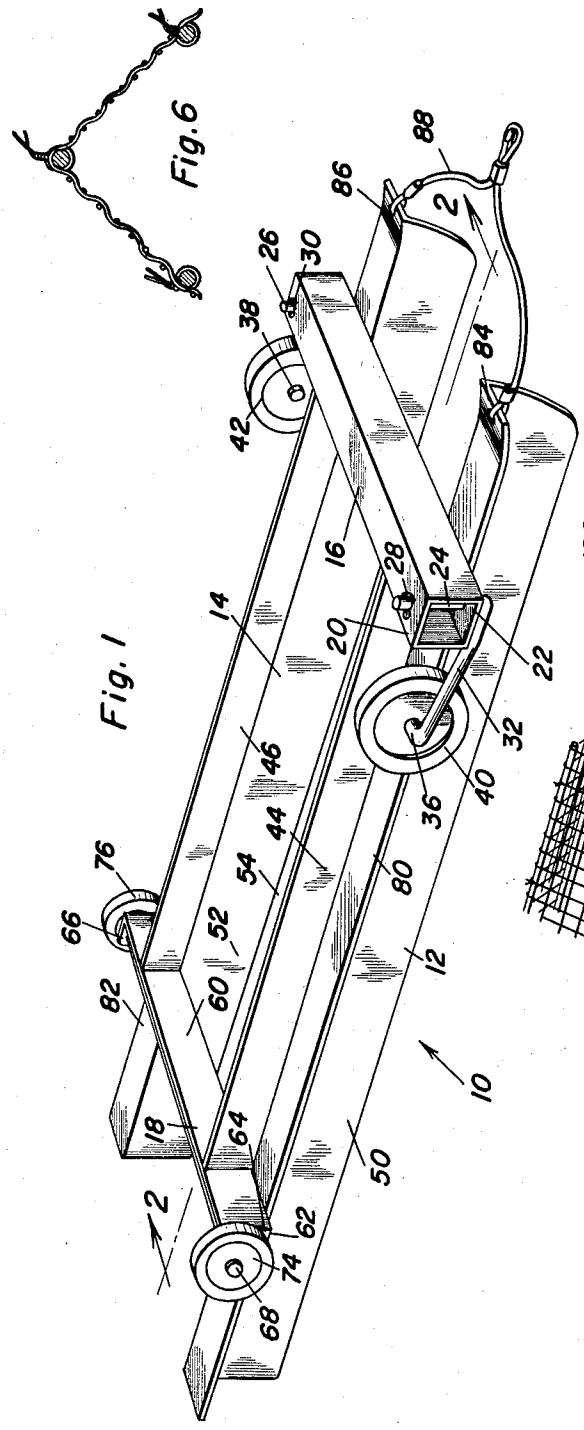
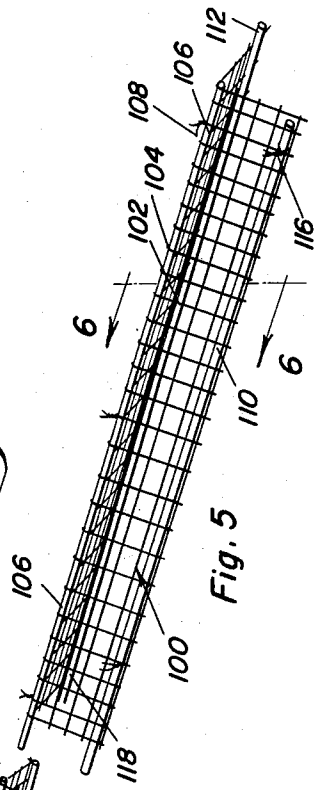
Sept. 8, 1959 W. C. MALSBURY ET AL 2,902,910

