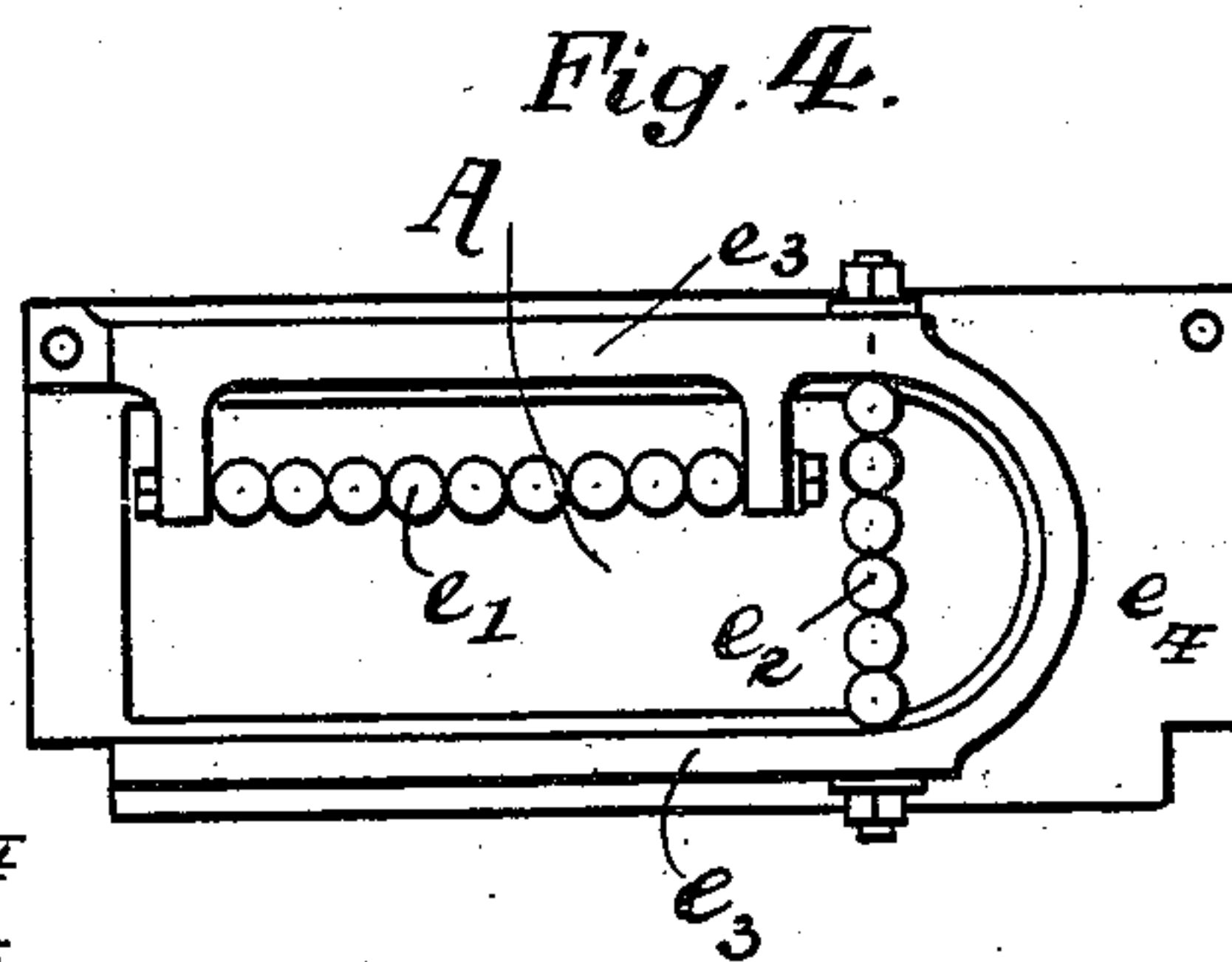
