Aug. 15, 1950 C. W. CASTON 2,518,448

ENDLESS BAND ABRADING DEVICE

Filed Jan. 28, 1947

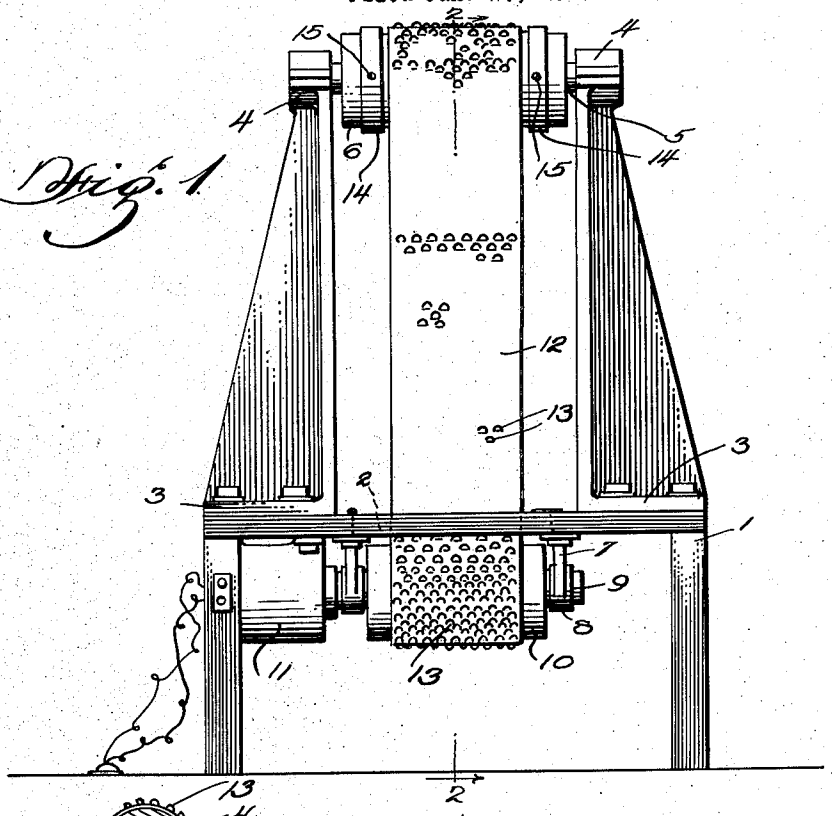


Fig. 1

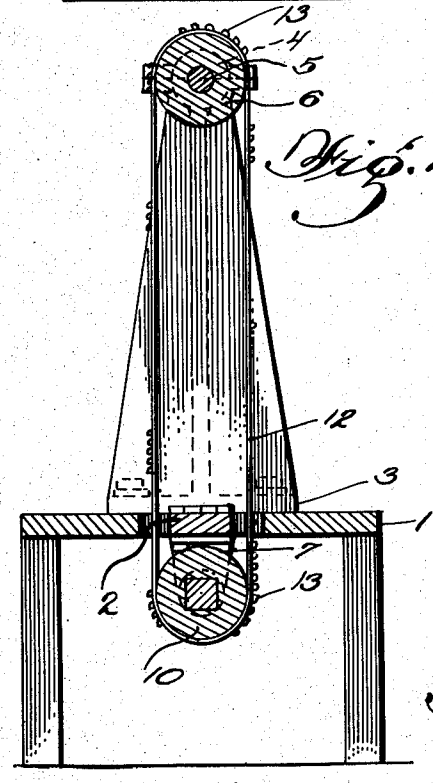


Fig. 2

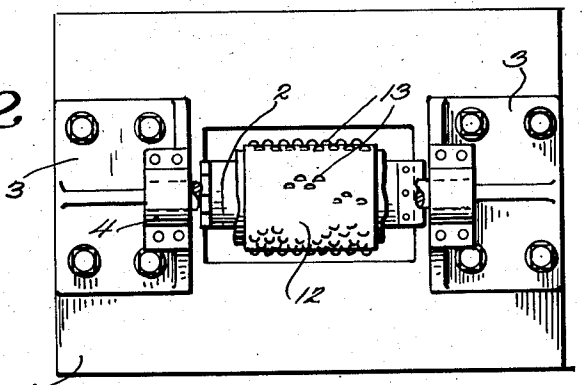


Fig. 3



Fig. 4

INVENTOR.
Charles W. Caston
BY
W. J. Eccleston,
ATTORNEY

Patented Aug. 15, 1950 2,518,448

UNITED STATES PATENT OFFICE

2,518,448

ENDLESS BAND ABRADING DEVICE

Charles W. Caston, United States Army,
San Antonio, Tex.

