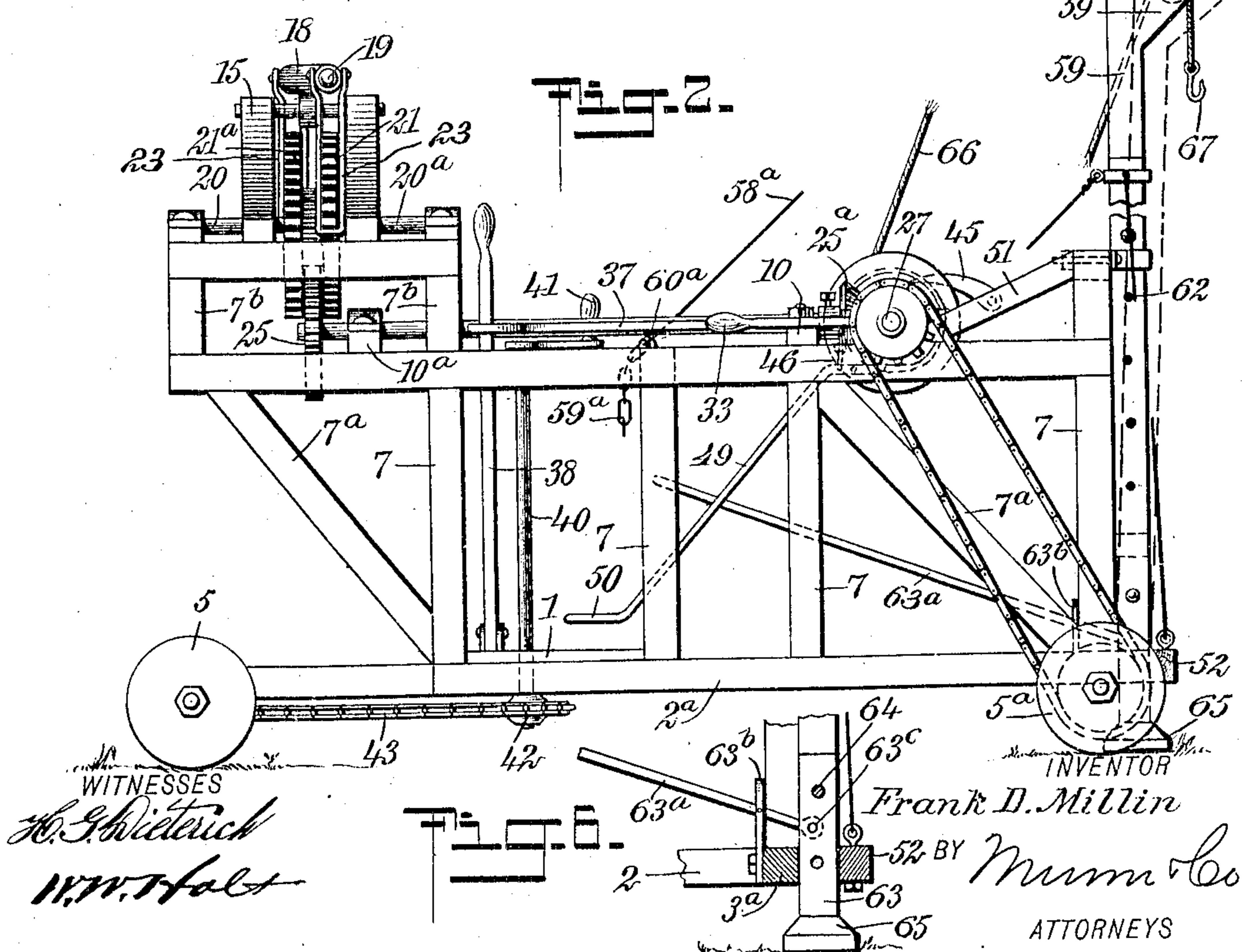