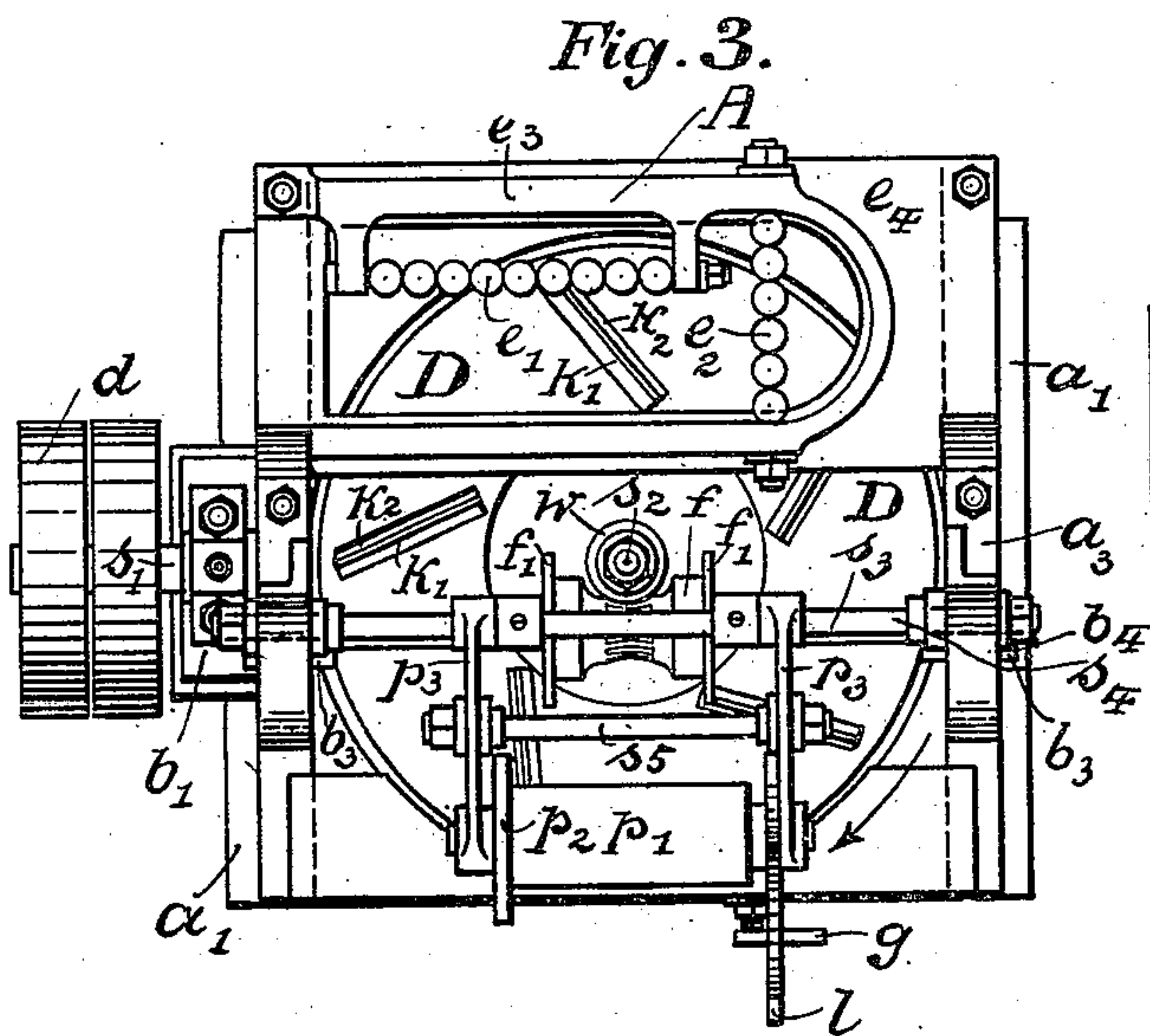
