

No. 750,552.

PATENTED JAN. 26, 1904.

C. D. MARSH.  
MOLDING MACHINE.

APPLICATION FILED AUG. 29, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

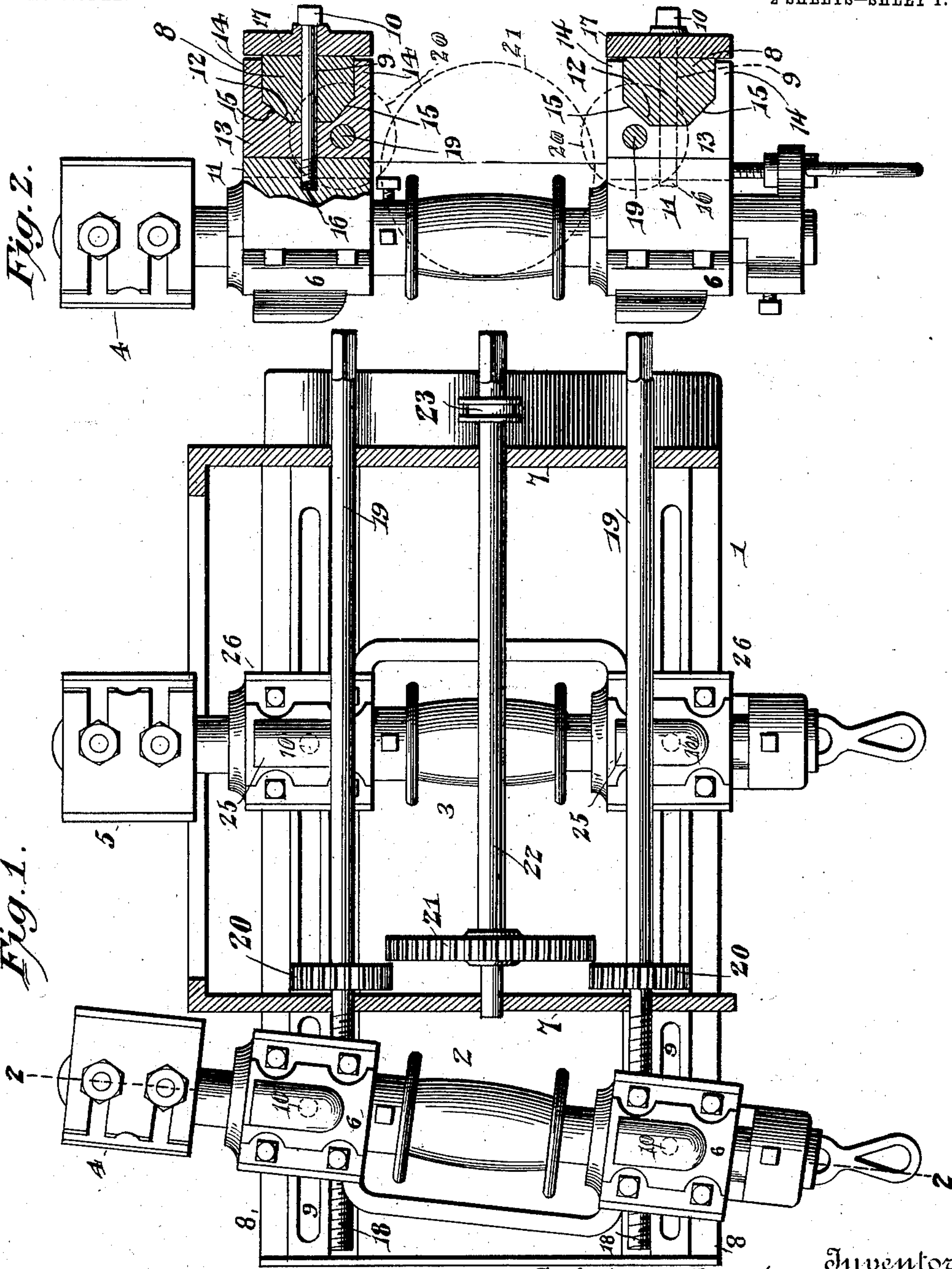


Fig. 1.

Fig. 2.

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2 SHEETS—SHEET 2.

Fig. 4.

