

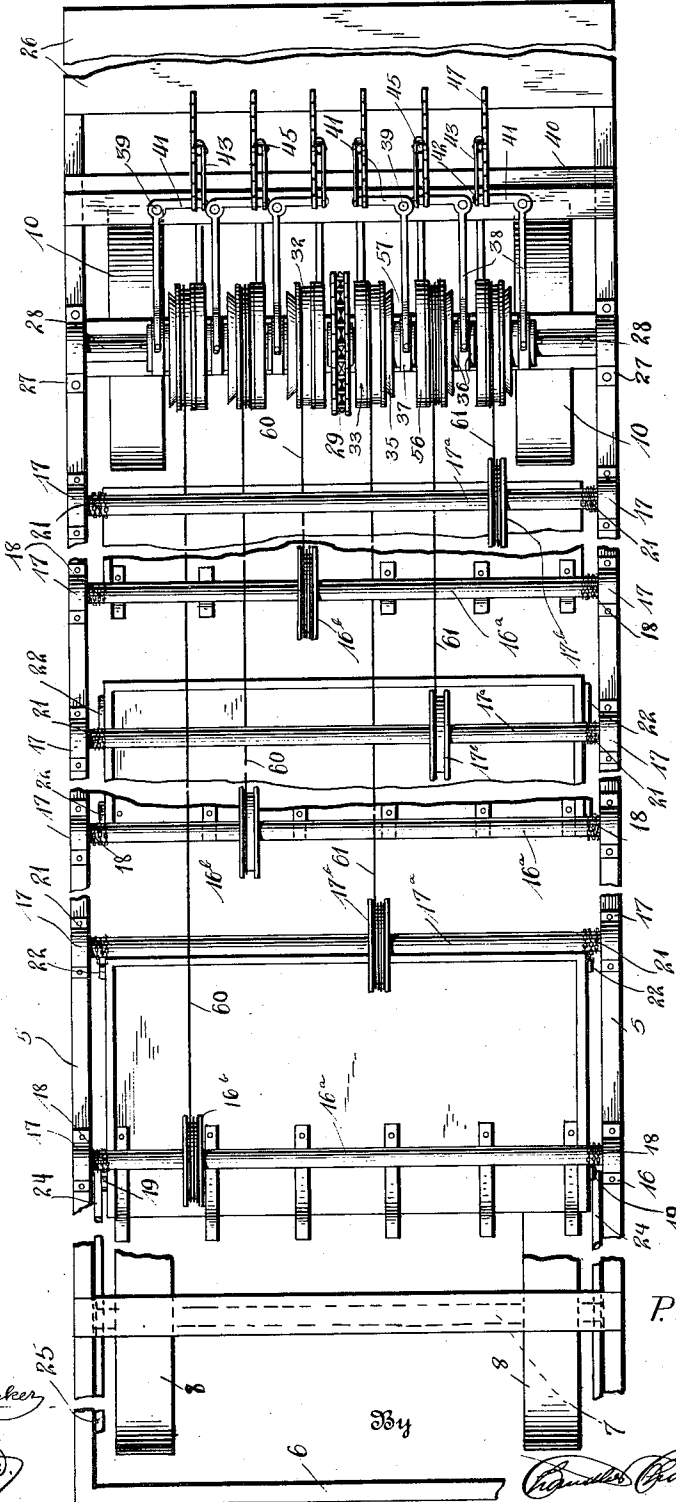
P. L. STACKER.
ROAD GRADING MACHINE.
APPLICATION FILED DEC. 7, 1911.

1,023,399.

Patented Apr. 16, 1912.

3 SHEETS-SHEET 1.

Fig. 1.



