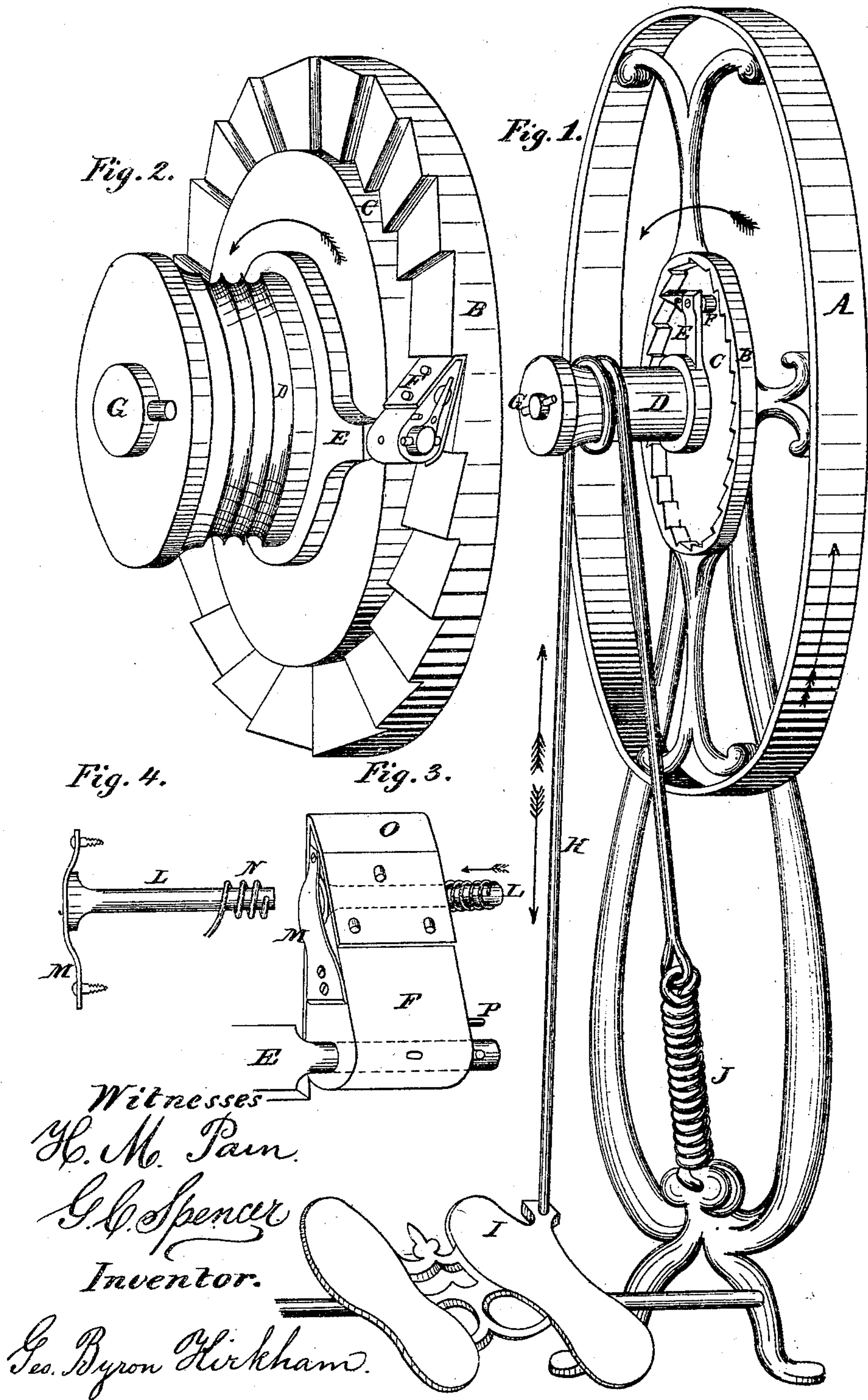


G. B. Kirkham,

Treadle.

No. 113,776.

Patented Apr. 18. 1871.



UNITED STATES PATENT OFFICE.

GEORGE BYRON KIRKHAM, OF NEW YORK, N. Y.

IMPROVEMENT IN TREADLES.

Specification forming part of Letters Patent No. **113,776**, dated April 18, 1871.

