

George Clisbee, Friction Clutch.

117234

PATENTED JUL 18 1871

Figure 1.

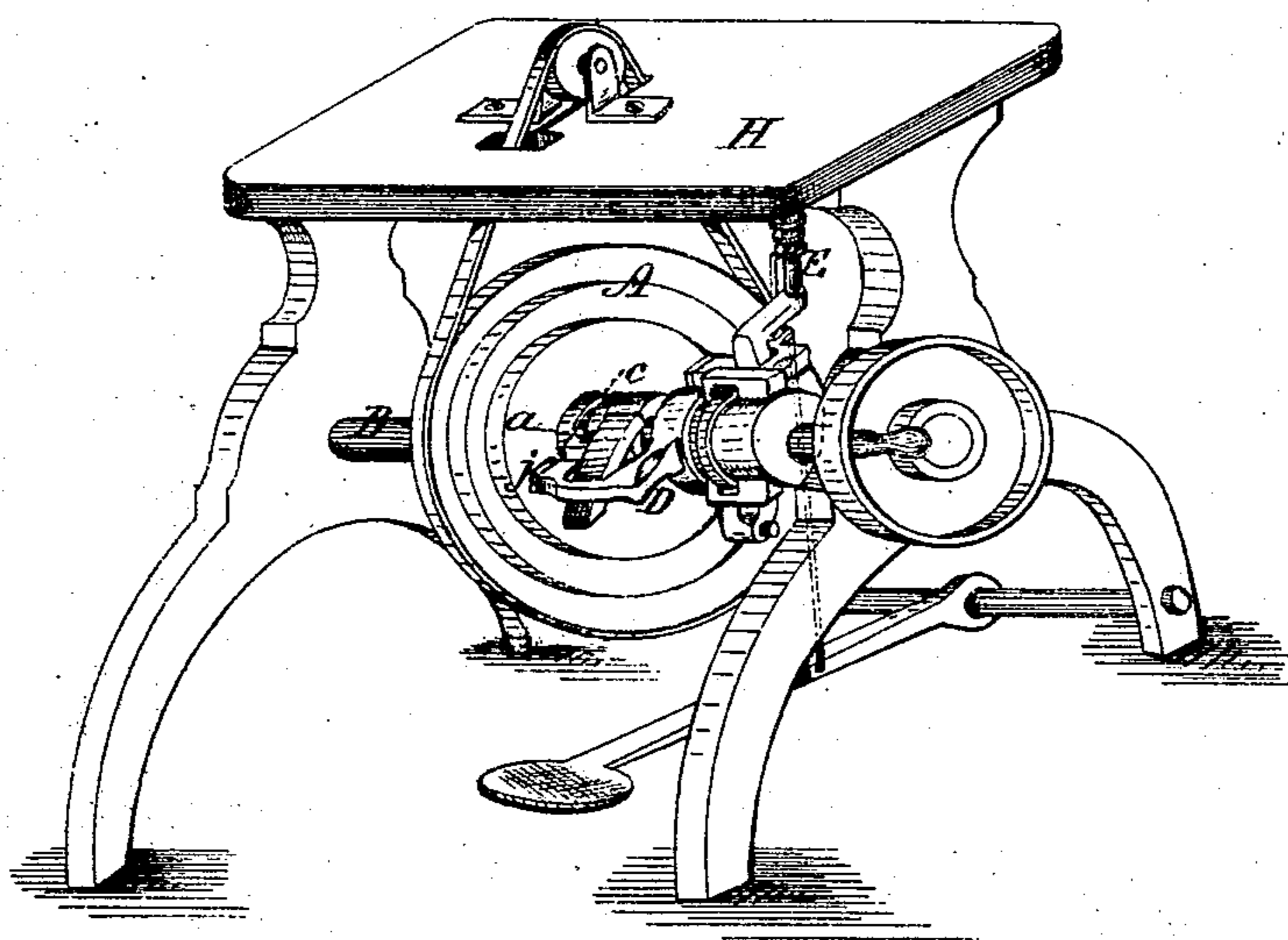


Figure 2.

