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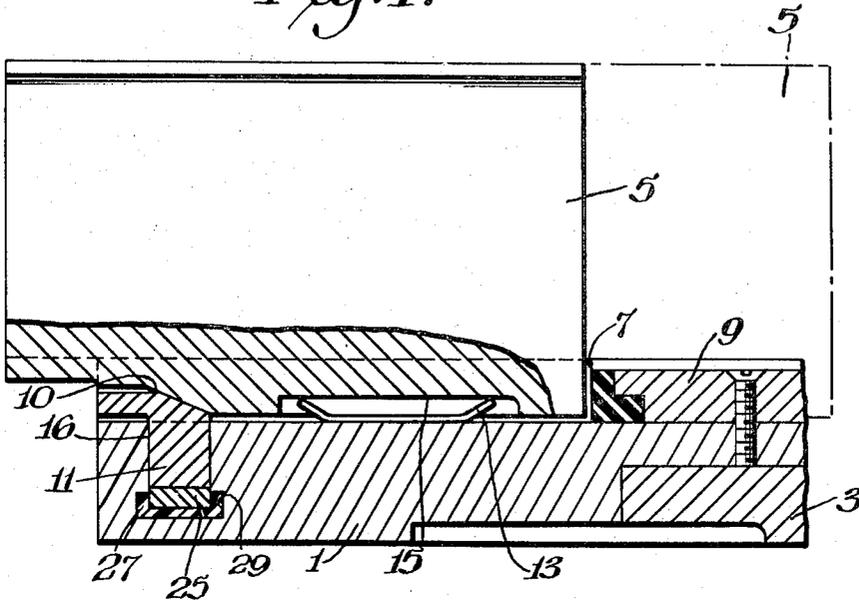
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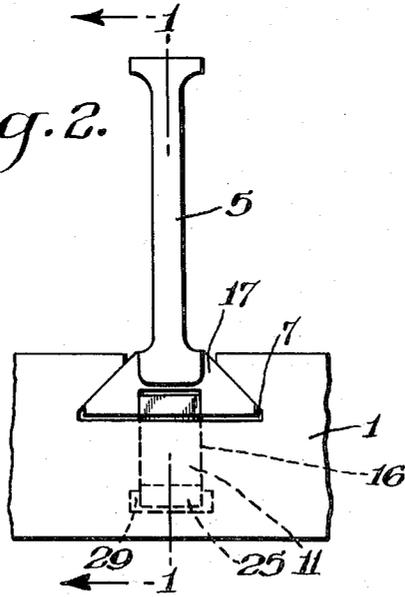
LOCKING PIN RETAINER FOR ABRASIVE THROWING BLADES

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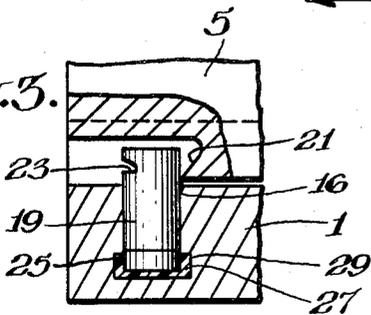
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



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**LOCKING PIN RETAINER FOR ABRASIVE  
THROWING BLADES**

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**ABSTRACT OF THE DISCLOSURE**

An abrasive throwing wheel assembly includes radial blades which are mounted in channels in the throwing wheel disc against locking pins. The locking pins are held in recesses in the channels by a magnet at the base of each recess.

The present invention relates to an abrasive throwing disc assembly and more particularly it relates to means for retaining the abrasive throwing blade locking pins in place in the disc.

With prior abrasive throwing assemblies which include a rotatable disc having abrasive throwing blades anchored therein, the locking pins which hold the blade in place are force-inserted in complementary holes or recesses in the disc to form a tight fit therewith. These locking pin holes are located in the discs in such a manner that the pin rests against a base portion of the abrasive throwing vane to hold the vane in place.

With such an arrangement, the locking pins are not firmly anchored in the disc and may be subject to a slight movement axially away from the bottom of the holes or sidewise thereof during operation in view of the centrifugal force created by rotation of the disc which of course gives a loose fit. This is particularly true when the dimensions of the recesses or holes in the disc and of the locking pin barrels deviate slightly from the prescribed dimensions which may occur in casting these units.

When such movement of the pin occurs during operation of the disc, the abrasive throwing blade may also shift slightly whereby the abrasive spray pattern may be altered slightly from the intended pattern.

It is therefore an object of this invention to provide a new and novel abrasive throwing wheel assembly having a locking pin retaining means for anchoring or setting the pin firmly in the disc hole or recess.

Another object of the invention is to provide a new and novel abrasive throwing assembly wherein the blade locking pins are anchored in the disc by a magnet positioned at the bottom of the locking pin supporting hole or recess.

Another object of the invention is to provide a new and novel abrasive throwing assembly wherein the abrasive throwing blade locking pins are anchored in the blade supporting disc recess by a permanent magnet positioned at the bottom of the recess and held in place therein by a suitable adhesive material.

Other objects and advantages of the invention will become more apparent from a study of the following description and drawings wherein:

FIG. 1 is a partially sectioned detail taken along line 1-1 of FIG. 2.

