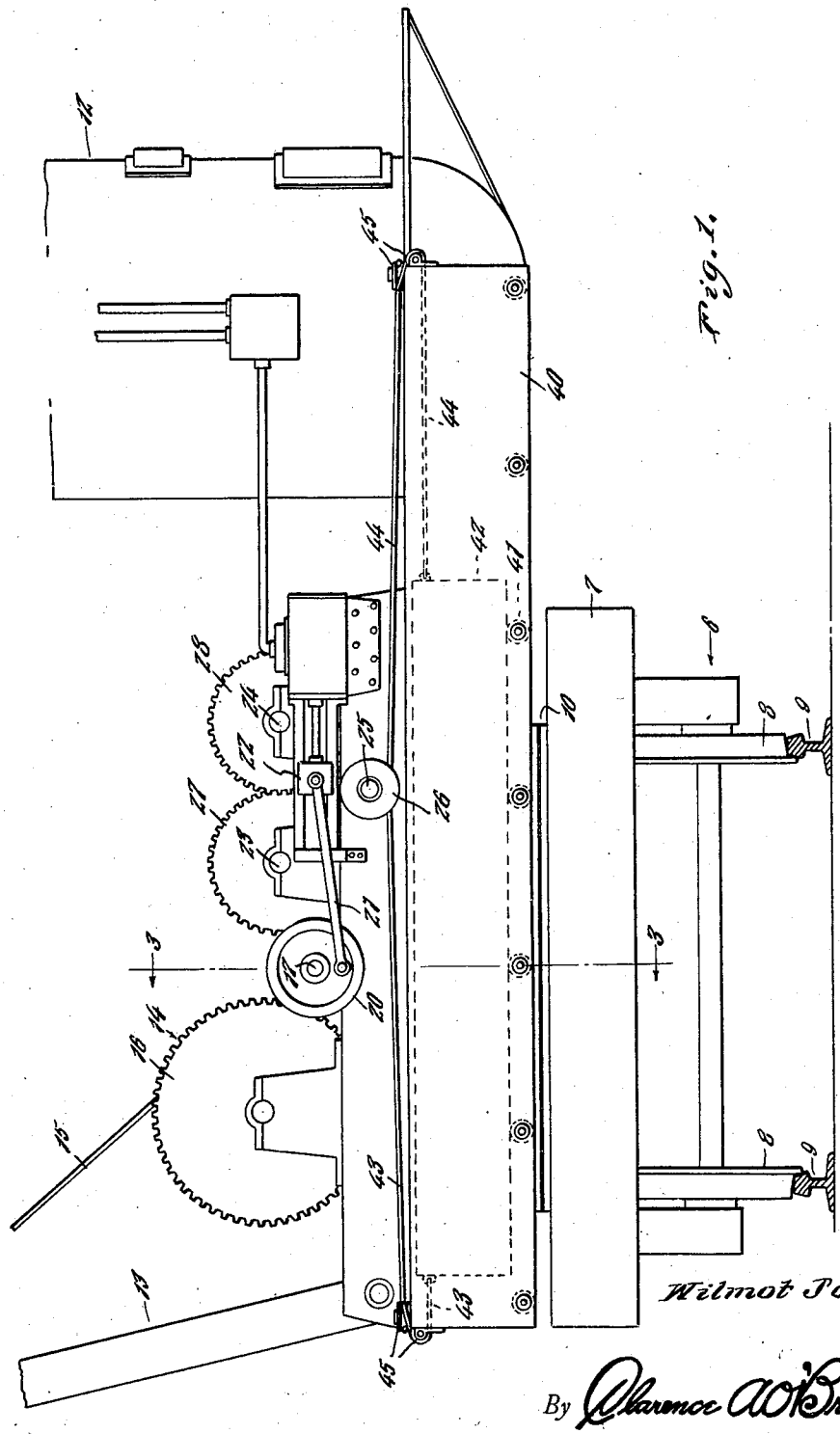
May 20, 1930. W. JOBES 1,759,406

PORTABLE CRANE

Filed April 12, 1928 3 Sheets-Sheet 1



Inventor
Wilmot Jobes

By Clarence A. O'Brien
Attorney

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Filed April 12, 1928 3 Sheets-Sheet 2

Fig. 2.

