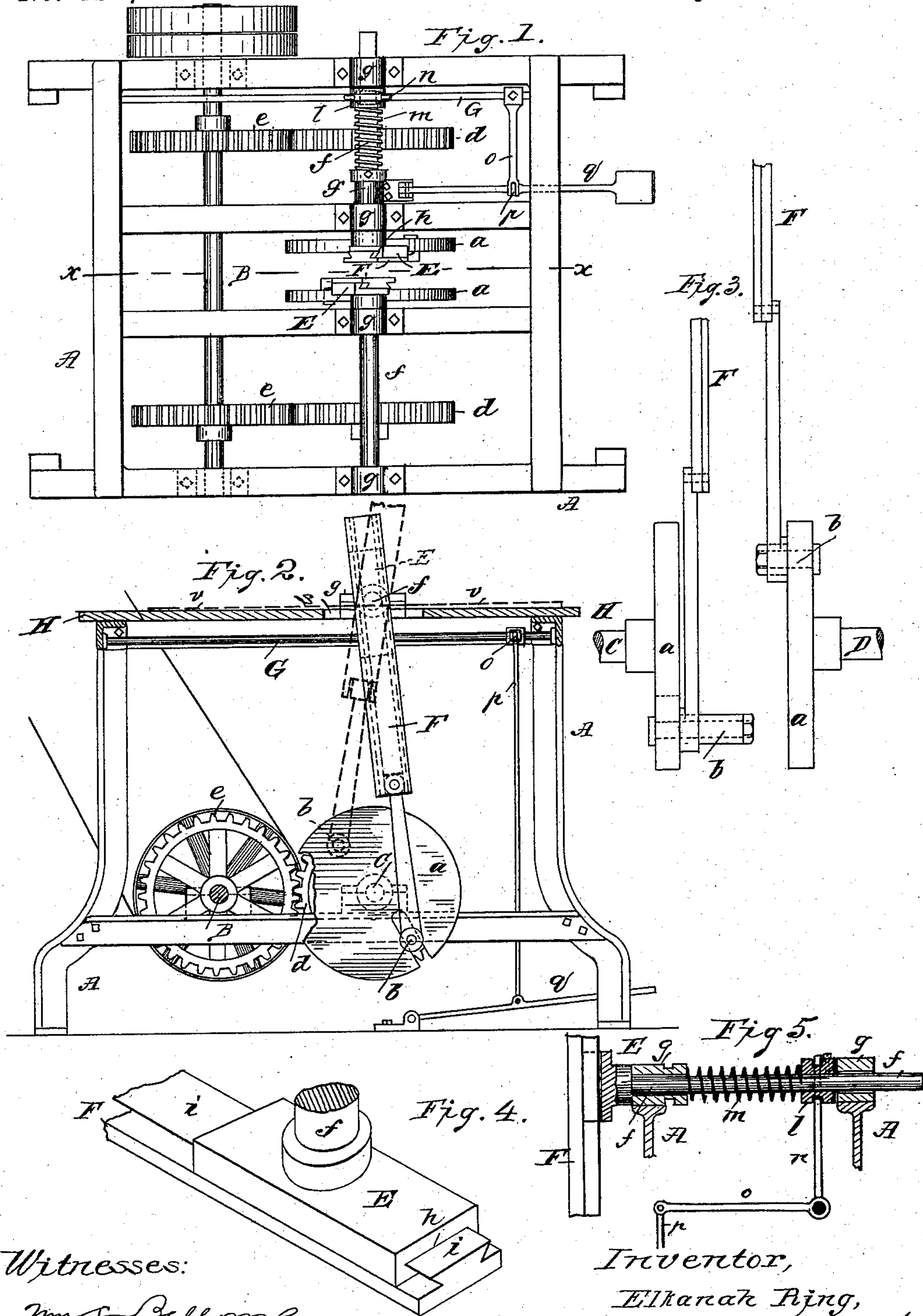


(No Model.)