PORTABLE CONCRETE SHAPING DEVICE

Filed Aug. 30, 1956 2 Sheets-Sheet 1





William C. Malsbury
Kenneth C. Malsbury
William B. Malsbury
INVENTORS

BY Clarence A. O'Brien and Harvey B. Jacobson
Attorneys

Sept. 8, 1959 W. C. MALSBURY ET AL 2,902,910

PORTABLE CONCRETE SHAPING DEVICE

Filed Aug. 30, 1956 2 Sheets-Sheet 2

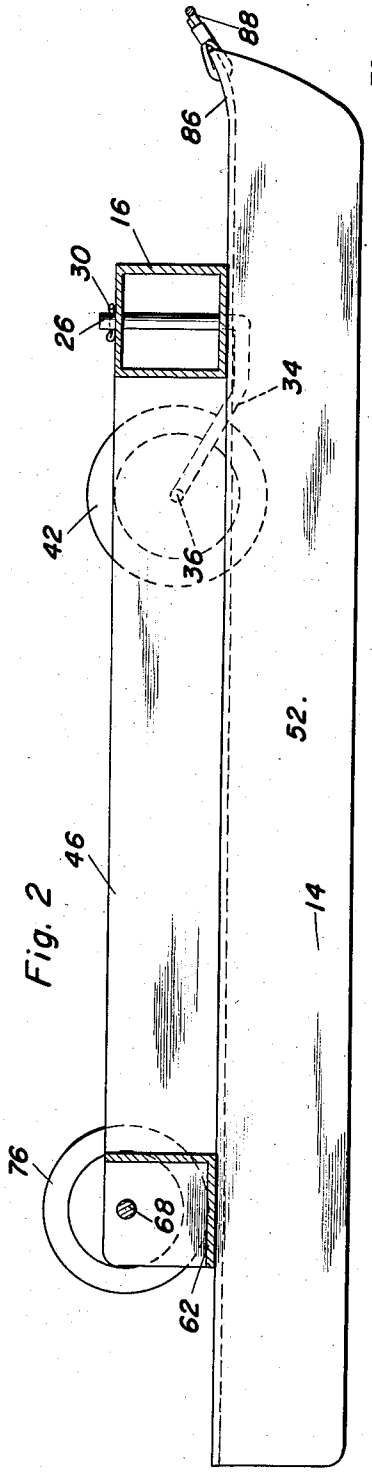


Fig. 2

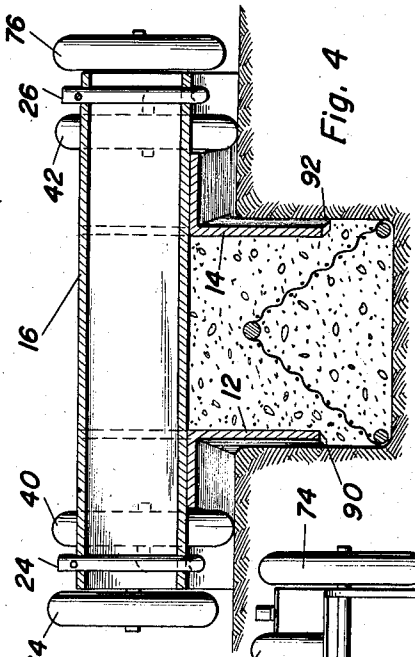


Fig. 4

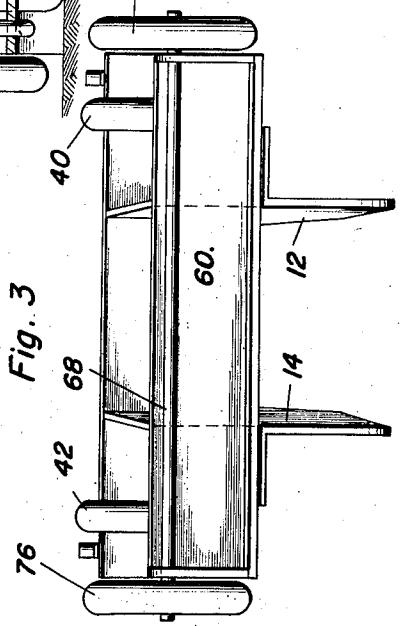


Fig. 3

William C. Malsbury
Kenneth C. Malsbury
William B. Malsbury
INVENTORS.

