E. O. BEARDSLEY AND W. F. PIPER.

PORTABLE MACHINE FOR MAKING MOLDS.

APPLICATION FILED JAN. 31, 1919.

1,309,836.

Patented July 15, 1919.

2 SHEETS—SHEET 1.

Fig. 1.

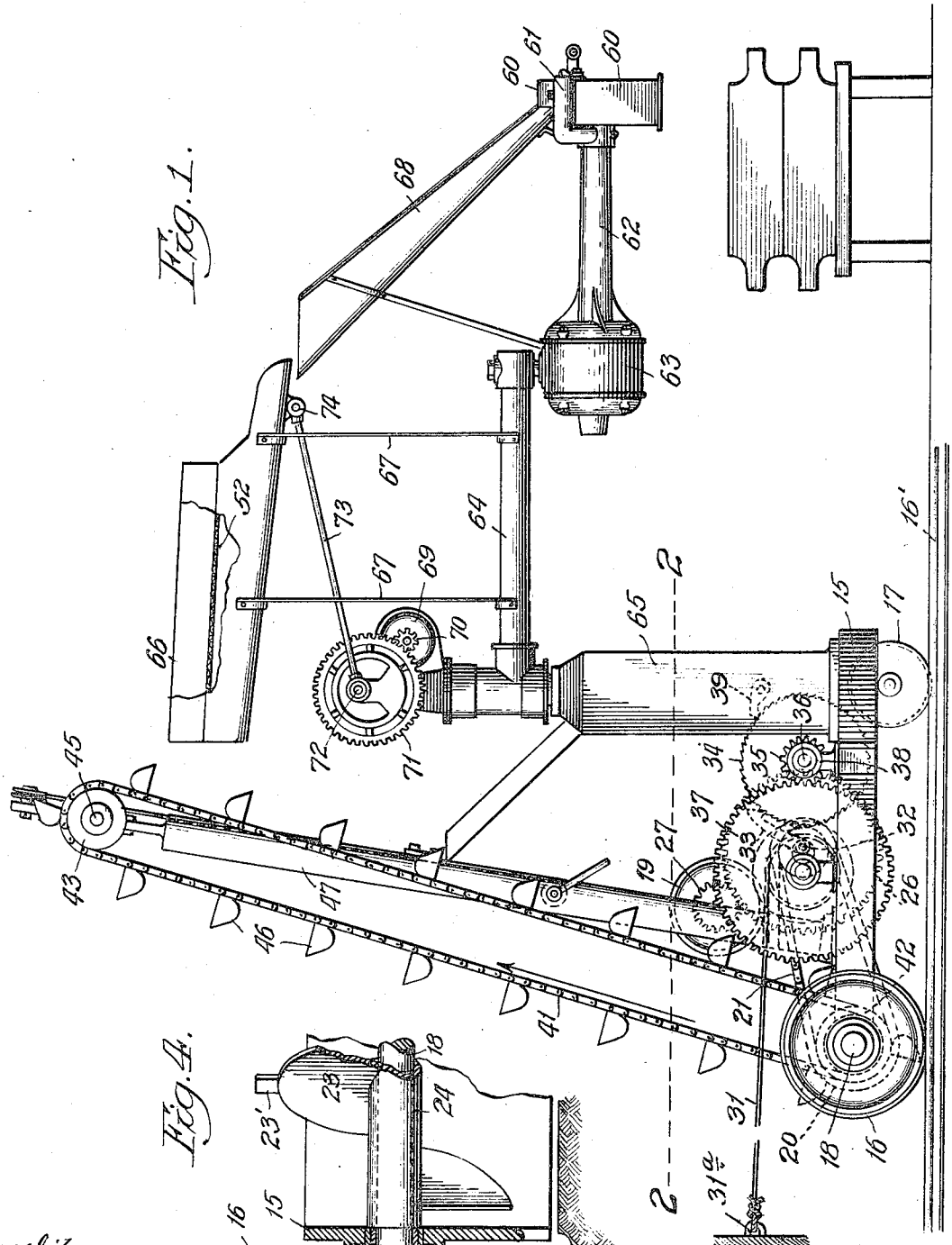


Fig. 4.

