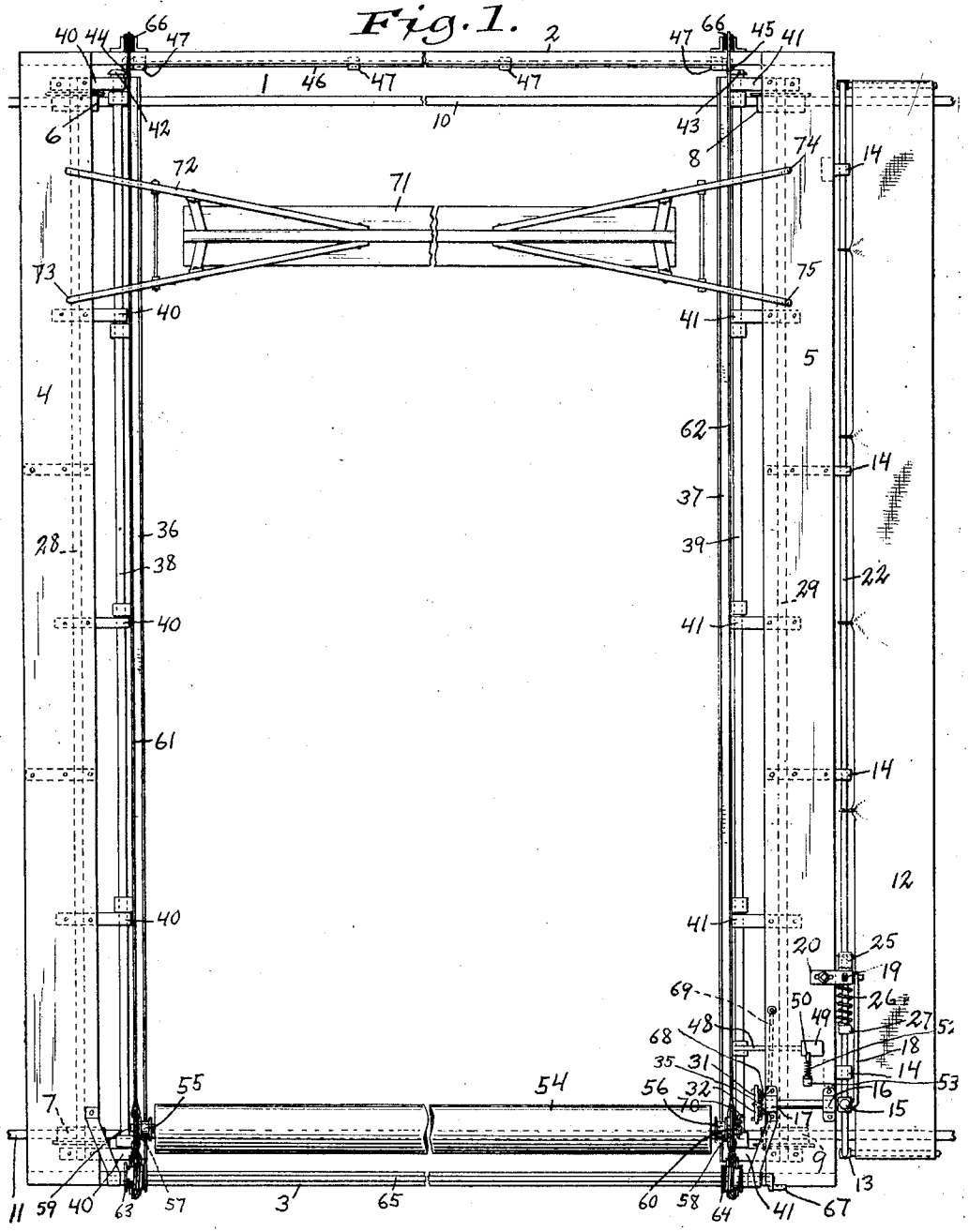
June 4, 1929. E. G. CARR 1,715,739

CONCRETE WORKING APPARATUS

Filed June 11, 1923 2 Sheets-Sheet 1

Fig. 1.