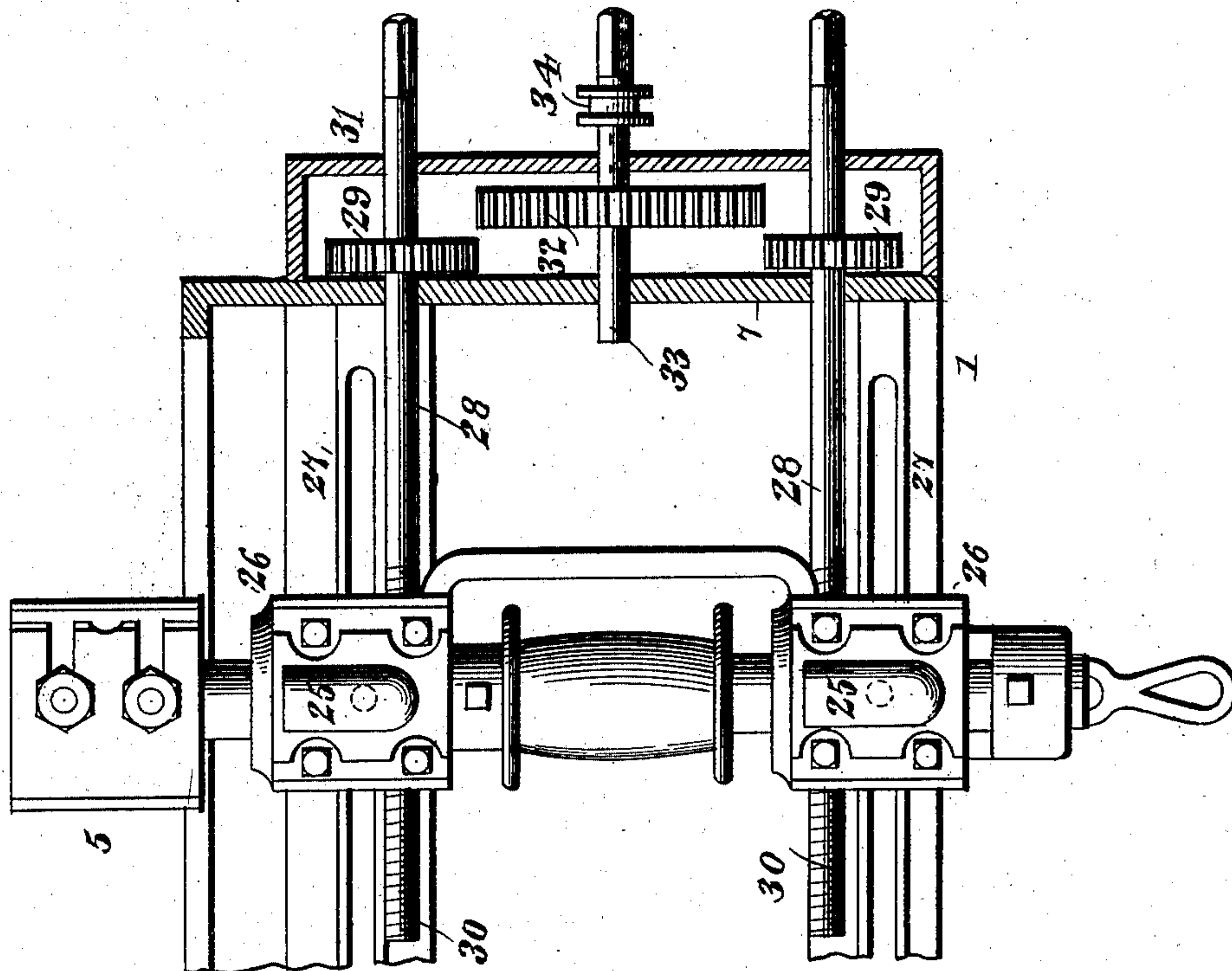
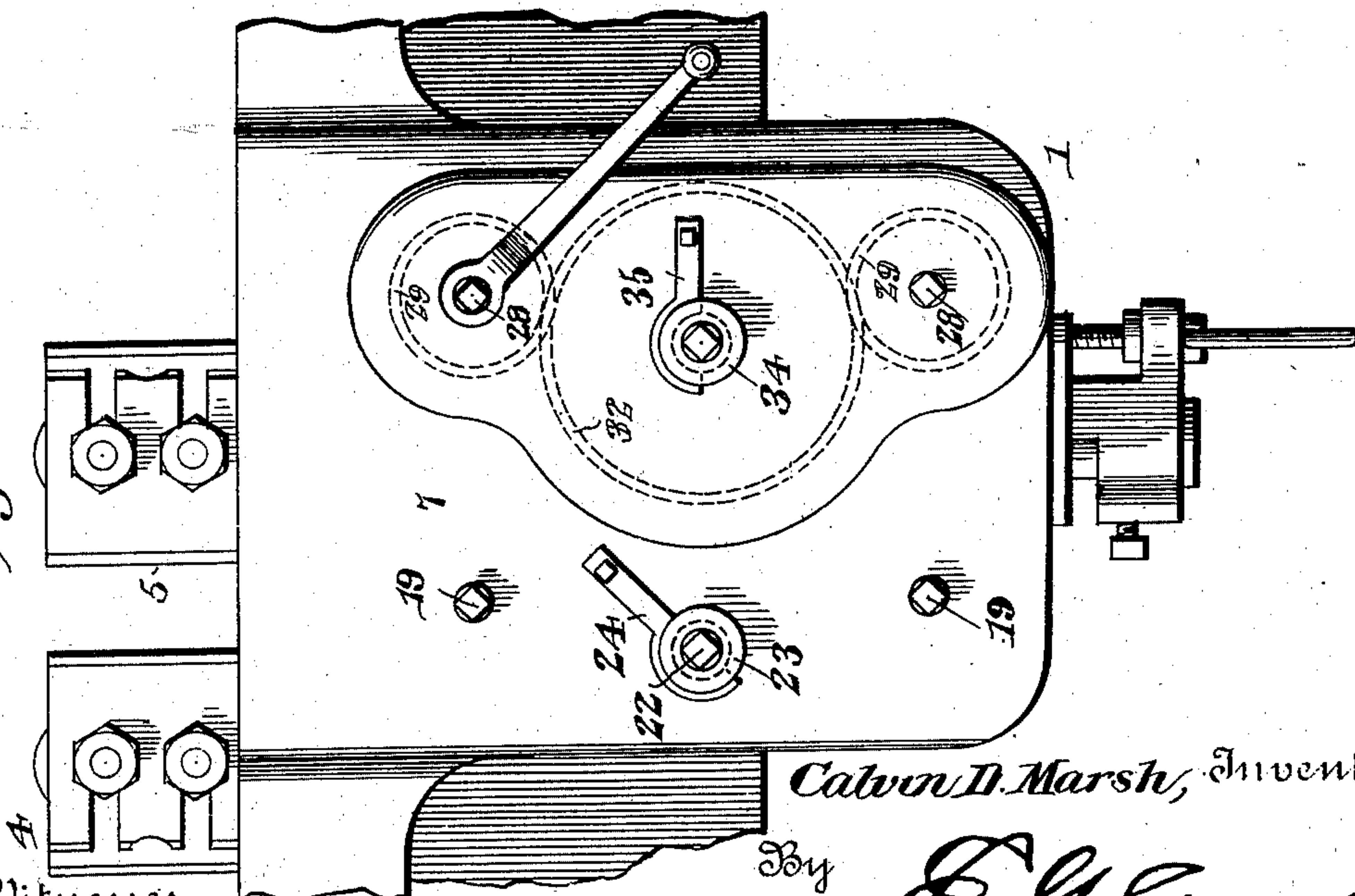


