April 2, 1935. A. J. CLANCY 1,996,458

MERCHANDISE CONVEYING AND STACKING MEANS

Filed Aug. 1, 1934

Fig. 1.

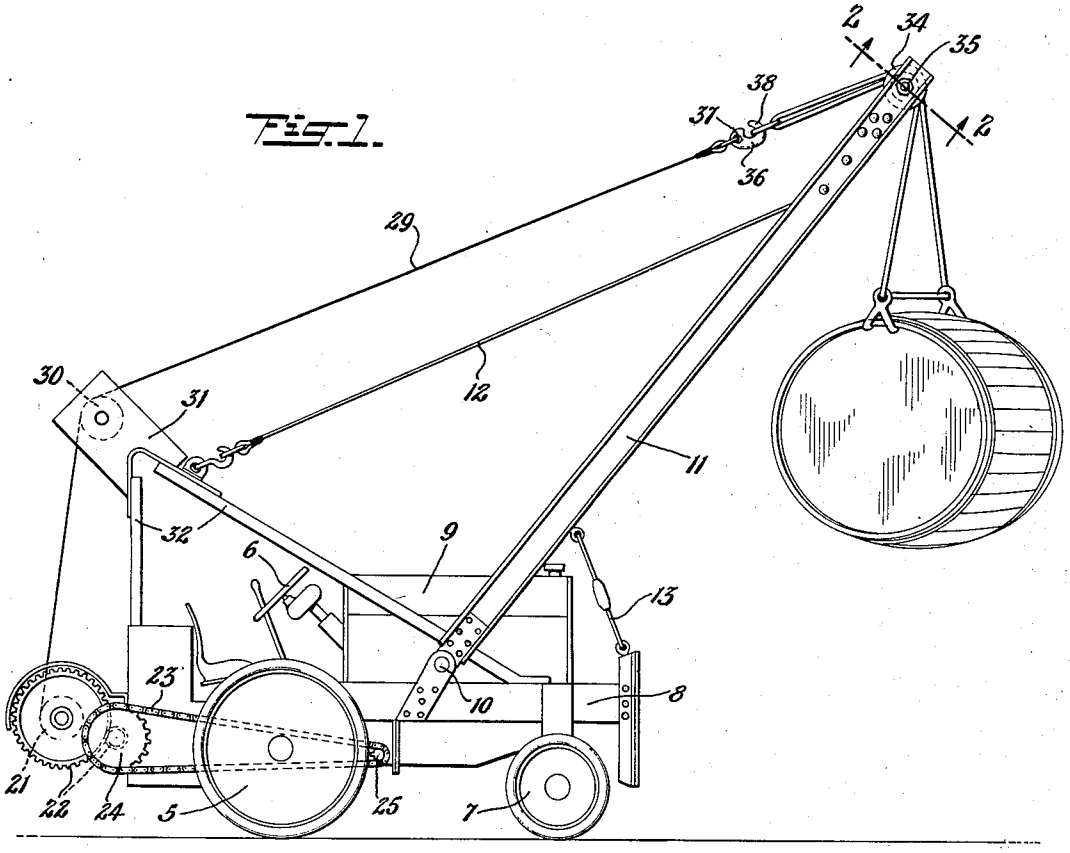
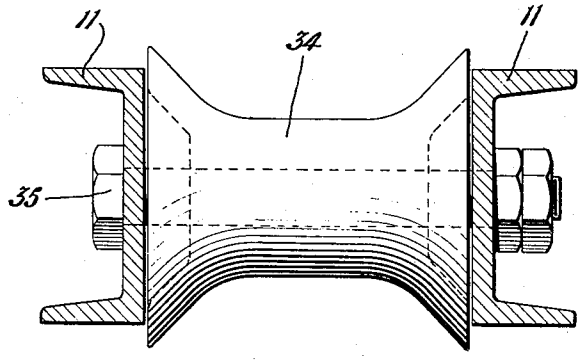


Fig. 2.



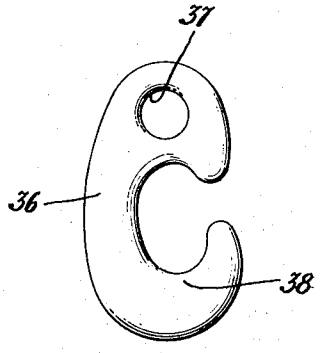


Fig. 3.

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MERCHANDISE CONVEYING AND STACKING MEANS

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2 Claims. (Cl. 254—139.1)

The invention relates to improvements in means for conveying and stacking miscellaneous merchandise and the like, and more particularly to dirigible automotive machines for conveying miscellaneous merchandise and efficiently stacking various articles one on the other.

Objects and advantages of the invention will be set forth in part hereinafter and in part may be obvious herefrom, or may be learned by practice with the invention, the same being realized and attained by means of the instrumentalities and combinations pointed out in the appended claims.

The invention consists in the novel parts, construction, arrangements, combinations and improvements herein shown and described.

The accompanying drawing, referred to herein and constituting a part hereof, illustrates one embodiment of the invention, and together with the description, serves to explain the principles of the invention.

Of the drawing:

Fig. 1 is a side elevation of a machine embodying the invention;

Fig. 2 is an enlarged section taken on line 2—2 of Fig. 1; and

Fig. 3 is an enlarged detail of the hook connecting the cable and sling rope.