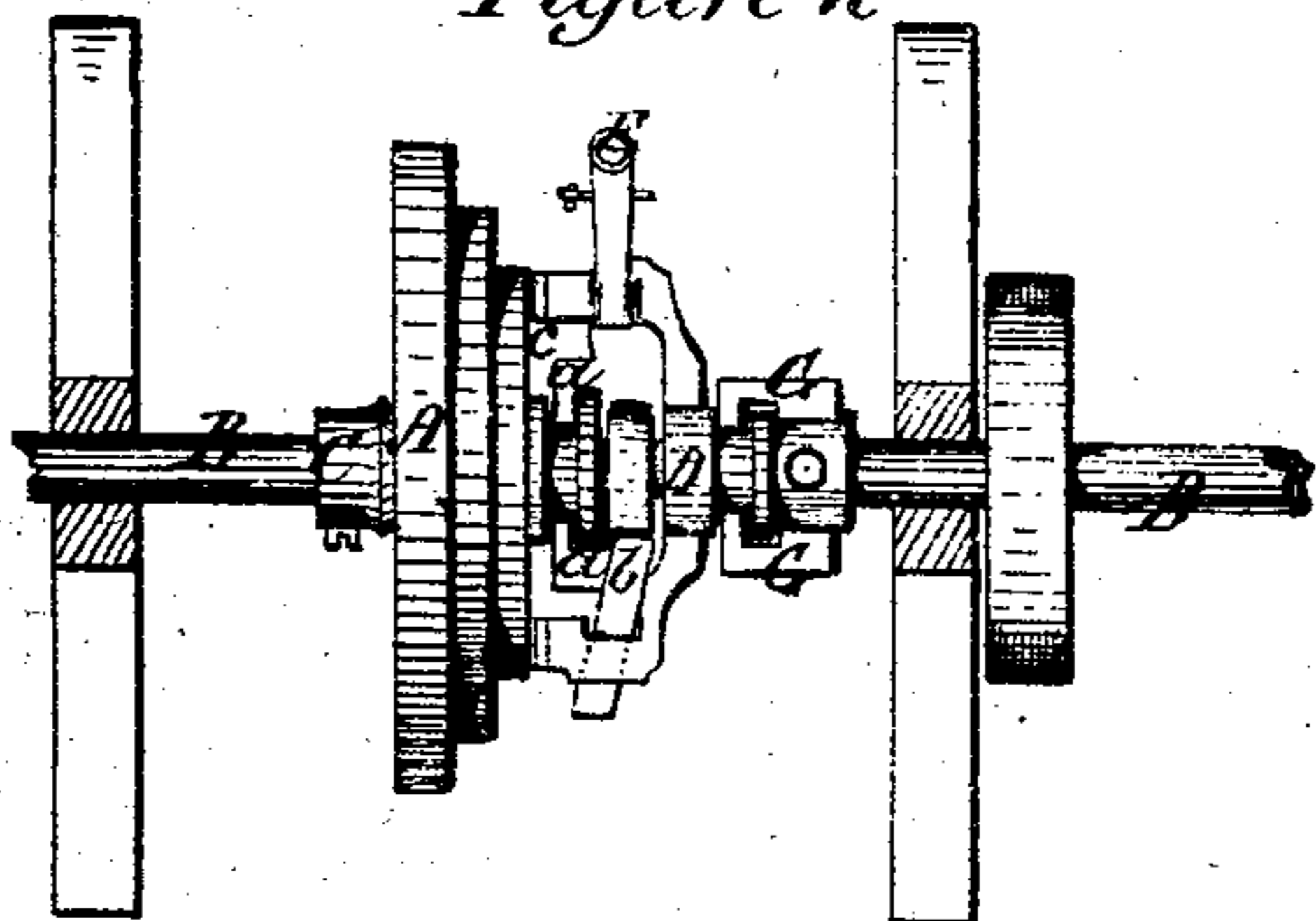


Figure 3.

