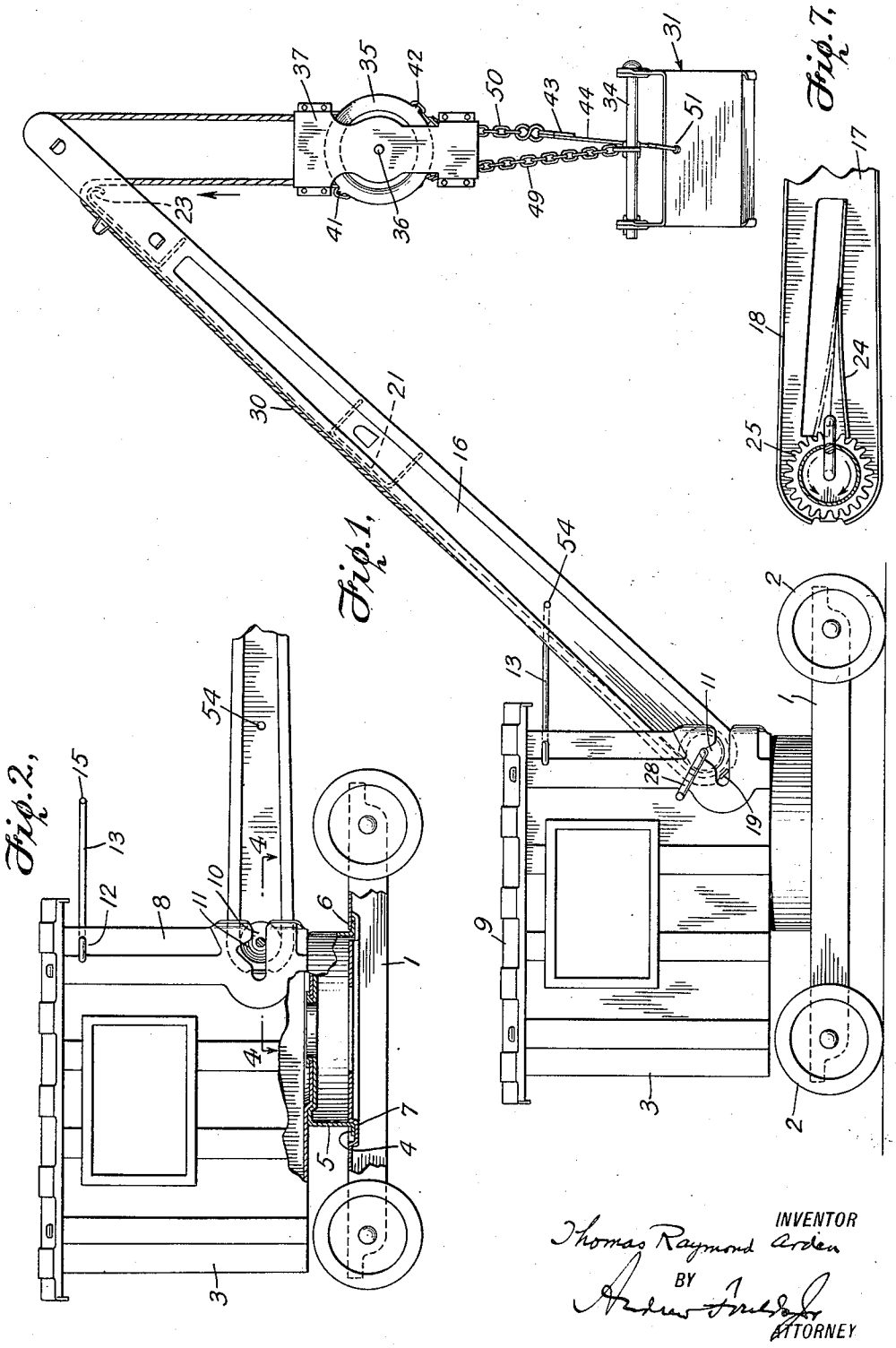
Feb. 28, 1928. 1,660,780

T. R. ARDEN

TOY CRANE

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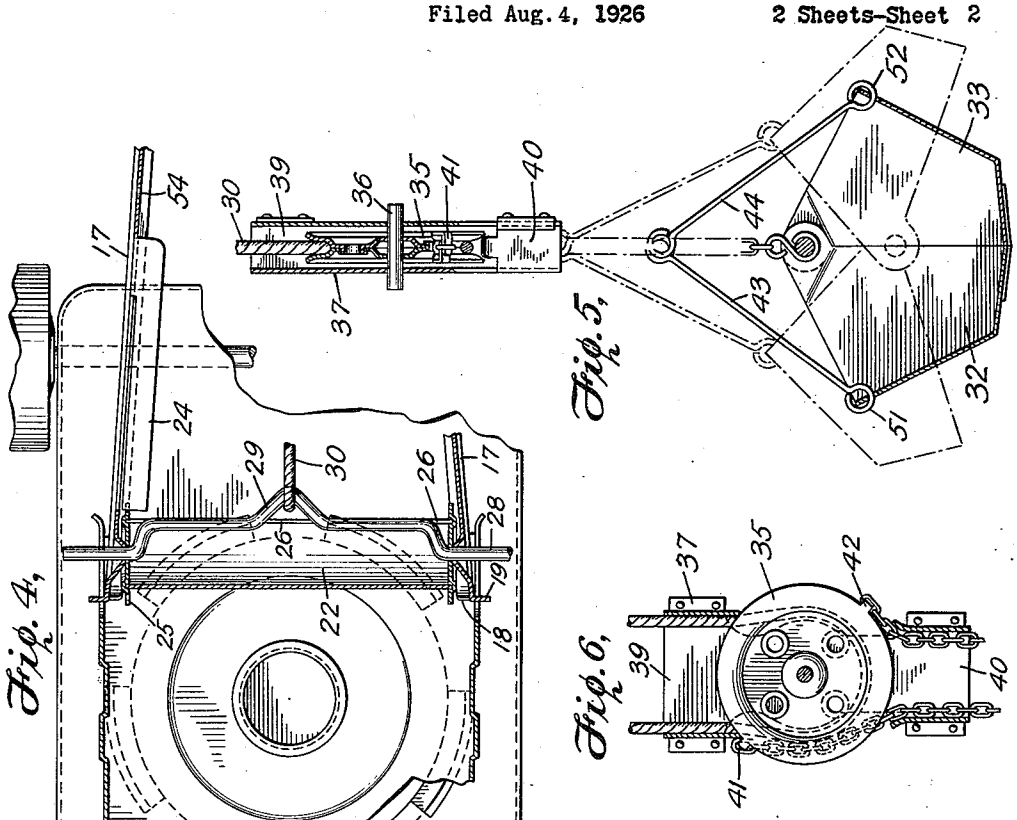
INVENTOR
Thomas Raymond Arden
BY
ATTORNEY

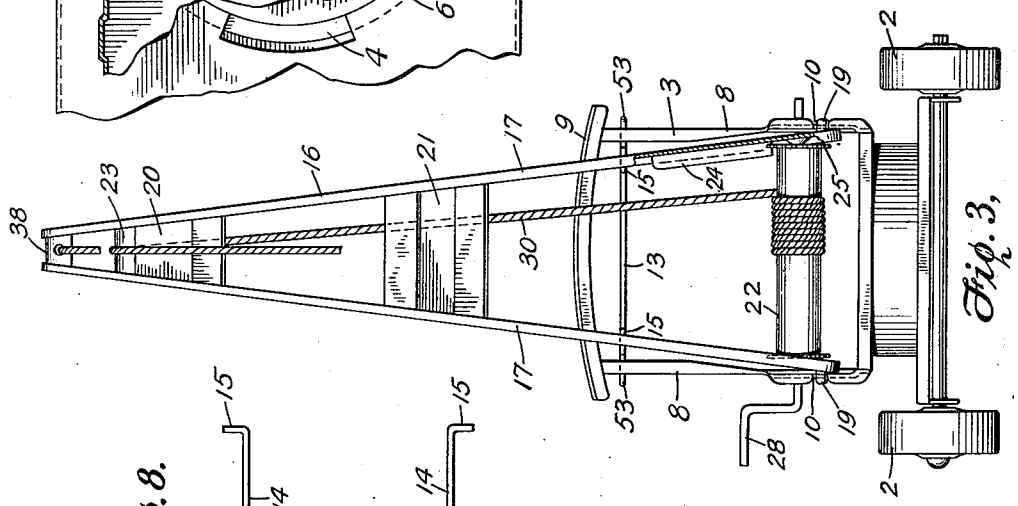
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Filed Aug. 4, 1926 2 Sheets-Sheet 2





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Patented Feb. 28, 1928. 1,660,780

UNITED STATES PATENT OFFICE.

THOMAS RAYMOND ARDEN, OF FOREST HILLS, NEW YORK, ASSIGNOR TO ELIZABETH H. CHEIN, OF NEW YORK, N. Y.

TOY CRANE.

Application filed August 4, 1926. Serial No. 126,998.

My invention is for an improvement in toy cranes.

An object of my invention is to provide a toy crane having means to rigidly support the boom in the cab and which will allow the crane to be knocked down for shipment. Another object is to construct the hoisting drum so that the bucket raising cable may be fixed to the drum operating crank. A further object is to provide a novel bucket operating mechanism employing a single cable which serves both to open and close, and to raise and lower the bucket.

I accomplish these objects by the device illustrated in the accompanying drawings, in which

Figure 1 is a side view of the toy crane,

Figure 2 is a detail view showing the boom released for removal from the cab and with parts of the cab broken away,

Figure 3 is a front view of the toy crane partially in section and with the bucket removed,

Figure 4 is a horizontal detail section on line 4—4 of Figure 2,

Figure 5 is a sectional detail of the bucket and the operating means therefor showing the bucket in open and closed positions,

Figure 6 is a detail of the bucket operating means,

Figure 7 is a detail section on line 7—7 of Figure 4, and

Figure 8 is a detail of the boom supporting brace.

