

(No Model.)

2 Sheets—Sheet 1.

J. J. HEYS.
STARTING OR STOPPING MECHANISM.

No. 543,242.

Patented July 23, 1895.

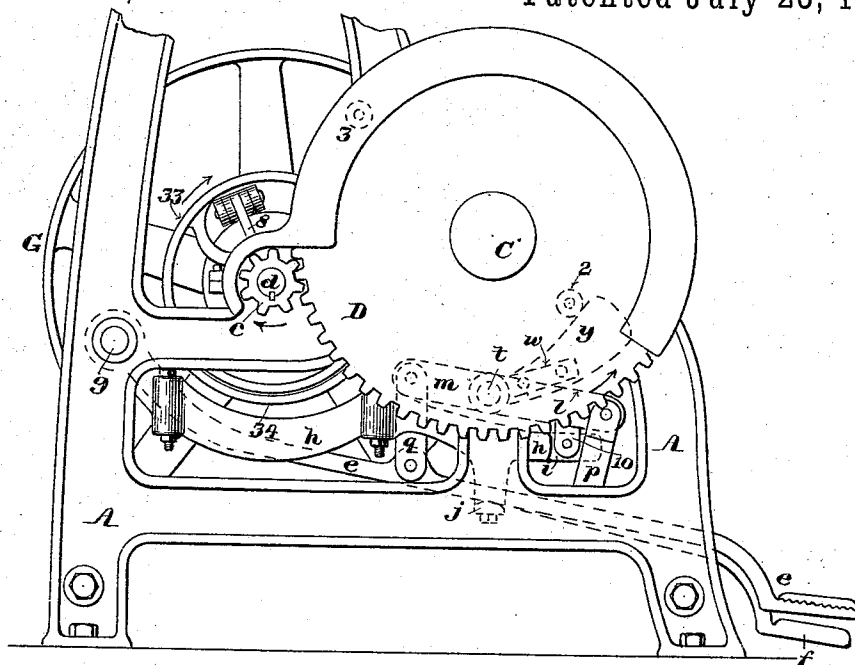


Fig. 1.

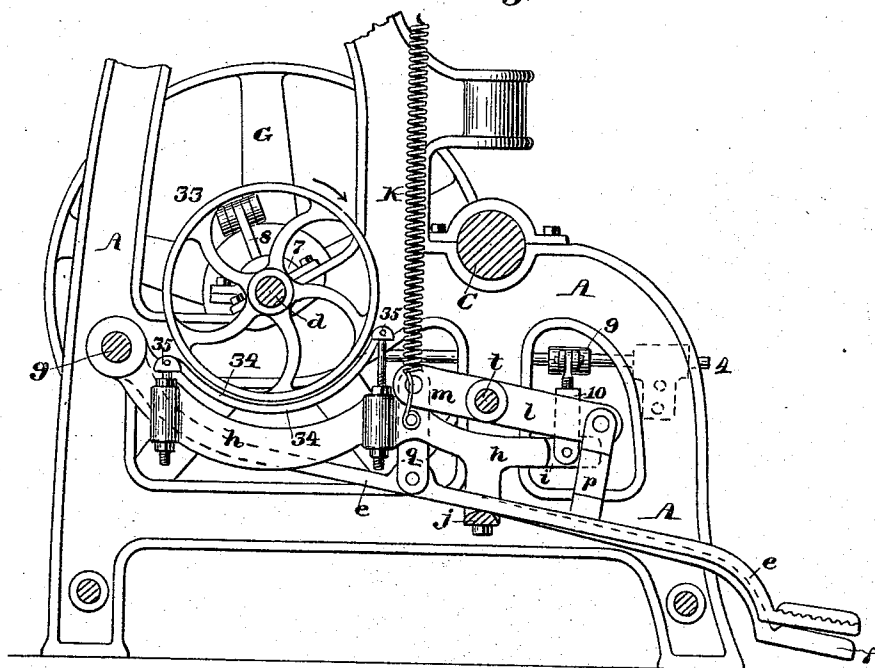


Fig. 2.

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Inventor:

John J. Heys
per W. Porter Atty

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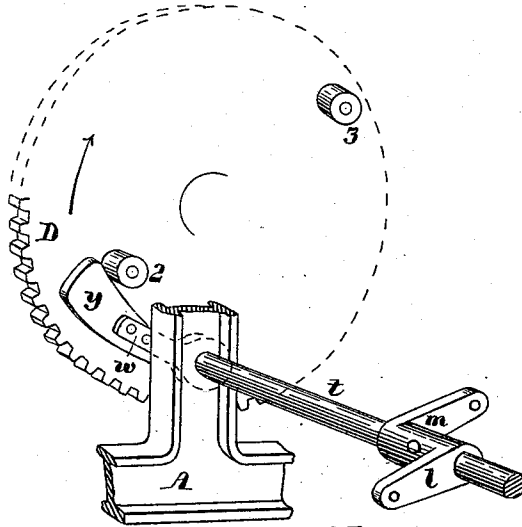


Fig. 4.