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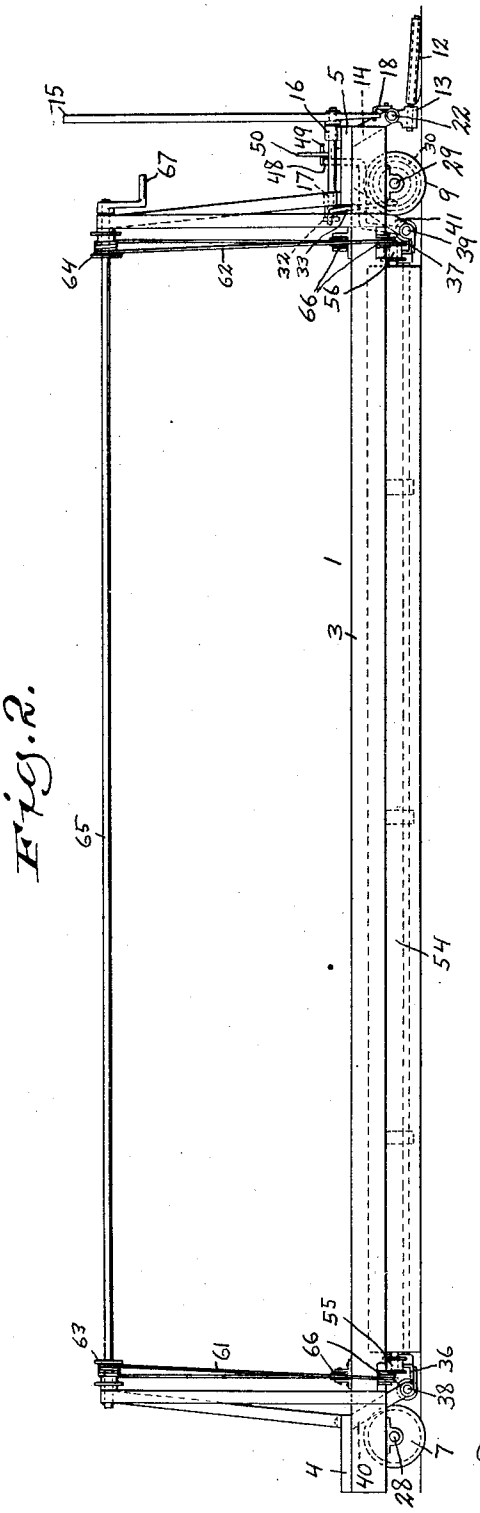


Fig. 2.

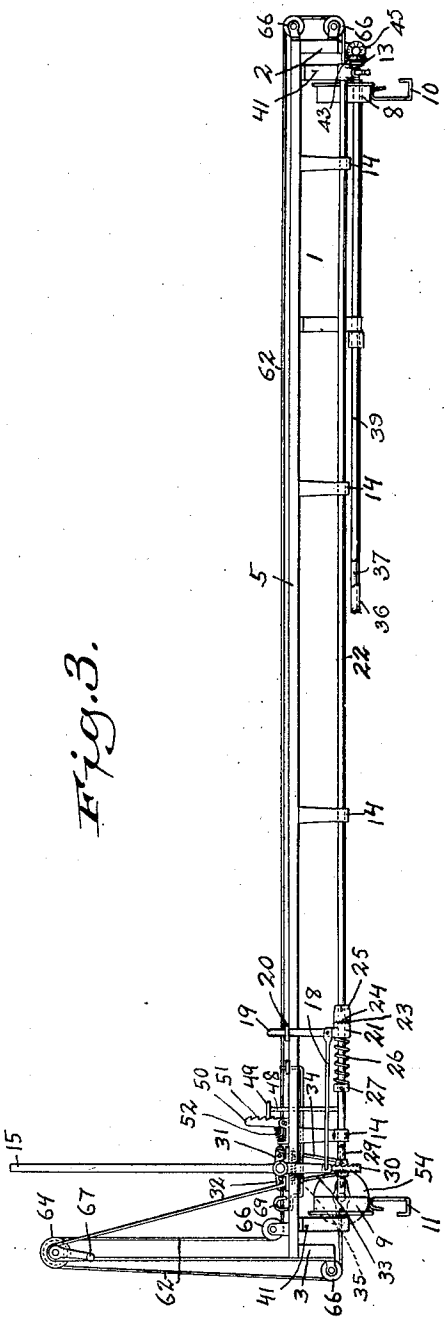


Fig. 3.

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UNITED STATES PATENT OFFICE.

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CONCRETE-WORKING APPARATUS.

Application filed June 11, 1923. Serial No. 644,568.

This invention relates to concrete working apparatus and the object of the invention is to provide a simple and comparatively inexpensive apparatus for working concrete, or finishing concrete, manually, in the manner to be hereinafter described and claimed.

Referring to the drawings which accompany this specification and form a part hereof, which drawings illustrate an embodiment of this invention, and on which drawings the same reference characters are used to designate the same parts wherever they may appear in each of the several views, Fig. 1 is a plan view of the apparatus, the ends being brought nearer together by omitting the central portions of parts; Fig. 2 is a side elevation of the apparatus; and Fig. 3 is an end elevation of the apparatus.

Referring to the drawings, the reference numeral 1 designates a frame which is illustrated by the drawings as composed of side members 2 and 3 and bridges 4 and 5. The frame 1 is mounted on wheels 6, 7, 8, and 9 which are adapted to travel on the forms or rails 10 and 11.

