

July 19, 1938.

T. LARSSON

2,124,273

TRACK GRINDING BRICK

Filed Jan. 9, 1936

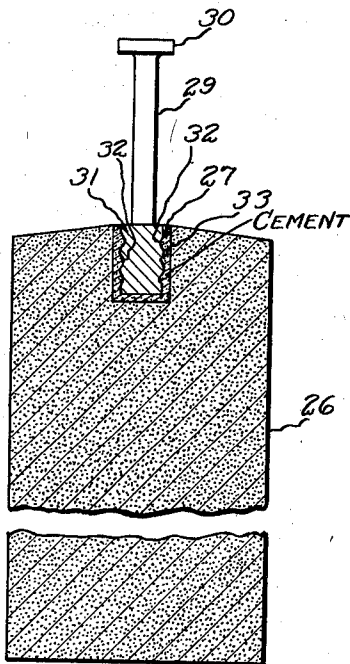


FIG. 3

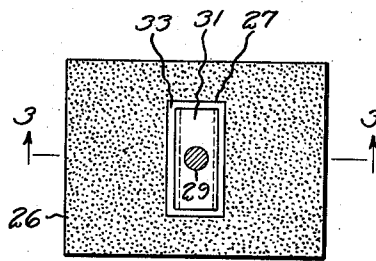


FIG. 2

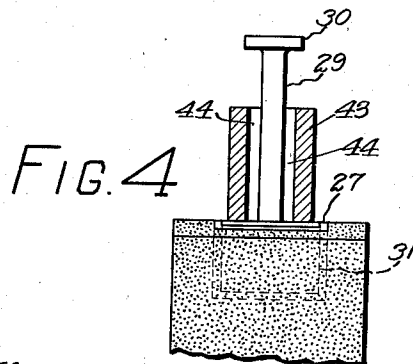


FIG. 4

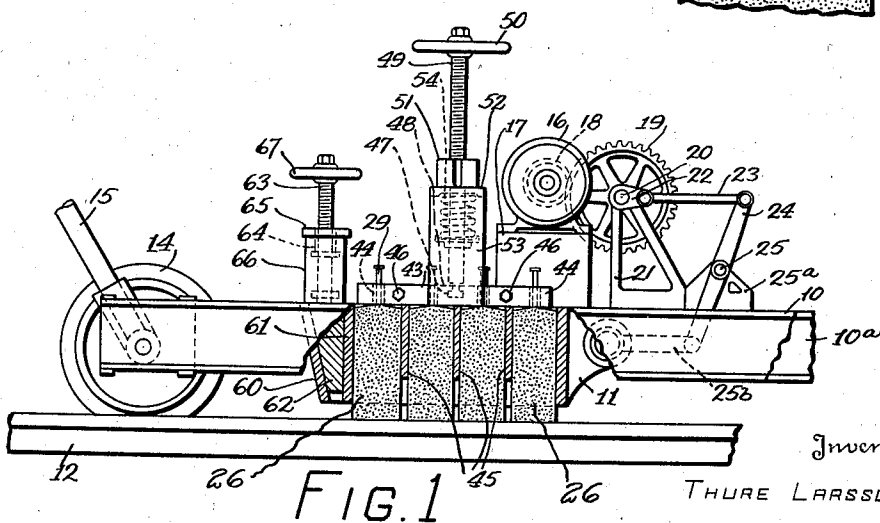


FIG. 1

Inventor

THURE LARSSON

By *George S. Thompson*
Attorney

UNITED STATES PATENT OFFICE

2,124,273

TRACK GRINDING BRICK

Thure Larsson, Worcester, Mass., assignor to
Norton Company, Worcester, Mass., a corporation of Massachusetts

Application January 9, 1936, Serial No. 58,349

2 Claims. (Cl. 51—204)

The invention relates to reciprocating grinders and with regard to its more specific features to a track grinding brick therefor.

