No. 854,511. PATENTED MAY 21, 1907.

W. A. MANSFIELD.

MACHINE FOR FEEDING GLASS.

APPLICATION FILED JULY 25, 1906.

3 SHEETS—SHEET 1.

FIG. 2.

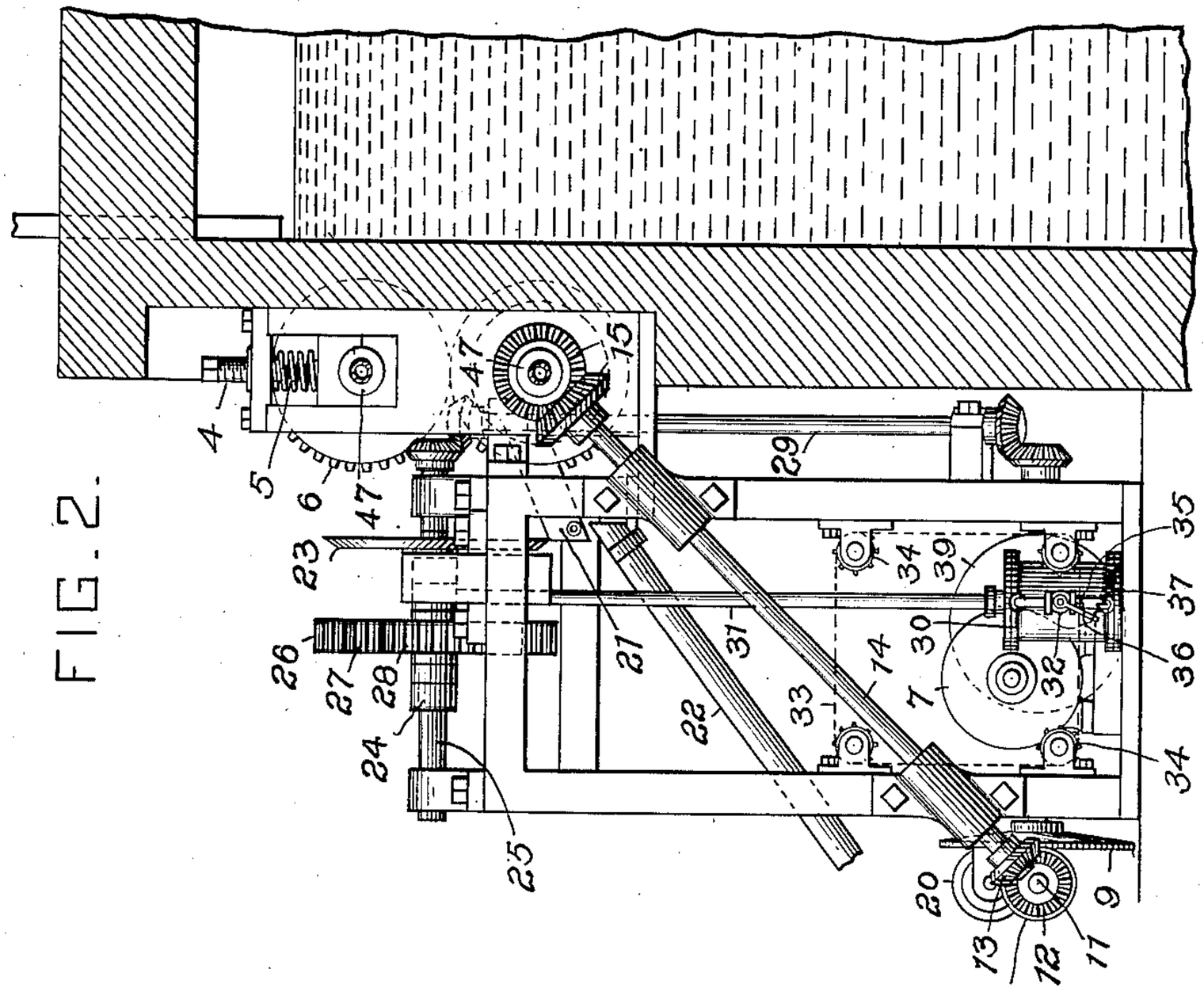
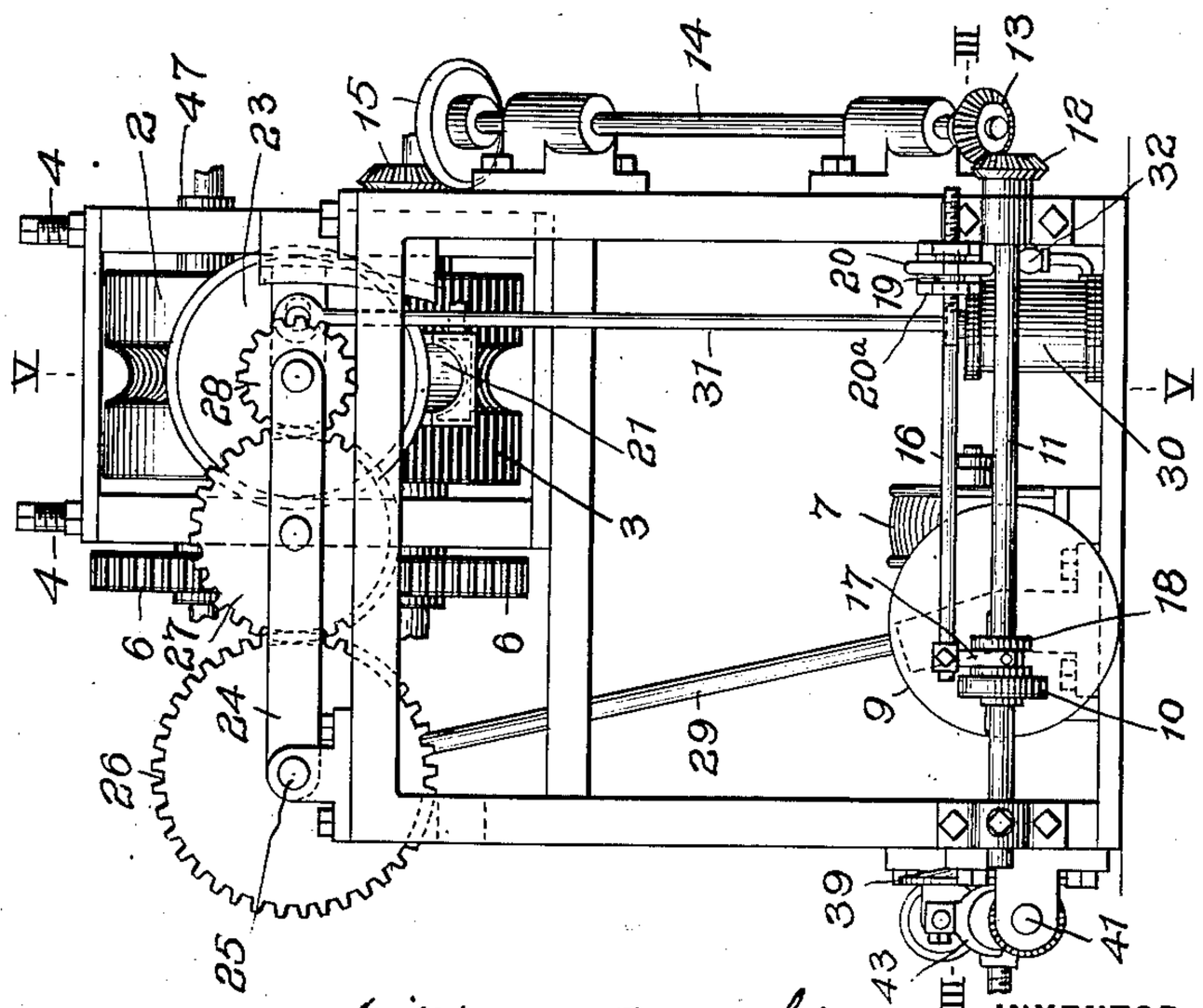


FIG. 1.