E. RING.
WHIP ROLLING MACHINE.

No. 407,691.

Patented July 23, 1889.



Witnesses:

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UNITED STATES PATENT OFFICE.

ELKANAH RING, OF WESTFIELD, MASSACHUSETTS, ASSIGNOR OF ONE-HALF
TO JAMES NOBLE, JR., OF SAME PLACE.

WHIP-ROLLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 407,691, dated July 23, 1889.

Application filed December 17, 1888. Serial No. 293,838. (No model.)

To all whom it may concern:

Be it known that I, ELKANAH RING, a citizen of the United States, residing at Westfield, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Whip-Rolling Machines, of which the following is a specification.

This invention relates to improvements in whip-rolling machines, the object whereof being to provide, with the employment of simple and inexpensive mechanism, a machine of the greatest efficiency for use; and it consists in the various constructions and combinations of parts, all as will hereinafter fully appear and be set forth in the claims, reference being had to the accompanying drawings, in which—

Figure 1 is a plan view of the machine with the table removed. Fig. 2 is a sectional elevation of the machine, the plane of section being indicated by the line *x x*, Fig. 1, and the relative positions of certain movable parts cut out by the section indicated by heavy dotted lines. Fig. 3 represents in enlarged front elevation or edge view, and Fig. 4 in perspective, parts in detail, to be hereinafter mentioned; and Fig. 5 is a sectional view in detail, to be hereinafter referred to.

Similar letters of reference designate corresponding parts in all the views.

A represents a frame-work, of a general rectangular or other suitable form, supported in which are the driving-shaft B and two short counter-shafts C D parallel thereto, in axial alignment with each other, the inner ends of which are slightly separated and carry face-plates *a*, each having an eccentric-pin *b* thereon set "at halves," or the axis of the pin for one face diametrically opposite that for the other, as indicated in Figs. 2 and 3. Through the gears *d d*, of equal size, on said counter-shafts meshing with the gears *e e* on the driving-shaft both of the counter-shafts are rotated in the same direction and with equal speed. At the top of the machine-frame over the said face-plates are blocks E, that are carried in planes at right angles to and on the ends of horizontal arbors *f*, which range parallel with said counter-shafts C, and have bearings for a rock or reciprocating rotary motion in journals *g* on the top of the frame,

and said blocks in their length are provided with dovetailed ways *h*, through which play the whip-rolling boards or plates F, the latter having corresponding dovetail ribs *i*, and said whip-rolling boards, by their lower end extensions *j*, that are formed with or rigidly attached thereto, are secured to the eccentric-pins *b*.

One arbor *f* for carrying one slide-block is adapted to have an endwise movement, through its journal-bearings, with or against the recoil of a spiral spring *m*, applied between a fixed collar *l* thereon and one of the journals, as particularly seen in Fig. 5; and G represents a rock-shaft having a radial arm *n* engaging said collar *l* to slide it, and said rock-shaft is also provided with another rigid radial arm *o*, extending angularly to said arm *n*, with the outer end of which is connected the upper end of the connecting-rod *p* of a foot-treadle lever *q*, and it will be seen that the normal position of the movable block E is separated and away from the other block and so maintained by the spring *m*; but by depressing the treadle through the connections described said movable block is carried toward the other block to present the working-faces of the whip-rolling boards in working proximity to each other.

H, Fig. 2, represents a table resting on the machine-frame for horizontally supporting the whip, said table being centrally apertured, as at *s*, to permit of the proper movements of the blocks and the whip-rolling boards.

