No. 766,079. PATENTED JULY 26, 1904.

C. G. WARNER.

SURFACING WHEEL.

APPLICATION FILED OCT. 12, 1903.

NO MODEL.

Fig. 1.

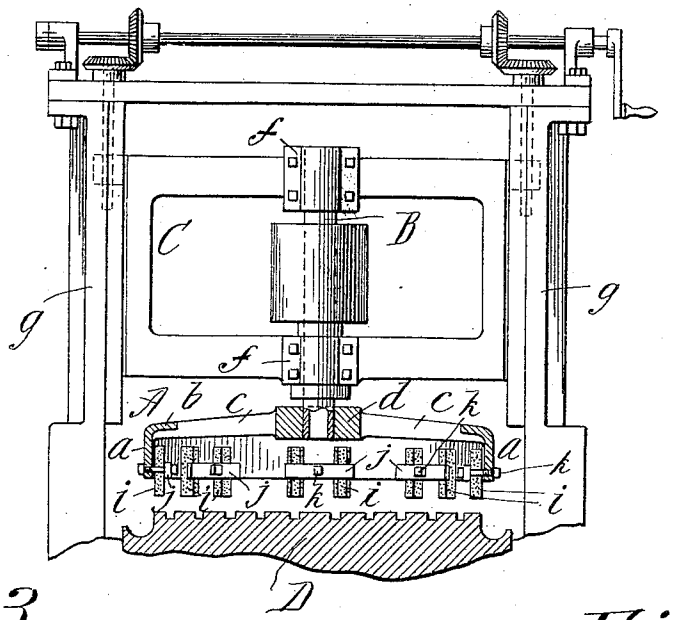


Fig. 3.

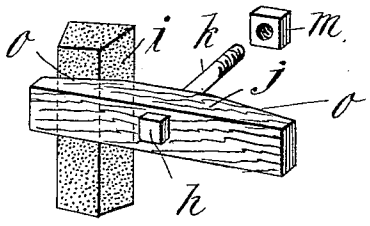


Fig. 4.

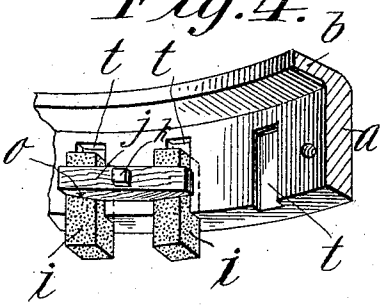
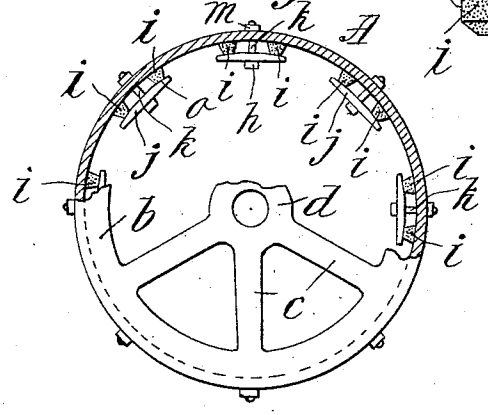


Fig. 2.



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No. 766,079. Patented July 26, 1904.

UNITED STATES PATENT OFFICE.

CLARENDON G. WARNER, OF HOLYOKE, MASSACHUSETTS.

SURFACING-WHEEL.

SPECIFICATION forming part of Letters Patent No. 766,079, dated July 26, 1904.

Application filed October 12, 1903. Serial No. 176,593. (No model.)

To all whom it may concern:

Be it known that I, CLARENDON G. WARNER, a citizen of the United States of America, and a resident of Holyoke, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Surfacing-Wheels, of which the following is a full, clear, and exact description.

This invention relates to improvements in rotary wheels especially available for surfacing and resurfacing lithographic stones, to be used or which have been used, to bring them in readiness for the reception thereon of a freshly-applied engraving, drawing, or transfer.

