MECHANICAL BULL-FLOAT FOR FINISHING CONCRETE

Seymour P. Bidwell, deceased, late of Sioux Falls, S. Dak., by Irene Olivia Bidwell, administratrix, 824 N. Garfield, S. Dak.

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5 Claims. (Cl. 94—45)

The present application is a continuation-in-part of application Serial No. 140,797, filed September 26, 1961 on a Mechanical Bullfloat for Finishing Concrete.

The said invention relates to a mechanical bull-float for finishing concrete.

An object of said invention is to provide an arrangement for finishing off concrete on bridges, highways, etc.

A further object of the invention is to provide an arrangement which operates in an automatic manner and smoothly finishes off the concrete in accordance with the required slope or pitch of the roadway.

A further object of the invention is to provide an arrangement whereby a certain reciprocating apparatus will finish off the crown of the roadway, and which apparatus is adjustable as to length and the like to thereby provide the various roadway widths.

A further object of said invention is to provide a readily adjustable arrangement for correctly accommodating the apparatus to the required pitch of the roadway.

A further object of said invention is to provide an arrangement whereby the apparatus can be rendered portable.

With these and other objects in view, said invention consists in the construction, arrangement, and combination of the various parts of said device, whereby the objects contemplated are attained as hereinafter more fully set forth, pointed out in the claims, and illustrated in the accompanying drawings, in which:

FIGURE 1 is a cross section of a roadway showing the operation of the said apparatus on the same,

FIGURE 2 is an enlarged plan view of a portion of FIGURE 1,

FIGURE 3 is an enlarged end view of the reciprocating arrangement shown in FIGURE 1,

FIGURE 4 is an enlarged detail of one of the adjusting members,

FIGURE 5 is a view of the apparatus with the portable arrangement attached thereto,

FIGURE 6 is an enlarged detail,

FIGURE 7 is a further enlarged detail, and

FIGURE 8 is a side elevation of an extra structure provided to lengthen the unit.

The present invention contemplates the provision of an arrangement which can be secured transversely of a roadway of any type, and wherein the device will be automatically powered and driven to smooth the concrete therein, and wherein the slope of the concrete can be readily accommodated.

In described the invention, the character 10 indicates a roadway, which could be on a bridge for instance, and which roadway slopes downwardly from the central raised portion 11.

The character 12 indicates the sides of the bridge, to which are clamped at 13 the vertically positioned supports 14, to which supports 14 are attached the longitudinally positioned screed pipes 15, which are adapted to support the entire arrangement.

Bearing against the screed pipes 15 are the rollers 16, which are journaled on the members 17, which members 17 are secured to the vertically positioned pipes 18, which are adjustably positioned by means of the handles 19, which can be rotated to adjust the members 18 vertically, there being four of these units, one for each corner of the entire arrangement.

The members 18 are engaged with the cylindrical vertical members 20, which members 20 are attached to the support braces 21 and 22. The braces 21 terminate at the apex portions 23. Secured to the apex portions 23 are the bars 24, through which pass a threaded rod 25 having the nuts 26 engaged therewith, this arrangement thereby providing means whereby loosening and re-tightening of the nuts 26 will change the angular pitch of the unit at either side.

Secured to the members 22 are the substantially square posts 27 which pass through the sockets 28, and attached to the sockets 28 are the set screws 29 to engage the posts 27, and attached to the sockets 28 at 30 are the vertically positioned rods 31, which are secured at 32 to the channels 33. Attached to the rods 31 are the further vertically positioned upwardly extending stud members 34, which pass through the ears 35 which are secured to the top of the posts 27, the nuts 36 being threadedly engaged with the threaded portions 37 of the studs 34, whereby positioning of the nuts 36 and re-tightening of the set screws 29 will adjust the angular position of the channels 33, so that, as will be explained later, the device will properly be adjusted to the pitch of the roadway itself.

The character 38 indicates another set of support framework which are attached to the rollers 39 which engage the inner webs of the channels 33, and attached to the members 38 also are the fixed shafts 40 upon which are mounted the rollers 41 which bear against the lower sides of the channels 33. Attached across the members 38 are the tubular members 43 which engage the further rollers 44, these rollers being suitably secured together by means of the braces 45 (see FIGURE 2), the character 46 indicating transverse braces.

The braces 45 continue downwardly into the portions 47 which are secured at 48 to the substantially square-in-section member 49 (see FIGURE 7) so which is adjustably secured by means of the nuts 50 engaging the studs 51. The studs 51 are attached as at 52 to the relatively heavy plank 53 which provides the smoothing operation, this plank thereby being adjustably secured by means of the members 50 etc. if desired for relative angular positioning and the like.

The character 54 indicates braces attached to the members 47 etc., and the character 55 indicates a vertical post to which is pivoted at 56 a rod 57 which is pivotally attached at 58 to a crank arm 59 which is suitably operated from a gear box 60, which gear box includes elements driven by the pulley 61, which pulley engages the belt 62 which engages a pulley 63 operated by the engine 64, this arrangement thereby imparting a reciprocating motion to the plank 53.

