F. G. LEWIS.

CONVEYER.

APPLICATION FILED JUNE 23, 1919.

1,399,130. Patented Dec. 6, 1921.

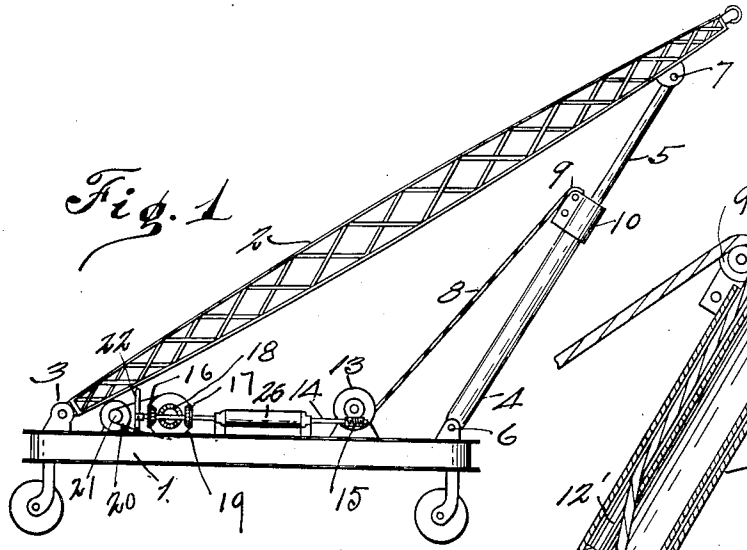


Fig. 1

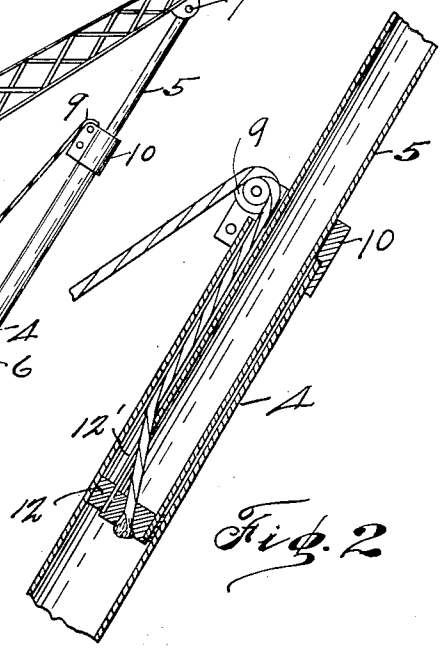


Fig. 2

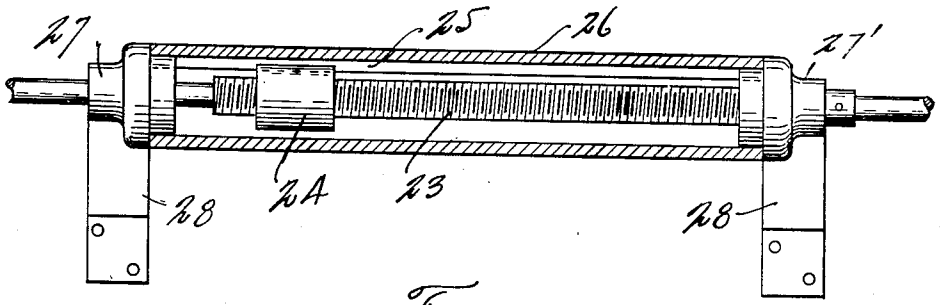


Fig. 3

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CONVEYER.

1,399,130. Specification of Letters Patent. Patented Dec. 6, 1921.

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To all whom it may concern:

Be it known that I, FRED G. LEWIS, a citizen of the United States, residing at Spokane, in the county of Spokane and State of Washington, have invented certain new and useful Improvements in Conveyers, of which the following is a specification.

The present invention relates to improvements in conveyers of the adjustable leg type, or loaders for handling material in bulk, as boxes, sacks, etc., and the invention is particularly applicable to the means for lifting or adjusting the elevator and its supporting boom or frame to the desired or required position.

The primary object of the invention is the provision of a compactly arranged appliance that is simple both in construction and operation whereby the parts may be manipulated with facility and accuracy, and in which the required functions are performed with efficiency. To this end the invention consists in certain novel combinations and arrangements of parts as hereinafter set forth and claimed.

In the accompanying drawings one complete example of the physical embodiment of the invention is illustrated, the parts being combined and arranged according to the best mode so far devised for the practical application of the principles of the invention.

Figure 1 is a side view in elevation of a portable conveyer embodying the novel features of the present invention.

Fig. 2 is an enlarged, sectional view of a part of the adjustable leg for swinging the boom or frame of the conveyer.

Fig. 3 is an enlarged sectional view showing the automatic reversing or shifting device forming part of the adjusting mechanism for the adjustable leg by which the boom is moved.