A float 12, which is preferably composed of a textile fabric, is secured to a frame 13. The frame 13 is supported by bearings 14 from the bridge 5 in such a manner that the frame 13 and the float 12 can be reciprocated transversely with respect to a road. The frame 13 and the float 12 can be reciprocated manually by a hand lever 15 which is pivoted in bearings 16 and 17 secured to the bridge 5, and which is connected by a connecting rod 18 with a lever member 19 which is passed loosely through a hole in a confining strap 20 secured to the bridge 5. The lever member 19 is provided with a hub 21 through a hole in which the longitudinal member 22 of the frame 13 passes loosely. The hub 21 is provided with ratchet teeth 23 with which the ratchet teeth 24 on a collar 25, which is fixedly secured to the longitudinal member 22 of the frame 13, coact, to hold the frame 13 in definite positions either with the float 12 in contact with the concrete or elevated from the concrete. A spiral spring 26 surrounds the longitudinal member 22 of the frame 13 and bears at one end against a collar 27 fixedly secured to the said longitudinal member 22, and bears at its other end against the hub 21 so as to normally keep the ratchet teeth 23 on the hub 21 in engagement with the ratchet teeth 24 on the collar 25. The spring 26 should be stiff enough to prevent disengagement of the ratchet teeth in moving the float 12 over the concrete, but it will be readily apparent that the frame 13 and the float 12 can be turned up or down by separating the ratchet teeth 23 and 24. In the construction shown by the drawings, the ratchet teeth 23 and 24 are numerous and short in length and V-shaped, so that the frame 13 can be grasped at either end, that is, from either side of a road, and be turned up or down, the spring 26 yielding so that the ratchet teeth 24 will force the ratchet teeth 23 away and pass by the same.

The wheels 6, 7, 8, and 9 are illustrated by the drawings as connected in pairs by axles 28 and 29, and the axle 29 is illustrated as provided with a ratchet wheel 30 which has ratchet teeth on both faces with which pawls can coact to rotate the axle and propel the machine. In the specific construction illustrated by the drawings, the hand lever 15 is provided with oppositely disposed arms 31 and 32 and a link 33 extends from the arm 32 with its lower end bent towards the ratchet wheel 30 to act as a pawl in connection with the ratchet teeth on one side of the ratchet wheel 30, and a similar, but reversely bent, link 34 extends from the arm 31 to act as a pawl in connection with the ratchet teeth on the opposite face of the ratchet wheel 30, in a manner which will be obvious from an inspection of the drawings. A spring 35 is connected to links 33 and 34 and tends to hold them in contact with the ratchet wheel 30, while permitting the links 33 and 34 to yield to pass over the ratchet teeth on the ratchet wheel 30.

Tracks 36 and 37 are secured to rock shafts 38 and 39 which extend transversely of the machine. The rock shafts 38 and 39 are supported by bearings 40 and 41 which are secured to the bridges 4 and 5, respectively. The rock shafts 38 and 39 are provided with bevel gears 42 and 43 which mesh with bevel gears 44 and 45 secured to a shaft 46 which is secured in bearings 47 secured to the side member 2. The rock shaft 39 is illustrated as provided with a lever 48 and the lever 48 is illustrated as provided with a foot pedal 49. A pivoted latch 50, which is provided with a plurality

of teeth 51 and which is forced toward the foot pedal 49 by a spring 52, retains the lever 48, and the tracks 36 and 37, in any desired position of adjustment. The spring 52 is illustrated as of the compression type and as bearing at one end against the abutment 53.

A roller 54 is supported by wheels 55 and 56 upon the tracks 36 and 37 so as to be movable back and forth transversely of the machine, over the surface of the concrete. The wheels 55 and 56 are illustrated by the drawings as being enough smaller in diameter than the diameter of the roller 54 so that the tracks 36 and 37 will not contact with the surface of the concrete, and the tracks 36 and 37 may be crowned or arched to correspond with the crown required for a road. The roller 54 may be moved back and forth across the road by any suitable mechanism. The drawings illustrate plates 57 and 58, each of which is provided with three holes, slipped over the ends of the gudgeons 59 and 60 and connected with the free ends of two cables 61 and 62, forming, in effect, two endless cables. These cables are wound around drums 63 and 64 which are secured to a shaft 65, and lead around suitable fair leading sheaves, which are designated by a common reference numeral 66, to impart a general horizontal movement to the roller 54.

The shaft 65 is provided with a crank 67 in close proximity to the hand lever 15 so that a man can operate the hand lever 15 with one hand and the crank 67 with the other hand.