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3 SHEETS—SHEET 2.

FIG. 4.

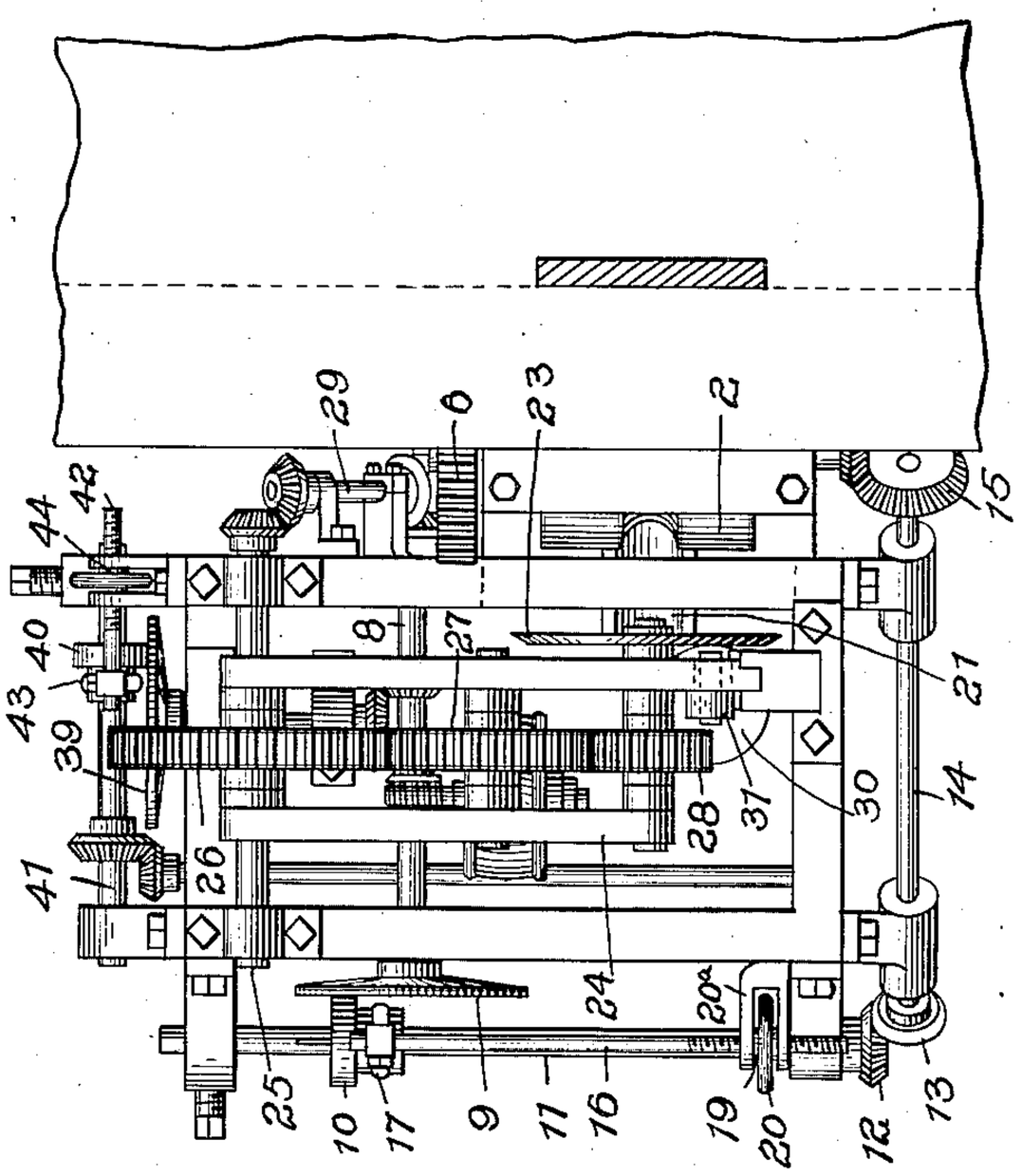
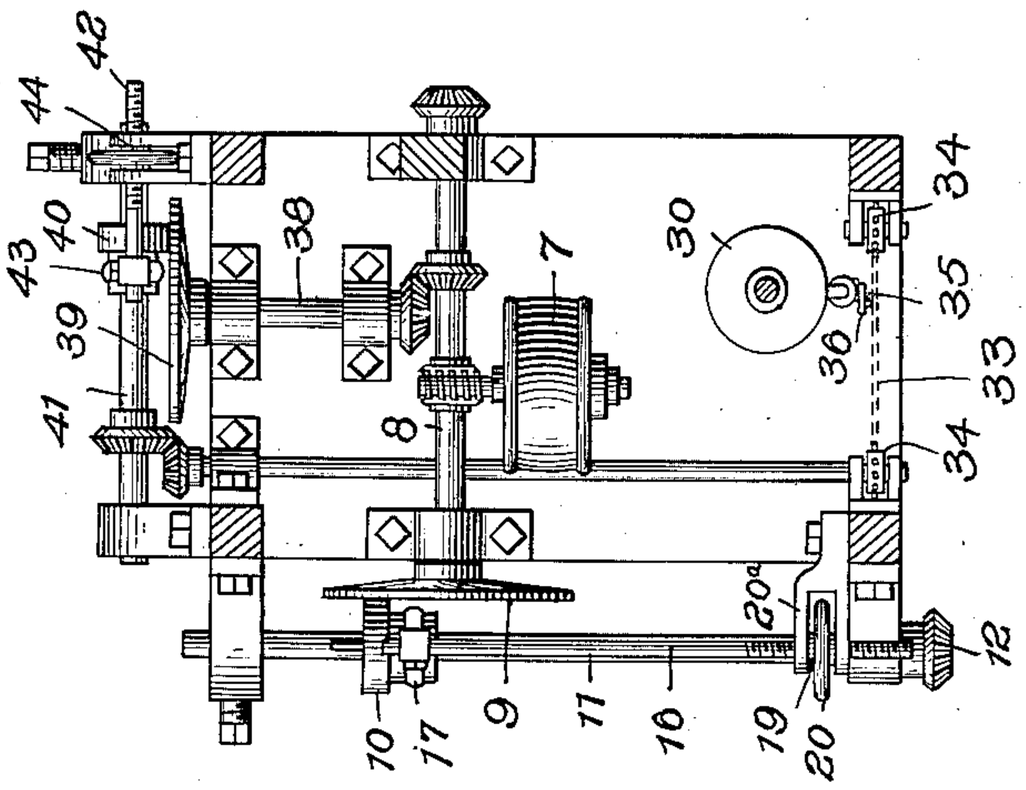