Similar characters of reference refer to similar parts throughout the several views.

The toy crane which is preferably made of sheet material has a platform 1 mounted on wheels or rollers 2, 2. A cab 3 is mounted on the platform 1 so as to swivel. On the underside of the cab 3 is a cylindrical support 5 having its lower edge flared outwardly to form a flange 4. This flange 4 seats in a circular channel 7 depressed in the platform 1. Lips 6 overlay the flange 4 to lock the cab 3 to the platform 1; yet so as to allow it to swivel freely on the platform.

The cab 3 has sides 8, 8 and top 9. In each side 8 near the bottom of the forward edge is an open horizontal slot 10. The upper edge of each slot 10 opens into a notch 11 which serves as a journal. Near the top of each side 8 and at diametrically opposed points there is a horizontal closed slot 12. In these slots 12, 12 a tie rod 13 having arms 14, 14 is mounted. The end of each arm 14 is bent outwardly to form a pin 15 which engages and supports the boom as will appear later.

The boom 16 is made of two channel members 17, 17 having a continuous flange extending around the ends of the channel members. At the base of the boom, the flange 18 of each channel 17 is cut as clearly shown in Fig. 4, and bent outwardly through 180° to form a lug 19 lying in the plane of the flange. The channel members 17, 17 are locked together at their upper ends by a block 20, near their mid-points by a second block 21 and at their bases by the winding drum 22. The block 20 is substantially U-shaped in cross section with the sides of the U fitting against the bases of the channel members 17, 17. A lip 23 is punched from and bent inwardly into the channel of the block 20 to form a guide means for the cable. A pawl 24 is cut and bent inwardly from one of the channel members 17 to engage a ratchet wheel 25 on the widing or hoisting drum 22.

The winding drum 22 is in the form of a hollow cylinder having a slot 26 therein. One end of the drum cylinder is capped by the ratchet 25 and the other end by a disc 27. A crank 28 extends through the drum and projects through openings in the ratchet and in the disc. The central portion of the crank is bent to form a loop or eyelet 29 which projects out of the drum through slot 26. The bucket hoisting cord or cable 30 is fastened to this eyelet 29.

The bucket 31 is of the usual clam shell type, having two jaws 32, 33 journaled on a pin 34 which extends across the bucket. The operating pulley 35 is journaled on an axle 36 which is mounted in the frame 37 which extends beyond the periphery of the pulley 35 and is bent to form guide ways 39, 40. At diametrically opposite points on the periphery of the pulley 35 is a lug 41, 42 to each of which a chain or other flexible connecting member 49, 50 is fastened. One of these chains 49 is connected to the pin 34 and the other chain 50 is made fast to a pair of links 43, 44 one of which is fixed to each jaw 32, 33 of the bucket 31 at points 51, 52.

The bucket hoisting cable 30 extends from

the drum 22 along the boom, through block 20 and over lip 23. It is then looped around the operating pulley 35 which it supports and the free end of the cable is fastened to the end of the boom at 38. The cable is preferably of woven cotton or other material which will grip the pulley 35.

The crane is assembled, that is the boom is fixed in the cab, in the following manner. The tie rod is bowed so that the ears 53 may be sprung into slots 12 whereby the rod will be rigidly supported in horizontal position in the cab. The boom is next placed in position by sliding the lugs 19 into the slots 10, as shown in Figure 2, and when they are seated at the bases of the slots the boom is raised. The arms 14 are now pressed together sufficiently to allow the pins 15 to pass inside the channel members 17 until they are opposite holes or sockets 54 when the arms 14 are released to allow the pins to enter the sockets 54. The notches 11, 11 receive the ends of the crank 28 when the boom is in raised position.

The crane is now assembled for operation. Considering that the cable 30 is fully wound upon the drum and the bucket is in raised position and closed, then as the crank is turned to unwind the cable 30, the frictional engagement between the cable and pulley 35 will rotate the pulley drawing chain 50 upwardly and thus opening the bucket. Any further unwinding of the cable 30 will lower the bucket as the cable will now slip around the pulley 35. When the bucket has been lowered to the ground and a load is to be picked up, the initial winding up of the cable 30 will cause the pulley 35 to rotate, releasing chain 50 and winding up chain 49 to close bucket 31. Continued winding of the cable will cause it to slip over pulley 35 and raise the bucket. The pawl and ratchet 24, 25 allow the bucket to be left at any desired height.

It is of course understood that the cab may be swiveled so that the load carried by the bucket may be dropped in any desired position.

Having thus described my invention what I claim is:

In a device of the character described the combination of a two part bucket having pivot means between said parts whereby said bucket can be opened and closed, a pulley, means to rotate said pulley, and means fixed at substantially opposite points on the periphery of said pulley and operatively connected to said bucket whereby movement of said pulley will open and close said bucket.

In testimony whereof, I have signed my name to this specification this 29th day of July, 1926.

THOMAS RAYMOND ARDEN.