April 21, 1931. C. E. BLASS 1,801,622

CUTTING DEVICE FOR USE WITH CONCRETE PAVEMENTS

Filed Sept. 21, 1928

Fig. 1.

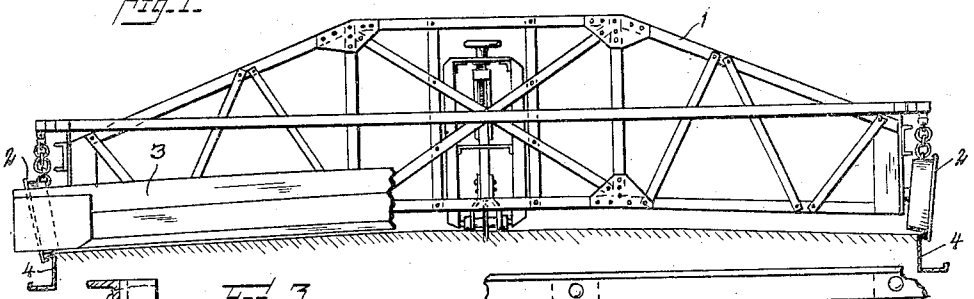


Fig. 3.

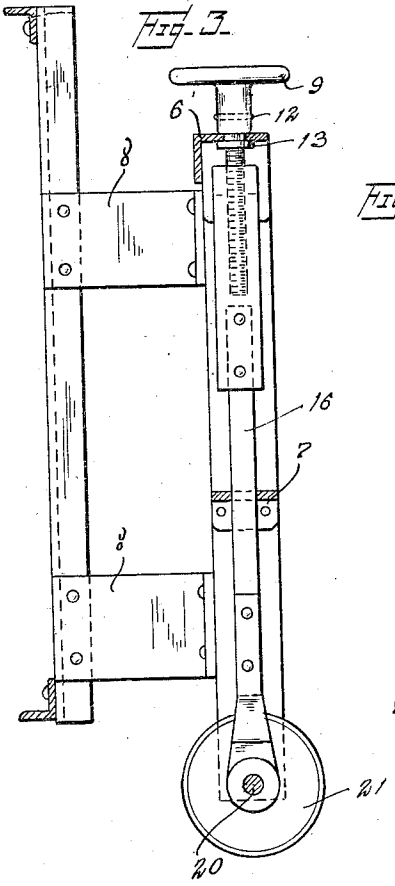
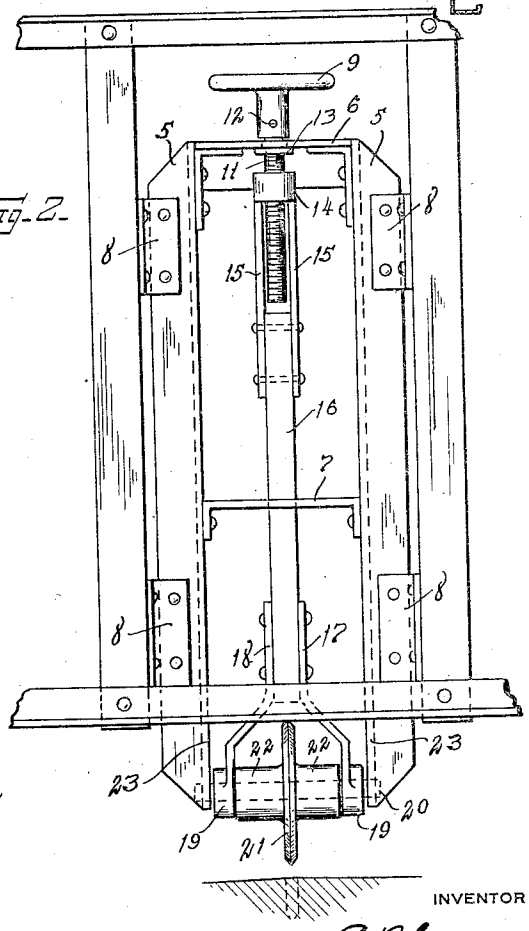


Fig. 2.



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UNITED STATES PATENT OFFICE

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CUTTING DEVICE FOR USE WITH CONCRETE PAVEMENTS

Application filed September 21, 1928. Serial No. 307,398.

The present invention relates to a device which is intended to be used upon a freshly laid concrete pavement for the purpose of forming a depression longitudinally of the road and at the center thereof, thereby forming a plane of weakness upon which plane the pavement will crack, thereby separating the concrete slab into two slabs and so reducing the length of beam action which will occur over that which would exist if the concrete slab were not formed with the plane of weakness.

More particularly the invention relates to a device which is mounted upon a carriage having wheels at the extremity thereof, which wheels are adapted to cooperate with the side road forms usually employed in laying concrete pavement, so that the device may be used and guided longitudinally of the concrete pavement.

The device may be formed as an attachment to be used in connection with present forms of concrete road finishing machines, in which event the device is maintained out of contact with the pavement during the operation of the finishing machine, and after that machine has accomplished its work the finishing machine may be returned to its initial position, the screed or other implements normally working upon the concrete elevated, so as to be out of use, and the device for forming the plane of cleavage depressed into proper contact with the freshly formed concrete pavement and the finishing machine moved forwardly over such pavement while the device performs its function.