FIG. 2 is an end view of the assembly taken from the periphery of the assembly, and

FIG. 3 is a detail of an embodiment of the invention.

Referring now to the drawings, there is shown in FIGS. 1 and 2 an abrasive throwing assembly of the type disclosed in U.S. Patent No. 3,241,266, dated Mar. 22, 1966. This embodiment is only exemplary of the many different

types of abrasive throwing assemblies which can be satisfactorily used in accordance with the present invention.

Here, there is shown a metal disc or runner head 1 which is mounted on a rotatable shaft 3 in turn driven by a suitable drive means (not shown). A vane or blade 5 is supported in radially extending channel 7 cut into the face of disc 1 which is shown better in FIG. 2. The disc, of course, includes a number of these channels and blades. The particular blade 5 as shown is a double face blade which can be used for propelling or throwing abrasive while being rotated in either a clockwise or counterclockwise direction. However, a single face blade can also be used with this assembly for rotation in one direction only.

A removable locking ring 9 is shown in FIG. 1 and, as seen, the periphery thereof abuts the innermost end of the radially extending blade mounting channel 7 cut into one face of the disc 1. When in position, the locking ring, as will be explained, prevents movement of the blade 5 inwardly toward the disc center and also urges a slanted portion 10 of bottom border or edge of the blade 5 against a locking pin 11 as shown to hold the blade firmly in place on the disc.

An elongated compression leaf spring 13 lies between the bottom wall of channel 7 and the upper wall 15 of a cut-away portion of the bottom edge of the blade 5. The purpose of the spring 13 is to urge the base portion 17 of the blade 5 upwardly against the slanted walls of the disc channel 7 to force a tight fit between the two elements. As seen better in FIG. 2 the sides of the base portion 17 of the vane or blade 5 slope or taper whereby a complementary engagement is formed with the sloping walls of the channel 7.

To assemble the blades in place on the disc, the locking ring 9 is removed. The innermost edge of the blade 5 is then inserted in the channel 7 at the periphery of the disc 1 and moved inwardly of the channel 7 until the innermost end of the blade 5 occupies the position shown in dotted lines in FIG. 1. The locking pin 11 is then inserted in its complementary recess or hole 16 in disc 1 and the blade is then moved outwardly toward the disc periphery until the outermost end of the blade 5 occupies the position shown in solid lines of FIG. 1. The locking ring 9 is then fixed in position as shown in FIG. 1 to firmly hold the vane in its operating position with the ring periphery abutting the innermost end of the blade 5.

As shown in FIG. 3 a different type locking pin 19 is shown which is only one of the many additional types of locking pins which can be used in accordance with this invention. The base portion of the blade 21 which contacts the pin 19 has a different configuration than shown in FIGS. 1 and 2. A notch 23 is shown in pin 19 which faces the periphery of the disc which accommodates a screw driver blade or other tool for forcing the pin 19 from its seat or recess 16 in the disc 1.

In all three figures there is shown a permanent magnet 25 supported at the bottom of the recess in the disc 1 which accommodates the locking pins 11 and 19. The locking pins are of course made of metal which is paramagnetic and therefore it forms a tight bond with a magnet 25 to firmly hold the pins 11 and 19 in a fixed position.

In turn, the magnet 25 is firmly anchored in place within the recess 16 in the disc 1 by an insulating adhesive 27 which may be of the epoxy type. The adhesive 27 is positioned in an expanded chamber 29 at the bottom of the recess which accommodates the magnet 25 and the pins 11 and 19. The adhesive is preferably of the epoxy resin type but can be a suitable adhesive or glue which forms a tight bond between metal units.

With the above arrangement, the magnet is firmly anchored within the recess in the disc 1 and the locking pins are firmly anchored to the magnet 25. Any move-

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ment of the pins and the vane 5 is therefore prevented whereby the desired spray pattern for the abrasive is preserved.

To remove the blade for replacement, a force is applied to the pin which is stronger than the magnetic attraction between the pin and the magnet.

Obviously, many modifications or variations of the present invention are possible in light of the above teaching. It is, therefore, to be understood that within the scope of the appended claims the invention may practiced otherwise than as described.

What is claimed is:

1. An abrasive throwing assembly comprising a rotatable disc, a plurality of radially extending channels in one face of said disc, an abrasive throwing blade supported in each of said channels, a recess in each of said channels, a locking pin in each recess reacting against a respective blade, and a magnet in the base of each recess firmly holding each pin in a fixed position.

2. An abrasive throwing assembly according to claim 1 including holding means in each recess retaining a respective magnet in place in its respective recess.

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3. An abrasive throwing assembly according to claim 2 wherein said holding means comprises an insulating adhesive in contact with a respective magnet.

4. An abrasive throwing assembly according to claim 3 wherein each recess is of uniform cross section from the top of the recess toward its bottom, each recess having an expanded portion at its bottom thereof, each locking pin and its respective magnet being of substantially the same uniform cross section as its recess, and said adhesive being disposed in said expanded portion and being in contact with the bottom and sides of a respective magnet.

References Cited

UNITED STATES PATENTS

2,119,812	6/1938	Hamren	51—9
2,119,813	6/1938	Keefer	51—9
2,819,562	1/1958	Barnes	51—9
3,241,266	3/1966	Bowling	51—9

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