BY Clarence A. O'Brien and Harvey B. Jackson
Attorneys

United States Patent Office 2,902,910
Patented Sept. 8, 1959

2,902,910

PORTABLE CONCRETE SHAPING DEVICE

William C. Malsbury, Kenneth C. Malsbury, and William B. Malsbury, Crystal Springs, Miss.

Application August 30, 1956, Serial No. 607,162

4 Claims. (Cl. 94—46)

This invention relates to a portable concrete beam form for use in constructing beams or the like in ditches and more particularly to a device adapted to work behind a ditching machine for conveniently leveling the surface of a concrete beam.

In the construction of roadways and airport runways, it is often necessary to reinforce such runways and roadways by means of concrete beams or girders. Inasmuch as the roadways and runways are poured directly on the ground, it is necessary that the beams be poured in trenches so that the upper surface of each beam be level with the surface of the ground. In view of this, it is the primary object of this invention to provide a shaping device which may be pulled along a ditch and which is provided with a hopper into which concrete is directed as it is pulled along the ditch so that the shaping device is used in the placement of the concrete within the ditch and at the same time as the shaping device is drawn along the ditch during the ditch filling operation, the shaping device serves to shape the upper portion of the beam and to level the beam flush with the surrounding ground.

The construction of this invention features runners which are adapted to ride along the edges of a ditch or trench and which includes a rear cross member adapted to level the top surface of concrete deposed within the confines of the portable concrete shaping device as the portable shaping device is pulled along the trench.

An important object of the invention resides in the provision of self-supporting reinforcement for use in constructing concrete beams and the like which self-supporting reinforcement can be positioned in a ditch or a trench ahead of the portable concrete shaping device as the form shaping device is being pulled along.

Still further objects and features of this invention reside in the provision of a portable concrete shaping device and self-supporting reinforcement each of which is simple in construction, inexpensive to manufacture and convenient to use.

These, together with the various ancillary objects and features of this invention which will become apparent as the following description proceeds, are attained by these means for constructing concrete beams, preferred embodiments of which have been illustrated in the accompanying drawings, by way of example only, wherein:

Figure 1 is a perspective view of the portable concrete shaping device;

Figure 2 is a longitudinal sectional view on an enlarged scale as taken along the plane of line 2—2 of Figure 1;

Figure 3 is a rear elevational view of the invention;

Figure 4 is a transverse sectional view of the portable concrete shaping device shown in use with the self-supporting steel in place in a trench;

Figure 5 is a perspective view of the self-supporting reinforcement; and

Figure 6 is an enlarged sectional detail view as taken along the plane of line 6—6 in Figure 5.

With continuing reference to the accompanying drawings wherein like reference numerals designate similar parts throughout the various views, reference numeral **10** generally designates the portable concrete shaping device comprising one of the important elements of the present invention. This portable concrete shaping device includes a pair of runners **12** and **14** which are spaced from each other and held in their assembled relationship by cross members **16** and **18**. The front cross member is generally block-like in configuration and has journaled in the top and bottom portions **20** and **22**, respectively, vertically extending shafts **24** and **26** held in place by cotter keys **28** and **30** or the like and which have bent portions **32** and **34**, see Figs. 1 and 2, which terminate in stub shafts **36** and **38** on which front wheels **40** and **42** are rotatably mounted. Interconnecting the front and rear cross members are side plates **44** and **46** which form vertical extensions of the sides **50** and **52** of the runners **12** and **14** and in conjunction with the vertically extending sides **50** and **52** form a central hopper **54** for the cementitious material from which a beam to be poured is to be constructed.

The rear cross member **18** includes a vertically extending side piece **60** as well as a generally horizontally extending lower cross piece **62**. The lower cross piece **62** serves as a trowel in a manner which will be hereinafter disclosed. The lower cross piece **62** has side plates **64** and **66** which have axle **68** journaled therein on which rear wheels **74** and **76** are rotatably mounted. The rear wheels **74** and **76** are smaller in size than the front wheels **40** and **42** and their axis of rotation vertically upwardly offset with respect to the axis of rotation of the wheels **40** and **42**.