Fig. 3.



Witnesses

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# UNITED STATES PATENT OFFICE.

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## MOLDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 750,552, dated January 26, 1904.

Application filed August 29, 1903. Serial No. 171,281. (No model.)

*To all whom it may concern:*

Be it known that I, CALVIN D. MARSH, a citizen of the United States, residing at Williamsport, in the county of Lycoming and State of Pennsylvania, have invented a new and useful Molding-Machine, of which the following is a specification.

The invention relates to improvements in molding-machines.

The object of the present invention is to improve the construction of molding-machines, more especially the means for adjusting the head stocks or blocks which carry the arbors of the cutter-heads and to enable the adjustment of the head stocks or blocks to be either fast or slow after the arbors have been set at the desired angle or inclination.

A further object of the invention is to enable the gearing of the inner head-stocks to be arranged within the frame of the machine and to stiffen the screws for adjusting the head stocks or blocks, and thereby prevent the said screws from springing or bending laterally.

With these and other objects in view the invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claim hereto appended, it being understood that various changes in the form, proportion, size, and minor details of construction within the scope of the claim 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 transverse sectional view of a portion of an outside molding-machine provided with head-stock-adjusting means constructed in accordance with this invention. Fig. 2 is a sectional view taken practically on the line 2 2 of Fig. 1. Fig. 3 is a side view of a portion of the molding-machine, illustrating the arrangement of the outer ends of the adjusting-screws for moving the head stocks or blocks inward and outward. Fig. 4 is a sectional view illustrating the manner of adjusting the head stocks or blocks of the outer arbor.