Witness:
John Enders

Inventors:
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their Atty.

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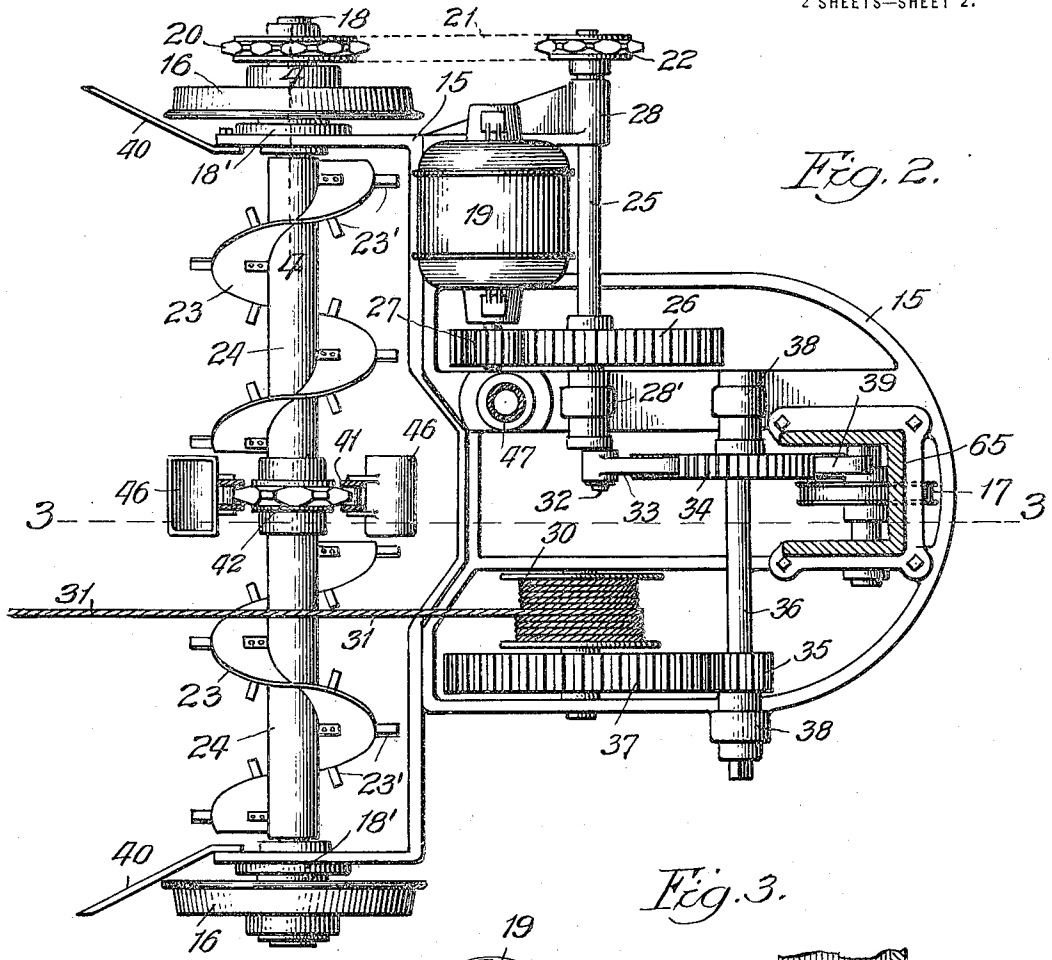
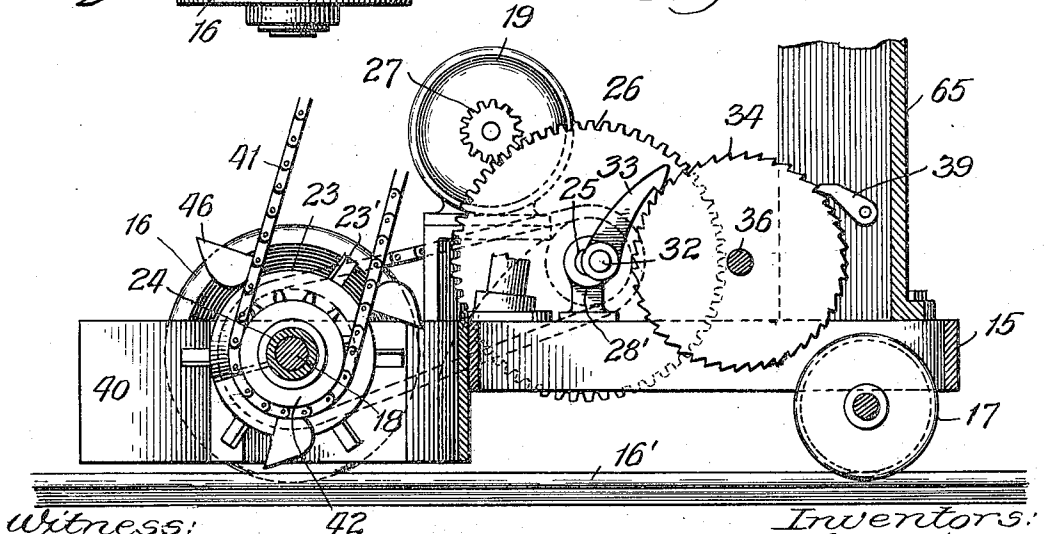