The movements of the whip-rolling boards, imparted by the eccentric-pins set at halves and connected thereto with relation to each other and to the whip horizontally disposed between them in a line coincident with the plane of the faces of said boards, is such as to impart to the whip a rolling motion and also a forward movement. At each rotation of the eccentric-pins *b* the boards F are moved up and down in opposite directions, and are disposed at angles to each other—as, for instance, one board moves upward, inclining upwardly to the left, while the other moves down, inclining upwardly to the right, and then as half the revolution is being completed the first-named board changes to an incline upwardly to the right, after which it

moves down, while the other board at such time changes its incline upwardly to the left, after which it moves up, and of course at intermediate periods between the reversing of their general directions of inclines said boards have inclines of a greater or less angle to a common vertical line through the center of oscillation of their swing-blocks E, said blocks being passive and moving only as they are caused to by the changing angles of the whip-rolling boards sliding in the dovetail ways therein. The said oppositely-moving boards insure a rapid and effective rolling of the whip when between and against them, first in one direction and then in the other, and the direction of the movements of said boards being always in reverse directions with relation to each other, which directions of movement are at angles to the axis of the whip, the said whip will, by and under such peculiar rolling movements and action of the boards thereon, be fed forward across the table in the direction indicated in dotted lines at *v* in Fig. 2, which represents the position of the whip with relation to the faces of said rolling-boards.

As one rolling-board moves up as fast as the other moves down, there is no tendency imparted by them to the whip to move it in a direction across its axis toward either end of either board, and any force imparted on the whip to swing its axis by either end up or down from its desired line of travel by the boards at the time the ends thereof cross each other before reversing their endwise movements will be resisted by the table, across the surface of which the whip travels forward.

What I claim as my invention is—

1. In a whip-rolling machine, a pair of opposing blocks E E, having longitudinal slide-ways therein and pivotally mounted for swiveling movements, combined with whip-rolling boards longitudinally movable in said ways, and means for imparting thereto relatively-reversed longitudinal motions and relatively-reversed lateral vibratory motions with their faces in substantially parallel planes, substantially as and for the purpose described.

2. In a whip-rolling machine, a pair of opposing blocks E E, having longitudinal slide-ways therein and pivotally mounted for a swiveling movement, combined with a pair of whip-rolling boards longitudinally movable in said ways, and a pair of revolving eccentric-pins, one set to rotate in advance of the

other, to which the lower extensions of said boards are connected, substantially as and for the purposes described.

3. In a whip-rolling machine, a pair of opposing blocks E E, having longitudinal slide-ways therein, and journaled arbors on which said blocks are mounted for oscillating movements, one of which arbors is movable endwise with or against a spring-pressure, and means for longitudinally moving said arbor, combined with a pair of whip-rolling boards longitudinally movable in said ways, and a pair of revolving eccentric-pins, diametrically opposite each other, to which the lower extensions of said boards are connected, substantially as and for the purpose described.

4. In a whip-rolling machine, a pair of opposing blocks E E, having longitudinal slide-ways therein, and journaled arbors on which said blocks are mounted for oscillating movements, one of which arbors is movable endwise with or against a spring-pressure, combined with a pair of whip-rolling boards longitudinally movable in said ways, and a pair of revolving eccentric-pins diametrically opposite each other, to which the lower extensions of said boards are connected, the rock-shaft G, having the radial arms *o* and *n*, the latter being in engagement with said longitudinally-movable arbor, a treadle-lever, and the rod connected thereto and to said radial arm *o*, substantially as and for the purpose described.

5. In a whip-rolling machine, in combination, a driving-shaft having the gears *e e* and a supporting-frame therefor, the journals *g g* on said frame, arbors supported for oscillation in said journals, one of which is movable endwise with or against a spring-pressure, the opposing blocks carried by said arbors having ways therein, the counter-shafts C D, provided with the opposing face-plates having the eccentric-pins diametrically opposite each other, the whip-rolling boards adapted to play in the ways of said blocks and by their lower extensions connected with said eccentric-pins, the rock-shaft G, having radial arms *o n*, the former engaging said longitudinally-movable arbor, a treadle-lever *q*, and a rod connected thereto and to said radial arm *o*, all substantially as shown and described.

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Witnesses:

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