Like numerals of reference designate corre-

sponding parts in all the figures of the drawings.

1 designates the frame of the machine, which may be of any desired size or shape, and 2 and 3 designate arbors which carry cutter-heads 4 and 5. Each of the arbors is mounted in suitable bearings 6 of head stocks or blocks, which are movable transversely of the machine and which are also pivotally mounted, as hereinafter fully described, to enable the arbors to be arranged either vertically or at an inclination.

The bearings are designed to be constructed similar to those shown in my prior patent, No. 513,192, in order to permit the arbors to be arranged either vertically or at an inclination.

Extending transversely of the machine from the in or off side thereof to the partition 7 are upper and lower guides or ways 8, consisting of bars provided with longitudinal slots or openings 9 for the reception of the pivots 10 of head stocks or blocks 11, as clearly illustrated in Fig. 2 of the drawings. The ways or guides are oppositely beveled to form tapered or wedge-shaped portions 12, and the head stocks or blocks are provided with clamping members or sections 13, having side flanges 14. The side flanges 14 are spaced apart to receive the guides or ways, and the clamping members or sections are oppositely beveled between the side flanges to form converging or angularly-disposed faces 15 for engagement with the wedge-shaped portions of the guides or ways. The guides or ways are also provided between the inclined faces of the wedge-shaped portions with straight vertical faces, and the clamping members or sections of the head stocks or blocks are provided with corresponding vertical faces, as shown. The pivots 10 consist of screws provided at their outer ends with heads and having inner threaded portions which engage threaded openings or sockets 16 of the main or body portions of the head stocks or blocks. The main or body portions of the head stocks or blocks carry the bearings and are adapted to partially rotate on the pivots 10. The outer portions of the



pivots 10 receive clamping-plates 17, which  
 are engaged by the heads of the said pivots,  
 and the clamping-plates and the clamping  
 members or sections are spaced apart slightly,  
 5 as illustrated in Fig. 2 of the drawings, to al-  
 low for any wear of the parts and to prevent  
 them from contacting with each other and in-  
 terfering with their engagement with the  
 guides or ways. When it is desired to adjust  
 10 the head stocks or blocks, the screws which  
 constitute the pivots 10 are loosened to per-  
 mit the head stocks or blocks to slide on the  
 ways or guides 8 and also to have the neces-  
 sary pivotal movement. After the head stocks  
 15 or blocks have been adjusted the screws are  
 tightened, and the wedging action of the clamp-  
 ing members and the guides or ways firmly  
 lock the parts against vertical movement and  
 take up any lost motion.  
 20 The slidable clamping members of the head  
 stocks or blocks are provided with threaded  
 apertures for the reception of threaded por-  
 tions 18 of transverse shafts 19, which are  
 25 journaled in suitable bearings of the frame of  
 the machine and which constitute adjusting-  
 screws for sliding the head stocks or blocks lon-  
 gitudinally of the ways 8. The threaded por-  
 tions 18 of the shafts are located adjacent to the  
 30 ways or guides 8 and extend from the partition  
 7 toward the in or off side of the machine, as  
 clearly shown in Fig. 1, and the other ends  
 of the shafts 19 project from the outer side of  
 the frame and terminate in angular portions,  
 which are adapted to receive a crank for ro-  
 35 tating the adjusting-screws. The shafts 19  
 are provided within the frame 1 adjacent to  
 the partition 7 with pinions 20, which are  
 adapted to mesh with the gear 21 of an inter-  
 mediate counter-shaft 22, and the latter is  
 40 capable of a limited longitudinal reciproca-  
 tion to carry the gear 21 into and out of mesh  
 with the pinions 20, whereby the shafts 19 are  
 coupled and uncoupled. When the shafts are  
 uncoupled, as illustrated in Fig. 1 of the draw-  
 45 ings, either may be rotated independently of  
 the other for adjusting its head stock or block,  
 and the head stocks or blocks may be brought  
 into the same vertical plane to arrange the ar-  
 bor vertically, or they may be located at dif-  
 50 ferent points to set the arbor at an angle or  
 inclination. After the head stocks or blocks  
 have been adjusted to the proper relative posi-  
 tion the shafts 19 are coupled by carrying  
 the gear 21 into mesh with the pinions 20.  
 55 The head stocks or blocks may then be simul-  
 taneously adjusted without changing the an-  
 gle or inclination of the arbor, and this ad-  
 justment may be effected by a rapid or slow  
 movement. When either of the shafts 19 is  
 60 rotated, a comparatively slow movement will  
 be imparted to the head stocks or blocks,  
 owing to the difference in size between the pin-  
 ions and the intermediate gear 21, and when  
 a rapid movement of the head stocks or blocks