Attached at the end of the members 22 is a socket 65 (see FIGURE 1) which threadedly engages a member 66 which is rotated by means of the crank arm 67 to provide adjustable tightening means for the lengthened continuous chains 68 which pass over the sprockets 69 suitably attached to the member 66, the chains also passing over the sprockets 70 which are driven by means of the power unit 71, 72 etc., the chains also being attached at 73 to the spaced pipes 42, so that these chains will thereby pull the reciprocating unit consisting of the plank 53, etc.

The character 74 indicates hinges connected medially between the members 22 to permit a hinging action when the adjustment is made to fit the surface of the roadway, and the character 75 indicates suitable brackets which together with the members 76 provide attachment of the members 20, etc., to the members 22.

The characters 77, 78, etc. indicate further bracing members, and the character 79 indicates idler sprockets over which the chains 68 travel.
In many cases if it is desired to accommodate the unit to a much wider roadway, the member shown in FIGURE 8 can be employed, which acts as a spacer and which comprises the various members 80, 81, 82, etc., the member 82 being similar stud units 34 and the like. The characters 83 and 84 indicating braces, with the character 85 indicating straps or bars similar to the bars 24 having openings at 86 for receiving elongated studs to provide similar adjustment by using the nuts 26, the members 82 being substantially similar to the support members 22, and being movably supported from the spaced channels extending longitudinally therealong and between said wheels, a surfacing unit including an elongated bullfloat member adapted to surface concrete, the longitudinal axis of said bullfloat member being positioned perpendicular to the longitudinal direction of said trusswork, said surfacing unit including a pair of transversely spaced pipes extending parallel to the longitudinal direction of said bullfloat, other rollers attached to said bullfloat, said other rollers being positioned above and below said pipes, means for reciprocating said bullfloat member relative to said unit whereby said bullfloat member moves back and forth perpendicular to the longitudinal direction of said trusswork as said surfacing unit reciprocates along said channels between said wheels.

4. A concrete finishing machine adapted to travel along a pair of laterally spaced rails comprising: an elongated trusswork, wheel means for advancing said trusswork along said rails, a surfacing unit, said surfacing unit including an elongated bullfloat member adapted to surface concrete, means for horizontally reciprocating said bullfloat member relative to said bullfloat member adapted to surface concrete, the longitudinal axis of said bullfloat member being positioned perpendicular to the longitudinal direction of said trusswork, said surfacing unit including a pair of transversely spaced pipes extending parallel to the longitudinal direction of said bullfloat, other rollers attached to said bullfloat, said other rollers being positioned above and below said pipes, means for reciprocating said bullfloat member relative to said unit whereby said bullfloat member moves back and forth perpendicular to the longitudinal direction of said trusswork as said surfacing unit reciprocates along said channels between said wheels.

5. A concrete finishing machine adapted to travel along a pair of laterally spaced rails comprising: an elongated trusswork, wheel means for advancing said trusswork along said rails, a surfacing unit, said surfacing unit including an elongated bullfloat member adapted to surface concrete, means for horizontally reciprocating said bullfloat member relative to said bullfloat member adapted to surface concrete, the longitudinal axis of said bullfloat member being positioned perpendicular to the longitudinal direction of said trusswork, said surfacing unit including a pair of transversely spaced pipes extending parallel to the longitudinal direction of said bullfloat, other rollers attached to said bullfloat, said other rollers being positioned above and below said pipes, means for reciprocating said bullfloat member relative to said unit whereby said bullfloat member moves back and forth perpendicular to the longitudinal direction of said trusswork as said surfacing unit reciprocates along said channels between said wheels.
member, means for vertically adjustably positioning said trusswork at the corners thereof including vertically positioned supports attached to said trusswork, rotatable screws threadably engaging said supports and attached at their lower ends to said wheel means.

5. A concrete finishing machine adapted to travel along a pair of laterally spaced rails comprising; an elongated trusswork, wheel means for advancing said trusswork along said rails, said trusswork including horizontally spaced channels extending longitudinally therealong and between said wheels, support means for adjustably positioning said channel vertically, said support means including the lower spaced horizontal braces of said trusswork, posts attached to said horizontal braces and spaced horizontally therealong, sockets attached to said channels and receiving said posts, and stud members adjustably attached to said posts and supporting said channels, a surfacing unit, said surfacing unit being moveably supported from said spaced channels for reciprocation between said wheels, said moveable support including rollers positioned above and below and engaging said channels, said rollers being attached to said surfacing unit, said surfacing unit including an elongated bullfloat member adapted to surface concrete, the longitudinal axis of said bullfloat member being positioned perpendicular to the longitudinal direction of said trusswork, said surfacing unit including a pair of transversely spaced pipes extending parallel to the longitudinal direction of said bullfloat, other rollers attached to said bullfloat, engaging said pipes and supporting said bullfloat, said other rollers being positioned above and below said pipes, means for reciprocating said bullfloat member relative to said unit whereby said bullfloat member moves back and forth perpendicular to the longitudinal direction of said trusswork as said surfacing unit reciprocates along said vertically adjustable channels extending between said wheels, said elongated trusswork including a pair of opposed sections having upper horizontally adjustable portions for changing the pitch of said sections.

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JACOB L. NACKENOFF, Primary Examiner.