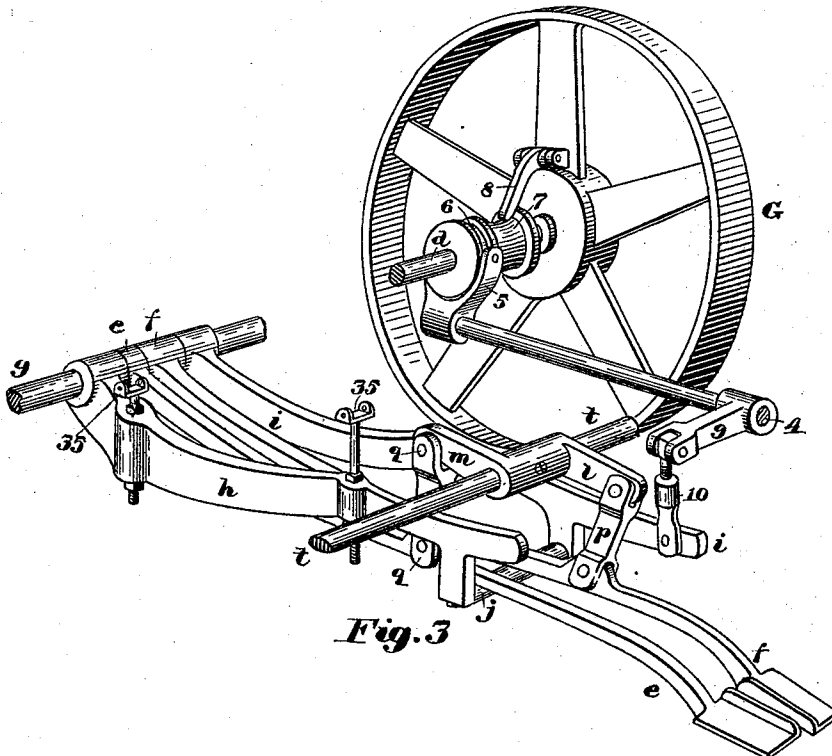


Fig. 3

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UNITED STATES PATENT OFFICE.

JOHN J. HEYS, OF LYNN, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO
MAURICE V. BRESNAHAN, OF SAME PLACE.

STARTING OR STOPPING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 543,242, dated July 23, 1895.

Application filed March 18, 1895. Serial No. 542,085. (No model.)

To all whom it may concern:

Be it known that I, JOHN J. HEYS, of Lynn, in the county of Essex and State of Massachusetts, have invented a new and useful Improvement in Starting and Stopping Mechanism, which will, in connection with the accompanying drawings, be hereinafter fully described, and specifically defined in the appended claims.

10 In said drawings, Figure 1 is a side elevation of the lower part of a machine embodying my improved stopping and starting mechanism, the upper part of the machine being broken
15 away, as it is not necessary to be shown. Fig. 2 is a view taken from the same standpoint as Fig. 1, but the machine is shown in section with the rear part of the frame and other parts removed, the better to show interior parts.
20 Fig. 3 is a detached perspective view showing the treadles, the rock-shaft, its connections to the treadles, the vibrating frame and its connection with the pulley-clutch. Fig. 4 is also a detached perspective view showing the rock-shaft and the means of actuating the same by
25 the action of the large gear.

The object of this invention is to provide a new starting and stopping mechanism for machinery; and it consists in a device which is started by depressing a treadle, and such
30 movement of the machine is continued by holding the treadle depressed till the stopping point is reached, when the machine is automatically stopped, regardless of the operator, who has no volition in the matter of such stop-
35 ping, all as will be next herein described and pointed out in the appended claims.

Referring again to said drawings, A A represent side frames of the machine, which will be of such size, form, and proportion as the
40 work to be performed by the machine will render necessary. In said frames is journaled a main shaft C, on which is secured a large gear D, said shaft being usually a crank-shaft; but if preferred it may be straight and have keyed
45 upon it a smaller gear by which to impart motion to any desired machinery. A smaller shaft *d* is journaled in rear of shaft C and carries the pulley G by which the machine is driven, and also carries the pinion *c* which
50 meshes in and drives the large gear D.

In the rear of frames A is the rod *g*, on which

are pivoted the treadles *e* and *f*, as also the vibrating frame consisting of bars *h* and *i* arranged outside of said treadles, and near their front ends rigidly connected by bar *j*. At the
55 front end of bar *i* a stirrup 10, that connects it with arm 9 secured upon shaft 4, is journaled in the machine; said shaft carrying at its rear end a forked arm 5 that carries trundles that engage in groove 6 of hub 7, which is mount-
60 ed loosely on said shaft *d* and which engages and actuates arm 8 that locks a clutch in the hub of pulley G, so that when so locked the pulley will drive the shaft; but said clutch may be any of the numerous locking-clutches,
65 and it is not herein claimed and need be no further specified, as such clutches are familiar to all machinists.