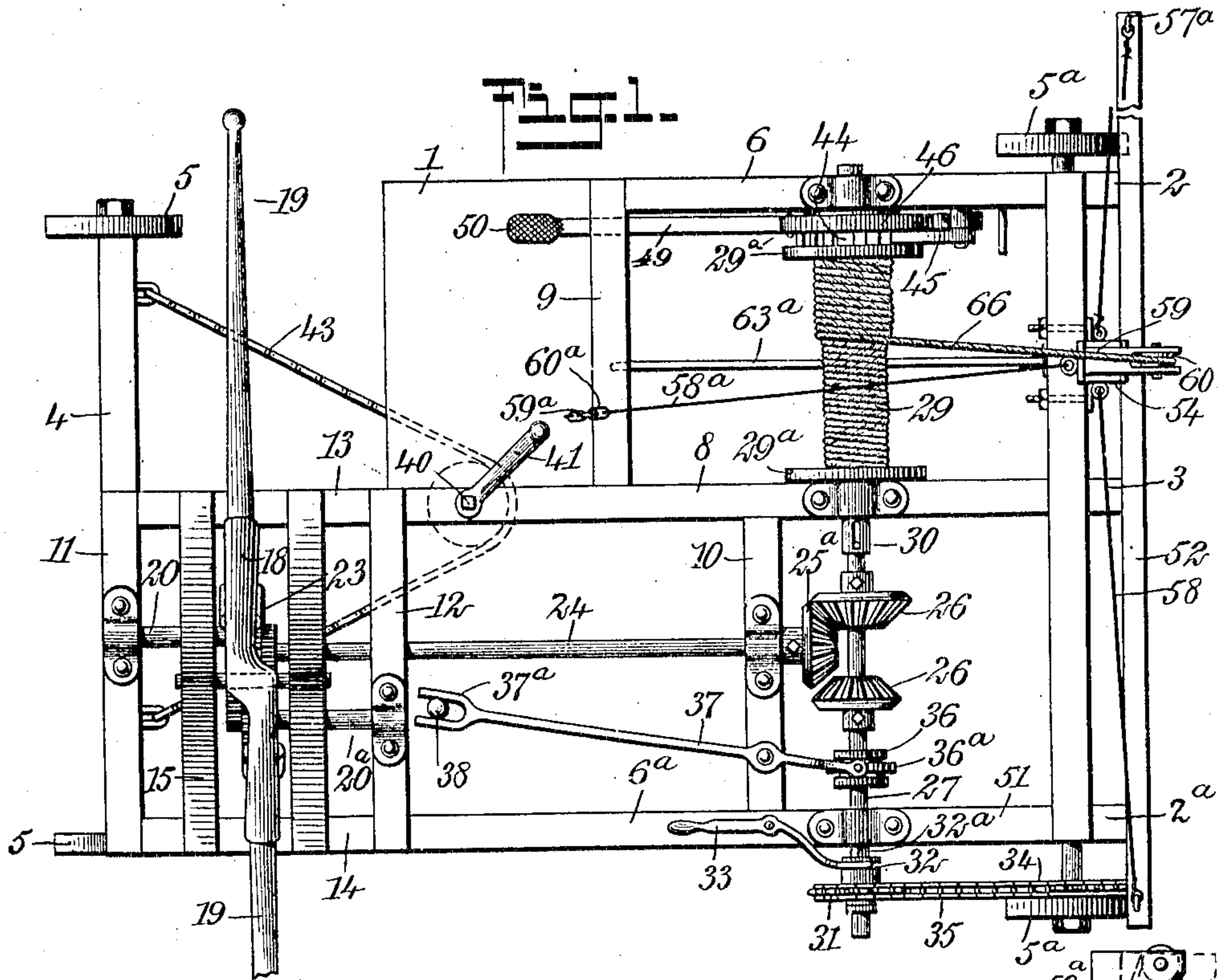


