

No. 679,190.

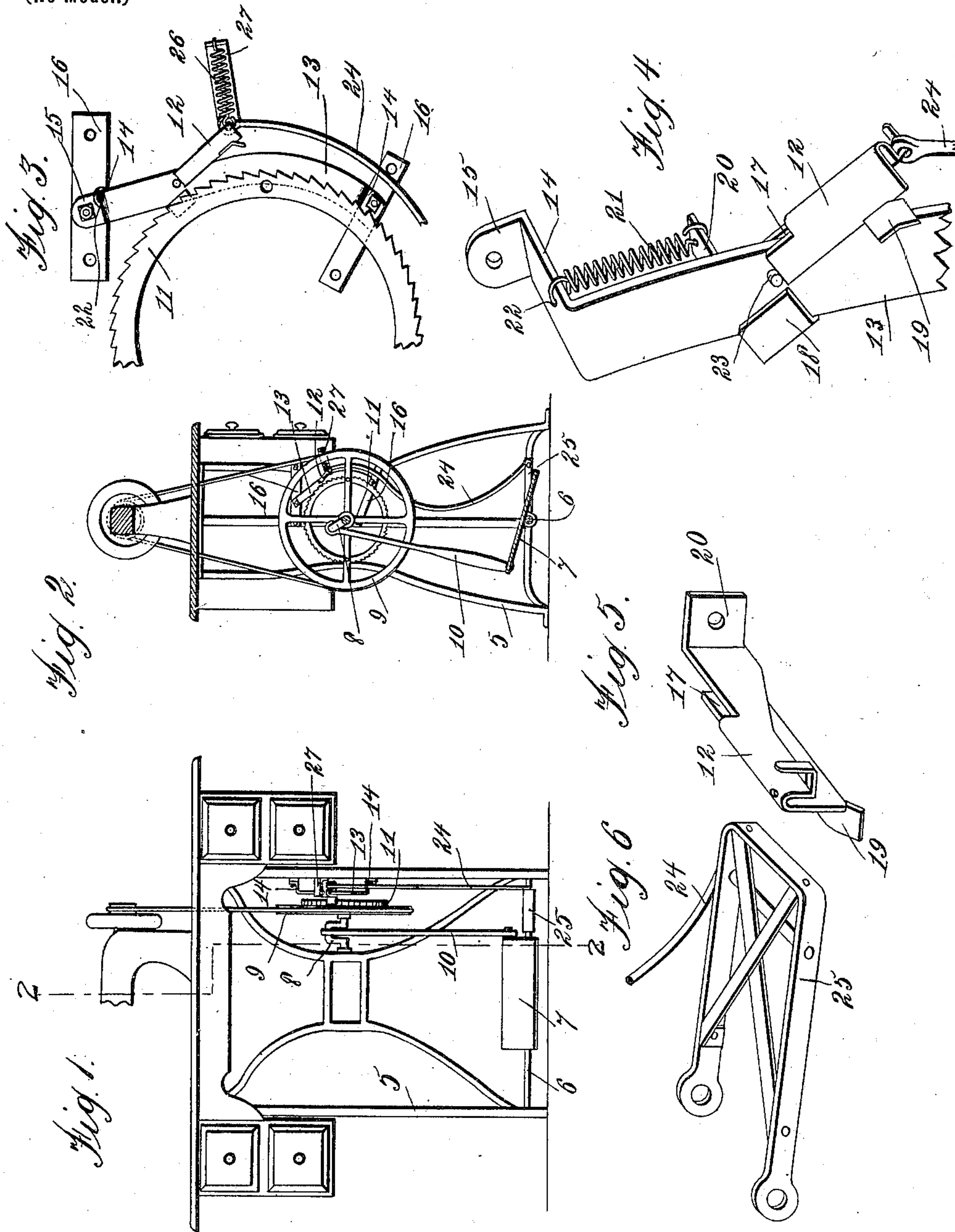
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G. SIMS.

STARTER FOR FOOT POWER MACHINES.

(Application filed Apr. 5, 1901.)

