

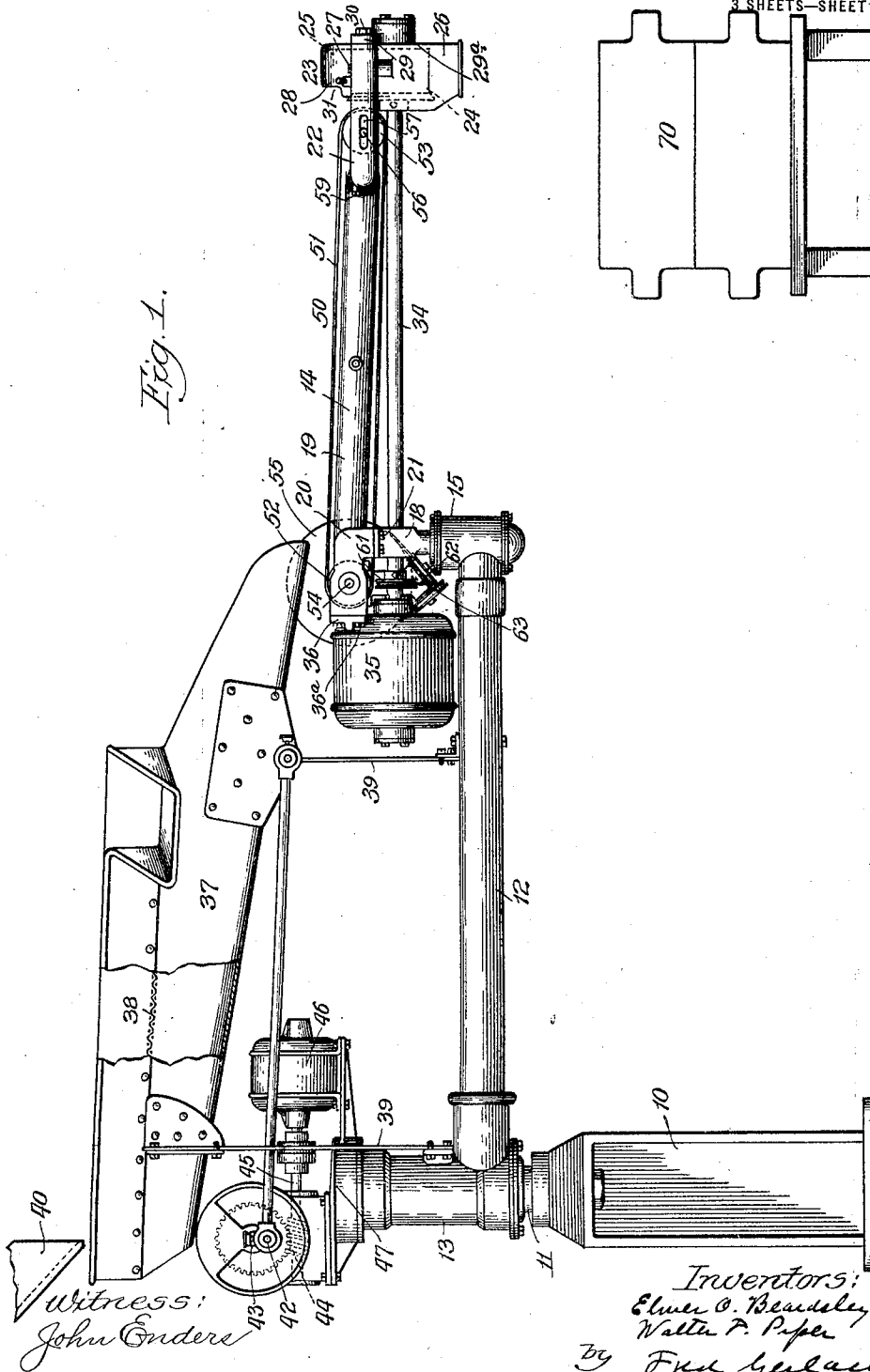
E. O. BEARDSLEY AND W. F. PIPER.
MOLDING MACHINE.

APPLICATION FILED DEC. 22, 1919.

1,335,642.

Patented Mar. 30, 1920.

3 SHEETS—SHEET 1.



Witness:
John Enders

Inventors:
Elmer O. Beardsley and
Walter P. Piper
by Fred Gulach
their Atty.