FIG. 5.



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3 SHEETS—SHEET 3.

FIG. 6.

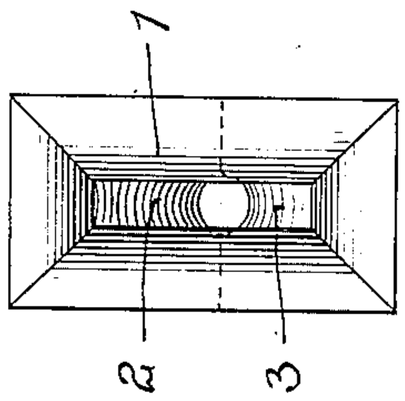


FIG. 7.

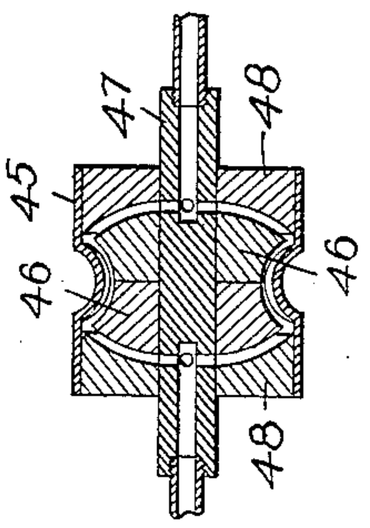
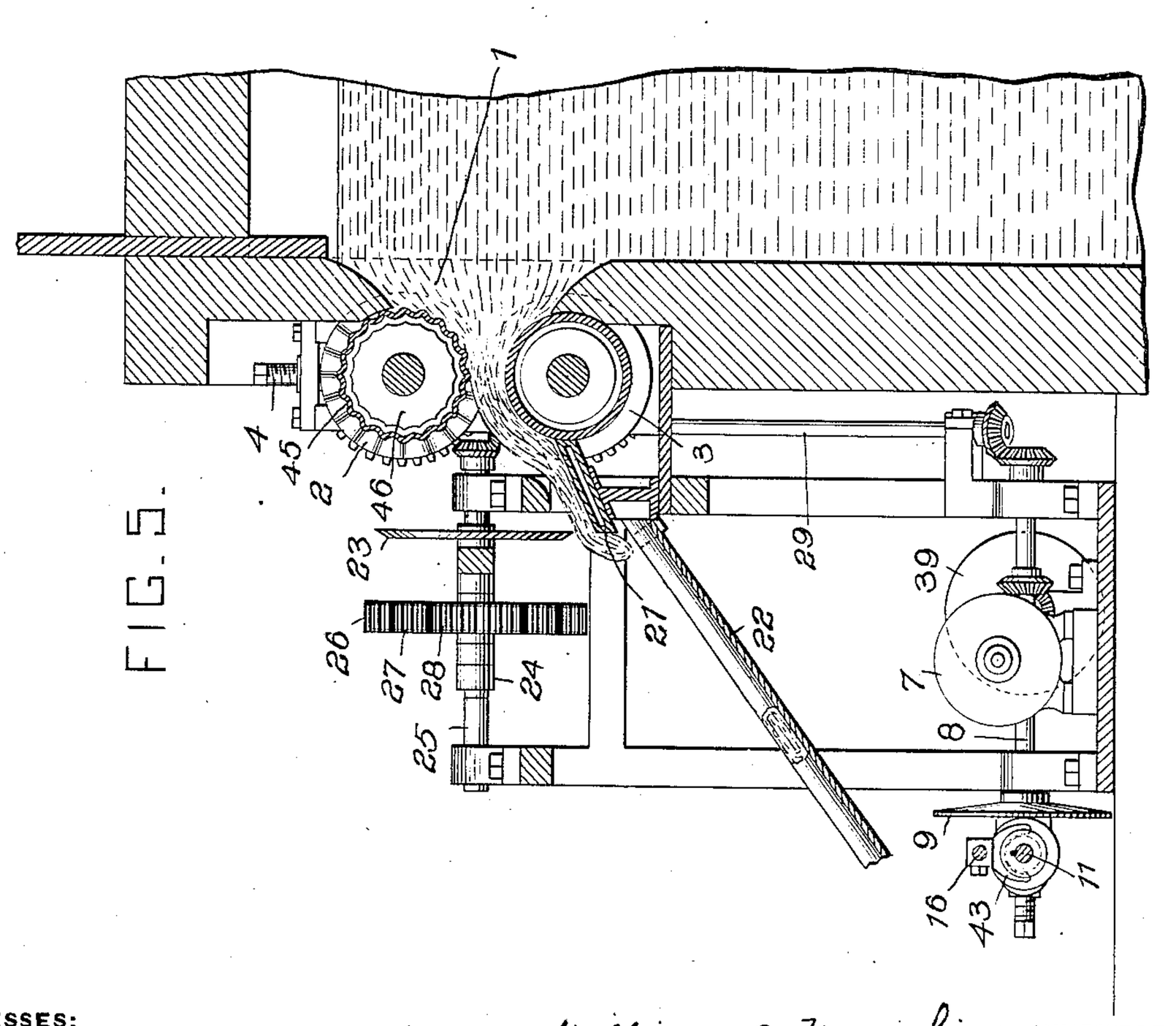


FIG. 5.