(No Model.)



Witnesses:

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# UNITED STATES PATENT OFFICE.

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## STARTER FOR FOOT-POWER MACHINES.

SPECIFICATION forming part of Letters Patent No. 679,190, dated July 23, 1901.

Application filed April 5, 1901. Serial No. 54,431. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE SIMS, a subject of His Majesty the King of Great Britain, residing at Little Metis, county of Rimouski, Province of Quebec, Canada, have invented certain new and useful Improvements in Starters for Foot-Power Machines; and I do hereby declare that the following is a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to a starter for foot-power machines—such as sewing-machines, scroll-saws, lathes, and all other kindred machinery wherein the motive parts are likely to become dead-centered, and thereby make the operator encounter difficulty in starting the machine in motion. Such machines often require the operator to use the hand in throwing the fly-wheel part way around and off the center; but this use of the hand in some kinds of machines, such as sewing-machines, is quite objectionable, because the work frequently requires the use of both hands in guiding it to the stitch-forming mechanism. Hence the work is subject to disarrangement if one of the hands is removed for starting the machine.

The primary object of this invention is the provision of a starting device operable by the operator's foot and actively related to an element of the foot-power mechanism for quickly and easily throwing the same off the center, and thereby give the initial movement thereto, thus setting the machine in motion without the use of the hands.

A further object is the provision of a starting mechanism which may easily be applied to any standard foot-power machines now in use or which may be built as a part of such machine at the time of its manufacture, and, furthermore, to simplify the construction and to promote the efficiency of operation.

With these ends in view the invention consists in the novel construction and arrangement of parts, which will be hereinafter fully described and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a front view of a sewing-machine equipped with my starter mechanism. Fig. 2 is a vertical transverse section in the plane of the dotted line

2 2 on Fig. 1. Fig. 3 is a side elevation of parts of the improved starter mechanism. Fig. 4 is a perspective view representing a part of the arcuate guide and of the slidable pawl. Fig. 5 is a detail perspective view of said pawl, and Fig. 6 is a similar view of the starter-treadle.

The same numerals of reference denote like parts in each of the several figures of the drawings.

In order that others may understand the application of my improvement, I have shown the same by Figs. 1 and 2 applied to a sewing-machine, in which the numeral 5 designates the machine-frame, 6 is the treadle-shaft, 7 is the ordinary treadle, 8 is the crank-shaft adapted to carry the belt-wheel 9, and 10 is the pitman between the treadle-shaft and the crank-shaft. It is not considered necessary to more fully describe these parts, which are intended to serve merely as an illustration of one style of foot-operated machine, and it is to be understood that my improved starter mechanism may be used in connection with any other kind of foot-operated machinery.

One element of my improved mechanism is a ratchet-wheel 11, the same adapted to be fastened to the belt-wheel 9 in any suitable way and arranged to occupy a concentric position with the rim of the balance-wheel and with the shaft 8. This ratchet-wheel may be fastened laterally to the spokes of the belt-wheel by bolts or other suitable fasteners; but it is necessary that the ratchet shall be fastened in place so as to expose its toothed peripheral edge for engagement by a slidable pawl 12, the latter adapted to move in an arcuate path concentric with the ratchet. This is attained by loosely mounting said pawl 12 on an arcuate guide 13, the latter having its end portions bent inwardly, as at 14, and formed with the lugs 15, which are adapted to be secured in any suitable way to the bracket-plates 16. These bracket-plates may be fastened to one side of the framework 5, and the arcuate guide is adjusted and fastened to these bracket-plates so as to make the curved portion thereof concentric with the edge of the annular ratchet, which is revolvable with the belt-wheel.