Fig. 2.

Fig. 3.



Witness:
John Enders

Inventors:
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UNITED STATES PATENT OFFICE.

ELMER O. BEARDSLEY, OF CHICAGO, AND WALTER F. PIPER, OF OAK PARK, ILLINOIS.

PORTABLE MACHINE FOR MAKING MOLDS.

1,309,836. Specification of Letters Patent. Patented July 15, 1919.

Application filed January 31, 1919. Serial No. 274,190.

To all whom it may concern:

Be it known that we, ELMER O. BEARDSLEY and WALTER F. PIPER, both citizens of the United States, and residents of Chicago, in the county of Cook and State of Illinois, and Oak Park, in the county of Cook and State of Illinois, respectively, have invented certain new and useful Improvements in Portable Machines for Making Molds, of which the following is a full, clear, and exact description.

The invention relates to machines for making molds and more particularly to that type in which the machine is mounted on a truck to travel in a foundry along a sand pile or to be brought into operative position with respect to different molds.

The object of the invention is to provide improved mechanism for controlling the movement of the truck in combination with the mechanism for filling the molds and the mechanism for supplying sand to said mechanism.

The invention consists in the several novel features hereinafter set forth and more particularly defined by claims at the conclusion hereof.

In the drawings: Figure 1 is a side elevation of a machine embodying the invention. Fig. 2 is a horizontal section taken on line 2—2 of Fig. 1. Fig. 3 is a section taken on line 3—3 of Fig. 2. Fig. 4 is a section taken on line 4—4 of Fig. 2.

The machine is illustrated as mounted upon a truck comprising a suitable frame 15, side wheels 16 and a central wheel 17 whereby the frame is supported. Wheels 16 are loosely mounted on an axle 18 which is journaled in bearings 18′ in the frame 15, and this axle serves to drive the sand conveyer and elevator. The truck wheels are adapted to run on rails 16′.