One object of the invention is to provide a simple and inexpensive construction for a track grinding brick and holder. Another object of the invention is to provide a track grinding brick construction which avoids abrasion of the clamping bar. Other objects will be in part obvious or in part pointed out hereinafter.

The invention accordingly consists in the features of construction, combinations of elements, arrangements of parts, and in the several steps and relation and order of each of said steps to one or more of the others thereof, all as will be illustratively described herein, and the scope of the application of which will be indicated in the following claims.

In the accompanying drawing in which is shown one of various possible embodiments of the mechanical features of this invention,

Fig. 1 is a fragmentary view, partly in side elevation and partly in vertical section, of a track grinder in which bricks according to the invention may be made for use,

Fig. 2 is a plan view of a brick and holder, the spindle of the holder being shown in cross section,

Fig. 3 is a vertical sectional view taken on the line 3—3 of Fig. 2, and

Fig. 4 is an end view of a brick and holder showing the clamping bar of the grinder in section.

Referring first to Fig. 1, I have therein shown a track grinder of the type illustrated and described in U. S. Letters Patent No. 1,095,994 to W. D. Gherky, and for a more complete illustration and description of the grinder than will be found herein, reference may be had to that patent. Such a track grinder to which the brick of the present invention may be applied, may comprise a frame member 10 which, together with a parallel frame member 10a and ways, not shown, supports a carriage 11 for reciprocatory movement parallel to the rail 12 to be ground, the frame 10 being supported upon the track or rail thereof by means of wheels such as the wheel 14, and there being a handle 15 by means of which the entire apparatus may be moved along the rail 12.

The carriage 11 may be reciprocated in the ways referred to by means of an electric motor 16 secured to a bridge 17 and extending upwardly from the parallel frame members 10 and 10a, which motor 16 has a gear 18 secured to its armature shaft driving a somewhat larger gear 19 secured to a shaft 20 which is journaled in a bracket 21 uprising from and attached to the far

frame member 10a. Secured to the shaft 20 is a crank 22 which is connected by a link 23 to a lever 24 fulcrumed at 25 on a bracket 25a also uprising from and attached to the far frame member 10a. The bottom of the lever 24 is connected to a link 25b which is connected to the carriage 11. Thus whenever the motor 16 is energized the carriage 11 is reciprocated.

Referring now to all the figures, I provide a plurality of track grinding bricks 26. The bricks may be made of any suitable abrasive material, such as aluminum oxide, silicon carbide, quartz or garnet bonded with any desired bond, for example vitrified or clay bond, sodium silicate bond, rubber, shellac, or artificial resinous bond, or any variety of cement.

In shape each brick, as illustrated in Figs. 2 and 3, is substantially a rectangular parallelepiped, but the top of the brick is bevelled on each side of the central portion, as shown in Fig. 3.

Referring now particularly to Figs. 2 and 3, in any suitable manner I form a rectangular parallelepipedal depression 27 in each brick and on the top thereof. As shown in Fig. 2, this depression 27 is symmetrically located with respect to the plan of the brick, and in plan view the depression is a rectangle the longest side of which is transverse to the direction of motion of the brick in the machine.

I provide a holder comprising a spindle 29 having a head 30 at one end, and the rectangular parallelepipedal portion 31 at the other end having grooves or flutes 32 in its side walls of greatest length. Portion 31 is somewhat smaller in each dimension than the depression 27. I secure the rectangular portion 31 to the brick 26 by cementing it into the depression 27 with a suitable cement 33. For example, I may use sulphur, or a combination of sulphur with a small amount of carbon such as passes under the name of Lavasul.