Witnesses
Ernest Crocker
George F. [Signature]

By

[Signature] Attorneys

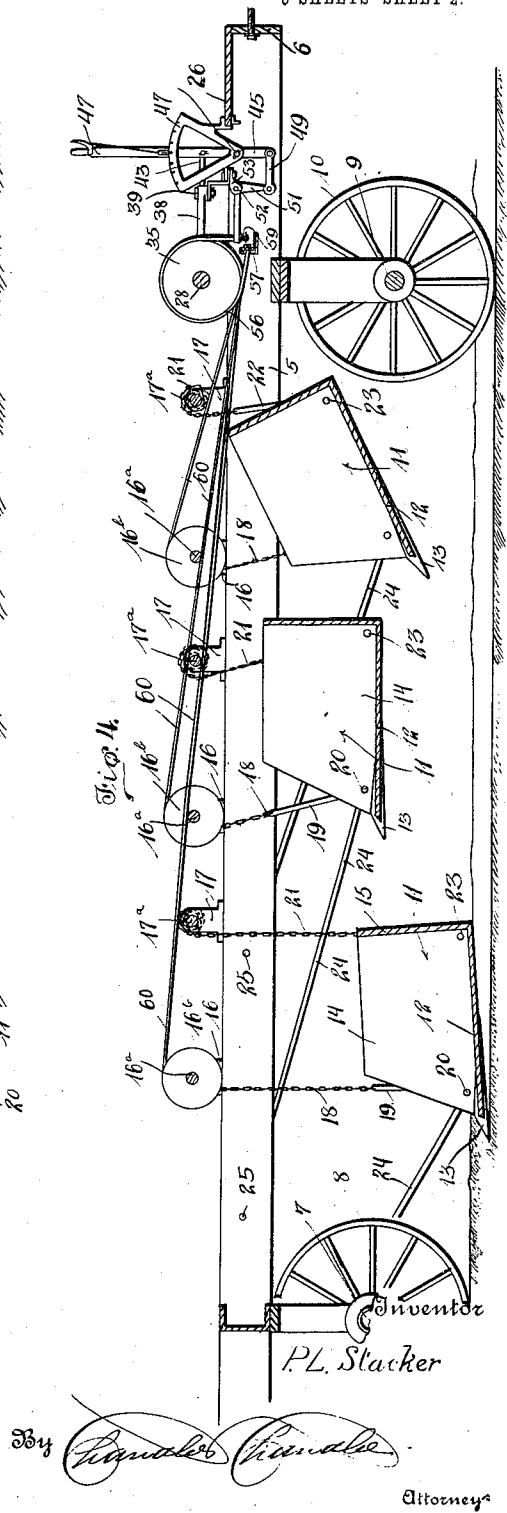
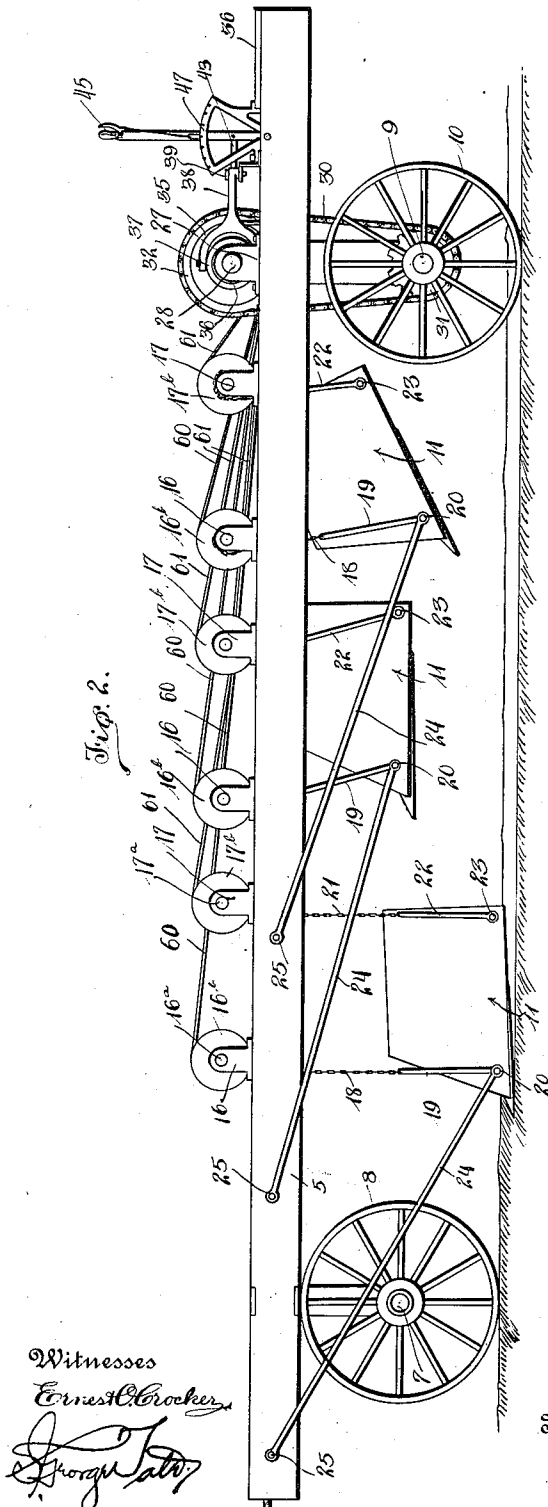
Inventor
P. L. Stacker