No. 843,411.

PATENTED FEB. 5, 1907.

F. D. MILLIN.
HOISTING APPARATUS.
APPLICATION FILED JUNE 26, 1906.

2 SHEETS—SHEET 1.



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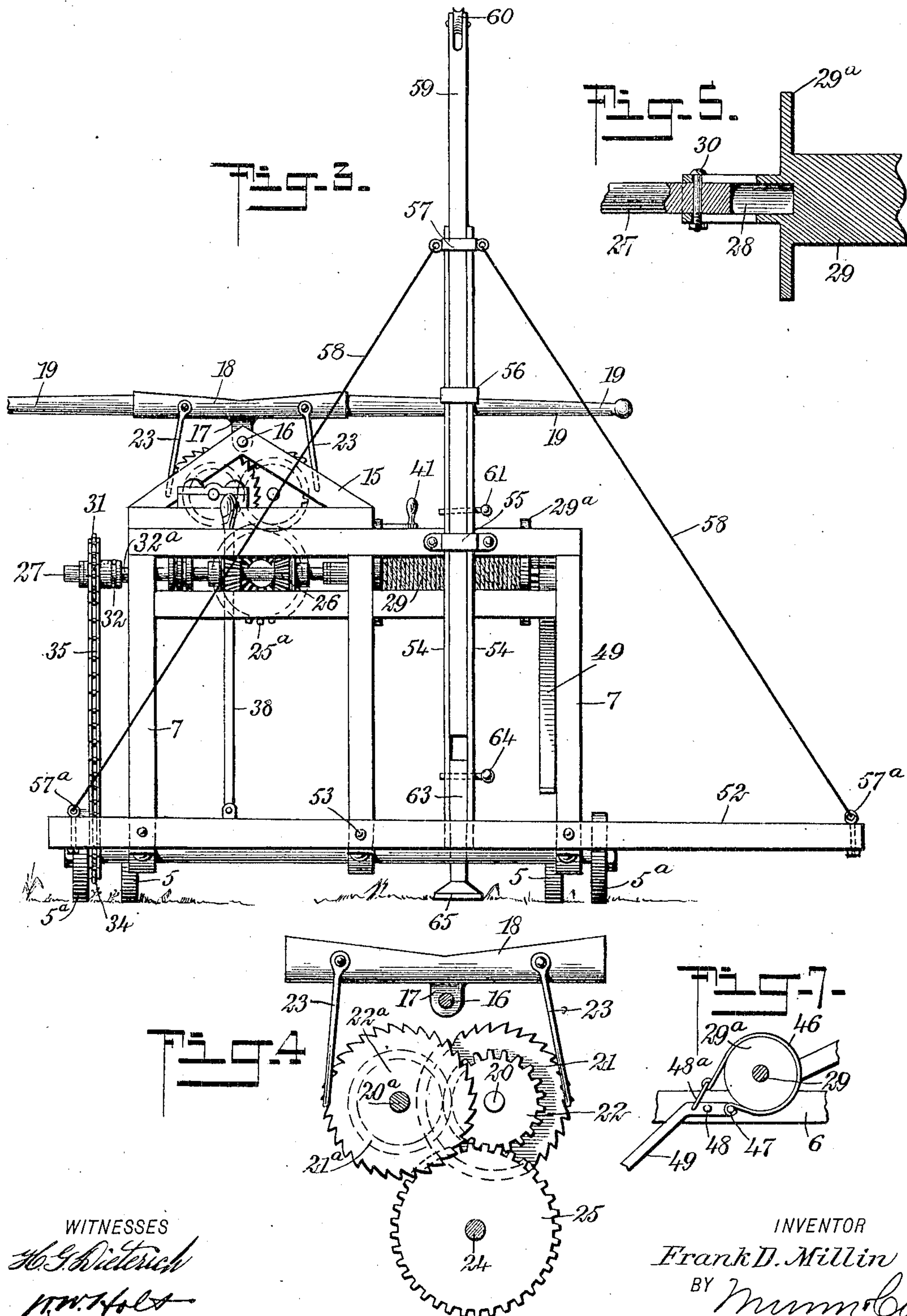
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2 SHEETS—SHEET 2.



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HOISTING APPARATUS.

No. 843,411.

Specification of Letters Patent.

Patented Feb. 5, 1907.

Application filed June 26, 1906. Serial No. 323,469.

To all whom it may concern:

Be it known that I, FRANK D. MILLIN, a citizen of Canada, and a resident of Spokane, in the county of Spokane and State of Washington, have invented a new and Improved Hoisting Apparatus, of which the following is a full, clear, and exact description.

This invention is an improved hoisting apparatus designed to be used in lifting brick, beams, and other forms of building material, also in extracting stumps, stretching wires, and in other relations where a pulling strain is necessary.

The invention contemplates the production of a device of this character which can be readily moved from place to place under the action of its own power and which may be employed to drive the hoisting apparatus or the carriage on which the machine is mounted by the will of the operator, combined with suitable means to anchor the machine when used in the hoisting operation.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of the machine complete. Fig. 2 is a left-hand side elevation. Fig. 3 is a rear end elevation. Fig. 4 is a fragmentary view of the driving mechanism. Fig. 5 is a central longitudinal section through one end of the drum and its attached driving-shaft. Fig. 6 is a sectional view disclosing the means by which the machine is held stationary when in operation, and Fig. 7 is a detail fragmentary view of the braking mechanism.