There are in use, especially in stevedoring operations, dirigible automobile machines for conveying and stacking miscellaneous merchandise and articles, which machines are equipped with motor, tractor and steering means and have an inclined boom, usually held at the most favorable angle. Cable-winding means are mounted on the machine and driven from the motor, the cable running through a sheave of usual construction journaled in the upper end of the boom, and being reeved through a block suspended below the sheave. There is a hook having link suspension from the bottom of the block, and the upper end of the sling rope, or a ring at the end of the rope, by which the conveyed and stacked merchandise is suspended, is passed into the aforesaid hook. It is efficient and necessary on docks and in warehouses that merchandise be piled or stacked as high as possible, and at the same time the practicable height and length of the booms on the conveying and stacking machines are limited, as by the height of doors, beams and otherwise. With the type of machine now in use, the height to which goods may be stacked or piled is limited by the distance to which the block and its hook extend below the sheave at the upper end of the boom, plus the length of the sling rope above the suspended articles. During use the sling rope stretches, and this also operates to lessen the height to which the goods may be piled or stacked by the present machines.

My invention provides a dirigible automobile machine which is capacitated to convey and then to stack or pile practically all kinds of merchandise substantially up to the level of the top of the boom, irrespective of the necessary length of sling rope above the merchandise and of any stretching or difference in length in the sling rope. Thus my invention obviates the alternative disadvantages of leaving the upper part of available storage space in docks and warehouses unused, or of employing additional lifting means, or heavy manual labor, to elevate the goods through the height above the reach of the ordinary conveying and piling machines. The present preferred embodiment of my invention is exemplarily disclosed in the accompanying drawing and is hereinafter described in detail.

Referring now in detail to the drawing, the machine is mounted upon wheels or other traveling traction means 5, and is provided with steering means such as the usual hand-wheel 6, which may be connected to steering wheels 7. Mounted on the wheels is the machine frame 8, on which is mounted an electric, internal combustion or other suitable motor 9, having driving connection to the traction means. Pivotally connected to supports 10 at either side of the frame 8 is an approximately A-shaped boom 11, projecting upwardly and forwardly, and which is flexibly and preferably adjustably held at approximately the angle of greatest efficiency by suitable devices, such as a tension member or members 12 and compression members 13.

Suitable means for winding in and paying out a hoisting cable are provided, and as shown include a winding drum 21 driven from the motor by suitable means, such as gears 22, sprocket chain 23 and sprocket gears 24 and 25. My invention employs preferably a single cable 29, the power multiplying means being provided between the motor and the drum. The cable 29 is wound around the drum 21 and runs over a guiding roller 30 journaled in a support 31 mounted on the frame members 32. Journaled in the upper end of the boom 11 (Figs. 1 and 2) is a relatively wide, dished or flanged roller 34, the roller running loosely on a suitable axle such as a bolt 35 mounted in the boom members 11. Fixed flexibly to the end of the cable 29 is a hook 36 shaped so as to both hold the sling rope and at the same time to run over the roller 34 readily and without manipulation or stopping of the cable, thereby

drawing the upper part of the sling rope also over the roller **34**, and correspondingly increasing the lift of the merchandise. As shown, a hook **36** is formed of smooth contour and having an eye **37** for flexible attachment to the cable and a hook **38** for receiving and supporting the sling rope ring or the like.

In operation, the cable **29** is paid out, the hook **38** is hooked into the sling containing the merchandise, and the cable is then wound until the sling is free of the ground and the machine may be driven and directed to the point of delivery for the goods. At a point of delivery, the pile of goods increases in height with the deposit thereon of successive loads. To effect the piling, the load is elevated above the top of the pile, and the machine moves it in and the new load is thus deposited on top of the pile or stack. With the increase in the height of the pile, my machine winds in the cable and pulls not only the cable, but the upper part of the sling rope over the roller **34**, and thus the goods in the sling may be lifted almost to the height of the roller **34**. The greater height of the roller **34** in my machine over that of the block hook plus the upper part of the sling rope of the ordinary machine represents the greater stacking efficiency of my machine. Thus the goods may be stacked or piled practically as high as the roller **34** without any troublesome or laborious extra handling or lifting of the goods at the top of the pile, and as the top of the boom usually represents the limit to which merchandise may be stacked, the machine is capacitated to directly deliver goods to the highest level practicable in the dock or warehouse without additional labor.

The invention in its broader aspects is not limited to the specific mechanisms shown and described but departures may be made therefrom within the scope of the accompanying claims without departing from the principles of the invention and without sacrificing its chief advantages.

What I claim is:—

1. In a mobile stacking device a supporting frame, a boom projecting upwardly and outwardly therefrom substantially beyond said frame, a wide sheave journaled at the upper end of the boom, a cable running over the sheave and means attached to the end of the cable for receiving and supporting a sling rope, said means being capable of passing over the sheave and of drawing the upper portion of a sling rope over the sheave whereby a conveyed package may be lifted and stacked near the level of the sheave irrespective of the length or stretch of a sling rope.

2. In a mobile stacking device, a supporting frame, a boom projecting upward and outward therefrom substantially beyond said frame, a wide sheave journaled at the upper end of the boom, a cable running over the sheave, a sling rope, and means flexibly attached to the end of the cable for receiving and supporting the sling rope, said means being sufficiently narrow and flexibly attached to the cable and sling rope to pass readily over the sheave and to draw the upper portion of the sling rope over the sheave whereby a conveyed package may be lifted and stacked near the level of the sheave irrespective of the length or stretch of the sling rope.

ANDREW J. CLANCY.