1,023,399.

P. L. STACKER.
ROAD GRADING MACHINE.
APPLICATION FILED DEC. 7, 1911.

Patented Apr. 16, 1912.

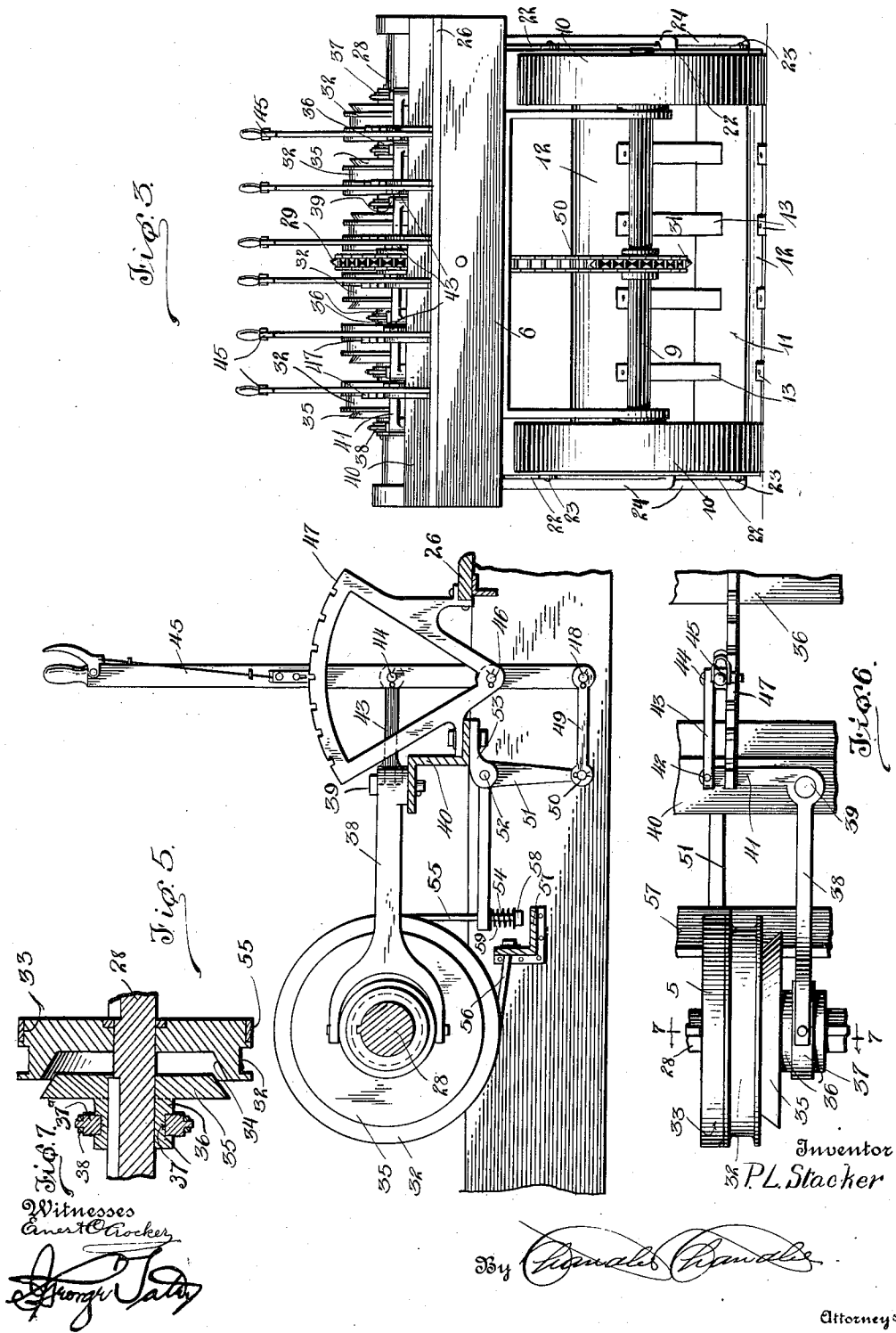
3 SHEETS-SHEET 2.