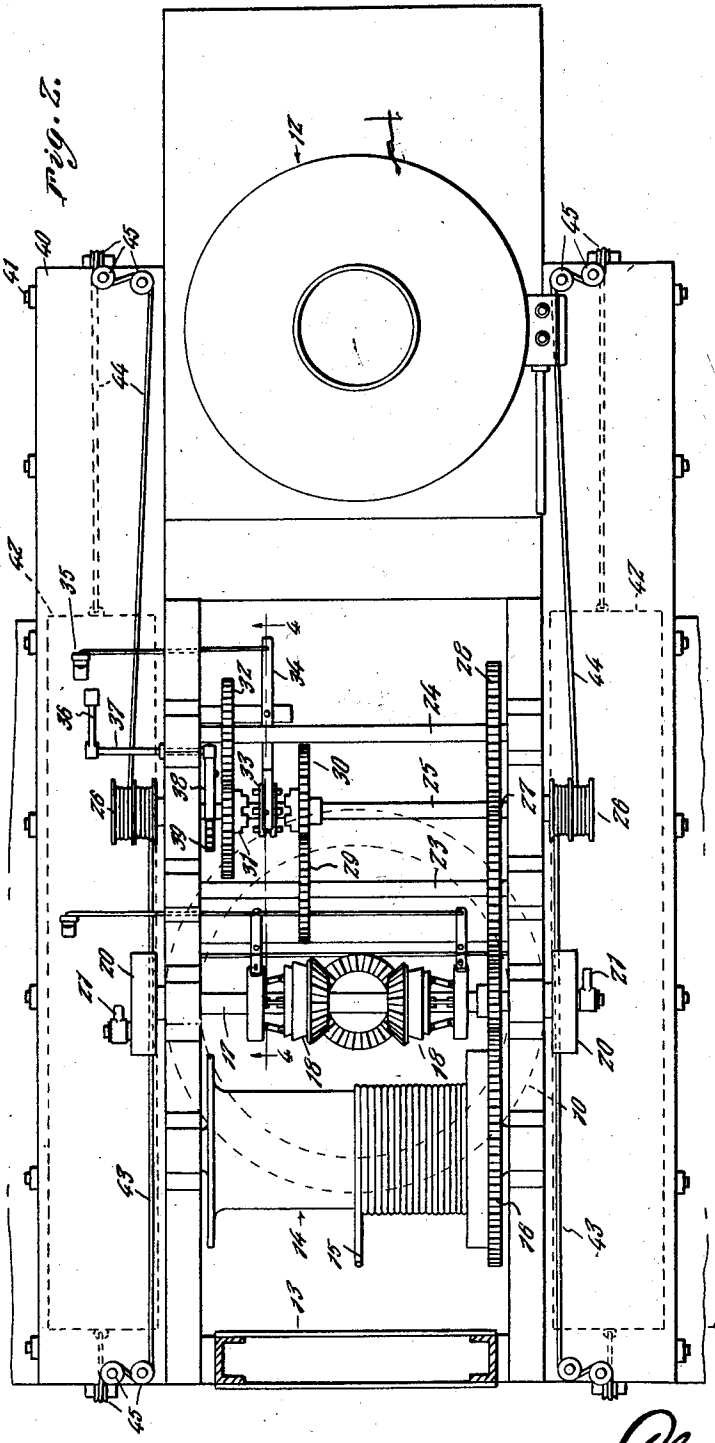
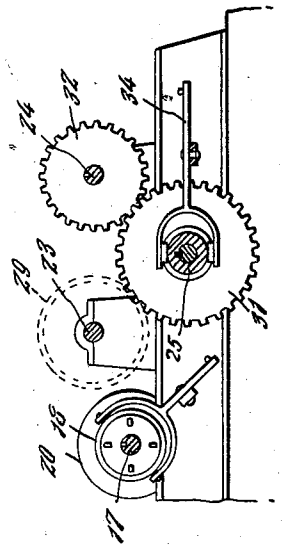


Fig. 3.



