the head 56 having the transverse hole 57 through which extends the axle 58 on which are mounted the idle rollers 59 and 60, said rollers being provided with roller bearings 61 and being retained by the threaded closures or nuts 62. A set screw 63 passes through the head 56 and engages

the axle 58 to lock or retain the latter stationary, and a set screw 64 engages the adjustment screw 55 to retain the latter in position, as will be understood from Figs. 3 and 5 respectively.

The operation is as follows:

The shaft 17 is driven by any suitable motive power (not shown) to revolve the front upper drive roll 6, which revolves or propels the belt 9 by means of the friction band 22 engaging the underside of said belt. The bottom rollers 7 and 8 have their axes in the same horizontal plane and serve as supports for the bottom operative portion of the belt 9 intermediate said rollers. With the belt propelled by the roll 6, my novel grinding attachment is manipulated by means of the handle 5 over the surface to be polished. The tension roll 10, carried by the upper part of the frame, is adapted to bear downwardly against the belt 9 to take up any slack and always to maintain said belt taut. In order constantly to maintain the belt 9 in a true horizontal plane I provide the adjustment screw 55, the threads 54 of which engage the longitudinal upper threads 52 on the bearing shaft or axle 48, which carries at its outer end the rollers 59 and 60, best seen in Fig. 3. Thus, if for any reason the belt tends to be inclined along the right hand portion thereof, that is, along the portion corresponding with the roller 59, the screw 55 is turned to the left to tilt the shaft 48 and thereby to balance or bring the rollers 59 and 60 into the same horizontal plane. The tension roll 11 is pressed downwardly against the juxtaposed portion of the belt 9 and is retained in its lower tensioning position by means of the spring 46 wound around the bolt 40 and confined within the casing 43, as will be best understood from Fig. 6.

It will thus be seen that I have devised a novel grinding attachment which is power driven but which is light, portable and dirigible and may be readily manually applied to or manipulated over the surface to be polished, and that I have devised a grinding attachment which provides or presents a relatively large and highly efficient, effective, or operative surface. It will further be seen that by means of the adjustment screw 55 coaxing with the longitudinally threaded bearing shaft 48 which carries the tension rollers 59 and 60 I have provided means for maintaining the grinding or polishing belt of my novel attachment in a constantly true and accurate, aligned, horizontal plane. It will be further seen that the tension rollers 59 and 60 are constantly urged downwardly to bear upon the juxtaposed portion of the belt 9 by means of the coiled spring 40 so that except for the occasional adjustment of the screw 55 for the purpose of balancing the rollers 59 and 60 my novel grinding at-

tachment requires no attention and will produce effective results under all conditions.

I am aware that the invention may be embodied in other specific forms without
5 departing from the spirit or essential attributes thereof, and I therefore desire the present embodiment to be considered in all respects as illustrative and not restrictive, reference being had to the appended claim
10 rather than to the foregoing description to indicate the scope of the invention.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is:

15 In a device of the character stated, an integral, substantially triangular housing, front and rear bottom idle rolls carried thereby, a front upper drive roll carried by said housing, driving connections for said drive roll,
20 rear upper tension rolls pivotally carried by said housing, an endless abrasive belt passing over said drive roll and said idler rolls and beneath said tension roll, means for retaining said tension rolls in operative position
25 with respect to said belt, means for effecting lateral adjustment of said tension rolls to maintain the effective surface portion of said belt in a true horizontal plane, an operating handle carried by said housing in advance of said tension rolls, and a yieldable
30 pad carried by the bottom of said housing between said idler rolls and adapted to coact with said belt.

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