It will be seen that the bar *j* that unites arms *h* *i* passes beneath the treadles *e* *f*, so
70 that when either treadle is depressed it carries said arms downward and so actuates said clutch to put the machine in motion. Said treadle *f* is connected by a stirrup *p* with arm
75 *l* that extends to the front from a rock-shaft *t*, while treadle *e* is, by a stirrup *q*, connected with arm *m* that extends to the rear from said rock-shaft. Said rock-shaft is journaled in
80 frames A and at its left-hand end (see Fig. 4) it carries a short arm *m*, to which is secured an arm *y* that extends into the path of trundles 2 and 3 carried by gear D, said trun-
85 dle 2 being so positioned on the gear as to pass inside and so depress said arm *y* and so raise arm *m* and depress arm *l* on shaft *t*,
90 while trundle 3 passes on the outside of arm *y* and raises the same, and so depresses arm *m* and raises arm *l*. Shaft *d* carries a brake-pulley 33, that is engaged by brake-shoe 34,
95 mounted in the heads of poppets 35 carried by bar *h*. Hence, when treadle *e* is depressed by the operator, frame *h* *i* is carried down-
ward, thus removing brake-shoe 34 from pulley 33; and by depressing arm *m* on shaft *t* the arm *y* will be brought into the path of
100 trundle 2, while the depressing of arms *h* *i* causes the clutch in the hub of pulley G to be locked and the machine put in motion; and when trundle 2 strikes arm *y* rock-shaft
105 *t* is moved, treadle *e* is raised, and brake-shoe 34, engaging wheel 33, will stop the machine as the clutch mechanism is disengaged. Then

the depression of treadle *f* will move arm *y* away from trundle 2 into the path of trundle 3, while by the means already described the machine will make another half-revolution; and it will be seen that as each half-revolution is completed the machine is automatically stopped, whether the operator so wills or not, and that hence he has only to depress the proper treadle and so hold it till the machine makes its half-revolution and comes to a stop, a spring *K* being at its lower end attached to said vibrating frame, while its upper end is attached to frame *A*, so that said spring serves to raise said vibrating frame and the depressed treadle when released by the operator, and so that the arm 9 is raised and the clutch of pulley *G* released, while brake-shoe 34, acting on pulley 33, stops the machine.

The arm *y* may, if preferred, be attached directly to shaft *t*, but I deem the means shown preferable.

Various changes may be made in the details of construction without departing from the essential nature of my invention.

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

1. In combination, the main shaft *C*, gear *D* secured thereon, shaft *d*, its pulley *G*, a clutch on said pulley shaft, and pinion *c* meshing in gear *D*, the treadles *e*, *f*, independently mounted, the oscillating frame consisting of bars *h*, *i*, united by bar *j*, rock shaft *t* with its arm *y*, and the trundles 2, 3, arranged on gear *D* to move said arm in opposite directions, arms *l*, *m*, extended in opposite directions from shaft *t*, to which the treadles are respectively pivoted: a reacting spring *K* to raise said oscillating frame when released, a brake pulley carried by shaft *d*, and a brake shoe carried by frame *h*, and stirrup 10 connecting said oscillating frame with arm 9 of the pulley clutch device, whereby the machine is put in motion by depression of a treadle and is automatically stopped when a half revolution of gear *D* is made.

2. The combination of rock-shaft *t* having arm *y*, gear *D* provided with trundles 2, 3, arranged to actuate said arm alternately in opposite directions; treadles *e*, *f*, respectively

connected with arms *l*, *m*, extending from opposite sides of shaft *t*: the vibrating frame having bar *j* arranged to raise said treadles, a stirrup by which said frame is connected with arm *g* of shaft 4, said shaft, provided with an arm that engages the hub of a clutch that renders the mechanism operative, and the said clutch, all substantially as specified.

3. The combination of gear *D* carried by shaft *C*, the trundles 2, 3, arranged on opposite sides of said gear and at unequal distances from the center thereof, an arm *y* mounted on shaft *t* and arranged to be vibrated in opposite directions, alternately, by said trundles, and a treadle mechanism connected with and arranged to be actuated by shaft *t* as the same is moved by the action of arm *y*, all substantially as specified.

4. The combination of gear *D* provided with trundles 2, 3, shaft *t* having arm *y* arranged to be moved in opposite directions alternately by said trundles, treadles *e*, *f* attached to arms *l*, *m*, extended from opposite sides of said shaft, rocking frame *h*, *i*, which is depressed by said treadles, the brake pulley mounted on shaft *d*, and a brake shoe carried by said rocking frame and arranged to engage said brake pulley, substantially as specified.

5. The combination in a starting and stopping mechanism of a pair of treadles duly pivoted; a rock-shaft having arms extended from opposite sides thereof and respectively connected with said treadles; a rigid arm extended from said rock-shaft, two trundles mounted on a wheel at unequal distances from the axis thereof and so as to respectively encounter said arm on opposite sides and thereby move the same in opposite directions and thus alternately raising said treadles, after the same have been depressed; a stirrup connected with the treadle mechanism and an arm with which said stirrup connects, a rock-shaft from which said arm extends; a yoke carried by said last named rock-shaft; and a clutch mechanism connected with and actuated by said yoke all substantially as specified.

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Witnesses:

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