Referring to the drawing figures, the numeral 1 indicates a platform supported on side sills 2 and 2^a and a central sill 3, all of said sills being parallel to each other, with the sill 3 extending beyond the sills 2 and 2^a and carrying at its forward end an axletree 4, on which wheels 5 are journaled, supporting this end of the machine. The rear ends of all of said sills are attached to a rear axletree, on which wheels 5^a are journaled, forming, with the wheels 5 and attached sills, a carriage by which the machine may be rolled about from place to place. The sills 2, 2^a, and 3 support on suitable posts 7 and struts 7^a parallel to the sills in an elevated position, respectively, stringers 6, 6^a, and 8, the stringers being of substantially the same

length as the sills and braced by cross-beams 9 and 10.

The forward end of the frame is elevated above the stringers by suitable posts 7^b, supporting transverse beams 11 and 12 and side beams 13 and 14. Bridging over the beams 13 and 14 and slightly separated from each other are inclined struts 15, having journaled in their vertices a short shaft 16, fixed to a lug 17, projecting from a double-ended socket 18, in which suitable handles 19 are carried, projecting at each side of the machine.

Short shafts 20 and 20^a, journaled in bearings respectively carried by the transverse beams 11 and 12, have fixed to their adjacent ends between the inclined struts 15 ratchet-wheels and pinions 21 and 22 and 21^a and 22^a, respectively, the pinions 22 and 22^a meshing with each other and the ratchet-wheels being each engaged by a pivotally-mounted clevis or pawl 23, depending from the sockets 18.

Journaled in suitable bearings supported on the upper face of the transverse beams 10 and 10^a is a longitudinal shaft 24, passing directly under the pinions 22 and 22^a, where it has fixed to it a somewhat larger pinion 25, meshing with the pinion 22, from which it is driven. The opposite end of said shaft 24 has fixed to it a beveled pinion 25^a, positioned between two beveled pinions 26, with either of which it is adapted to mesh, according to the direction in which the hoisting mechanism is to be driven. These beveled pinions are fixed to a transverse shaft 27, journaled in a bearing carried by the stringer 6^a. The opposite end of the shaft, as shown in Fig. 6, is slidably supported in a cylindrical socket 28 in one end of a drum 29 and is normally held from relative rotation therewith by means of a bolt 30 passing through the shaft and through slots at each side of the socket. The shaft 27 is extended at the left-hand side of the machine beyond the frame, where it has journaled on it a sprocket-wheel 31, adapted to be connected and disconnected with the shaft by providing a square portion 32^a on the shaft designed to be engaged with by a square aperture in the hub of the wheel. A lever 33, having a forked end embracing a groove 32 in the hub of the wheel, is pivoted on the stringer 6^a and is operable to slide the sprocket-wheel into and out of engagement with the square portion. A similar sprocket-

wheel 34 is fixed to the rear axle and is in alinement with the sprocket-wheel 31 when the latter is slipped to connect it with the shaft 27, both of said sprocket-wheels being connected by a chain 35.

Fixed to the shaft 27, preferably intermediate one of the pinions 26 and the stringer 6^a, is a grooved collar 36, embraced by a ring 36^a, connected to the fork of a lever 37, pivoted to the transverse beam 10 and carrying at its opposite end a horizontal fork 37^a, through which passes a lever 38, pivoted between suitable brackets secured to the platform 1 of the machine.

Journalled in the stringer 8 and the center sill 3 is a vertical shaft 40, having fixed to its upper end a hand-wheel or hand-lever 41 and to its opposite and lower end a sprocket-wheel 42. This sprocket-wheel engages with a chain 43, secured to opposite ends of the axletree 4, whereby the latter may be thrown about to steer the machine as it is moved from place to place.

The operation of the machine thus far described is as follows: As the hand-levers 19 are worked up and down the depending clevises or pawls 23 alternately engage with the teeth of their respective ratchet-wheels. This gives a continuous movement to the shafts 20 and 20^a and their respective intermeshing pinions 22 and 22^a, driving the large pinion 25 and the beveled pinion 25^a through the shaft 24. This latter pinion drives either of the pinions 26, according to the direction in which the lever 38 is thrown, shifting the shaft 27 in its bearing, thereby turning the drum 29 in either direction. When the drum is being driven, the lever 33 is thrown to disengage the sprocket-wheel 31 from the shaft 27, so that no movement of the machine on its wheels takes place. If, however, the machine is to be moved, the bolt 30 should be removed to detach the drum and shaft 27 and the clutch 32 thrown into engagement. By now operating the hand-levers 19 the machine may be driven forward or rearward, according to which beveled pinion 26 of the beveled pinion 25^a is intermeshed with. The operator standing on the platform 1 while working the adjacent lever 19 to drive the machine can also operate the hand wheel or lever 41 to steer it. The drum 29 is journaled in suitable bearings supported on the stringers 6 and 8 in alinement with the shaft 27 and has fixed to it at each side flanges 29^a, two of such flanges spaced apart being fixed to the drum at the right-hand side. Between these two flanges a ratchet-wheel 44 is fixed, which is normally engaged by a pawl 45, pivoted at one side of the machine-frame and preventing the rotation of the drum in one direction. As best shown in Fig. 7, the outer flange 29^a adjacent to the ratchet-wheel has passed about it a flat spring-band 46, fixed at 47 to the end of a

