

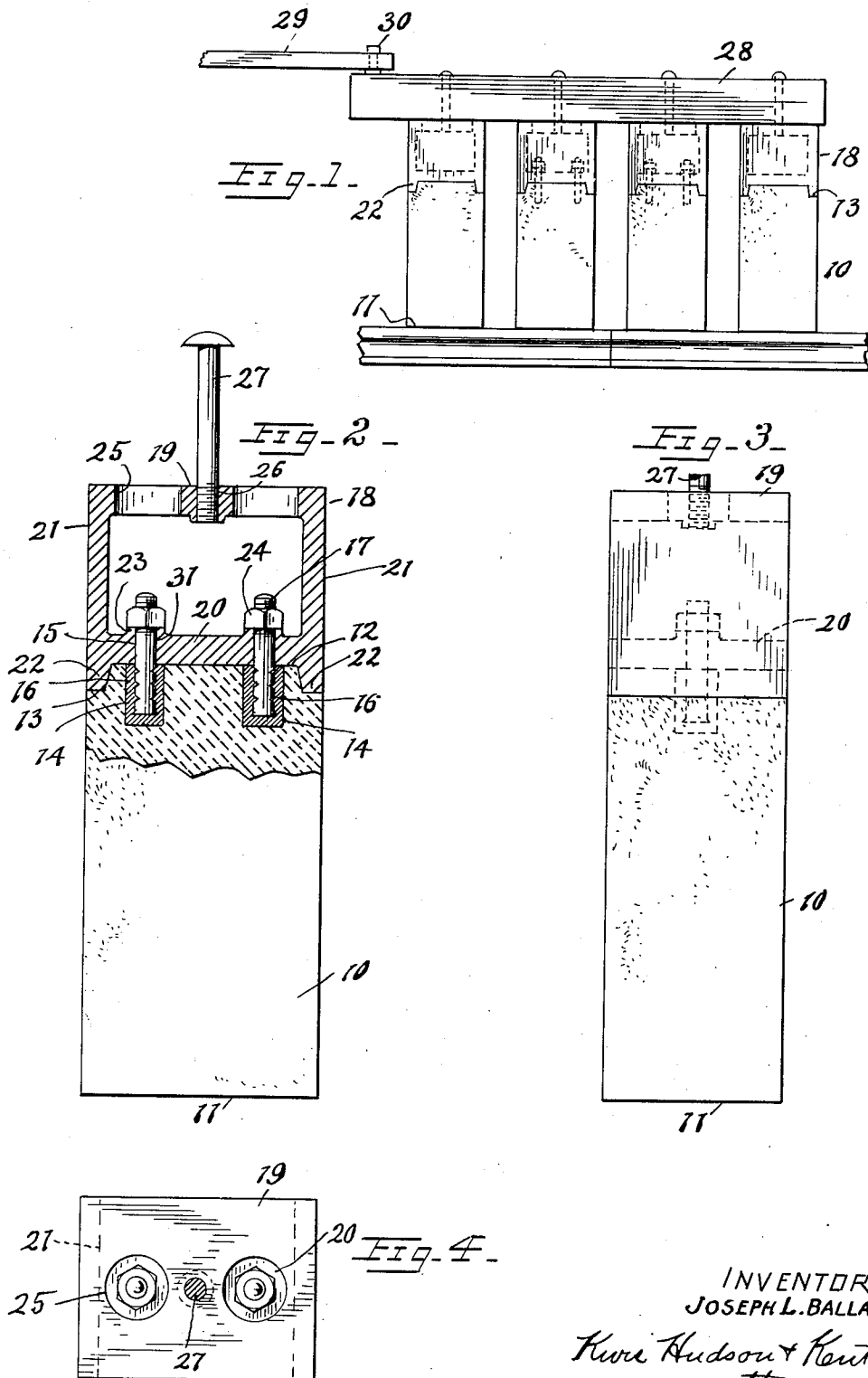
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ABRASIVE DEVICE

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UNITED STATES PATENT OFFICE

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ABRASIVE DEVICE

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13 Claims. (Cl. 51—204)

This invention relates to an abrasive device particularly adapted for use in connection with railway track grinding and has for one of its objects to provide such a device which is simple in construction, inexpensive to manufacture and efficient in operation.

With the types of grinding apparatus available at the present time there is considerable waste in connection with the abrasive elements due to the fact that the elements can only be used up to a certain point and must then be discarded. This results in expensive upkeep and it is therefore a further object of the invention to produce a renewable abrasive element and support therefor wherein practically the entire element may be used before it is discarded.