Inventor
Wilmot Jobes

By Clarence A. O'Brien
Attorney

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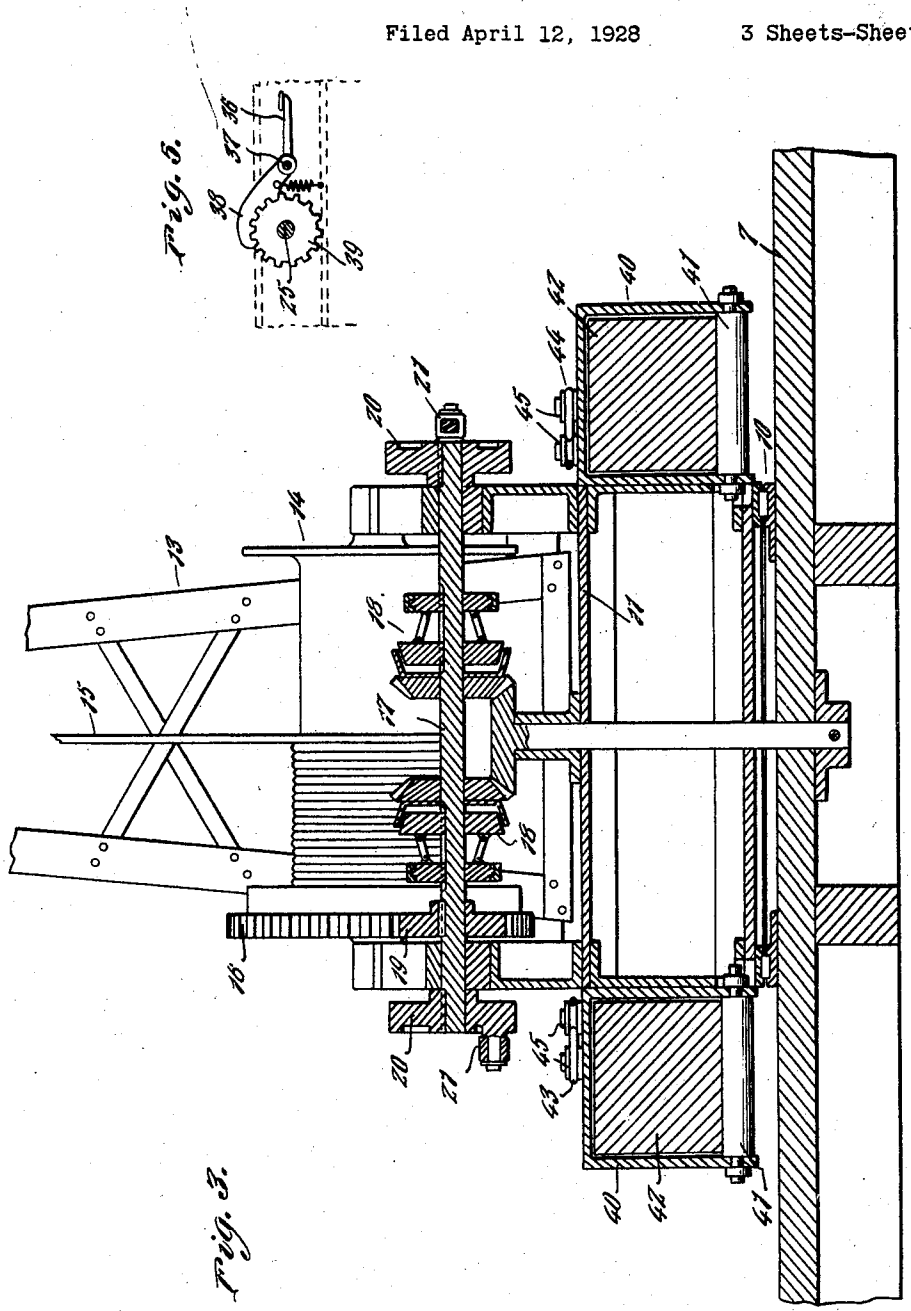


Fig. 3.

Fig. 2.

Inventor
Wilmot Jobes

By Clarence A. O'Brien
Attorney

Patented May 20, 1930 1,759,406

UNITED STATES PATENT OFFICE

WILMOT JOBES, OF ATLANTIC CITY, NEW JERSEY

PORTABLE CRANE

Application filed April 12, 1928. Serial No. 269,376.

The present invention relates to an improved portable crane for contracting and construction work which is built to greatly increase the utility by permitting variable loads to be hoisted and lowered thereby.

A hoisting crane of this class includes a wheel supported truck the wheels of which are constructed to move along railway tracks, and the platform of which is provided with a turn-table structure for the supporting base of the crane. In practice this supporting base is turned to various positions to facilitate handling of the load by the changeable boom. The variance in the loads to be hoisted frequently renders the manipulation and handling of a structure of this class unsafe. A small crane, whose capacity is limited is frequently employed in attempting to lift loads which are too heavy for it. The result is that the entire structure topples over. Of course in the present crane structures to counteract this, rigid or stationary weights are provided, these being constructed of scrap iron, concrete and the like arranged in appropriate casings or containers.

In order to give a small crane structure a greater range of use and to render it safer and more susceptible to proper operation, I have evolved and produced a novel adjustable weight structure wherein the weights are arranged to counter balance the load and to prevent accidental overturning of the structure.

The particular details and their relative arrangement and association will become more readily apparent from the following description and drawings.