To all whom it may concern:

Be it known that I, GEORGE BYRON KIRKHAM, of 167 East Thirty-third street, city, county, and State of New York, have invented a new and useful improvement in foot-power appliances for sewing-machines, hand-lathes, and other machines propelled by the feet; and I do hereby declare the following to be a full, clear, and exact description of the same, sufficient to enable one skilled in the art to which the invention appertains to make and use it, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 represents a general view, in perspective, of the improvement. Fig. 2 shows a slight modification, and also an enlarged view of the invention. Fig. 3 gives an enlarged view of the pawl; and Fig. 4 shows more plainly the pressure-pin, friction-rubber, and spring connected therewith.

This improvement is designed to facilitate the working of sewing-machines, hand-lathes, &c., by enabling the operator always to start the fly-wheel or driving-wheel in the right direction by simply putting the feet on the treadle and pressing down; also, to produce a rapid revolution of the fly-wheel by a slow motion of the foot.

In Fig. 1, A represents the fly-wheel or driving-wheel. B is the ratchet-wheel, connected with it and forming part of it, and C is the friction-bearing, against which the pawl presses. D is the spool, which plays freely on the same axle G that the fly-wheel runs on. This spool D has an arm, E, to which is pivoted the pawl F. This pawl F works freely on the pivot in and out of the cogs of the ratchet-wheel B. The spool D is turned by the belt H and treadle I, the spring J lifting the treadle. It is evident that when the spool D, with its arm E, is turned in a direction contrary to that indicated by the arrow the pawl F would slide freely over the cogs of the ratchet-wheel B; but when the spool D is turned in the direction of the arrow the pawl will catch behind one of the cogs and impel the fly-wheel forward. Of course if the pawl was pressed against the cogs of the ratchet-wheel by a spring it would make an unbearable racket in sliding over them; but

one object of this invention is to prevent that noise and make the whole work positively and yet silently. The action of the pawl F is effected by means of a friction-bearing of a novel construction. (Shown plainly in Figs. 3 and 4.) A hole is made through the pawl F, and in this is inserted a bar or pin, L, with a head to it to press against the friction-bearing M, made of leather, rubber, or any suitable substance. This friction-bearing M is fastened securely to the pawl F, and is pressed outward against the friction-surfaces C, Figs. 1 and 2, by the spring N, which acts on the pin or bar L. In Fig. 2 a flat spring is indicated, and in Figs. 3 and 4 a spiral spring; but the form of the spring is immaterial. A little pin, P, is set in the pawl so as to strike against the pin in the arm E and prevent the pawl from going back too far—that is, from rising so high from the cogs that when the arm E was driven forward the pawl would swing round the wrong way and not engage the cogs at all. A cushion, O, of leather, rubber, or similar substance, is fastened on the pawl F, to prevent the sharp click when the pawl strikes the cogs of the ratchet-wheel.

Figs. 1 and 2 present modifications of the ratchet-wheel. In Fig. 1 the faces of the cogs are vertical to the plane of the fly-wheel and the bearing-surface identical with it, while in Fig. 2 the faces of the cogs are identical with the plane of the fly-wheel and the bearing-surface C vertical to it. In Fig. 2 the spool D is shown with a spiral groove cut around it to prevent the belt H from working to one end or the other of it. This arrangement of the belt, spool, and treadle differs from a previous patent of mine on the same subject of foot-power for sewing-machines, hand-lathes, &c., for in my previous invention the belt was passed around a plain grooved wheel once and pulled taut by a spring attached to the front of the treadle; but in this invention the belt is intended to be wound round the spool several times in a spiral groove, and by its superior cohesion a much smaller wheel or spool can be used, and thus by one stroke of a treadle of the usual length the fly-wheel can be driven around several times, which thus saves a great deal of labor. Furthermore, the spring J is not

attached to the other end of the treadle, but to the frame-work of the machine.

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

1. The arrangement of the spool D E, belt H, spring J, the pawl F, ratchet-wheel B, and bearing-surface C, as arranged, and for the purpose specified.

2. The accessories to the pawl F, the pin L, spring N, and bearings M and O, for the purpose set forth.

GEO. BYRON KIRKHAM.

Witnesses:

H. M. PAIN,

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