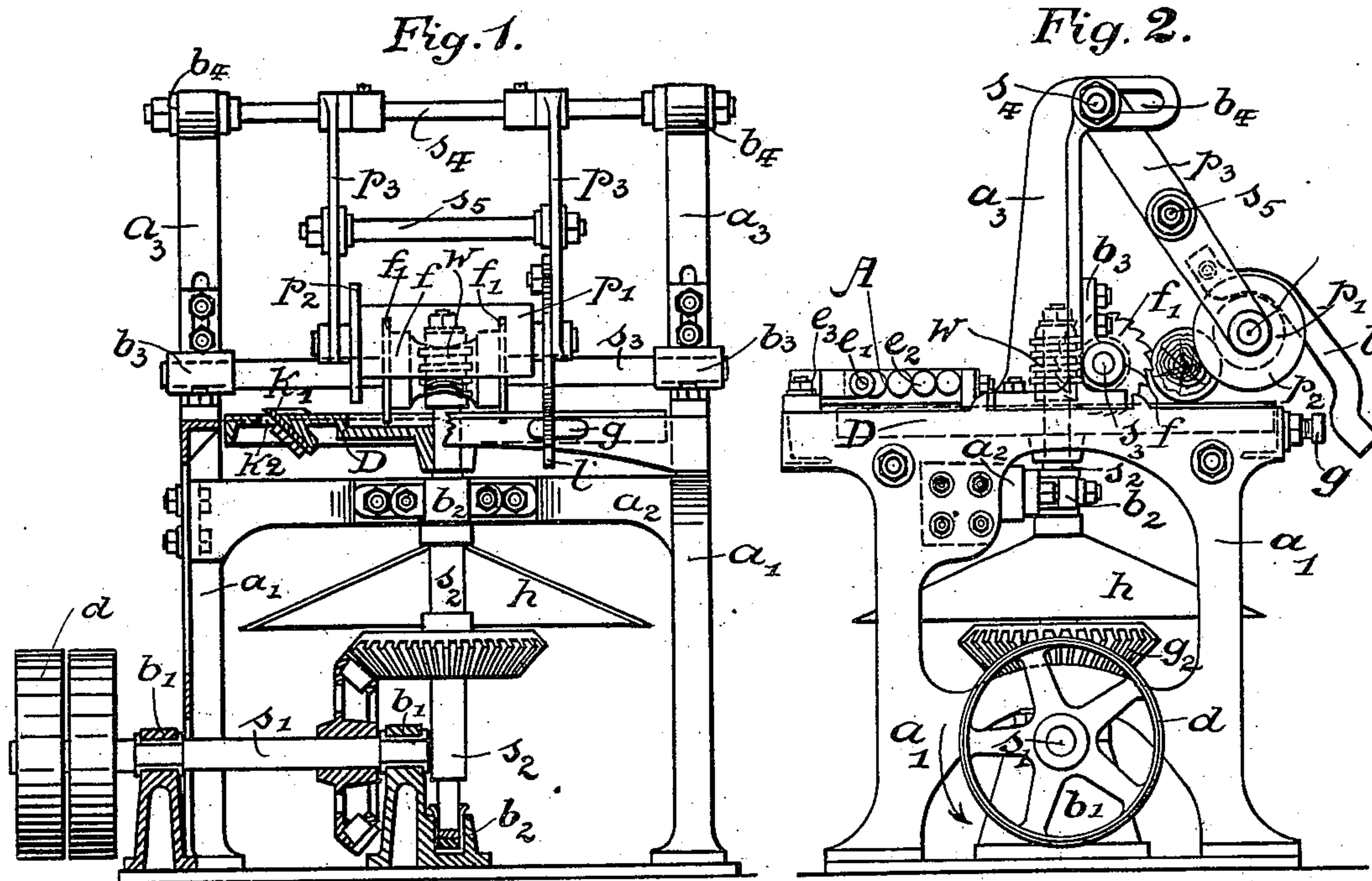