The slidable pawl 12 is of the peculiar con-



struction represented more particularly by Figs. 3, 4, and 5, the same being made in the form of a clasp arranged to loosely embrace the arcuate guide 13. Said clasp-shaped pawl  
 5 has a short longitudinal slot 17, in which is received one edge of the arcuate guide, and at one end this pawl is formed with a loop 18, that is adapted to fit or embrace the other edge of the arcuate guide, as shown more  
 10 clearly by Fig. 4. By the formation of this loop and the slot the pawl is made to loosely embrace the guide so as to have a sliding and a rocking motion thereon, but said pawl is prevented from having any lateral oscillation.  
 15 At its rear end the pawl is provided with an off-standing feed-lip 19, the same projecting laterally from the pawl and arranged to engage with one of the teeth in the annular ratchet. The front portion of the pawl on the outer  
 20 loop 18 has a lug 20, to which is connected one end of a coiled spring 21, having engagement at 22 with the bent portion 14 of the arcuate guide, whereby the pawl is normally drawn in an upward direction and until it is  
 25 arrested by means of a stud forming the stop 23. This spring tends to pull the pawl in a direction which moves the feed-lip 19 to take a fresh hold on the ratchet; but the reverse movement of the pawl is effected by the pit-  
 30 man 24. This pitman is bent or curved, as shown by Fig. 2, and its lower portion is extended for connection with the starter-treadle 25. As shown by the drawings, this treadle is loosely mounted on the treadle-shaft 7 of  
 35 the foot-power machine so as to occupy a position alongside of the foot-power treadle 7, and the starter-treadle is considerably smaller in size than said treadle 7. The detailed construction of this starter-treadle and the man-  
 40 ner of mounting the same in the machine is not material.

From the foregoing description, taken in connection with the drawings, it will be understood that the operator may place the foot  
 45 on the starter-treadle 25, and thereby pull downwardly on the pitman 24, which depresses the feed-lip 19 of the pawl into engagement with the ratchet, whereby the ratchet and the belt-wheel are given a partial turn.  
 50 The pressure on the starter-treadle being relaxed, the spring 21 pulls the pawl in an upward direction, and thereby moves the feed-lip to take a new hold on the ratchet, after which the foot-pressure is reapplied to the  
 55 starter-treadle and the operation of turning the ratchet and the belt-wheel is continued. This operation may take place one or any number of times in order to move the belt-wheel from its dead-centered position, and  
 60 thereby give the initial impulse to a member

of the foot-power mechanism, so as to start the same into service.

I have shown my improved style of mechanism as equipped with a second coiled spring 26, the same being connected to the  
 65 opposite portion of the slidable pawl and adapted to pull the feed-lip 19 away from the annular ratchet, as shown by Fig. 3. This spring is attached to an outstanding arm 27, which may be fastened to the framework of  
 70 the sewing-machine, and the energy of said spring is overcome when the pitman 24 is pulled downward in order to quickly throw the pawl inward and make its feed-lip 19 engage with the ratchet. This second spring  
 75 26, however, may be dispensed with, but of course the spring 21 must be retained to lift the pawl to its working position.

Changes within the scope of the appended claims may be made in the form and propor-  
 80 tion of some of the parts while their essential features are retained and the spirit of the invention is embodied. Hence I do not desire to be limited to the precise form of all the parts as shown, reserving the right to vary  
 85 therefrom.

Having thus described my invention, what I claim as new is—

1. In combination with a foot-power mechanism, an annular ratchet revoluble with an  
 90 element of said foot-power mechanism, a fixed arcuate guide having a concentric disposition with reference to said annular ratchet, a pawl slidably mounted on said guide and having a member adapted to engage with said ratchet,  
 95 a spring for moving said pawl to its operative position, and a treadle having link connections with said pawl, substantially as described.

2. A starter mechanism for foot-power machines comprising a starter-treadle, an arcuate guide having means for clamping the  
 100 same in position concentric with a revoluble member of a foot-power mechanism, an annular ratchet adapted to be clamped to a revoluble member of the foot-power mechanism,  
 105 a pawl slidably fitted on said guide and having a member arranged to engage with the ratchet, a spring connected with the pawl, means for limiting the movement of the pawl  
 110 in one direction, and a pitman connecting the pawl with the treadle, substantially as described.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

GEO. SIMS.

Witnesses:

NAP. MICHAUD,  
 L. NAP. MICHAUD.