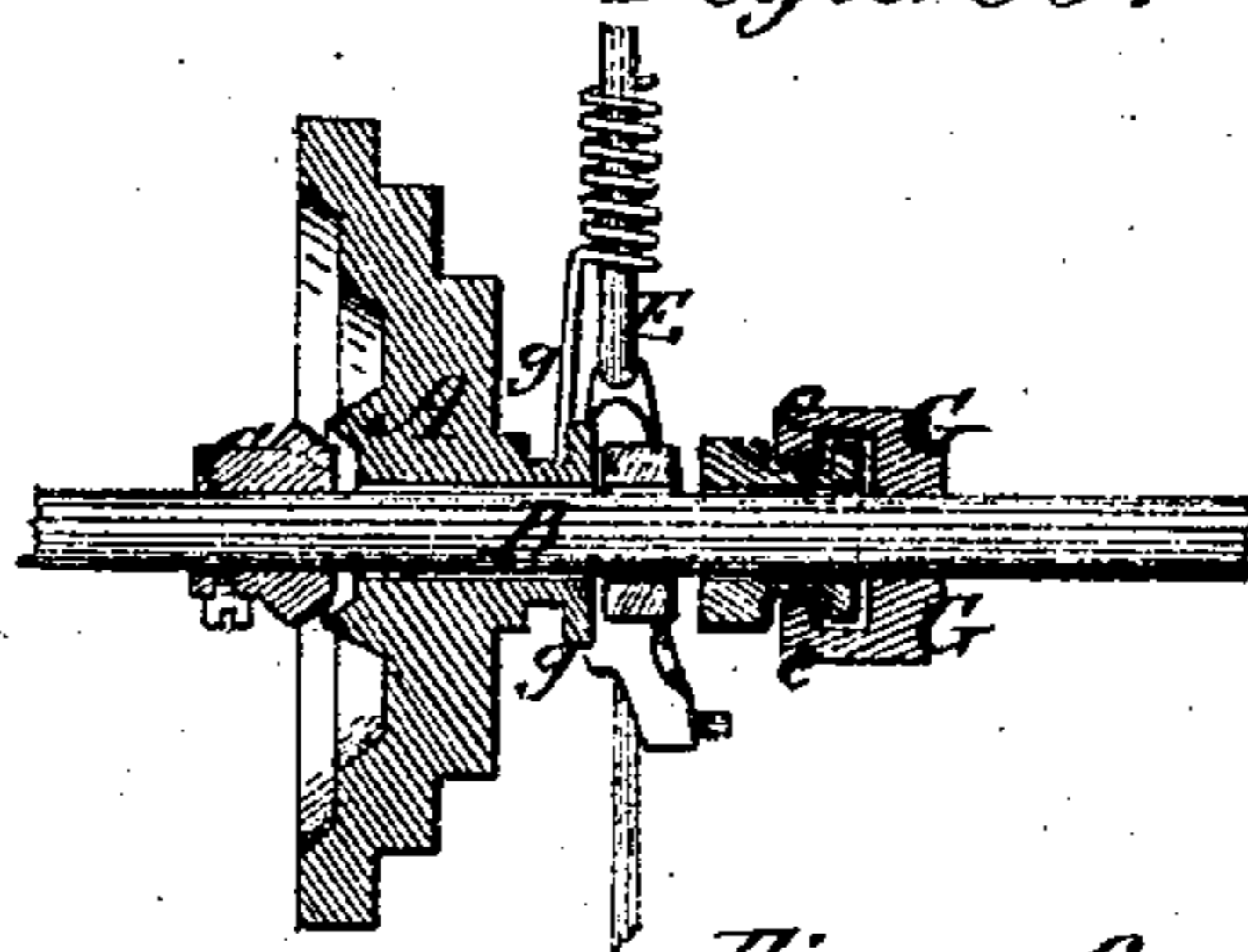


Figure 6.