lever 49, pivoted at 48, and at its opposite end at 48^a to said lever at the other side of its pivotal connection. The lever is inclined downwardly to the platform 1, where it is provided with a foot-treadle 50. It is evident that this treadle when it is depressed by the foot tightens the spring-band 46 over the flange of the drum enveloped by it, thereby forming an effective braking means for holding the drum in any desired position.

The rear posts 7 of the machine are extended slightly beyond the stringers of the machine-frame, where they are braced to them by inclined struts 51. The extension of these posts is for the purpose of receiving an attachment when the machine is to be used in hoisting or extracting stumps or the like. This attachment comprises a transverse beam 52, detachably secured in horizontal relation to the lower rear end of the machine by bolts 53, the sills 2, 2^a, and 3 being slightly extended beyond the end sill 3^a to hold the beam 52 separated from it, as best shown in Fig. 6. This separated condition of the rear end sill 3^a and the beam 52 admits of two upright guides 54 being secured between them, said guides being also held to the machine-frame at its upper end by a strap 55, embracing them and held by suitable bolts passing through the upper and rear transverse beam of the machine-frame. In addition to this means for supporting the guides 54 collars 56 and 57 are provided, the upper collar 57 carrying eyes at each side, in which guy-ropes 58 are tied, said ropes being secured at their opposite and lower ends to eyebolts 57^a, fixed in the ends of the beam 52. An eye also extends from the rear face of the collar 57, in which a guy-rope 58^a is secured, having fixed to its lower end a plurality of chain-links 59^a for the purpose of engaging in a hook 60^a on the transverse beam 9.

Between the guides 54 is slidably mounted a post 59, bifurcated at its upper end to receive a pulley-sheave 60, the post 59 being extended at 59 on its rear face for this purpose. A pin 61, adapted to be passed through any two of a series of alining apertures 62 in the guides 54 and an aperture in the post 59, is for the purpose of adjusting the height of the post to any desired extent, dependent, of course, on the distance to which the body is to be hoisted.

Two pairs of alining apertures in the lower ends of the guides 54 correspond to the apertures 62 and are for holding a leg 63 slidable in the guides 54 in elevated and depressed relation when a pin 64 is passed through them and through an aperture in said leg. The lower end of this leg has a foot 65, which when lowered engages with the ground and receives the weight directly under the post 59 and also keeps the wheels of the carriage from moving about. For elevating and lowering

the leg 63 is a lever 63^a, pivoted in a bracket 63^b and in a recess at 63^c in the leg.

A rope 66, having one end attached to the drum 29 and its opposite end carrying a hook 67, is adapted to be passed over the sheave 60 when the rear end attachment is used for hoisting and other purposes. It is of course to be understood that many occasions will arise in which a machine of this character is desired without the attachment—as, for example, in stretching wires of fences or using the machine as an ordinary windlass—in which case the beam 52 is removed, as also the post 59, by taking out the necessary bolts securing them.

In Fig. 2 is shown in dotted lines a position which may be assumed by the post 59 if it should be desired that it be slightly inclined as to overhang the work. This is accomplished by loosening the bolts securing the strap 55, allowing said strap to pass rearwardly from the machine-frame and adjusting the guy-rope 58^a by means of the links 59^a to correspond.

By the driving mechanism heretofore described it is evident that the drum may be driven in either direction to wind or unwind the rope 66 and prevented by the pawl 45 from unwinding, as when a load is suspended on the end of the rope, or the drum held from movement in either direction by the braking means operated by the foot-treadle 50.

In practice should it be found necessary to change the speed or power of the machine this is preferably accomplished by changing the beveled pinions 25^a or 26 for a larger or smaller size, according to the work to be performed.