1,023,399.

P. L. STACKER.
ROAD GRADING MACHINE.
APPLICATION FILED DEC. 7, 1911.

Patented Apr. 16, 1912.
3 SHEETS—SHEET 3.



UNITED STATES PATENT OFFICE.

PATRICK L. STACKER, OF GREENWOOD, SOUTH CAROLINA.

ROAD-GRADING MACHINE.

1,023,399.

Specification of Letters Patent.

Patented Apr. 16, 1912.

Application filed December 7, 1911. Serial No. 664,389.

To all whom it may concern:

Be it known that I, PATRICK L. STACKER, a citizen of the United States, residing at Greenwood, in the county of Greenwood, State of South Carolina, have invented certain new and useful Improvements in Road-Grading Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to an improvement in road grading machines.

The principal object of this invention is to provide a wheel frame having a plurality of scraper buckets supported thereby and adapted to be independently controlled for lowering the same, adjusting the angle of inclination thereof and hoisting them to the carrying position.

Another object of the invention is to provide a machine for the purpose described in which a novel means is employed for independently raising or lowering either the front or rear end of each bucket.

A further object of the invention is to provide a novel clutch and brake mechanism for controlling the movements of said buckets.

A still further object of the invention is to provide a machine of the character described, which is composed of a relatively few number of parts, is therefore simple in construction, and is cheap to manufacture.

With these and other objects in view, the invention consists in the construction and novel combination of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended; it being understood that various changes in the form, proportion, size and minor details of construction within the scope of the claims, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings: Figure 1 is a top plan view of a road grader constructed in accordance with my invention, Fig. 2 is a side elevation thereof, Fig. 3 is a rear end elevation, Fig. 4 is a longitudinal sectional view through the same, Fig. 5 is an enlarged detail view of the clutch and brake mechanism, Fig. 6 is a top plan view thereof, and Fig. 7 is a detail sectional view taken on the line 7—7 of Fig. 6.

Like reference numerals designate corresponding parts in all the figures of the drawings.

Referring to the drawings, the invention comprises a main frame which consists of spaced longitudinal sills 5—5 and end sills 6—6. A front axle 7 is supported below the front end of the main frame by any suitable means, and associated with this axle are front ground wheels 8—8. Disposed below the rear end of the frame is a rear axle 9, and this axle is also connected to the frame by any suitable means, and associated with this axle are the usual tractor wheels 10—10.

My invention comprises a plurality of scraper buckets, which are each designated as a whole by the reference numeral 11. Inasmuch as each bucket and its controlling mechanism is identical, the description of one thereof will be deemed to be sufficient.

Each bucket 11 includes a bottom 12 having a pointed front end 13 constituting a scraper, spaced side walls 14—14 and a rear wall 15. Supported upon each side sill 5 of the frame above each bucket 11 is a pair of brackets 16 and 17 respectively, and journaled in each alined pair of brackets are shafts 16^a and 17^a respectively. A spaced pair of chains 18—18 are each connected at one end to the front shafts 16^a, and has its other end connected to one end of a rod 19, the lower end of each rod being pivotally connected to the front end of a respective side 14 of the respective bucket by means of a pivot pin 20. A rear pair of chains 21—21 are each connected at one end to the rear shafts 17^a, and at its other end to one end of a rod 22, said rod being pivotally connected to the rear end of an adjacent side wall 14 of a respective bucket by means of a pivot pin 23. Holding rods 24—24 are each pivotally connected at one end to a pivot pin 25, which is carried by the side sill 5 of the frame in advance of the respective bucket, and at its other end to the respective pivot pin 20. Fixedly secured upon the shafts 16^a—17^a are winding drums 16^b and 17^b respectively. In order to adjust the inclination of these buckets or to elevate the same or to lower them, the following mechanism is employed: Secured to the rear ends of the side sills 5 of the frame is an operator's platform 26, and secured to said sills 5 in advance of the platform is a pair of alined bearings 27—27, said bear-