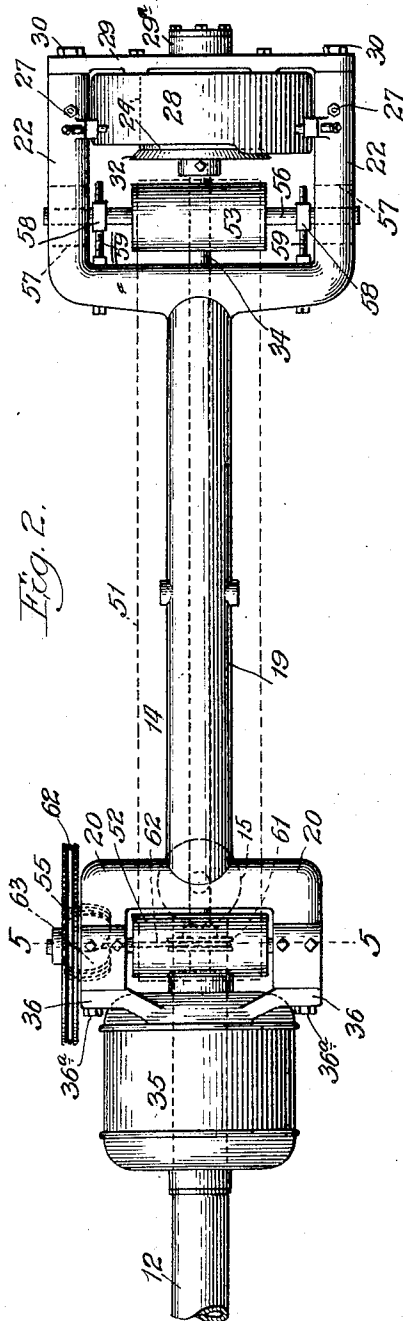
E. O. BEARDSLEY AND W. F. PIPER.
MOLDING MACHINE.

APPLICATION FILED DEC. 22, 1919.

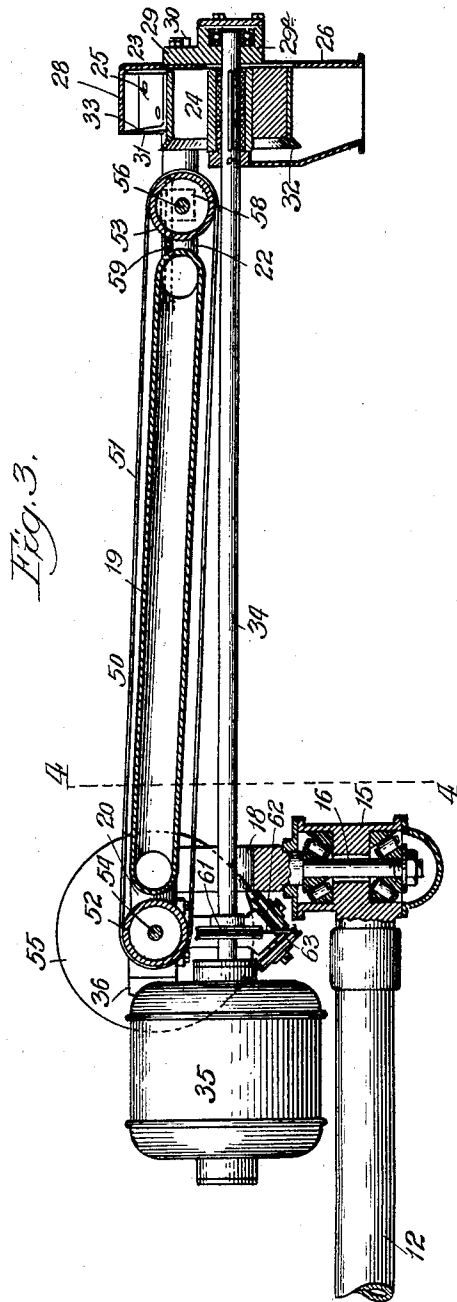
Patented Mar. 30, 1920.

3 SHEETS—SHEET 2.

1,335,642.



Witness:
John Enders



Inventors:
E. O. Beardsley and
Walter F. Piper
By Fred H. Glushko
their Atty.