is desired the intermediate counter-shaft 22 65  
 is rotated, causing the intermediate gear 21  
 to actuate the pinions 20. These gears may  
 be made of any desired diameters to secure  
 the desired movements of the head stocks or  
 blocks and the movement of the head stocks 70  
 or blocks may also be varied by varying the  
 pitch of the threads. By arranging the gear-  
 ing adjacent to the partition 7 and journaling  
 the shafts at that point, the adjusting-screws  
 are prevented from springing or moving lat- 75  
 erally, and the shafts 19 are thereby stiffened.

The shaft 22 is provided at its outer por-  
 tion with an exterior-grooved collar or sleeve  
 23, which is adapted to be engaged by a piv-  
 oted latch 24, whereby the shaft is held against 80  
 longitudinal movement when the intermediate  
 gear 21 is in mesh with the pinions 20. The  
 pivoted catch or latch may also be dropped  
 back of the grooved collar or sleeve for hold-  
 ing the intermediate gear 21 positively out of 85  
 mesh with the pinions. The shaft 22 and its  
 gear are capable of ready adjustment, and the  
 other shafts 19 may be rapidly manipulated,  
 so that the cutter-head may be quickly brought  
 into the desired position and the positive 90  
 clamping action of the beveled guides or ways  
 and the grooved clamping members rigidly  
 hold the head stocks or blocks in position  
 and enable the side heads to do as smooth  
 work as the top head of a molding-machine. 95  
 The other arbor, 3, is mounted in the same  
 manner as the arbor 2, before described, be-  
 ing supported in bearings 25 of head stocks  
 or blocks 26, and the latter are arranged to  
 slide on transverse guides or ways 27. The 100  
 guides or ways 27, which are beveled, as  
 shown in Fig. 4, are also provided with lon-  
 gitudinal slots or openings to receive the piv-  
 ots of the head stocks or blocks 26. The head  
 stocks or blocks 26 are adjusted by screws 28, 105  
 having pinions 29 and provided with threaded  
 portions 30, the pinions being located within  
 a casing 31. The casing 31, which is mounted  
 on the exterior of the frame of the machine,  
 also receives an intermediate gear 32, which 110  
 is keyed or otherwise fixed to a shaft 33 in  
 the same manner as the intermediate gear of  
 the shaft 22, whereby the shaft 33 is adapted  
 to be used for operating the gearing. The  
 shafts 29 and 33 also terminate at their outer 115  
 ends in angular portions, which are adapted  
 to receive a crank. The intermediate shaft  
 33 is provided with a grooved collar or sleeve  
 34, adapted to be engaged by a pivoted latch  
 35 for holding the intermediate gear 32 in 120  
 mesh with the pinions 29.

When the crank is placed on any one of the  
 adjusting-screws 19 and 28, the feeding move-  
 ment will be confined to the number of threads  
 cut on the threaded portion of such shaft or 125  
 screw; but by the employment of the gearing  
 with the large intermediate gears 21 and 32  
 the speed of the feeding movement may be



doubled by changing the crank from the adjusting screws or shafts to the intermediate shafts.

5 By reason of the employment of the intermediate shaft in conjunction with the driving-shafts working at an increased speed said shafts must be supported at two separated points in the frame of the machine and have bearings at each point.

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

15 In a machine of the class described, the combination with a frame, of transverse shafts having a bearing at two separated points in the frame, one end of each shaft being threaded, and the other end being extended from the machine and constructed to receive an operating means, pinions provided on each shaft  
20 within the frame, an intermediate shaft journaled on the frame at two separated points, head-stocks slidable on the frame and operated by the threaded portions of the transverse shafts, and a pinion mounted on the inter-

mediate shaft within the frame and of greater 25 size than the pinions of the transverse shafts, the end of the intermediate shaft being extended from the machine and constructed to receive an operating means, and said shaft being longitudinally movable to carry its pinions 30 into or out of engagement with the pinions of the transverse shafts, whereby the operating means may be applied either to the intermediate shaft to impart increased speed to the transverse shafts, or to any one of the transverse 35 shafts to rotate the latter at a reduced speed when the pinions are in mesh, or to any one of said transverse shafts to move the same independently of the intermediate shaft when the pinions are not in mesh, substantially as 40 described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

CALVIN D. MARSH.

Witnesses:

HUGH GILMORE,  
ALBERT S. HERMANCE.