(No Model.)

F. F. ANGERMAIR.  
BARK STRIPPING MACHINE.

No. 300,829.

Patented June 24, 1884.



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# UNITED STATES PATENT OFFICE.

F. FERDINAND ANGERMAIR, OF RAVENSBURG, WÜRTENBERG, GERMANY.

## BARK-STRIPPING MACHINE.

SPECIFICATION forming part of Letters Patent No. 300,829, dated June 24, 1884.

Application filed July 18, 1883. (No model.) Patented in Germany August 6, 1879, No. 8,529.

*To all whom it may concern:*

Be it known that I, F. FERDINAND ANGERMAIR, of Ravensburg, in the Kingdom of Würtemberg, German Empire, have invented certain new and useful Improvements in Machines for Removing Bark from Wood, of which the following is a specification.

My invention has for its object to provide a machine for quickly and effectually removing the bark from logs of wood used for the manufacture of paper-pulp, or for other purposes. The machines hitherto used for this purpose being either complicated and expensive, or requiring a sacrifice of much time and labor in handling the logs, made it desirable to have a more productive and a simpler machine, and my invention therefore consists in a horizontally and rapidly revolving disk, called the "shaver," the center portion of which is recessed, and the annular elevated portion is provided with a suitable number of knives or blades, said knives projecting only little above the top face of the disk, and being placed obliquely relatively to the sense of rotation. The axis of said disk or shaver receives its motion by a suitable mode of transmission from the driving-pulley, and projects above the disk, carrying on this projecting top part a worm-gear, revolving thereby a roller, called the "feed-roller," which is placed horizontally across and close over the disk, and is provided with two rack-wheels serving to turn the logs placed on the shaver for being stripped of the bark. The logs are pressed down on the shaver by a press-roller journaled to a suspended frame, said frame and roller being swung off from the logs or brought to bear against them by means of a hand-lever. The logs, when pressed down, are prevented from flying off the rapidly-revolving shaver by means of a flange provided on the left-hand side of the press-roller. Thus the logs, owing to the pressure of the press-roller, will be kept bearing against the rack-wheels of the feed-roller and the rapidly-revolving knives of the shaver, and will therefore be effectively and quickly stripped or shaved from the bark on the side happening to be on the bottom, and will be constantly turned in order to feed and to offer a new side to the shaving-knives.

My invention further consists in an attach-

ment suitable for stripping also shorter pieces or logs having not a circular but an irregular shape of cross-section. This attachment consists in an oblong frame placed across and close to the shaver diametrically opposite the place where the long logs are stripped. Within this frame two rows of balls are thus arranged at right angles to each other, that the logs placed by hand inside of the frame bear against both rows, and are free to revolve or to turn accordingly. The advantage of my machine, therefore, is that, with exception of the very irregularly-shaped pieces, which will always require a longer handling, the logs to be stripped of their bark are handled only once in my machine—to wit, when they are placed on the shaver—said logs being thrown off from the shaver by its centrifugal force when lifting up the press-roller with flange. A further advantage is that the logs are always in sight of the attendant, and thus the exact time of the stripping can easily be known, and an unnecessary working over of the logs is prevented, which unnecessary working over is liable to occur in those machines where the logs have to be inclosed in a feed-casing. Finally, my machine bases on a better principle for the stripping, as it is neither a grinding nor a cutting, but a shaving proper.

In the accompanying drawings, Figure 1 represents a part front elevation and part cross-section on the center line; Fig. 2, a side elevation; Fig. 3, a plan, and Fig. 4 a separate plan of the attachment for the shaving of the smaller pieces and logs of irregular shape.

Similar letters of reference in the different figures refer to similar parts.