Any suitable means may be employed to disengage the links or pawls 33 and 34 from the ratchet wheel 30 when it is desired to move the machine in the direction against these links or pawls. The drawings illustrate a wedge 68 which may be moved by the lever 69 between the links or pawls 33 and 34 to force them apart against the tension of the spring 35 to free the links or pawls from possibility of contact with the ratchet wheel 30. When the wedge 68 is retracted by the lever 69, the links or pawls 33 and 34 will again be engaged with the ratchet wheel 30 by the spring 35. The drawings illustrate the wedge 68 and the lever 69 as formed by bending a rod to the required shape.

As it may sometimes be desirable to use the roller 54 as a templet, means are provided for preventing rotation of the roller. The drawings illustrate the plate 58 as provided with a lug and a pin 70 may be inserted through a hole in this lug into a hole in the gudgeon 60.

The reference numeral 71 designates a tool which is provided with handles 72, 73, 74, and 75 which are of such length that they can be readily grasped by men standing on the bridges 4 and 5 to work the tool as required or desired. The tool 71 illustrated by the drawings is a form of floating or surfacing tool, and is illustrated to show generally a concrete working tool regardless of specific function or type.

The general operation of the apparatus will be obvious from the foregoing description. The apparatus can be moved forward at the desired rate of speed by the hand lever 15 and the float 12 can be reciprocated at the same time. The roller 54 can be moved transversely with respect to the apparatus by turning the crank 67. The roller 54 may be made of any desired size or weight and can be allowed to rest with its entire weight on the concrete, by depressing the tracks 36 and 37 sufficiently, or can be kept from sinking too far into the concrete by properly positioning the tracks 36 and 37, or can be raised entirely from contact with the concrete by elevating the tracks 36 and 37 sufficiently. A decided advantage of the construction is that the roller 54 can be moved in contact with the concrete from one form to the center of a road, then lifted from contact with the concrete, by elevating the tracks 36 and 37, and moved over to the other form without being in contact with the concrete. By such a method of operation the concrete is always moved away from both forms towards the center, or towards the crown, of a road.

The bridges 4 and 5 not only permit operatives to pass from one side of the concrete to the other side thereof, but also permit operatives to work in unison with hand tools without relative displacement with respect to each other when two or more operatives are standing on different bridges and operating a single tool.

The apparatus can be pushed forward at any rate of speed, and can also be pushed backward by first disengaging the links or pawls 33 and 34 from the ratchet wheel 30 and turning up the float 12 and frame 13. The float 12 can be reciprocated by the hand lever 15 while the apparatus is being pushed rapidly forward, but, in such operation, it would be better to disengage the links or pawls 33 and 34 from the ratchet wheel 30 by the lever 69 and the wedge 68 to prevent the possibility of a link or pawl striking the ratchet teeth on the ratchet wheel 30 if the operative did not time his movements of the hand lever 15 with the speed of progression of the apparatus.

What is claimed is:

1. The combination in concrete working apparatus, of a movable frame, a roller, means for moving the roller with respect to the frame and permitting it to rotate by contact with concrete, and means for rendering the roller active or inactive on the concrete without interrupting the movement of the roller with respect to said frame.

2. The combination in concrete working apparatus, of a frame, a roller arranged to move across a road, means for moving the roller forward and backward, and means to enable the roller to be contacted with concrete from one side of the road to the center of the road and to be removed from the concrete during the remainder of its travel in the same direction of movement.

3. The combination in concrete working apparatus, of a float, a frame for said float provided with ratchet teeth, and a yieldable member provided with ratchet teeth to engage with the ratchet teeth on the frame, the ratchet teeth being substantially V-shaped to permit the frame to be turned up or down.

4. The combination in concrete working apparatus, of a frame, a reciprocatable float connected with said frame, manually operable means for reciprocating said float in one direction, resilient means for reciprocating said float in the opposite direction, and mechanism adapted to be operated by said manually operable means for propelling said frame.

5. The combination in concrete working apparatus, of a frame, a roller, means for moving the roller transversely with respect to the frame, means for preventing rotation of the roller, and means for limiting the contact of the roller with concrete to a part only of its movement in the same direction.

6. The combination in concrete working apparatus, of a frame composed of transverse bridges and side members, a reciprocatable float, means for reciprocating the float and propelling the apparatus simultaneously, a transversely movable roller, means for moving the roller forward and back, means for simultaneously lifting or lowering the ends of the roller, and means for preventing rotation of the roller.

7. The combination in a concrete working apparatus of a frame, a roller movably associated with said frame, means to move the roller, and adjustable tracks for raising and lowering the roller into and out of contact with the concrete while the roller is being moved with respect to said frame.

8. The combination in a concrete working apparatus of a movable frame, a roller movable transversely with respect to the frame and adjustable tracks for causing said roller to contact with the concrete during the portion of the roller's movement with respect to the frame.

In witness whereof I hereto affix my signature.

EDWARD G. CARR.