A surfacing-wheel such as is constituted by the present invention is susceptible advantageously of use in a lithographic-stone-surfacing wheel of the general character illustrated and described in the Letters Patent of the United States issued to me December 26, 1899, No. 639,953, in which there is embodied a reciprocatory bed or carrier for the stone to be surfaced and a wheel or set of wheels rotatable about an axis perpendicular to the face of the stone, having the bottom thereof composed of or formed by an abrading substance, the surfacing wheel or wheels generally being operated in conjunction with means for supplying water on the lithographic stone adjacent the working portion of the surfacing-wheel.

The object of the present invention is to provide a surfacing-wheel of new and simple construction, having the abrading, polishing, or surfacing portion thereof constituted by a plurality of bars or sections of any material having fitness for the purpose, and said wheel being provided with efficient means for firmly and rigidly though detachably holding the sections of abrading material against the metallic body of the wheel, which means comprise a minimum of parts, which are of an extremely simple and inexpensive construction.

The invention consists in the arrangements or combinations of parts and the construction of certain of the parts, all substantially as hereinafter fully described, and set forth in the claims.

In the drawings, Figure 1 is a cross-section of the bed on which the stone to be surfaced is to be carried horizontally and an elevation thereabove of the supporting-head for the surfacing-wheel, shown as journaled therein for rotation in a horizontal plane with its working edge arranged for proper presentation. Fig. 2 is in part a plan view and in part a horizontal sectional view of the improved surfacing-wheel. Fig. 3 is a perspective view showing one of the abrading-sections and the means for detachably confining the same to the annular body of the surfacing-wheel. Fig. 4 is a perspective view showing a portion of the annular body of the surfacing-wheel having sockets in which are engaged the detachably-confined sections of abrading material.

Similar characters of reference indicate corresponding parts in all of the views.

In the drawings, A represents the surfacing-wheel, the same comprising in the form thereof here shown a body *a* of depending annular form, having at its upper edge the inwardly-extending strengthening-flange *b*, within which and connected thereto by the radial arms *c* is the hub *d* for attachment to the shaft B, which is vertically arranged and journaled in the boxes *f f* in the head or frame C, which latter is vertically adjustable within the uprights *g g* of the machine, the means for imparting the raising and lowering movements of the head and wheel journaled therein forming no part of this invention.

D represents the bed, understood as capable of a reciprocatory movement in a horizontal plane beneath the surfacing-wheel A.

The abrading, polishing, or otherwise surfacing bottom portion of the surfacing-wheel is constituted by a plurality of sections *i i*, shown in the form of straight bars and composed of emery, corundum, carborundum, wood, rubber, or other analogous or suitable material or combinations thereof having operative capability for the character of surface required to be imparted to the upper face of the lithographic stone, these sections in some instances being of a coarse and rough character, while in other cases they are very much finer in texture, as would be indicated to the intelligent constructor. The said abrading or polishing sections *i* are arranged in pairs,

preferably against the inner face of the annular body of the wheel, the lower portions of these sections projecting downwardly below the under edge of the annular body and all terminating in a common horizontal plane.

j represents confining or clamping bars for the pairs of the vertically-disposed and downwardly-projecting sections *i*, these bars being arranged horizontally and transversely across intermediate portions of the sections *i* and are held in their clamping confinements by the bolts *k*, having heads *h* and nuts *m*, the shanks of the bolts penetrating horizontally through the middle of the bars and through the annular body, the bolt-heads engaging the bars and the nuts screwing and seating against the body, or vice versa, it being of course immaterial whether the bolts are applied from the interior or the exterior.

As shown, the sides of the end portions of the confining-bars *j* which engage against the sections *i* are chamfered, as indicated at *o*, whereby such portions have approximately parallelism with the continuously-curving inner surface of the annular wheel-body and whereby equality of bearing against the abrading-sections is insured.