$a_1$   $a_1$  is the main frame of the machine, said frame being provided with a cross-beam,  $a_2$ , and two vertical brackets,  $a_3$   $a_3$ , bolted on top of  $a_1$ , said brackets  $a_3$  carrying in slotted bearings  $b_4$  the rigid axis  $s_4$ , on which axis  $s_4$  a frame-carrying press-roller,  $p_1$ , is swinging, the frame and axis being adjusted to the diameter of logs by changing the position of axis  $s_4$  within slot of bearings  $b_4$   $b_4$ , said frame consisting in two arms  $p_3$   $p_3$ , journaled on axis  $s_4$ , and connected by a truss-rod,  $s_5$ , press-roller  $p_1$ , journaled in lever-arms  $p_3$ , and being provided on its left-hand end with flange  $p_2$ . Against said flange the logs will rest and will be pre-



vented from following the centrifugal force of the shaver. Hand-lever  $l$  is bolted to the right-hand arm  $p_3$ , and is limited in its downward movement by a guard,  $g$ , screwed in the main frame of the machine, said guard preventing the flange  $p_2$  of roller  $p_1$  from coming in contact with the shaver, which would otherwise cause much damage. On the cross-beam  $a_2$  a bearing is provided for the vertical shaft  $s_2$  of shaver D,  $b_2$  representing the socket-bearing, and  $g_2$   $g_1$  a suitable device of deriving the power from driving-pulley  $d$ , said pulley keyed onto shaft  $s_1$ , said shaft revolving in bearings on pedestals  $b_1$  and  $b_2$ . A hat-shaped cover,  $h$ , prevents any particles of wood from dropping between the cog-wheels, and is stationary, while shaft  $s_2$  is revolving. Shaft  $s_2$  carries at its top the worm W, engaging with corresponding threads on the roller  $f$ , having a ratchet-shaped wheel,  $f_1$ , rigidly fixed to each end thereof. Said ratchet-wheels engaging with the logs, and thereby turning them over, will offer a new side still covered with bark to the action of the shaver D. Feed-roller  $f$  and ratchet-wheels  $f_1$  are all revolving with shaft  $s_3$ , said shaft turning within bearings  $b_3$   $b_3$  bolted to the brackets  $a_3$   $a_3$ , said brackets  $a_3$   $a_3$  being provided with slots, in order to allow the feed-roller to be raised or lowered, according to the diameter of logs. The shaver D, being keyed onto shaft  $s_2$  above beam  $a_2$ , with bearings  $b_2$ , and underneath the worm W, is revolving at about three hundred revolutions a minute in the sense indicated by the arrow, and consists in a heavy cast-iron disk recessed in the center portion, partly because the velocity of this part is not sufficient to secure a good result if provided with knives, and partly in order to have the proper space for the ratchet-wheels  $f_1$ , when the feed-roller  $f$  is in its lowest position for very thin sticks or logs of wood. On the annular and elevated portion of disk D, and extending to the periphery of the disk, a suitable number of knives,  $k_1$ —say five—are provided, projecting very little above the face of the disk, and being placed in a position anteceding the radial position, and having a slot,  $k_2$ , running all along said knives for the passage of the shavings. The logs are placed on disk D, while lever  $l$  is swung up. Then lever  $l$  is swung rapidly down, and, while flange  $p_2$  prevents the logs from flying off by the centrifugal force, the pressure on roller  $p_1$  will bring the logs into contact with ratchet-wheels  $f_1$ , which will force the log to revolve, the bottom part of said logs being continuously stripped of all the bark until the logs have made one revolution, whereupon lever  $l$  is swung up, and the logs, being now shaved perfectly bare of all bark, will be thrown off by the centrifugal force of disk D.