Helicoidal sand cutters 23 are fixed to a sleeve 24 on the axle 18 and are adapted to be driven by said shaft to cross convey sand from a pile or piles extending lengthwise of the truck formed by the rails to the said elevator. Breaker lugs 23′ for disintegrating the sand are fixed on the cutters 23. The mechanism for driving shaft 18 comprises a sprocket 20 fixed to said shaft, a chain 21 for operating said sprocket, a sprocket-wheel 22 for driving said chain, a cross-shaft 25 to which sprocket 22 is fixed, a gear-wheel 26 fixed to shaft 25 and meshing with a pinion 27 which is fixed to the shaft of an electric-motor 19 which is mounted on the truck frame. Shaft 25 is mounted in bearings 28 and 28′ on said frame. Divergent blades 40, secured to the truck frame, are adapted to direct sand laterally into the path of the sand cutters and conveyers.

An elevator for lifting the sand and delivering it from the cross-conveyer into an elevated riddle 52 comprises a sprocket chain 41 which passes around a sprocket 42 fixed on the central portions of sleeve 24. and around a sprocket 43 on a shaft 45, and buckets 46 on said chain. The shaft 45 is suitably supported at the upper end of a mast 47, which is supported on the truck-frame.

Mechanism for propelling the truck to keep the cutters and conveyers 23 supplied with sand from the pile or to move it length wise of the truck for any other purpose, comprises a drum 30 which is adapted to wind up a cable 31 which has one of its ends suitably anchored to the wall or a stake 31ª in the foundry, so that as the cable is wound up on the drum, the truck will be forced forwardly toward the pile of sand. The mechanism for operating the drum to wind up the cable comprises a crank or wrist-pin 32 on the inner end of shaft 25 and adapted to operate a pawl 33 which is adapted to engage a ratchet wheel 34 and operate it step by step, a pinion 35 on a cross-shaft 36, to which the ratchet wheel 34 is secured, and a gear-wheel 37 connected to drive the drum 30. Shaft 36 is mounted in bearings 38 on the truck-frame. A dog 39 engages the ratchet wheel 34 to prevent its reverse rotation.

The ramming head for projecting sand at a high velocity into a flask to form a mold is of the construction more fully illustrated and described in an application filed by us of even date herewith, Serial No. 273,265, and in which there is a rotor with a blade for projecting the sand operating in a casing 60 which is supported by a yoke 61. The construction of this ramming head is fully set forth in said application and reference may be had thereto for a more detailed description thereof. The yoke 61, which supports the stator of the ramming head, is supported by a sleeve 62 which is fixed to an electric motor 63. The sleeve 62 serves as an arm and a casing for the shaft between the motor and the rotor of the ramming head, as more fully set forth in the afore-

said application. The arm 62 is pivotally sustained to swing laterally in the outer end of a jib 64 which has its inner end pivotally sustained on a standard 65 which is fixed on the truck. This construction exemplifies a sand projector mounted on a portable truck which is supported thereon by pivotally sustained members which permit the ramming head to be moved laterally to deliver sand into all portions of the flask.

The elevator buckets discharge the sand in a conveyer chute 66 which contains a riddle 52. This chute is supported by resilient bars 67 which have their upper ends fixed to said chute and the lower ends fixed to the jib 64. The chute 66 discharges the sand into an inclined chute 68 which is supported on and movable with arm 62 and has its lower end adapted to deliver sand into the ramming head. The conveyer chute 66 and riddle 52 are vibrated by a motor 69 which is supported on and movable with the jib 64, a pinion 70 on the motor shaft, a gear-wheel 71 suitably supported on the jib and an eccentric-pin 72 operated by gears 71 and a pitman 73 connected to the wrist-pin and to the chutes 66, as at 74.

In the operation of the portable machine, the cross-conveyer and cutters 23 will feed sand to the central portion of the track where it will be picked up by the elevator buckets 46 and delivered into the conveyer chute 66. From the latter, the sand will be delivered into the chute 68 to supply the ramming head. Motor 19, through sprocket 22, serves to drive continuously the sand cutters and the sand elevator. In order to advance the truck in the direction of the pile of sand, it will be gradually advanced by the pawl and ratchet mechanism for operating the drum 30 to wind up the cable 31. Whenever it should be desired to operate the conveyer without advancing the truck, it is only necessary to throw and hold the pawl 33 out of engagement with ratchet 34, whereupon the winding drum will be idle.

