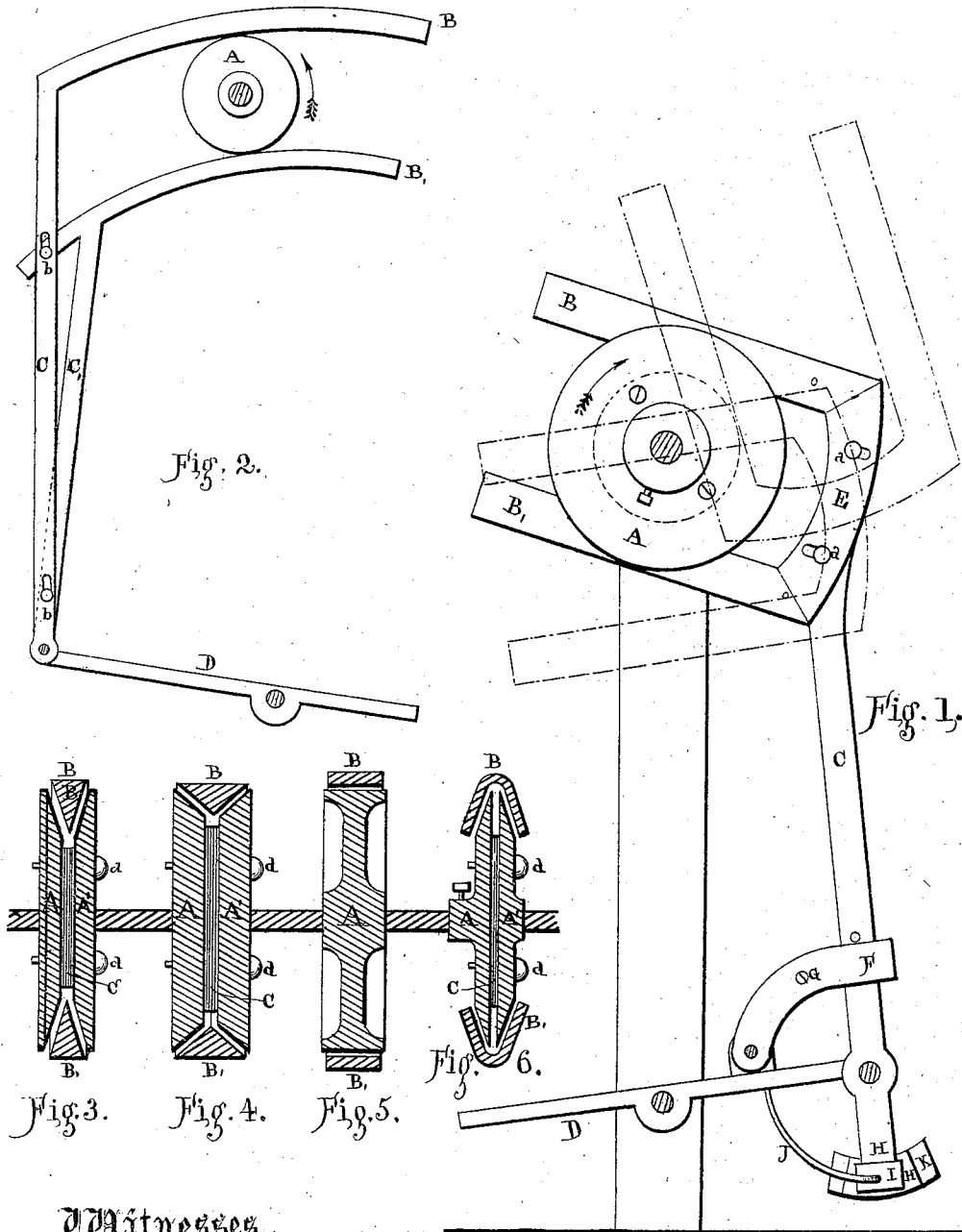


G. B. KIRKHAM.

Treadles.

No. 136,603.

Patented March 11, 1873.



Witnesses.

A. L. Nelson
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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN TREADLES.

Specification forming part of Letters Patent No. 136,603, dated March 11, 1873.