The runners **12** and **14** diverge rearwardly to a slight extent and are provided with the front ends of the runners **12** and **14** closer together than the rear ends thereof and have the substantially horizontal portions **80** and **82** upwardly flared as at **84** and **86**. This permits an outward flow of the excess concrete in the ditch prior to the troweling action of the rear cross member **50** thereon. A bridle **88** is secured to the upwardly flared ends.

In use, the portable concrete shaping device **10** is adapted to be positioned in a trench with the runners **12** and **14** lying adjacent to the vertical edges of the trench as at **90** and **92**. Because the runners **12** and **14** diverge rearwardly, only the rearward edges of the form engage the sides of the trench at **90** and **92**. Further, since the wheels **40** and **42** are larger than the wheels **74** and **76**, only the rear portions of the horizontal portions **80** and **82** of the runners **12** and **14** will engage the surface of the earth adjacent the trench. The trench is filled by pouring concrete into the hopper **54** so that the concrete is directed into the trench. As the concrete is poured into the hopper **54**, the concrete beam shaping device **10** is pulled along the ditch with an excess amount of concrete remaining therein at all times. As a result, the vertically extending sides **50** and **52** of the runners **12** and **14** shape the upper side portions of the concrete beam being poured. Also, as the concrete shaping device **10** moves, the horizontal portion of the rear cross member **60** will serve as a trowel to level off the upper surface of the concrete beam to substantially that of the surrounding ground.

Prior to the pouring of the concrete in the hopper **54**, reinforcing means are disposed in the trench. The reinforcing means utilized in the present invention includes the substantially V-shaped in cross section self-supporting reinforcing members **100** which include a wire mesh member **102** of V-shape in cross-section and of any suitable, preferably strong and durable mesh. The mesh is inverted so that the apex **104** thereof is in the upper position and has suspended therefrom an elongated reinforcing rod **106**. The reinforcing rod **106** may be

held in place by suitable tie wires as at **108**. Another pair of reinforcing rods **110** and **112** are also tied as by tie wires **116** and **118** to the wire mesh.

Because the wire mesh is of sufficient strength, the wire reinforcement is self-supporting and needs no chairs. Further, the central reinforcing member **106** is securely held in place centrally disposed in the trench with the reinforcing members **110** and **112** adjacent the corners of the trench.

The reinforcing members **100** are adapted to be arranged in longitudinally aligned relationship with the ends thereof overlapped.

When the portable concrete shaping device **10** is used for its designed purpose, the front wheels **40** and **42** being not only larger than the wheels **74** and **76** but also having a lower axis of rotation will engage the ground to reduce friction while the rear portion of the horizontal plates **80** and **82** of the runners will engage the ground holding the rear wheels **74** and **76** spaced above the ground. However, when the device is not in use yet must be transported from one location to another, the portable concrete shaping device may be overturned and using both front and back wheels, the portable concrete shaping device may be easily towed behind any suitable vehicle.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. A portable concrete shaping device comprising a pair of spaced runners having substantially vertical leg portions for straddling and shaping a mass of concrete within a ditch, means rigidly interconnecting said runners, a pair of front wheels rotatably mounted adjacent the forward ends of said runners and being located with respect thereto so as to extend below the upper edges of said vertical leg portions, said front wheels being disposed outwardly of said vertical leg portions, at least the rear portions of said runners being provided with laterally outwardly substantially horizontal leg portions for overlying and riding upon the ground adjacent the parallel edges of a ditch, and a pair of rear wheels journalled adjacent the rear of said runners and being located with respect thereto so that rear edges of said horizontal leg portions lie below a plane tangential to the lower portions of all of said wheels so that the rearward extremities of said horizontal leg portions will ride upon the ground, said front and rear wheels being of such a diameter as to project above any portion of the device such that the device may be inverted for transporting support solely on said wheels, said means rigidly interconnecting said runners being disposed adjacent the rearward ends of said runners and including a horizontal plate extending between said runners substantially at the upper edges of said vertical leg portions for effecting a troweling action upon the mass of concrete straddled by said vertical leg portions.