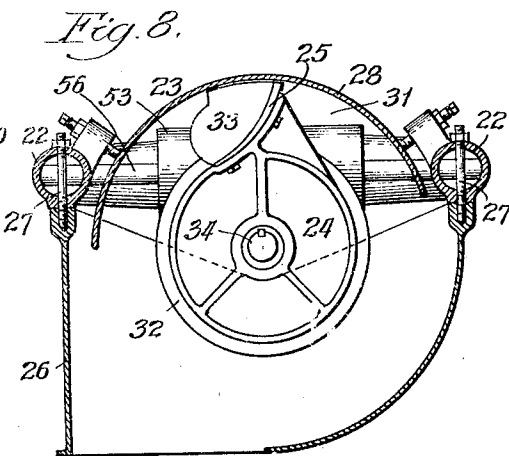
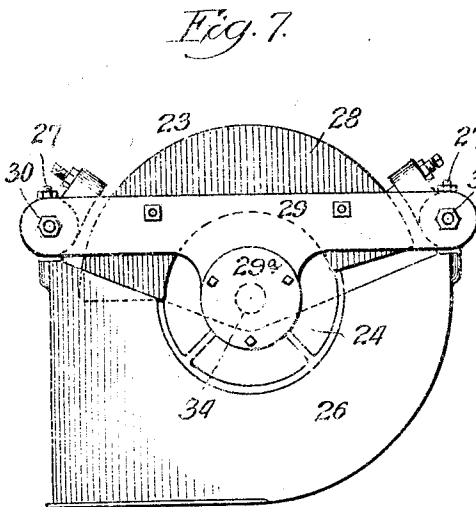
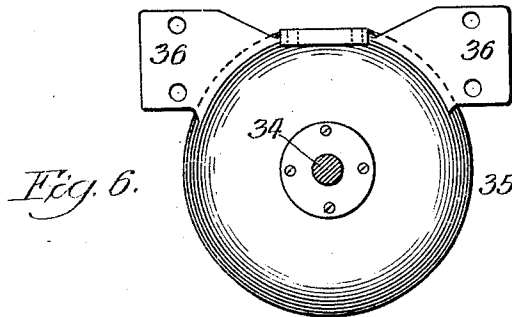
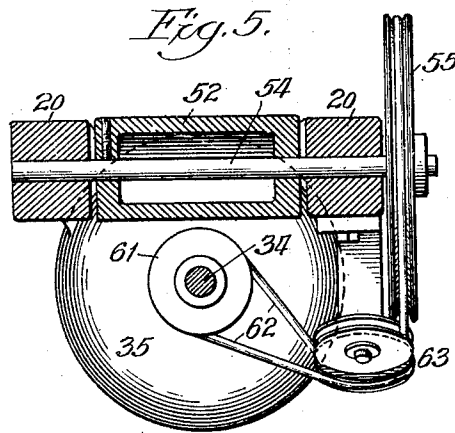
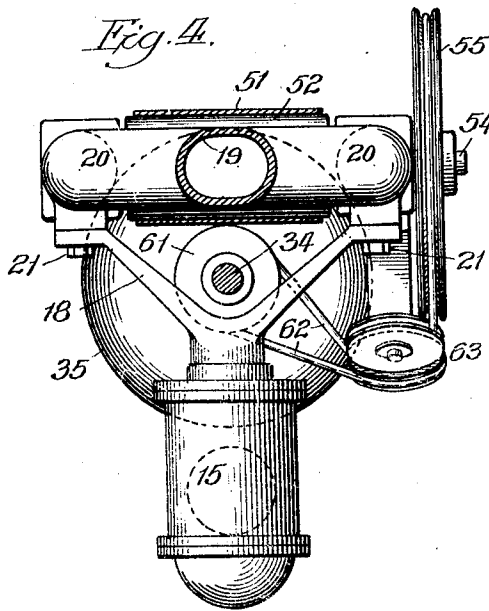
E. O. BEARDSLEY AND W. F. PIPER.
MOLDING MACHINE.

APPLICATION FILED DEC. 22, 1919.

Patented Mar. 30, 1920.

3 SHEETS—SHEET 3.

1,335,642.



Witness:
John Enders

Inventors:
Elmer O. Beardsley and
Walter F. Piper
by J. M. Galach
their Atty.

UNITED STATES PATENT OFFICE.

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

MOLDING-MACHINE.

1,335,642.

Specification of Letters Patent.

Patented Mar. 30, 1920.

Application filed December 22, 1919. Serial No. 346,614.

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, have invented certain new and useful Improvements in Molding-Machines, of which the following is a full, clear, and exact description.