Although the invention has been described in detail in order that the construction and operation might be fully understood, its precise embodiment is limited by the annexed claims only.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a machine of the character described, a framework wheels supporting the framework, a platform carried by the framework, a drum journaled on the framework, means carried by the framework operable from the platform to drive the drum, said means being also operable to move the platform on its wheels, and steering means operable from the platform.

2. In a machine of the character described, a carriage comprising a framework supporting a platform, a drum journaled on the framework, means for operating the drum supported by the framework and operable from the platform, said means also being operable to drive the carriage in moving the machine from place to place, and a detachable hoisting mechanism adapted to cooperate with the drum.

3. In a machine of the character described, a carriage comprising a framework supporting a platform, a drum journaled on the framework, means carried by the framework for driving the drum in either direction operable from the platform, steering means for the carriage operable from the platform, and braking means for the drum also operable from the platform.

4. In a machine of the character described, a carriage, a framework mounted thereon, a drum journaled on the framework, a shaft slidably connected to the drum and journaled on the framework, means for driving the drum, means for shifting the shaft in its bearings whereby the direction of rotation of the drum is changed, and means for connecting the shaft to a wheel of the carriage in driving the carriage about from place to place.

5. In a machine of the character described, a carriage, a framework mounted thereon, a drum journaled on the framework, gearing journaled on the framework for driving the drum, said gearing also being operative to drive the carriage about from place to place, steering means for the carriage, and a hoisting attachment detachably connected to the framework and cooperating with the drum, for the purpose described.

6. In a machine of the character described, a framework, a hoisting attachment detachably secured thereto, comprising a post and a foot, means for adjusting the post, and means for adjusting the foot to anchor the frame, work as described.

7. In a machine of the character described, a carriage, a framework mounted thereon, a drum journaled on the framework, means carried by the framework for driving the drum in either direction, a hoisting attachment detachably secured to the framework and adapted to cooperate with the drum, said attachment comprising a post and a foot, means for adjusting the post to different heights, and means for adjusting the foot to anchor the carriage in place.

8. In a machine of the character described, a framework, wheels supporting the same, means journaled on the framework for driving the drum in either direction, said means being also adapted to drive the wheels in moving the machine from place to place, steering means carried by the framework for guiding the machine, and a hoisting attachment detachably secured to the rear end of the machine and adapted to cooperate with the drum, for the purpose described.

9. In a machine of the character described, a framework, a drum journaled thereon, a hoisting attachment detachably secured to the rear end of the framework comprising a transverse beam, a post and a foot, guides for the post and foot, guy-ropes connecting the guides with the transverse beam, guy-

ropes connecting the guides with the framework, and means permitting the vertical adjustment of the post and foot, as described.

10. In a machine of the character described, 5 a framework, a hoisting attachment detachably secured thereto, a drum journaled on the framework adapted to cooperate with the hoisting attachment, a foot and a post slidable in guides carried by the hoisting attachment, 10 alining holes in the guides, a pin for passing through a set of said holes for holding the post in adjusted relation, a pin passing through a set of said holes for holding the foot in adjusted relation, and a lever adapted 15 to raise and lower the foot.

11. In a machine of the character described, a framework, a drum journaled thereon, a pair of levers journaled on the framework, 20 said levers having depending pawls, ratchet-wheels with which said pawls are adapted to engage, a shaft journaled in the framework, a pinion fixed to one end of said shaft, gearing carried by said ratchet-wheels adapted to drive said pinion, a pinion fixed to the opposite end of said shaft, and means adapted to 25 mesh with said pinion for driving the drum in opposite directions.

12. In a machine of the character described,

a carriage, a framework mounted thereon, a double-ended lever journaled on the framework, depending pawls carried by the lever, 30 ratchet-wheels journaled on the framework adapted to be engaged by the pawls, pinions fixed to the ratchet-wheels, a longitudinal shaft journaled in the framework having a 35 pinion fixed thereon adapted to mesh with one of the pinions fixed to the ratchet-wheels, a beveled pinion fixed to the opposite end of the longitudinal shaft, a drum journaled on the framework, a transverse shaft slidably 40 connected to the drum, pinions fixed to the transverse shaft adapted to mesh alternately with the pinion fixed to the longitudinal shaft, means for shifting the transverse shaft in its bearings for changing the direction of 45 rotation of the drum, and mechanism intermediate the transverse shaft and the carriage for moving the latter about from place to place, as described.

In testimony whereof I have signed my 50 name to this specification in the presence of two subscribing witnesses.

FRANK D. MILLIN.

Witnesses:

W. F. MEIER,

JOHN SALISBURY.