In the drawings:—

Figure 1 is an elevational view of a structure constructed in accordance with the present invention,

Figure 2 is a top plan view of the complete structure,

Figure 3 is a central vertical section taken approximately upon the plane of the line 3—3 of Figure 1,

Figure 4 is a detail section taken approximately upon the plane of the line 4—4 of Figure 2,

Figure 5 is a detail of the foot pedal operated latch.

Referring now to the drawings and particularly to Figure 1 it will be seen that the truck is generally designated by the numeral 6, the same comprising a platform 7 and flanged supporting wheels 8 adapted for movement along the tracks or rails 9. Mounted on the platform 7 is a turn-table 10 on which the rotatable part of the structure is supported.

As shown in Figure 3 the rotary part of the structure comprises a suitable base 10 on which the principal novelty of this invention is carried. It is desirable however, to consider the old parts first. To this end it will be seen that 12 designates the steam boiler on one end and 13 a swingable hoisting boom on the opposite end. Positioned close to the hoisting boom is a drum 14 on which the hoisting cable 15 is wound. On one end of the drum is a driving gear 16 which receives motion from the main drive shaft 17 (see Figure 3). This shaft is provided with customary driving gears and clutch devices 18 controlled in the usual way. There is a small gear 19 on one end which is in mesh with the gear 16. On the opposite end are found eccentrics 20 and operating pitmen 21 operated from the sliding crosshead 22 (see Figure 1) and the steam power means here shown.

In carrying out the present invention I provide a pair of spaced parallel shafts 23 and 24 which as shown in Figure 4 are on a plane with each other and on a plane above the main driving shaft 17. Located between these shafts 23 and 24 and on a lower plane is another shaft 25 having winches 26 on its opposite ends. Confining attention more particularly to Figure 2 it will be seen that a large gear 27 is carried by the outer end of the shaft 23, this being in mesh with a complemental gear 28 on the shaft 24 as shown in Figure 1. On the intermediate portion of the shaft 23 is a fixed gear 29 in mesh with an idler gear 30 on the intermediate portion of the shaft 25. A similar idler 31 is on the outer end of the shaft 25 and in permanent mesh with a driving gear 32 on the shaft 24.

Arranged between the idling gears 30 and 31 is a clutch 33 operated from the swingable actuating arm 34 and a hand controlled lever 35. Mounted within the vicinity of this lever 35 is a foot pedal 36 on a rock shaft 37 which rock shaft carries a dog 38 cooperating with the locking gear 39 on the shaft 25 (see Figure 5). This arrangement of intermeshing gears, idlers, and clutch permits the shaft 25 to be rotated at the discretion of the operator in either direction for rotating the winches 26.

Mounted rigidly on opposite sides of the base 11 as shown in Figure 3 are channel-shaped boxes 40 having their open sides disposed downwardly and equipped with longitudinally spaced anti-friction rollers 41. Located in these boxes are elongated counterbalancing weights 42 which may weigh from ten to twenty tons or more. From Figure 1 it will be observed that individual cables 43 and 44 are attached to the opposite ends of the weights and trained over pulleys 45 and then wound on the aforesaid winches 26. I thus provide adjustable or shiftable counterbalancing weights carried by the base of the structure, whereby to permit these weights to be regulated according to the center of gravity to prevent overbalancing of the structure in case the load lifted by the boom is too heavy. It is evident that with this arrangement the counterbalancing weights can be set preparatory to lifting the load or they can be moved while the load is being lifted or lowered and they can be returned to normal position at the discretion of the operator, all of this being permitted by the cable actuated roller supported weights cooperating with the clutch control winches on the supplemental shaft, and the same power utilized to adjust these weights which is employed for operating the winding drum and boom.

It is believed that by carefully considering the description in connection with the drawings, a clear understanding of the construction and operation of the improved machine will be had. Consequently, a more lengthy description is regarded unnecessary.

Minor changes in shape, size and rearrangement of parts coming within the field of invention claimed may be resorted to if desired.

I claim:—

In a hoisting crane of the class described, a wheel supported truck, a turn table mounted thereon, a base on the turn table, a steam power plant on the base, a boom pivotally mounted on the base, a drum mounted for rotation on the base, a boom operating cable connected with the boom and mounted on the drum, a power shaft, an operating connection between the power shaft and power plant, an operating connection between the shaft and said drum, a supplemental winch shaft on said base, winches on the opposite ends of said winch shafts, manually operated clutch mechanism operatively connecting the power shaft and winch shaft, a pair of channel shaped casings mounted on opposite longitudinal edges of the base and provided with spaced transversely extending anti-friction rollers, counter-balancing weights slidable in the casing and upon the rollers, and operating cables connected with the weight and wound upon the winches.

In testimony whereof I affix my signature.

WILMOT JOBES.