The invention exemplifies a portable molding machine in which the mechanism for propelling the truck is simple in construction and efficient in operation and in which simple driving mechanism is used for operating the cross-conveyer and elevator for the sand.

The invention is not to be understood as restricted to the details set forth, since these may be modified within the scope of the appended claims, without departing from the spirit and scope of the invention.

Having thus described the invention, what we claim as new and desire to secure by Letters Patent, is:

1. In a machine for making molds, the combination of a portable truck, a sand-projector mounted on the truck, mechanism for driving the projector, means mounted on the truck for delivering sand to the projector, a cable, and means for winding the cable to propel the truck.

2. In a machine for making molds, the combination of a portable wheeled truck, a sand projector movably mounted on the truck for delivering sand to the projector, an elevator for delivering sand to said delivery means, a cable, a drum, and means for operating the drum and the elevator.

3. In a machine for making molds, the combination of a portable wheeled truck, a sand projector movably mounted on the truck, mechanism for driving the projector, means mounted on the truck for delivering sand to the projector, means for propelling the truck, and pawl-and-ratchet mechanism for operating said propelling means.

4. In a machine for making molds, the combination of a portable wheeled truck, a sand projector movably mounted on the truck, mechanism for driving the projector, means mounted on the truck for delivering sand to the projector, a cable, and a drum for propelling the truck, and pawl and ratchet mechanism for operating said drum.

5. In a machine for making molds, the combination of a portable wheeled truck, a device movably mounted on the truck for projecting sand into a flask, mechanism for driving the projector, means mounted on the truck for delivering sand to the projector, means for propelling the truck, and mechanism comprising a pawl-and-ratchet for operating said propelling means, said pawl being shiftable to render it inoperative.

6. In a machine for making molds, the combination of a portable wheeled truck, a device movably mounted on the truck for projecting sand into a flask, mechanism for driving the projector, means mounted on the truck for delivering sand to the projector, means for propelling the truck, a pawl-and-ratchet for operating said propelling means, and mechanism adapted to conjointly drive said delivery means and said propelling means, said pawl being shiftable to render the propelling means inoperative.

7. In a machine for making molds, the combination of a portable wheeled truck, a device movably mounted on the truck for projecting sand into a flask, mechanism for driving the projecting means, an elevator for sand mounted on the truck, a cable, a drum for winding up the cable to propel the truck, and mechanism for conjointly operating the drum and the sand elevating means.

8. In a machine for making molds, the combination of a portable wheeled truck, a device movably mounted on the truck for projecting sand into a flask, mechanism for driving the projecting device, mechanism mounted on the truck for elevating and feeding sand to the projector, means mounted

on the truck for conveying sand to the elevating means, a cable, a drum for winding up the cable, and mechanism for conjointly operating the drum and the sand conveying and elevating-means.

9. In a machine for making molds, the combination of a portable wheeled truck, a device movably mounted on the truck for projecting sand into a flask, mechanism for driving the projecting device, mechanism mounted on the truck for elevating and feeding sand to the projector, means mounted on the truck for conveying sand to the elevating-means, a cable, a drum for winding up the cable, mechanism for conjointly operating the drum and the sand conveying and elevating means, and means to render the drum inoperative by said operating mechanism.

10. In a machine for making molds, the combination of a portable wheeled truck, a sand projector movably mounted on the truck, mechanism for driving the projector, an elevator mounted on the truck, means for delivering sand from the elevator to the projector, means mounted on the truck for conveying sand to the elevating means, a cable, a drum for winding up the cable, and mechanism for conjointly operating the drum and the sand conveying and elevating means.

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