Assuming now that a number of bricks 26 have had spindles 29 secured to them, they may be mounted in the carriage 11 in tandem relation, there being shown in Fig. 1 four bricks 26 so mounted. Referring now to Fig. 1, I provide a clamping bar 43 which may be constructed as disclosed in the patent to Gherky referred to, and which as therein described comprises a pair of similar halves each having complementary semi-cylindrical channels 44, which channels are positioned to receive the spindles 29 with a loose fit when the bricks 26 are arranged in tandem relation as shown in Fig. 1 and spaced by separator plates 45. The respective halves of the clamping bar 43 may be locked together by means of bolts

46. Between the halves of the clamping bar 43 is located a head 47 below a reduced portion 48, the head 47 being on the lower end of a screw 49 operated by a hand wheel 50 the screw threads of which fit in a nut 51 held by a bridge 52 whose sides 53 are connected to and uprise from the sides of the carriage 11 as more clearly shown in the patent to Gherky referred to. By means of the hand wheel 50 and screw 49, the bar 43 may be raised and lowered, and may be urged downwardly by the pressure of a spring 54, all as more clearly set forth in the aforesaid patent to Gherky.

The front or left-hand end of the carriage 11 has an inclined wall 60 and the bricks 26 extend between the vertical right-hand or rear wall of the carriage 11 and the vertical plate 61 which is spaced from the inclined wall 60 by a wedge 62. By means of a screw 63 extending through a nut 64 and a bridge 65 supported by vertical members 66 extending upwardly from the carriage 11, the wedge 62 may be forced downwardly, a hand wheel 67 being provided to rotate the screw 63, and this construction, which is also illustrated in the patent to Gherky referred to, constitutes means for holding the bricks in the carriage 11 without excessive knocking during grinding, at the same time allowing raising and lowering of the bricks in the carriage 11.

The separator plates 45 are U-shaped, as disclosed in the patent to Gherky referred to, and are carried by the carriage, and do not prevent the bricks from being lowered until all of the abrasive substance thereof is used.

It should be understood that the description of a particular type of track grinder is illustrative merely and that the brick and spindle of the invention may be utilized in many different types of machines. A particular feature of the present invention resides in the fact that each brick is directly secured to the clamping bar and in contact with it; nevertheless owing to the bevelled surfaces on the top of each brick which have already been described, there is no tendency to abrade the clamping bar. As shown in Fig. 4, the clamping bar rests against the upper surface of the rectangular portion 31 and does not contact the brick 26 at all. Slight skewing of the bricks in the machine due to the reciprocation

does not bring the top surfaces of the bricks against the clamping bar owing to the beveling of these surfaces. The manner of attachment of the spindle 29 to the brick secures a strong and permanent union. The construction is inexpensive and for a given sized machine a brick of relatively great height can be used, and the major portion of the brick is usable for actual grinding in the machine.

It will thus be seen that there has been provided by this invention an apparatus in which the various objects hereinabove set forth together with many thoroughly practical advantages are successfully achieved. As many possible embodiments may be made of the above invention and as many changes might be made in the embodiment above set forth, it is to be understood that all matter hereinbefore set forth or shown in the accompanying drawing is to be interpreted as illustrative and not in a limiting sense.

I claim:—

1. A track grinding brick and spindle comprising a block of bonded abrasive material, a spindle, there being a depression in the top of the block, an enlarged portion integral with the spindle located in the depression and having a shoulder flush with the highest part of the top portion of said block, cement securing the enlarged portion to the block, and the top of the block being bevelled away from the spindle.

2. In a machine of the class described, a frame, a carriage mounted to reciprocate in said frame, means to reciprocate said carriage, a plurality of track grinding bricks each comprising a block of bonded abrasive material, a spindle projecting upwardly from said block, the top portion of said block being bevelled away from said spindle, an enlarged end of said spindle embedded in said brick and cemented thereto and having a shoulder flush with the highest part of the top portion of said block, and a clamping bar mounted in said carriage and surrounding the spindles of the several track grinding bricks and resting upon said shoulder, the entire construction eliminating wear of the bar due to relative motion between the bar and the bricks.

THURE LARSSON.