As shown in Figs. 1, 2, and 3, the abrading-sections are cross-sectionally of dovetail form, although the cross-sectional form may be variable, a rectangular cross-sectional form being represented in Fig. 4, and in this figure the surface (here the inner surface) of the annular body *a* is constructed with vertical downwardly-opening sockets *t*, having depths less than the thicknesses of the abrading-sections *i*, which sections are partially sunk sidewise into said sockets *t*, the detachable confining appliances constituted by the clamping-bars *j*, bolts, and nuts being here provided as in the previous instance.

While ordinarily the arrangement shown in Figs. 1 and 2 is efficient and serves to reliably hold the sections *i* against displacement or creeping, the provision of the channels or sockets, as represented in Fig. 4, precludes any possibility of displacement or creeping in any event.

A surfacing-wheel susceptible of having abrading or polishing sections confined in depending positions thereupon and having the means for the confinement of such sections in place is of course adaptable to receive interchangeable sections for any given character of work to be performed by the surfacing-wheel, and in some cases it may be advantageous to have alternate sections of different quality or character from that of the relatively intermediate ones.

While the wheel is generally used having combined therewith means for supplying water on the surface of the stone being worked upon and adjacent the place of working contact of the wheel, water-supplying arrangements being illustrated in the aforementioned Letters Patent, it is of course to be understood that this wheel may be employed in conjunction with any description of water-supplying means or, if desired, without the same.

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

1. A surfacing-wheel having a body comprising a depending annular wall, and bars or sections of abrading or polishing material applied facewise against said annular wall and depending therebelow, a transversely-arranged bar having a clamping-bearing to hold the said sections against the said wall, and means for holding said clamping-bar to bind said sections between it and said wall.

2. A surfacing-wheel having a body comprising a depending annular wall, sections of abrading or polishing material applied in pairs against the inner face of said wall and depending therebelow, bars arranged transversely of the said sections and against the inner faces of the pairs thereof for binding such sections against the inner face of the wheel-body, bolts horizontally penetrating the middle of said bars, and the said annular wall, having heads and confining-nuts, engaging said confining-bars and the side of the body.

3. A surfacing-wheel having a body comprising a depending annular wall and bars or sections of abrading or polishing material applied against the inner face of said annular wall and depending therebelow, transversely-arranged bars of wood having clamping-bearings to hold pairs of the said sections within and against the said wall, and bolts with nuts for holding said clamping-bars to bind said sections between them and said wall.

4. A surfacing-wheel comprising an annular body, having vertical inwardly-opening sockets therein, extending to the lower edge of such wall, abrading-sections having thicknesses greater than the depths of said sockets, engaged therein and having their lower extremities extending below the lower edge of said wall, the clamp-bars transversely arranged and engaging intermediate portions of the said sections, and bolts passing horizontally through said bars, and said annular body, having heads and confining-nuts which seat respectively against the inner sides of the bars and the outer surface of said annular body.

5. A surfacing-wheel having a body comprising a depending annular wall, sections of abrading or polishing material applied in pairs against the inner face of said wall and depending therebelow, bars arranged transversely of the said sections and having chamfered extremities which are in bearing against the inner faces of pairs of the sections for binding the latter against the inner face of the wheel-body, bolts horizontally penetrating the mid-

dle of said bars and the said annular wall having heads and confining-nuts, engaging against said confining-bars and the side of the body.

6. In a device of the type set forth, a surfacing-wheel provided with a depending wall having recesses therein, a plurality of abrading members mounted in the recesses of and projecting below said wall, and clamping means for holding said members in position, substantially as described.

7. In combination with a surfacing-wheel having a body portion provided with a depending wall, a plurality of removable abrading members seated against said wall and adjustable in the same vertical plane therewith to project below the wall, clamping means for holding the said members in adjusted position, and means securing the clamping means upon the wall of the wheel, substantially as set forth.

Signed by me at Springfield, Massachusetts, in presence of two subscribing witnesses.

CLARENDON G. WARNER.

Witnesses:

WM. S. BELLOWS,

A. V. LEAHY.