Application January 28, 1947, Serial No. 724,902

1 Claim. (Cl. 144—123)

(Granted under the act of March 3, 1883, as amended April 30, 1928; 370 O. G. 757)

1

The invention described herein, if patented, may be manufactured and used by or for the Government for governmental purposes without the payment to me of any royalty thereon.

The present invention relates to an abrading apparatus, and while primarily intended for use in the production of artificial limbs, it may also be used in connection with the finishing or "roughing in" of many other articles.

A primary object of the invention resides in the formation of an abrading apparatus in which the abrading element is of a more or less permanent nature, in contradistinction to the usual strip of sandpaper generally employed in devices of this time.

Another object of the invention consists in the provision of an abrading apparatus wherein the abrading element may be readily sharpened from time to time, and wherein the teeth of an abrading element for relatively fine work may be enlarged so as to convert the abrader to a coarser or "roughing-in" type of work.

A still further object of the invention resides in the provision of an abrading or sanding device of the endless-belt type, in which cutting teeth are struck up from an endless band of flexible steel, and in which the opposed runs of the band are spaced apart a sufficient distance to permit of access therebetween to the end that cuttings passing through the openings formed by the teeth may be cleared away from time to time so as to maintain the cutting action of the band at its highest efficiency.

Other objects and advantages of the invention will be apparent from the following description when taken in connection with the accompanying drawings in which

Fig. 1 is a front elevational view illustrating a complete embodiment of the invention;

Fig. 2 is a vertical sectional view therethrough, taken on line 2—2 of Fig. 1;

Fig. 3 is a plan view of the apparatus; and

Fig. 4 is an enlarged fragmentary sectional view through a portion of the abrading element.

Referring to the drawings in greater detail, the numeral 1 refers to a table or the like upon which the operating mechanism is mounted. The table top is provided with a central opening and a hinged cross-bar 2 which provide spaced parallel slots for the spaced runs or flights of an abrading band. The bar 2 may, of course, be swung to vertical position when a band is to be installed or removed. Mounted on the upper surface of the table 1 at the opposite ends thereof are opposed brackets or standards 3 provided with bearings 4

2

at their upper ends for a shaft 5 to which is fixed a roller 6.

Depending from the under surface of the table 1 is a pair of brackets 7 carrying bearings 8 for a drive shaft 9 on which is fixed a roller 10 for supporting the lower portion of the endless cutting element and imparting motion thereto. Also supported on the under surface of the table 1 is an electric motor 11, the shaft of which is shown as directly connected to the drive shaft 9 of the roller 10.

The cutting or abrading element is in the form of an endless band 12 of flexible steel similar to that used in band saws, and is provided with series of outwardly directed teeth 13 arranged in staggered relation and integrally formed by being struck up from the material of the band. The abrasive band may be guided and maintained in its proper position relative to the rollers 6 and 10 by means of spaced rings 14 secured to the roller in any suitable manner such as setscrews 15.

The operation of the device will of course be readily understood, it being only necessary to close the circuit to the motor 11 and adjust the rheostat, should one be employed, to obtain the desired linear speed of the abrading band 12. The artificial limb, or other piece of work being operated upon, will of course be manipulated with respect to the traveling band to provide the desired cutting or abrading action on various parts of the work.

The apparatus disclosed herein is highly efficient and very effective for the uses to which it is particularly adapted, for instance, the device includes an endless abrading element of a permanent nature in that it is made of flexible steel as distinguished from the ordinary endless bands of sandpaper; the teeth on various bands may be formed of different sizes so that the band of smaller teeth may be employed for finishing operations, while the band of larger teeth may be used for "roughing-in" work. There is less danger of damaging the work in "roughing-in" operations with the band of the present invention than would be the case with a band saw or the like such as are now commonly used for "roughing-in" purposes; the band of the present invention may be readily sharpened at any time by merely holding a flat-faced stone against the teeth while the band is running. And finally, a band provided with small teeth for fine work may be readily converted to one for "wearing" or "roughing-in" by merely repunching the band to provide larger teeth.

A preferred embodiment of the invention has

been shown and described herein in detail, but it is to be understood that the present disclosure is intended as illustrative of the invention rather than in a limiting sense, and that various minor changes in details of construction are intended to be included within the scope of the appended claim.

I claim:

An abrading device including a table provided with a central opening, a bar hinged to one edge of the opening and providing a pair of parallel slots, rollers mounted above and below the table, a flexible endless band mounted on the rollers and passing through said slots, and abrading teeth formed in the material of the band.

CHARLES W. CASTON.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
10,246	Branson	Nov. 15, 1853
414,747	Arzt	Nov. 12, 1889
782,245	Herrmann	Feb. 14, 1905
1,789,298	Bertrand	Jan. 20, 1931
2,423,737	Tavano	July 8, 1947

FOREIGN PATENTS

Number	Country	Date
132,970	Switzerland	Sept. 2, 1929