To all whom it may concern:

Be it known that I, GEORGE BYRON KIRKHAM, of No. 167 East Thirty-third street, New York city, county and State of New York, have invented an Improvement in Treadles or Foot-Powers, of which the following is a specification:

The object of this invention is to provide a foot-power which is applicable to sewing-machines, jig-saws, hand-lathes, and the like, which will always turn the fly-wheel in the right direction with a noiseless and positive motion.

Figure 1 is a general view of the invention, showing the various angles at which the bearing-arms can be placed. Fig. 2 shows a modification, with double pitman and curved arms. Fig. 3 is an end view of the fly-wheel and beveled arms. Fig. 4 is an end view of a shallow grooved wheel and beveled arms. Fig. 5 is an end view of a flat wheel and arms. Fig. 6 is an end view of a beveled wheel and grooved arms.

Part of this improvement in treadles is anticipated in a previous patent of mine, December 5, 1871; but in that patent I represented the bearing-arms as being always vertical in a line with the pitman, and with a great deal of shifting apparatus; but I have since found by experiment that it is better to put the bearing-arms at an angle to the pitman, and to attach the shifting apparatus, when required, to the treadle and pitman in the shape of friction-clutches F F and H I K, Fig. 1; also, I have made various modifications in the bevels and grooves of the arms and wheels.

In Fig. 1, A is the fly-wheel of the machine; B B', the bearing-arms; C, the pitman; and D, the treadle. The beveled arms B B', with their body E, can be set by *a a* at any angle with the pitman from vertical to a right angle, as indicated by the dotted lines; but the angle represented in black lines is about the best in practice.

When the treadle D and pitman C are raised the arm B' catches in the groove of the fly-wheel A and runs from B' to E, causing the wheel to revolve in the direction of the arrow. When the treadle and pitman are lowered the upper arm B strikes in the groove of A and runs from E to B, continuing the revolution of

A in the same direction. These bearing-arms B B' may be either rigid or of a flexible material; but if of the latter they must be tightly stretched by screws, or by any suitable means.

To keep the pitman C steady, and in order that it may offer some resistance to the backward and forward motion caused by A B B', I have attached to it and the treadle various friction-clutches, F F and H I K. These can be used together or separately, as they may be needed. In operation they act as a shifting apparatus, and increase the traction of the arms B B' against A. F F are two friction-clutches, hinged to the treadle and pressing on either side of the pitman. Their pressure against the sides of the pitman is regulated by the screw and circular spring G. H is a prolongation of the pitman C, K a prolongation of the treadle, and I a slide pressed against H by the spring J. I and K, being on either side of H, produce considerable friction, which is what is requisite to steady the pitman.

When it is necessary to have a very uniform motion to the wheel A the arms B B' must be curved somewhat, as shown in Fig. 2; also, there can be used the double pitman C C' in the place of the body E to hold the arms B B'. As the arms B B' or wheel A wear by constant use, there would soon result a disagreeable rattling noise. To prevent this and keep the arms B B' always snug to the wheel A set-screws *b b* are used to bring the arms B B' nearer together when necessary.

In Fig. 3 is shown the wheel A with a deep groove and beveled arms B B'. Between the two halves of A are placed several disks, *c c*, of pasteboard, leather, or other suitable material. By unscrewing *d d* and taking out one of the disks *c* the two halves of the wheel A A' can be brought closer together, and thus take up any wear in the arms B B' or wheel A A'.

In Fig. 4 is shown a shallow groove and broad bevel.

In Fig. 5 both the arms B B' and wheel A are flat where they bear against each other. Their surfaces could also be curved either way; but it is not necessary to represent this.

In Fig. 6 the wheel A is beveled and the arms B B' are grooved. Any degree of bevel or groove can be used—from the sharpest acute

angle to a curved or flat surface—in the arms B B' and wheel A A'; but it is sufficient to indicate a few of the modifications.

In my invention I claim—

1. The arrangement of the bearing-arms B B' with the pitman C and the set-screws *a a*, substantially as and for the purpose hereinbefore set forth.

2. The combination of friction-clutches F F G and H I J K with the pitman and treadle, substantially as and for the purpose hereinbefore set forth.

3. The arrangement of the curved arms B B',

set-screws *b b*, and double pitman C C', substantially as and for the purpose hereinbefore set forth.

4. The arrangement of the two halves of the wheel A A', disks *c c*, screws *d d*, with grooves, bevels, curved or flat surfaces to the arms B B' and wheel A A', substantially as and for the purpose hereinbefore set forth.

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Witnesses:

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