Feb. 20, 1951 S. L. MESIROW 2,542,154

TORQUE TRANSMITTING AND CUSHIONING MEANS

Filed Dec. 3, 1948

Fig. 1.

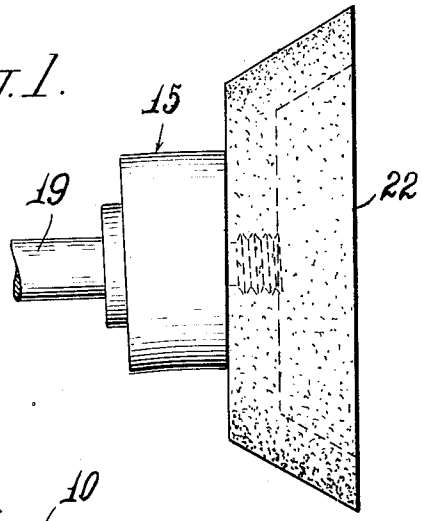


Fig. 5.

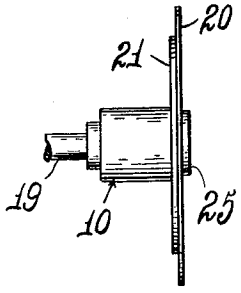


Fig. 3.

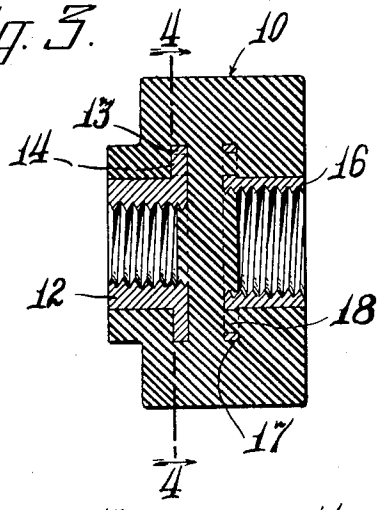
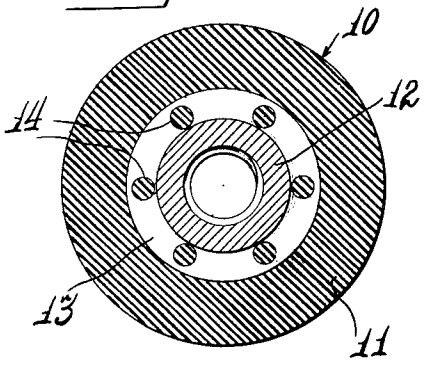


Fig. 4.



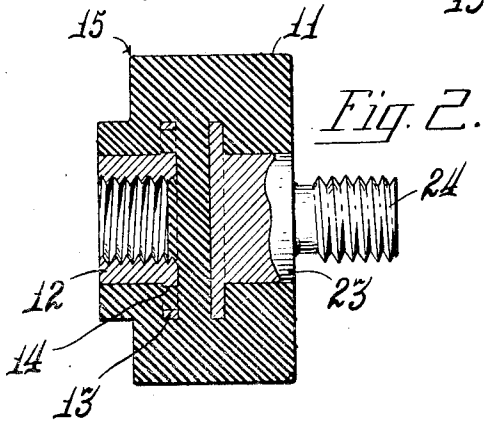


Fig. 2.

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TORQUE TRANSMITTING AND CUSHIONING MEANS

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2 Claims. (Cl. 64—11)

1

This invention relates to torque transmitting and cushioning means, and more particularly to a device intended to be driven from any suitable source of power to impart to an associated implement a rotatable and yieldable operation.

Primarily, the device is intended to be used as a coupling and mounting for a sanding or polishing disc or wheel, in the operation of which it is desirable that the disc or wheel change inclinations during the working of the disc to avoid the formation of scoring grooves or concentric scratches and packing of the disc or wheel surface with abraded material.

One of the objects of my invention is the provision of a device adapted to be driven by an electric motor and to carry a sanding disc or the like, said device being resilient and permitting the disc to yield at inclinations within the limits of the device during its operation.

Another object of my invention is the provision of a mounting of the character set forth which absorbs all vibration and shock incident to the operation of the disc or wheel, thereby minimizing fatigue to the operator and increasing the service life of the wheel or disc.

A further object of my invention is the provision of a resilient mounting and coupling for abrasive or polishing discs or the like which permits more rapid operation of said disc and improved control by the operator thereof.

A still further object of my invention is the provision of a resilient mounting for sanding discs or wheels which absorbs all shock and vibration incident to the operation of the discs or wheels thereby preventing the transmission of such shock or vibration to the driving motor and minimizing wear on the bearings and rotating parts thereof.