Reference should be had to the accompanying drawings forming a part of this specification, in which

Figure 1 shows a front elevation, with parts removed, of a concrete pavement finishing machine with the device forming the present invention as an attachment thereto.

Figure 2 is a front elevation of the device forming the subject matter of this application.

Figure 3 is a side elevation of the showing in Figure 2.

Referring to Figure 1 of the drawings which indicates a truss (of which there are two or more) of a concrete pavement finishing machine. The machine is mounted upon wheels, two of which are indicated by the reference character 2. At 3 there is indicated a screed member, which in usual operation is moved to reciprocate transversely with respect to the pavement being laid.

The wheels 2 cooperate with the side forms 4.

All of the foregoing construction is well known in the art and needs no extended description.

Mounted on the truss 1 and behind the screed 3 is a frame having side members 5 and at one end an end member 6. Intermediate the ends of the side member there is a transversely extending bracing member 7. The frame member may be mounted upon the truss in any desired manner, and for the purpose there are shown bracket members 8 which are attached to the truss in any desired manner. Mounted at the top of the frame and specifically mounted in the member 6 is a hand wheel 9. This wheel has a hollow hub and extending into the hub and through an opening in the member 6 is the end of a threaded member 11. The member 11 is secured in the hub of the member 9 by means of a cross pin 12. The member 11 is provided with a collar, such as indicated at 13, which is adapted to engage with the under side of the member 6, so that when the member 11 is secured in the hub of the hand wheel 9 the lower part of the member 6 is engaged by the collar 13 while the upper part of the member 6 is engaged by the end of the hub of the hand wheel 9, thereby definitely positioning the hand wheel with respect to the frame 5 but permitting turning movement of the hand wheel.

The threaded member 11 cooperates with an internal nut member 14, this nut member being provided with extensions 15 which are secured to a rod 16. This rod at its lower end has two members 17 and 18 secured thereto, the outer ends of which members are spread apart and at their outer ends are formed with bosses 19 adapted to receive a transversely extending pin or shaft 20, upon which there is mounted a wheel 21. This

wheel is provided with outwardly extending hub portions 22, which engage with the inner faces of the bosses 19. The wheel member 21 is, comparatively speaking, thin, and the periphery of the same may be formed as a V-shape, so as to more readily penetrate into the concrete pavement.

The lower ends of the frame members 5 are formed each with a reentrant groove 23, into which the transversely extending pin or shaft 20 extends. This cooperation between the pin 20 and the grooves 23 prevents any twisting movement of the wheel with respect to the frame 5, but permits the wheel member to be elevated or lowered by the rotation of the hand wheel 9.

The rod 16 extends through a suitable opening formed in the transverse brace member 7, thereby forming a guide and securing direct linear movement of the wheel 21 when adjusted upwardly or downwardly. The device and specifically the wheel 21 is intended to be used in forming a central longitudinal depression in a concrete pavement after the same has been finished and before it is hardened. This is accomplished by depressing the wheel 21, so that it cuts into the freshly laid concrete to the desired depth. As the wheel is moved forwardly it will form a longitudinal groove in the pavement by depressing the aggregate upon each side of the wheel as it moves forward.

The groove will, after the passage of the wheel, more or less fill up with the concrete mortar, and this is removed by a man working with an edging tool, which man at the same time trims the edges of the groove which have been formed with the wheel, so as to give the edges a proper radius. After the concrete has hardened this groove is filled with tar or similar product to seal against the entrance of moisture. Where the device is used as an attachment for a finishing machine, the wheel may be retained in its elevated position during such time as the finishing machine is performing its finishing operations upon the concrete roadway being laid.

After a stretch of pavement has been laid the finishing machine is moved back to its initial position, the various instrumentalities on the finishing machne for working upon the concrete pavement are elevated so as to be inoperative and the wheel is lowered until it penetrates into the concrete pavement to the extent desired. Then the finishing machine moves forwardly, thus forming in the freshly laid concrete pavement a center longitudinal groove, which, when the pavement hardens, will form a plane along which the pavement may crack, so as to separate the initial concrete slab into two slabs, and thereby reduce the beam action from that of one long beam to that of two short beams.

While in the present application the disclosure has been made with respect to the groove forming device as an attachment to a concrete road finishing machine, it will be understood that, where desired, the cutting wheel may be independently used by mounting it upon its own carriage extending transversely of the road, which carriage is provided with wheels to travel upon the side forms of the roadway or other supports.

Having thus described my invention what I claim is:

An attachment to be used with road finishing machines comprising vertical frame members adapted to be supported by the machine in spaced parallel relationship, said frame members each being provided adjacent its lower end with a vertically extending groove, a horizontal frame member connecting the upper ends of the vertical members, a threaded member extending through said last named member and having threaded engagement with an adjustable supporting member arranged intermediate said vertical frame members, a yoke secured to the lower end of said last named member, a shaft supported in the outer ends of said yoke and extending therebeyond with its ends arranged in the groove in said vertical frame members, and a wheel rotatably mounted on said shaft intermediate the arms of said yoke.

In testimony whereof, I hereunto affix my signature.

CLEMENT E. BLASS.