The attachment A (shown separately in plan, Fig. 4) is intended for small pieces and for logs of irregular shape. Frame  $e_3$ , cast to plate  $e_4$ , which leaves an open space within said frame, is bolted across disk D over that por-

tion of said disk which is diametrically opposite the portion where the ordinary stalk is shaved. Frame  $e_3$  carries two rows of balls,  $e_1$  and  $e_2$ , journaled on two shafts placed at right angles to each other, and the logs, being placed inside of frame  $e_3$ , will be brought to bear against the balls by the movement of the disk D, whereupon the logs come to rest, and while the logs are held by hand, the balls  $e_1$  and  $e_2$  facilitating the turning of the logs, disk D with knives  $k_1$  will shave the bottom part of the logs, said logs being turned and handled until properly shaved from all bark.

I am well aware that it is not new to use in wood-shaving machines a rotary horizontal disk provided with obliquely-placed knives or plane-irons, in combination with a set of feed-rollers, said rollers feeding the log to be converted into shavings vertically downward against the rotary knives. This arrangement would not answer for my purpose, because, in order to remove nothing else but the bark, the log itself needs to be constantly revolved, and it is not to be fed vertically toward the knives, but needs simply to be pressed into temporary contact with the knives in order to give them a chance to tear or peel off the bark.

I am aware, also, that it is not new to use in machines for grinding bark a spurred feed-roll journaled within the arms of a weighted and hinged lever for the purpose of conveying the bark within reach of the cutting or grinding roller. This device may answer very well for feeding pieces of bark in said machines, but would be unfit in combination with and for the purpose of my machine, where the logs need to be turned or revolved until all bark is peeled off, and where after this has been done the logs have to be quickly removed. In my machine, therefore, the logs, after being placed on the shaving-table, are held down and kept from being thrown off by the centrifugal force of the table by means of a smooth roller provided with a suitable flange and journaled within hinged levers, and are revolved by a stationary roller provided with ratchet-shaped wheels, owing to the pressure exerted on the logs by the journaled smooth roller and hinged levers, which roller presses the logs against the revolving ratchet-wheels, as well as down on the table.

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

1. In a bark-stripping-machine, the combination of a horizontal rotary disk provided with obliquely-set knives or blades, the disk mounted on a vertical shaft having a worm rigidly fixed thereto, said worm engaging above said disk with a roller provided with ratchet-shaped wheels, a pair of hinged levers provided with handle and flanged smooth roller journaled between the levers, to operate as shown, and for the purpose set forth and described.

2. In a bark-stripping machine, the combi-



nation of the horizontal rotary disk D, provided with the obliquely-set knives  $k_1$ , disk D, mounted on the vertical shaft  $s_2$ , having the worm W rigidly fixed thereto, worm W, 5 engaging above disk D with the roller  $f$ , provided with the ratchet-shaped wheels  $f_1, f_2$ , the hinged levers  $p_3, p_4$ , provided with the handle  $l$ , and the flanged smooth roller  $p_1$ , flange  $p_2$ , shaft  $s_4$ , substantially as shown, and for the 10 purpose set forth and described.

3. In bark-stripping machines, the combination of a rotary disk provided with vertical shaft, an attachment provided on top and across the disk, the attachment rigidly fixed 15 to the main frame of the machine, consisting of a frame with two rows of journaled balls, the rows set at right angles to each other, to operate as shown, and for the purpose set forth and described.

4. In a bark-stripping machine, the combination of the rotary disk D, provided with the knives  $k_1$ , and rigidly secured to the vertical shaft  $s_2$ , said shaft journaled in the bearings  $b_2, b_3$ , which are rigidly fast to the main frame  $a_1$ , the attachment A, bolted to the frame 25  $a_1$ , and placed closely over and across disk D, said attachment consisting of frame  $e_3$ , plate  $e_4$ , and supporting a set of journaled balls arranged in the two rows  $e_1, e_2$ , set at right angles to each other, to operate as set forth, and 30 substantially as shown and described.

In testimony whereof I hereunto sign my name, in the presence of two subscribing witnesses, this 16th day of June, 1883.

F. FERD. ANGERMAIR.

Witnesses:

ALF. BISCHOFF,  
RUD. MEYER.