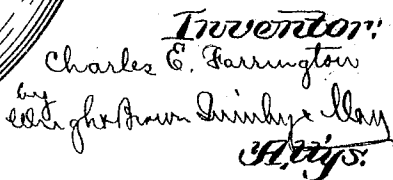


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UNITED STATES PATENT OFFICE.

CHARLES E. FARRINGTON, OF PHILADELPHIA, PENNSYLVANIA.

ABRADING OR POLISHING APPARATUS.

1,367,808.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CHARLES E. FARRINGTON, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented new and useful Improvements in Abrading or Polishing Apparatus, of which the following is a specification.

This invention has for its object to provide certain improvements in apparatus for grinding, abrading or polishing the surfaces of wooden or metal parts. It consists in an endless abrading or polishing member in the nature of a band or endless belt, a pneumatic wheel about which the belt or band passes, and a protective belt or band interposed between the rim of the pneumatic wheel and the operating belt.

On the accompanying drawings:—

Figure 1 represents the pneumatic or cushioning wheel in side elevation.

Fig. 2 represents a section through the same.

Fig. 3 represents one embodiment of the invention in which the pneumatic wheel is employed.

Fig. 4 represents a section on the line 4—4 of Fig. 3.

Referring to the drawing and more particularly to Figs. 3 and 4, the apparatus, which is illustrated as one embodiment of the invention, comprises a polishing or abrading belt 5, a protective belt 6, a pulley 7 about which both belts are passed and by which power is transmitted thereto, a pneumatic wheel or pulley 8 and belt-tighteners or tension devices 9 and 10, one for the protective belt and one for the working or abrading belt. The shaft 22 for the pulley 7 is shown as being provided with a drive pulley 11 to which power is transmitted from a suitable source by a belt 12. If desired, the shaft 13 for the pneumatic or cushion wheel may be positively driven in peripheral unison with the pulley 7. Fig. 3 shows the parts more or less conventionally, it being of course understood that the shafts for the pulleys 8 and 7 are mounted in suitable bearings, and that the pulley is so located that the work may be properly presented thereto to be ground or polished by the operating belt. The parts may be incorporated in a machine, or the bearings or standards for the shaft 13 may be supported on the floor, and the bearings for the shaft 22 may be supported by the ceiling. This last arrange-

ment is desirable for polishing parts of automobile bodies.

The pneumatic pulley 8 may consist of a spool comprising a hub 14 having the disks or flanges 15, 16, at the ends thereof, the peripheries of which are grooved as at 161. Clamped on the disks is a sleeve 17 of rubber, which can be inflated to present the appearance shown in Fig. 2. The clamping collars consist of segmental sections 18, the ends of which are drawn together by screws 19. The collars have internal tongues 20 complementary to the grooves 16, so that the escape of air from the interior of the pulley is prevented.

In one of the disks 15 is placed an inlet self-closing valve 21 such as used in a pneumatic tire, so that the tip or nozzle of the pipe leading from an air compressor or pump may be connected thereto to force air into the pulley until the desired degree of pressure and inflation is secured.

The protective belt 6 is preferably made of heavy canvas, duck or other suitable heat-non-conducting material, and it is considerably wider than the working belt 5 as shown in Fig. 4. Its edges normally are spaced from the pneumatic wheel, except when under the pressure of the work which is presented to the wheel and the working belt, in which case, that portion of the wheel which is engaged is flattened by the pressure, and the area of the contacting faces of the protective belt and pulley is increased.

The abrasive belt may be made of emery cloth, emery or carborundum paper, or any other material which will grind or polish the work as may be desired. Grinding and polishing operations on wood and metal are frequently difficult and expensive, especially when the object to be ground presents a curved or cylindrical surface, as only a small part of the surface to be ground can be brought at a time into contact with the grinding member. This is especially true in respect of grinding or polishing large surfaces with sweeping curves, for example, automobile bodies of sheet metal. Moreover in the grinding or polishing operations, the grinding member is rapidly heated by the friction of the contacting parts. By the construction herein described, I provide a yielding cushion which flattens under pressure, and which forces the abrading or polishing belt into a large area of contact with the work, irrespective of the conformation

thereof. The protective belt performs two functions. It prevents the rubber from coming into contact with the work and protects the rubber from the frayed edges of the operating belt and the polishing or abrading powder or grit. It also serves as an insulator for the rubber and conducts the heat away from it. In traveling from the pneumatic pulley to the driving pulley and back again, the protective belt is cooled, and, as a result, it prevents the rubber from being burned and its vitality destroyed.

What I claim is:

A grinding or polishing apparatus comprising a pneumatic pulley having a yield-

ing face, an abrasive or polishing belt tracking on the face of the pulley, a flexible protective belt greater in width than said abrasive belt, and operating between said abrasive belt and said pulley, and means spaced from said pulley about which said belts pass, said parts being located and arranged whereby the work may be engaged with that portion of the abrading or polishing belt which is yieldingly sustained by the pneumatic pulley.

In testimony whereof I have affixed my signature.

CHARLES E. FARRINGTON.