10 The invention relates to machines for projecting sand into molds and its object is to provide improved means for feeding sand or mold-material to a sand-projector of the type set forth in Letters Patent No. 1,309,833.

15 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 plan. Fig. 3 is a longitudinal section. Fig. 4 is a section on line 4—4 of Fig. 3. Fig. 5 is a section on line 5—5 of Fig. 2. Fig. 6 is a detail of the motor for driving the rotor of the projector. Fig. 7 is an outer side elevation and Fig. 8 is a transverse section of the sand-projector.

20 The invention is exemplified in a machine comprising a mast 10 which supports a post 11 on which is journaled, for horizontal rotation, a tubular jib 12 which has a socket 13 around the post. Suitable anti-friction bearings (not shown) are interposed between said socket and said post to permit easy movement of the jib. An arm 14 is pivoted to the distal end of the jib so that it and the projector sustained thereby may be swung horizontally, relatively to the jib. The pivotal connection between the arm and the jib comprises a socket 15 fixed to the outer end of the jib and a spindle 16 fixed to the arm and suitably journaled in the socket. Arm 14 comprises an armed bracket 18, and a longitudinal tubular member 19 provided with a yoke or bifurcated inner end 20, the branches of which are secured by bolts 21 to the upper ends of the arms of bracket 18, and an outer yoke or bifurcated end 22 having branches to which the projector is secured.

25 The said projector comprises a casing 23 and a rotor 24 provided with a projector-blade 25 which may be of the construction and operate as set forth in said Patent No. 1,309,833. This casing comprises a lower member 26 secured to branches of yoke 22

by bolts 27 and an upper adjustable member 28 which is supported by a bracket 29 which is secured, as at 30, to said branches. The inner side of the casing is open, as at 31, for the delivery of sand to the rotor which is provided with a flange 32 at its inner side. The projector blade is provided with a cutter-blade 33, as set forth in said patent. The rotor 24 is secured to and driven by a shaft 34 extending longitudinally of and below the arm 14. This shaft may be an extension of the shaft of an electric motor 35, the casing of which is provided with lugs 36 which are secured by bolts 36^a to the inner ends of the branches of yoke 20. The outer end of this combined rotor and motor shaft 34 is journaled in a bearing 29^a in bracket 29. This construction provides a direct drive for the rotor on the arm and dispenses with gearing for this purpose.

A conveyer-chute 37 containing a suitable screen or riddle 38 is supported from and caused to move with jib 12 by resilient bars 39 which have their ends respectively secured to the jib and to the chute. The inner end of chute 37 is adapted to receive sand from a suitable supply, such as a hopper 40. The outer end of chute 37 is adapted to discharge the sand onto a conveyer-belt on and movable with the arm 14. The chute 37 and the riddle therein are vibrated to feed the sand therethrough, by an eccentric-pin 42 on a shaft 43 which is driven by suitable worm-gearing 44 from the shaft 45 of an electric motor 46. Gearing 44 and motor 46 are mounted on a bracket 47 which is secured to rotate with the jib 12.

A conveyer 50, mounted on and movable with the arm 14, is provided for delivering sand from the chute 37 to the inner or open side of the projector. This conveyer consists of an endless belt 51 which passes around a pulley 52 in the inner yoke 20 and a pulley 53 in the outer yoke 22 of arm 14. Pulley 52 is fixed to a cross-shaft 54 which is journaled in the branches of yoke 20 and a grooved drive pulley 55 is secured to said shaft outside of said yoke. Pulley 53 is mounted on a cross-shaft 56 which is adjustable so the belt may be kept taut. The construction of the arm is such that it is disposed mainly between the laps of the belt and above the shaft 34. This renders the arrangement of this arm and parts carried thereby compact which is advantageous in many foundries. The belt is generally hori-

zontal for the same purpose, but may be sloped slightly toward the projector. Shaft 56 extends through slots 57 in the branches of yoke 22 and is held in collars 58 which are adjustable longitudinally of the arm 12, being carried by, and shifted by, screws 59 held in the yoke 22. The drive-pulley 55 on cross-shaft 54 is driven by a grooved pulley 61 fixed on the rotor-shaft 34 and a cable 62 which is guided between pulleys 55 and 61 by sheaves 62 and 63. The belt is usually driven at sufficient speed to throw the sand from its outer end into the inner open side of the casing 23, and to adapt the conveyer for that, the pulleys 52 and 53 are made of aluminum.