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UNITED STATES PATENT OFFICE.

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MACHINE FOR FEEDING GLASS.

No. 854,511. Specification of Letters Patent. Patented May 21, 1907.

Application filed July 25, 1906. Serial No. 327,723.

To all whom it may concern:

Be it known that I, WILLIAM A. MANSFIELD, residing at Washington, in the county of Washington and State of Pennsylvania, a citizen of the United States, have invented or discovered certain new and useful Improvements in Machines for Feeding Glass, of which improvements the following is a specification.

The invention described herein relates to certain improvements in mechanism for feeding glass to presses, etc., and has for its object a construction and arrangement of parts or elements whereby glass is drawn from a furnace or receptacle, a suitable amount severed from the mass or stream and then directed into a press or other shaping mechanism. The invention is hereinafter more fully described and claimed.

In the accompanying drawings forming a part of this specification, Figure 1 is a view in front elevation of my improved mechanism; Fig. 2 is a side elevation of the same showing the feeding mechanism arranged adjacent to the discharge opening of a furnace. Fig. 3 is a sectional plan view on a plane indicated by the line III—III Fig. 1; Fig. 4 is a top plan view; Fig. 5 is a sectional elevation on an enlarged scale on a plane indicated by the line V—V, Fig. 1; Fig. 6 is a detail view of a portion of a furnace showing the shape of the glass outlet and Fig. 7 is a sectional detail view illustrating the construction of the feed rollers.

In the practice of my invention the mechanism hereinafter described is arranged closely adjacent to or against the wall of a furnace or other receptacle having a discharge outlet 1, which is preferably of the shape or contour shown in Fig. 6, *i. e.* oblong vertically. Feed rollers 2 and 3, one or both of which may be corrugated, are arranged closely adjacent to the discharge outlet. As shown in Figs. 1, 5 and 6 these rollers are provided with grooves so that the glass while being fed has imparted thereto a round or rope like shape. These rollers are mounted in suitable bearings, one roller, as for example the top roller, being adjustable by screws 4 toward the lower roller, so as to regulate the transverse dimensions of the stream of glass being fed. It is preferred that this adjustment should be effected through the medium of springs 5 so that no injury may be done to the glass or the rolls. One of the rolls, as the lower one, is driven from a suitable motor as hereinafter described, and the upper roller is driven from the lower roller by means of gearing 6. The means preferred for operating the rolls consist of a motor 7 preferably electric, having a worm gear connection with a shaft 8 on which is secured a friction disk 9. A smooth faced roller 10 is adjustably mounted on the shaft 11 so that its periphery will bear against the face of the disk 9 and be rotated thereby. By shifting the roller 10 along the shaft, that is, toward or from the center of the disk 9 a different speed of rotation of the shaft 11 can be attained. This shaft is connected by means of beveled gears 12 and 13 to a counter shaft 14, which in turn operates through the beveled gears 15 the lower roll 3. The roller 10 is splined to the shaft 11 so as to rotate therewith but free to move along the same and its longitudinal adjustment is effected by means of a rod 16 having a yoke 17 in engagement with a grooved collar 18 on the roller. The other end of the rod is threaded and passes through a nut 19 having an operating handle 20 and located between abutments 20[a] so that on rotation of this nut the rod 17 will be moved longitudinally and correspondingly shift the roller 10 across the face of the disk 9. It will be readily understood by those skilled in the art that this construction or arrangement of parts will permit of a very close regulation of the speed of the feed rollers 2 and 3.