2. A portable concrete shaping device comprising a pair of spaced runners having substantially vertical leg portions for straddling and shaping a mass of concrete within a ditch and substantially horizontal laterally outwardly projecting leg portions originating along the upper edges of said vertical leg portions, means rigidly interconnecting said runners including a rear cross member overlying and secured rigidly to said horizontal leg portions adjacent the rearward extremities of said runners and having a substantially horizontally disposed flat plate portion extending between said runners, a pair of front wheels rotatably mounted adjacent the forward ends of said runners and being located with respect thereto so as to extend below the upper edges of said vertical leg portions, said front wheels being disposed outwardly of said vertical leg portions, a pair of rear wheels journaled adjacent the rear of said runners, and being located with respect thereto so that rear edges of said horizontal leg portions lie below a plane tangential to the lower portions of all of said wheels so that the rearward extremities of said horizontal leg portions will ride upon the ground with said horizontal plate portion of the rear cross member effecting a troweling action upon the mass of concrete straddled by the device, said front and rear wheels being of such a diameter as to project above any portion of the device such that the device may be inverted for transporting support solely on said wheels.

3. A portable concrete shaping device comprising a pair of spaced runners having substantially vertical leg portions for straddling and shaping a mass of concrete within a ditch, transverse frame members rigidly interconnecting said runners, said transverse frame members having opposed vertical faces, side plates extending upwardly from said runners and forming vertical extensions of said vertical leg portions, said vertical leg portions, said vertical faces and side plates combining to define a hopper for directing concrete into the ditch, a pair of front wheels rotatably mounted adjacent the forward ends of said runners and being located with respect thereto so as to extend below the upper edges of said vertical leg portions, said front wheels being disposed outwardly of said vertical leg portions, at least the rear portions of said runners being provided with laterally outwardly substantially horizontal leg portions for overlying and riding upon the ground adjacent the parallel edges of the ditch, and a pair of rear wheels journaled adjacent the rear of said runners and being located with respect thereto so that rear edges of said horizontal leg portions lie below a plane tangential to the lower portions of all of said wheels so that the rearward extremities of said horizontal leg portions will ride upon the ground, said front and rear wheels being of such a diameter so as to project above any portion of the device so that the device may be inverted for transporting said support solely on said wheels.

4. A portable concrete shaping device comprising a pair of spaced runners having substantially vertical leg portions for straddling and shaping a mass of concrete within a ditch and substantially horizontal laterally outwardly projecting leg portions originating along the upper edges of said vertical leg portions, means rigidly interconnecting said runners including a rear cross member and a front cross member, said rear cross member overlying and secured rigidly to said horizontal leg portions adjacent the rearward extremities of said runners and having a substantially horizontally disposed flat plate portion extending between said runners, said rear cross member and said front cross member having opposed vertical faces, side plates extending upwardly from said runners and forming vertical extensions of said vertical leg portions, said vertical leg portions, said vertical faces and said side plates combining to define a hopper for directing concrete into the ditch, a pair of front wheels rotatably mounted adjacent the forward ends of said runners and being located with respect thereto so as to extend below the upper edges of said vertical leg portions, said front wheels being disposed outwardly of said vertical leg portions, a pair of rear wheels journaled adjacent the rear of said runners and being located with respect thereto so that rear edges of said horizontal leg portions lie below a plane tangential to the lower portions of all of said wheels so that the rearward extremities of said horizontal leg portions will ride upon the ground with said horizontal plate portion of the rear cross member effecting a troweling action upon the mass of concrete straddled by the device.

(References on following page)

5

References Cited in the file of this patent

UNITED STATES PATENTS

723,243	Cook	Mar. 24, 1903
1,084,158	Marsh	Jan. 13, 1914
1,947,754	Bolger	Feb. 20, 1914
1,965,993	Sommer et al.	July 10, 1934

6

2,006,316	Mandt	June 25, 1935
2,188,553	Lathrop	Jan. 30, 1940

FOREIGN PATENTS

323,243	Italy	Dec. 18, 1934