ings being disposed directly above the rear axle 9. Journaled in said bearings is a driven shaft 28. A sprocket wheel 29 is centrally secured on said shaft, and is driven by means of a chain 30 from a sprocket wheel 31 carried by the rear axle 9. Loosely mounted upon the shaft 28 is a plurality of hoisting drums 32, there being as many hoisting drums as there are winding drums. These hoisting drums are arranged in spaced relation, and in alinement with said winding drums. Each hoisting drum 32 includes a lateral flange 33 constituting a brake drum. The face of each winding drum opposite the brake drum is recessed to form a conical clutch face 34. Splined upon the shaft 28 on the side of the clutch face of each drum 32 is a conical element 35, which includes a hub 36 having a circumferential groove 37 formed therein for the reception of a collar 37^a, and to this collar is connected one end of a shipper lever 38. This lever is fulcrumed, as at 39, upon a transverse Z-shaped cross beam 40 supported by the side sills 5 of the main frame. The other end of the shipper lever 38 terminates in a crank arm 41 which is pivotally connected, as at 42, to one end of a link 43. The other end of this link is pivotally connected, as at 44, to a hand lever 45 above its fulcrum 46, said lever being fulcrumed upon a rack bar 47 supported between the cross beam 40 and the platform 26. The lower end of the lever extends below the fulcrum 46 thereof, and is pivotally connected, as at 48, to one end of a link 49. The other end of said link is pivotally connected, as at 50, to one end of a bell-crank lever 51 which is fulcrumed at its angle, as at 52, to a bracket 53 supported by said cross beam 40 in advance of the lever 45. The other arm of the bell-crank lever projects forwardly, and is formed in its end with an opening wherethrough projects a reduced end 54 of a brake-band 55, said band being disposed around the brake drum 33 and having its other end 56 fixedly secured to a cross bar 57, by any suitable means. Associated with the end 54 of the brake band is a nut 58, and between this nut and the adjacent arm of the bell crank lever 51 is a coil spring 59 which tends to yieldingly hold the brake band 55 upon its drum. Each winding drum 16^a and 17^b is connected to a hoisting drum 32 by means of a cable 60 and 61 respectively.

In operation, when it is desired to lower any of the buckets 11, the respective levers 45 are moved forwardly, thereby withdrawing the clutches 35 from the respective drums 32. The drums 32 are then free to revolve upon the shaft 28, and by reason of the weight of the buckets 11, the chains 18 and 21 will play out from off the shafts 16^a and 17^a respectively. The hand lever 45 is

moved forwardly one notch further, thereby creating a greater friction between the brake band 55 and the brake drum 33. After the bucket has thus been lowered, and it is desired to elevate the rear end thereof, the proper lever 45 is swung rearwardly so as to release the brake and throw in the clutch. This will cause the chains 21 to be wound upon the shaft 17^a, and thereby elevate the rear end of said bucket. As soon as the bucket has been sufficiently elevated, the lever 45 is of course returned to its normal position when the clutch and the brake will be both thrown out. As the machine is drawn along the ground, the bucket fills with dirt. It is then desired to elevate the same. This is done by throwing the proper levers 45 rearwardly to clutch the respective hoisting drums 32 to the shaft 28. As soon as the bucket has been sufficiently elevated, the hand levers 34 are both quickly shifted, thereby simultaneously throwing out the clutches 35 and throwing on the brake bands 55, these brakes being sufficient to hold the hoisting drums 32 against rotation. When it is desired to dump the bucket, the lever 45 controlling the drum over which the cable 60 is wound is shoved forwardly for one notch. This will allow the forward end of the bucket to be lowered, and when said end has been sufficiently lowered, the lever 45 is quickly moved forwardly to the last notch, thereby applying the brake. It will of course be understood that when the buckets are being elevated, the motion is transmitted to the shaft 28 by means of the chain 30 from the rear axle 9.