In the preferred form of the invention as illustrated in the drawings I have utilized a portable apparatus or appliance including the wheeled base or platform 1 upon which the boom 2 is pivoted at 3, the boom being of acceptable construction and form to support the endless chain of elevating mechanism (not shown), and being adjustable on its pivot through the instrumentality of the adjustable or extensible leg illustrated.

The adjustable leg comprises two sections as 4 and 5, the former being pivoted at 6 on the base and the latter pivoted at 7 to the boom near its upper end. These sections are of tubular members of pipes and the smaller pipe is adapted to telescope within the larger lower section, in order that the leg may be shortened or lengthened to adjust the boom and its conveyer on the pivot 3, thus elevating or lowering the upper or delivery end of the conveyer.

By means of a cable 8 the length of the leg may be varied, and this cable passes over a guide sheave 9 journaled in the end cap or sleeve 10 of the lower section of the leg, and the diameters of these two leg sections are such as to provide a space between them to accommodate the cable, as seen in Fig. 2. The end of the cable is securely anchored or attached to the lower end of the upper section of the leg as seen in Fig. 2 where a filler block or anchoring block, in which the end of the rope is secured, is firmly held in a ring 12 fixed in the lower end of the upper section. The bore of this ring is eccentric to the bore of the pipe sections, and the rope or cable passes through a slot or opening 12′ in the smaller section and thence between the two sections, up over its guide sheave, and this arrangement of the eccentrically disposed anchoring block holds the smaller section in position in the larger one to always provide the cable space between the pipe sections and hold the parts stable.

The upper section may be lifted or permitted to descend by action of the cable over the winding and unwinding drum 13, on the base 1, which is driven by the countershaft 14 at the worm connection 15 in Fig. 1, and the countershaft is revolved by either of the shift gears 16 or 17 and the similar bevel gear wheel 18, through the driving mechanism including the wheel 19, belt 20 and motor 21, a shift lever 22 being illustrated for reversing the motion of the counter shaft in usual manner.

In order that the differential movement of the adjustable leg may be stopped or reversed, automatically, at the extreme of its movement in either direction, a reversing mechanism is employed in connection with the countershaft 14, as best illustrated in Fig. 3. A comparatively long sleeve 23 is fixed on the countershaft and threaded throughout its greater length, to form a screw bar for the traveling nut 24, which is non-rotatable and guided through co-action

with the spline or feather 25 on the inner face of the tubular housing 26. The housing is held rigid by the engagement of its feather with grooved bearing bushings 27, 27′, the grooves being similar to the guide groove of the traveling nut 24, and the bearings are integral with the fixed brackets 28 that are attached to the base of the appliance. The bushing 27 forms a bearing for the shaft while the bushing 27′ forms a bearing for the smooth portion of the sleeve or screw bar fixed to the shaft, and it will readily be apparent that the traveling nut, when it reaches the extreme end of its lateral movement will encounter one or the other of the bushings 27 or 27′, and the continued turning of the screw bar within the stationary nut will cause the shaft and sleeve to slide longitudinally in their bearings 27 27′ a sufficient distance to disconnect one of the bevel gears as 16 from its driving gear wheel 18. The adjustment may be accomplished manually through the operating of the lever 22 to shift the bevel gears 16, 17, to stop or to reverse the drum in winding or unwinding the cable thereon, and in this manner the extension or contraction of the adjustable leg may be controlled. By the interposition of the reversing device on the countershaft a safety appliance is provided which will operate to throw the gears of the drum out of mesh and discontinue movement of the adjustable leg when the conveyer boom reaches its maximum of allowed movement.

From the above description it will be apparent that the boom may be elevated, or lowered, with facility and smoothness of movement and that its reversing movements may be accomplished, through the three pivotal points and the extensible leg, without violent shock or jar to the appliance.

What I claim is—

1. The combination with the pivoted boom and its portable base, of an adjustable leg comprising telescoping sections pivoted respectively to the boom and said base, means within the outer section for holding the inner section in eccentric position to provide a space in the outer section, means for lifting the upper section and permitting it to slide into the lower section comprising a winding mechanism, a cable, and a pulley on the upper end of the lower section, said cable passing through said space over said pulley and passing between the telescoping sections, and secured to the lower end of the upper section within the lower section.

2. The combination with the base and pivoted boom, of an adjustable leg comprising hollow telescoping sections pivoted respectively on the base and boom, a ring slidable in the lower section and having an eccentric opening to receive the lower end of the upper section, an anchoring block in the lower end of the upper section within said ring and lower section, a cable anchored in said block and passed through an opening in the lower end of the upper section and between outer and inner walls of the upper and lower sections respectively, a guide pulley on the lower section, a winding mechanism for the cable, and means for reversing the winding mechanism as described.

In testimony whereof I affix my signature.

FRED G. LEWIS.