In operation, the flask 70 to be filled is placed beneath the projector. The projector is supplied with sand from the conveyer-belt, forcibly discharges wads of packed sand in rapid succession, as more fully set forth in Patent No. 1,309,833, while the operator moves the head laterally to distribute the sand until all portions of the flask have been filled. The jib and arm permit this lateral movement. In this operation, the conveyer belt will be driven from the motor which drives the rotor of the projector and will be moved laterally with the projector, so that coöperative relation between the projector and the feed-belt will always be maintained.

The invention exemplifies a molding machine of the projector type, in which the sand is fed to one side of the projector by a substantially horizontal belt, which is movable laterally with the projector. This makes it possible to efficiently feed the sand without a steeply inclined chute and in sufficient quantity to keep the high speed projector supplied.

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 molding machine, the combination of a projector comprising a rotor, means to movably support the projector, a substantially horizontal endless belt to feed sand to the projector, and mechanism for driving the belt.

2. In a molding machine, the combination of a projector comprising a rotor, means to movably support the projector, a substantially horizontal endless belt to feed sand to the projector mounted on said supporting means, a motor for driving the rotor, also mounted on said support, and means to drive the belt from said motor.

3. In a molding machine, the combination of a pivoted arm, a projector supported on

said arm and comprising a rotor, means to drive the rotor, an endless belt supported on and movable with said arm and for feeding sand to the projector, and means to drive the belt.

4. In a molding machine, the combination of a pivoted arm, a projector supported on said arm and comprising a rotor, a motor movable with the arm for driving said rotor, an endless belt for feeding sand to and movable with the projector, and means to drive the belt from the motor.

5. In a molding machine, a pivoted jib, an arm pivoted to the jib, a projector mounted on the outer end of the arm and comprising a rotor, a belt for feeding sand to the projector, mounted on and movable with said arm and projector, and means to drive said rotor and said belt.

6. In a molding machine, a pivoted jib, an arm pivoted to the jib, a projector mounted on the outer end of the arm and comprising a rotor, a belt for feeding sand to the projector, mounted on and movable with said arm and projector, a motor mounted to swing with the arm, and means to drive the belt and rotor from said motor.

7. In a molding machine, the combination of a pivoted arm, a projector supported on said arm and comprising a rotor, means to drive the rotor, an endless belt supported on and movable with said arm and for feeding sand to the projector, pulleys for the belt mounted on and movable with the arm, and means to drive one of the pulleys to operate the belt.

8. In a molding machine, the combination of a pivoted arm, a projector supported on said arm and comprising a rotor, means to drive the rotor, an endless belt supported on and movable with said arm and for feeding sand to the projector, pulleys for the belt mounted on and movable with the arm, and means to drive one of the pulleys from the motor.

9. In a molding machine, the combination of a projector comprising a rotor, means to movably support the projector, a substantially horizontal endless belt to feed sand to the projector mounted on said support, a motor movable with said support, a shaft between the motor and the rotor, and means to drive the belt from said shaft.

10. In a molding machine, the combination of a projector comprising a rotor, a movable arm to which the projector is connected, having yokes at its ends, pulleys mounted in said yokes, a belt on said pulleys for feeding sand to the projector, and means to drive the rotor and one of the pulleys.

11. In a molding machine, the combination of a projector comprising a rotor, a movable arm to which the projector is connected, having yokes at its ends, pulleys

mounted in said yokes, a belt on said pulleys for feeding sand to the projector, a motor movable with the arm, and means to drive the rotor and one of the pulleys from said

5 motor.

12. In a molding machine, the combination of a pivoted arm, a projector supported by said arm, and comprising a rotor, a shaft for driving the rotor disposed under

10 said arm, a motor mounted to move with the arm, a sand-conveyer mounted to move with said arm, and means for operating the conveyer from said motor.

13. In a molding machine, the combination of a pivoted arm, a projector supported

by said arm, and comprising a rotor, an endless belt having its laps above and below the arm, a motor movable with the arm, for driving the rotor and the belt.

14. In a molding machine, the combination of a pivoted arm, a projector supported by said arm, and comprising a rotor, a shaft for driving the rotor disposed under said arm, a motor mounted to move with the arm, an endless belt above the shaft and

20 movable with the arm, and means to drive the belt from said shaft. 25

ELMER O. BEARDSLEY.
WALTER F. PIPER.