What is claimed is:

1. In a road grading machine, the combination of a wheeled frame, a pair of spaced transverse shafts journaled thereon, a winding drum fixedly secured on each shaft, a scraper bucket, front and rear supporting elements respectively connected at one end to the bucket and having their other ends respectively connected to said shafts, a driven shaft supported transversely on said frame, a pair of hoisting drums loosely mounted on said driven shaft, a cable connecting each pair of winding and hoisting drums, clutches keyed on said driven shaft for respectively engaging each hoisting drum, separate actuating means for said clutches, and driving means connected to said driven shaft.

2. In a road grading machine, the combination of a wheeled frame including a rear axle, a pair of spaced transverse shafts journaled thereon, a winding drum fixedly secured on each shaft, a scraper bucket, front and rear supporting elements respectively connected at one end to the bucket and having their other ends respectively connected to said shafts; a driven shaft supported transversely on said frame, a pair

of hoisting drums loosely mounted on said driven shaft, a cable connecting each pair of winding and hoisting drums, clutches keyed on said driven shaft for respectively engaging each hoisting drum, separate actuating means for said clutches, and a driving connection between the driven shaft and the rear axle of the frame.

3. In a road grading machine, the combination of a wheel frame, a pair of spaced transverse shafts journaled thereon, a winding drum fixedly secured on each shaft, a scraper bucket including side walls, front and rear pivot pins respectively secured to each wall of the bucket, flexible supporting elements respectively connected at one end to the front pivot pins of the bucket and having the other ends respectively connected to one of said shafts, other flexible connections respectively having one end connected to a rear pivot pin and having their other ends connected to the other of said shafts, holding rods respectively pivoted at one end to the frame in advance of the bucket and at its other end to a respective front pivot pin of said bucket, a driven shaft supported transversely on said frame, a pair of hoisting drums loosely mounted on said driven shaft, a cable connecting each pair of winding and hoisting drums, clutches keyed on said driven shaft for respectively engaging each hoisting drum, separate actuating means for said clutches, and driving means connected to said driven shaft.

4. In a road grading machine, the combination of a wheeled frame, a pair of spaced transverse shafts journaled thereon, a winding drum fixedly secured on each shaft, a scraper bucket, front and rear supporting elements respectively connected at one end to the bucket and having their other ends respectively connected to said shafts, a driven shaft supported transversely on said frame, a pair of hoisting drums loosely mounted on said driven shaft, a cable connecting each pair of winding and hoisting

drums, clutches keyed on said driven shaft for respectively engaging each hoisting drum, a transverse bar supported by the frame in spaced relation to the driven shaft, shipper levers for the clutches respectively pivoted on said transverse bar, each lever including a crank arm, rack bars supported by the frame, hand lever fulcrumed on said rack bar, a link connecting the lever and the crank arm of the shipper lever for actuating the same upon movement in either direction of the hand lever, and driving means connected to said driven shaft.

5. In a road grading machine, the combination of a wheeled frame, a pair of spaced transverse shafts journaled thereon, a winding drum fixedly secured on each shaft, a scraper bucket, front and rear supporting elements respectively connected at one end to the bucket and having their other ends respectively connected to said shafts, a driven shaft supported transversely on said frame, a pair of hoisting drums loosely mounted on said driven shaft, a brake drum carried by each hoisting drum, a cable connecting each pair of winding and hoisting drums, clutches keyed on said driven shaft for respectively engaging each hoisting drum, a transverse bar supported by the frame below the brake drum, brake bands respectively disposed around the brake drum and having one end fixedly connected to said transverse bar, bell-crank levers respectively fulcrumed on the frame in alinement with said brake drum, one arm of each lever having connection with the free end of a respective brake band, separate means for alternately actuating each clutch and brake band, and driving means connected to said driven shaft.

In testimony whereof, I affix my signature, in presence of two witnesses.

PATRICK L. STACKER.

Witnesses:

B. A. LAMPKIN,
E. E. EASLEY.