With the objects above indicated and other objects hereinafter explained in view the invention consists in the construction and combination of elements hereinafter described and claimed.

Referring to the drawing:

Figure 1 is a side elevational view showing diagrammatically a track grinding apparatus including abrasive elements embodying the present invention.

Fig. 2 is a side elevational view of one of the abrasive elements and its supporting member with portions broken away to more clearly illustrate the construction.

Fig. 3 is an end elevational view of that shown in Fig. 2, and

Fig. 4 is a top plan view of that shown in Fig. 2.

In the drawing 10 indicates an abrasive member, formed of manufactured aluminum oxide abrasive, corundum, emery, silicon carbide, or other suitable material, which is rectangular in cross-section and of greater length than width, although the size and shape may vary to meet the necessary requirements.

The lower end 11 of the abrasive member 10 is adapted to engage the surface of the article which it is desired to grind, while the upper end is provided with transverse grooves 13 extending preferably along the opposite edges thereof. The upper end is further provided with bores 14 substantially centrally disposed and spaced apart longitudinally between the grooves 13.

Studs 15 have their lower ends disposed within the openings 14 and are secured therein by cement 16, such as sulphur, lead, or other suitable material. The upper ends of the studs 15 are free and extend above the upper surface of the abrasive member 10, the ends being exteriorly screw threaded at 17.

A supporting member or adapter 18 which in

effect constitutes a continuation or extension of the abrasive member is provided to which the abrasive member 10 is detachably secured, so that the abrasive member may be replaced. Such an arrangement permits the use of abrasive members of much smaller size than those used at the present time, without sacrificing the usable portion of the abrasive member, which results in materially reducing the initial expense of the abrasive members.

The supporting member 18 is preferably a hollow casting and the contour of its under side is substantially identical with the adjacent side of the abrasive member. It also has an upper wall 19 and a lower wall 20 spaced apart therefrom but parallel thereto and spaced side walls 21 integrally united with the upper and lower walls. Formed integral upon the lower wall 20 are extensions 22, the inner adjacent sides of which are tapered inwardly from the outer ends thereof which cooperate with the tapered surfaces of the grooves or offset portions 13 in the abrasive member 10 to properly align the members and to prevent relative movement. The lower wall 20 also has openings 31 through which the ends of the studs 15 extend and flanges 23 extend around the openings 31 and are formed integral upon the upper surface thereof. Nuts 24 engage the screw threaded ends of the studs 15 and are seated upon the flanges 23 when the nuts are turned home to rigidly maintain the abrasive member 10 and supporting member 18 in assembled relation.

The upper wall 19 has transverse openings 25 located directly above the nuts 24 to permit access thereto for tightening or removing the nuts. Between the openings 25 the upper wall 19 has an interiorly screw threaded opening 26 with which the lower screw threaded end of an attaching bolt 27 cooperates. This bolt is for securing the supporting member to a portion of the apparatus 28 shown diagrammatically in Fig. 1. Any desired number of supporting members and abrasive members may be connected with the apparatus, depending upon the surface it is desired to grind and they may be reciprocated by the member 29 pivotally connected at 30 to the apparatus 28. As the apparatus forms no part of the present invention it is not believed necessary to illustrate more than is diagrammatically illustrated in Fig. 1.

While the preferred embodiment of the invention has been described and claimed, it should be understood that I am not to be limited thereto inasmuch as changes and modifications may be resorted to without departing from the spirit of

the invention as defined by the appended claims.

Having thus described my invention I claim:

1. An abrasive device comprising an abrasive member having a pair of spaced openings in one end thereof, studs having one of their ends secured in said openings, a supporting member having spaced walls, one of said walls being provided with openings through which the free ends of said studs extend, means engageable with the free ends of said studs and adapted to maintain said abrasive member and supporting member in assembled relation, and attaching means secured to the other of said walls.
2. An abrasive device comprising an abrasive member having a pair of spaced openings in one end thereof, said abrasive member being further provided with grooves extending transversely upon the ends adjacent said openings, studs having one of their ends secured in said openings, a supporting member having openings through which the free ends of said studs extend, extensions on said supporting member cooperating with said grooves, means engageable with the free ends of said studs and adapted to maintain said abrasive member and supporting member in assembled relation, and attaching means upon said supporting member at the opposite side from said abrasive member.
3. An abrasive device comprising an abrasive member having a pair of spaced openings in one end thereof, studs having one of their ends secured in said openings, a hollow supporting member having openings in one wall through which the free ends of said studs extend, means engageable with the free ends of said studs and adapted to maintain said abrasive member and supporting member in assembled relation, said supporting member being further provided with an opening to afford access to said means, and attaching means upon said supporting member at the opposite side from said abrasive member.
4. An abrasive device comprising an abrasive member having a pair of spaced openings in one end thereof, said abrasive member being further provided with grooves extending transversely upon the ends adjacent said openings, a hollow supporting member having openings in one wall through which the free ends of said studs extend, extensions on said supporting member cooperating with said grooves, means engageable with the free ends of said studs and adapted to maintain said abrasive member and supporting member in assembled relation, said supporting member being further provided with an opening to afford access to said means, and attaching means upon said supporting member at the opposite side from said abrasive member.
5. An abrasive device comprising an abrasive member having a pair of spaced openings in one end thereof, studs having one of their ends secured in said openings, a supporting member having spaced walls, one of said walls being provided with openings through which the free ends of said studs extend, means engageable with the free ends of said studs and adapted to maintain said abrasive member and supporting member in assembled relation, and attaching means secured to the other of said walls.
6. An abrasive device comprising an abrasive member having a pair of spaced openings in one end thereof, said abrasive member being further provided with grooves extending transversely upon the ends adjacent said openings, a hollow supporting member having openings in one wall through which the free ends of said studs extend, extensions on said supporting member cooperating with said grooves, means engageable with the free ends of said studs and adapted to maintain said abrasive member and supporting member in assembled relation, said supporting member being further provided with an opening to afford access to said means, and attaching means upon said supporting member at the opposite side from said abrasive member.
7. An abrasive device comprising an abrasive member having a pair of spaced openings in one end thereof, said abrasive member being further provided with grooves extending transversely upon the ends adjacent said openings, studs having one of their ends secured in said openings and their free ends screw threaded, a hollow supporting member having a pair of spaced walls one of which is provided with a pair of openings through which the free ends of said studs extend, extensions on said supporting member cooperating with said grooves, nuts engageable with the screw threaded free ends of said studs and adapted to maintain said abrasive member and said supporting member in assembled relation, said supporting member having openings in the other wall thereof over said nuts to afford access thereto and a screw threaded opening between said last mentioned openings.
8. An abrasive device comprising an abrasive member having a stud embedded therein and projecting from one end thereof, and an adapter forming a substantial continuation of the abrasive member and secured by said stud to the abrasive member, the adapter having two spaced walls one having an opening through which the stud extends and to which it is secured and the other having means by which the adapter may be secured to a supporting member.
9. As an article of manufacture, an abrasive member comprising an oblong-shaped abrasive block substantially uniform in cross-section from end to end, one of its ends being the working end and the opposite end being the attaching end, said block having embedded therein a securing stud which projects from the attaching end, and said block having on two opposite sides at the attaching end a pair of transversely extending notches the inner sides of which are tapered inwardly toward the attaching end.
10. As an article of manufacture, an abrasive member comprising an oblong-shaped block of substantially uniform cross-section from end to end, one of its ends being the grinding end and the other the attaching end, said block having a pair of studs with portions embedded in the block and with portions projecting from the attaching end and provided along two opposite sides next to the attaching end with offset portions having inner sides tapered inwardly toward the attaching end.
11. As an article of manufacture, an abrasive block of substantially oblong shape and of substantially uniform cross-sectional area from end to end, one of said ends of said block being adapted to be secured to an adapter, a pair of studs having portions embedded in the block and having portions projecting from the attaching end, and said block having on two opposite sides adjacent the attaching end attaching faces extending transversely across the block and tapered inwardly toward the attaching end, one of said studs being located adjacent each of said tapered faces.
12. As an article of manufacture, an abrasive block of substantially oblong shape and of sub-

stantially uniform cross-section from end to end, one of the ends being the grinding end and the other the attaching end, the block having two studs embedded therein with portions projecting through the attaching end, and said block having on two opposite sides next to the attaching end two transversely extending notches with inner faces tapered inwardly toward the attaching end, each of said tapered faces lying alongside one of said studs, the distance between the studs being greater than the spacing of each tapered face from the adjacent stud.

13. As an article of manufacture, an abrasive member comprising an oblong shaped abrasive block substantially uniform in cross-section from end to end, one of its ends being the grinding end and the opposite end being the attaching end, said block having fixed therein at the attaching end a threaded member and said block having on two opposite sides at the attaching end a pair of transversely extending notches, the inner sides of which are tapered inwardly toward the attaching end.

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15	90
20	95
25	100
30	105
35	110
40	115
45	120
50	125
55	130
60	135
65	140
70	145
75	150