A still further object of my invention is the provision of a mounting for a sanding disc which permits rapid mounting and dismounting of the sanding disc without the use of accessory tools.

Other and further objects of my invention not at this time particularly enumerated will be made more apparent as the description proceeds, especially when considered in connection with the accompanying drawings wherein:

Figure 1 is a side elevational view of one embodiment of my invention and illustrating the application thereof.

Figure 2 is an enlarged longitudinal sectional view of the device shown in Figure 1.

Figure 3 is a similar view of another embodiment.

Figure 4 is a cross sectional view taken on line 4—4 of Figure 3.

2

Figure 5 is a side elevational view on a reduced scale illustrating an application of the embodiment shown in Figures 3 and 4.

Referring more specifically to Figures 3 and 4 of the drawings, the numeral 10 designates generally a mounting in accordance with my invention, the said mounting comprising a body 11 of resilient material, such as soft rubber. The body 11 is made of desired thickness and, as seen clearly in Figure 2, includes an axially disposed internally threaded metal element 12 provided at one end with an annular flange or shoulder 13 having a series of circularly arranged perforations 14. Another element 16 similarly includes an internally threaded body portion provided with an annular flange 17 also having circularly arranged perforations 18.

The elements 12 and 16 are arranged in coaxial alinement with the flanges 13 and 17 in spaced relation so as to provide for freedom of movement between the elements. The elements 12 and 16 are molded into the body 11 with the material thereof surrounding the body portions and flanges of the elements and bonded thereto. Increased effective bonding is afforded by the perforations 14 and 18 which, in the molding operation, become filled with the body material 11. Thus, in addition to the increased bonding surfaces provided by the flanges 13 and 17, the rubber portions disposed in the perforations 14 and 18 provide for greater torque value and will still yield readily to misalinement of the elements 12 and 16.

As illustrated in Figure 5 the mounting 10 is adapted to be secured on the end of a driving shaft 19 of a portable electric motor or on the spindle of a flexible shaft, with the element 12 in threaded engagement with the shaft. A sanding disc or wheel 20 is intended to be placed against a backing member 21 which lies against the face of the body 11 and to be secured thereto by a flanged threaded bushing 25, the latter being threaded into the element 16.

It will of course be understood that the direction of rotation of the disc in relation to the threads of the bushing 25 is such that there is a tendency during the operation of the disc to make the disc more secure on the mounting. In order to dismount the disc it is merely required to grasp the peripheral edge of the disc and turn the same in a direction to unscrew the bushing. I have found that there is sufficient friction between the flange of the bushing 25 and the face of the disc and that sufficient leverage is available so that an operator may effect a ready dis-

mounting of the disc without the use of any accessory tools.

Figure 3 illustrates another form of mounting **15** in which the element **16** is replaced by an element **23** having a threaded projection **24** adapted to receive preferably a cupped grinding wheel **22** provided with an imbedded bushing. In other respects the structure of the element **23** is similar to that of element **12**. Similarly, as in the case of the disc mounting **10**, the wheel **22** may be dismounted by grasping the edge thereof and turning the same in a direction to unscrew the wheel from the projection **24**.

It will be understood that elements such as **12** may have means other than threads for coupling the mounting to a motor shaft.

From the foregoing detailed description it will be apparent that in normal operation the plane of rotation of the disc **20** or wheel **22** will be at right angle to the axis of the driving shaft **19** but, as the operator places pressure on the work surface or where variations on the work surface are encountered, the disc **20** or wheel **22** will adjust itself angularly relative to the axis of the driving shaft. The parts will be restored to their normal relationship when permitted.

In using some types of abrasive discs or wheels there is a tendency on the part of the disc or wheel to score the work surface. This tendency is counteracted by the resiliency of the body portion **11** which permits a gyratory action of the disc **20** or wheel **22** due to yielding compression and expansion of the body **11**.

While my invention has been described as a mounting for a sanding or polishing disc, it will be apparent that my invention finds application as a coupling for connecting together two rotary

elements between which driving torque is to be transmitted.

I claim:

1. In a device of the character described, a body of resilient shape-retaining material having substantially flat faces at opposed sides thereof, longitudinally spaced internally threaded sleeve-like elements in said body, said elements being in axial alignment and each having an end flush with one of said faces, and a circular flange on the other end of each of said elements, said flanges having a plurality of holes therein.

2. In a device of the character described, a body of resilient shape-retaining material having substantially flat faces at opposed sides thereof, longitudinally spaced internally threaded sleeve-like elements in said body, said elements being in axial alignment and each having an end flush with one of said faces, the material of said resilient body extending a short distance into and being bonded to the threaded surface of each of said elements, and a circular flange on the other end of each of said elements, said flanges having a plurality of holes therein.

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