The glass as fed out by the rollers 2 and 3 passes down onto a trough 21 which is preferably water-cooled as shown. And from this trough drops over onto an inclined chute 22. The outer end of the trough 21 forms a portion of the shear mechanism for cutting off the desired quantity of glass. The other member of this shear mechanism is formed by a rotating disk 23 having a beveled edge as shown in Fig. 5. This disk has its journals mounted in a frame 24 which is pivotally mounted on the shaft 25 of a gear wheel 26. This gear wheel 26 operates through an idler 27 carried by the frame 24 to rotate a pinion 28 on the journal of the shear disk 23. The gear wheel 26 is rotated from the shaft 8 by means of a counter-shaft 29 through suitably beveled gears as shown in Figs. 4 and 5. The frame 24 is shifted up and down to cause the shear disk 23 to move across the end of the spout 21 by means of a suitable motor, as the fluid pressure cylinder 30 which has its piston rod 31 connected to the frame 24 as shown. The admission of fluid pressure to

this cylinder to shift the frame is controlled by a suitable valve 32, as shown in Fig. 2. This valve is adapted to be shifted by any suitable mechanism at the proper time to sever the desired quantity of glass from the stream being fed by the rollers 2 and 3. A suitable mechanism for this purpose consists of a rope or sprocket chain 33 passing around sprocket wheels 34, one of which is driven by a suitably timed mechanism. This chain is provided with shoulders or abutments 35 which strike against the arm 36 of the valve and shift the same to open position from which position it will be returned after the passage of the abutment, by a spring 37. It is preferred to employ a mechanism similar to that used for operating the feed rollers and driven from the shaft 8, to drive the chain 33. This mechanism consists of a shaft 38 driven by beveled gears from the shaft 8 and having a disk 39 secured thereon. A roller 40 on a shaft 41 is arranged to bear against the face of the disk and is adapted to be shifted along such face by means of a rod 42 having a yoke 43 in engagement with the collar of the roller 40 and shiftable by the threaded nut 44.

The glass after being severed slides down the trough 22 to a pressing or other glass shaping mechanism. While any suitable form or construction of rollers may be employed, it is preferred that water-cooled rollers should be used and the construction shown in Fig. 7 is desirable. This construction consists of a shell 45 having a groove in its periphery which may or may not be corrugated. Disks 46 are slid onto the shaft 47 within the shell until they abut one against the other. Said disks being peripherally grooved or cut away, the cut away portions having a smaller diameter than the internal diameter of the groove in the shell 45, so as to leave a passage between such shell and the disks. Disks 48 are also slid on the shaft within the shell and form a support therefor. These disks 48 do not bear against the disks 46 but are spaced to form passages between them said passages being connected with axial passages in the shaft 47 through which a cooling medium may be fed so as to keep the rollers cooled while in contact with the glass.

It will be observed that the discharge opening from the furnace is so proportioned and shaped, that its walls will gradually merge into the gap or opening formed by the grooved rollers, thus facilitating the flow of the glass to the feed rollers and effect a progressive shaping of the stream flowing from the furnace.

It is characteristic of my improvement that the quantity of glass separated from the stream flowing from the furnace, will be proportional to the rate of flow between the successive operation of the shear mechanism. Provision should be made to impart to the severed portions of glass a rate of movement higher than that of the stream flowing from the receptacle, thereby preventing the severed portions from adhering to each other. In the construction shown this higher rate is obtained by gravity, the delivery trough 22 being so inclined that the severed portions will slide quickly along the same.

I claim herein as my invention:

1. In a machine for feeding glass, the combination of a receptacle, a trough, rollers interposed between the trough and receptacle and controlling the movement of glass from the receptacle and along the receptacle, means for severing the glass, and means for causing the severed portions of glass to move at a higher speed than that of the glass flowing from the receptacle.

2. In a machine for feeding glass the combination of glass feeding rollers, glass severing means, a motor and independently adjustable driving connections from the motor to the rollers and severing means.

3. In a machine for feeding glass, the combination of glass feeding rollers, a trough for receiving the glass from the rollers, a shear disk movable across the end of the trough, a swinging frame carrying said disk and means for shifting the frame.

4. The combination of peripherally grooved feed rollers, a furnace having a discharge opening having its walls constructed to gradually shape the stream of glass to the contour of the grooves in the rollers, a trough for receiving the glass from the rollers and means for severing the glass as it leaves the trough.

In testimony whereof, I have hereunto set my hand.

WILLIAM A. MANSFIELD.

Witnesses:
CHARLES BARNETT,
WILLIAM H. WILSON.