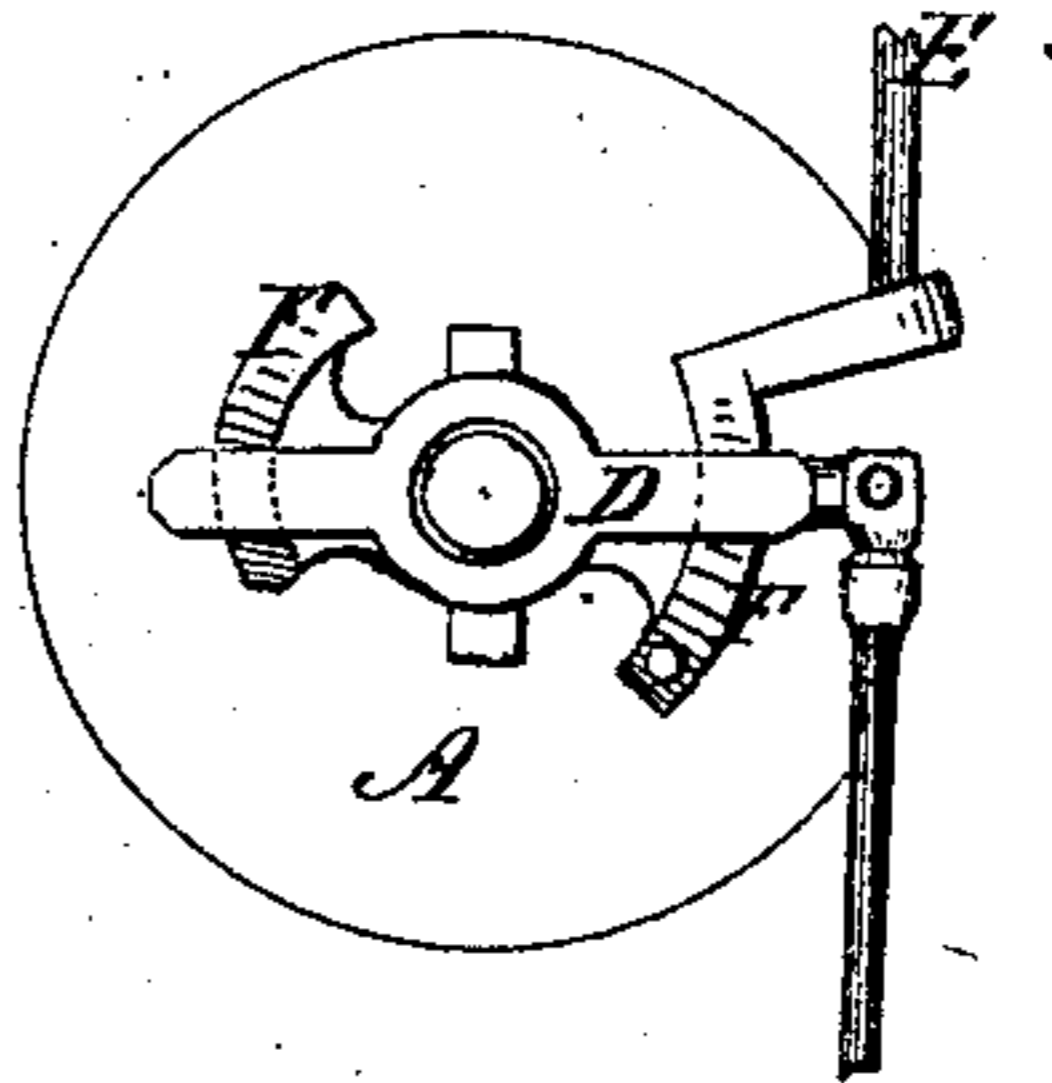


Figure 4.

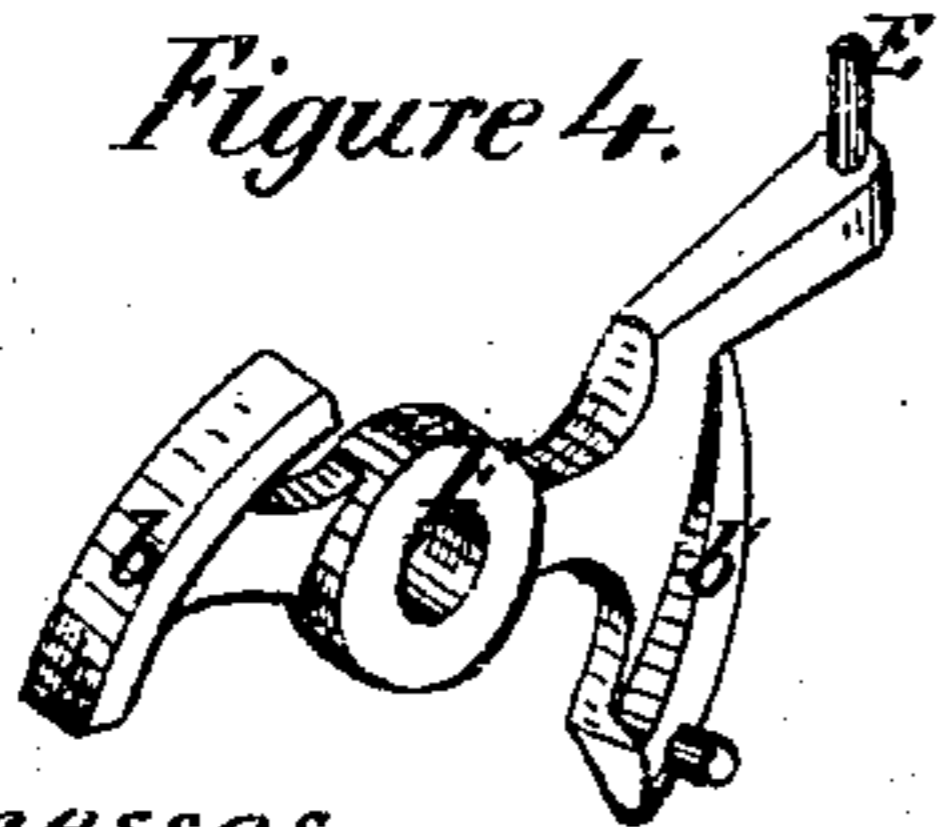
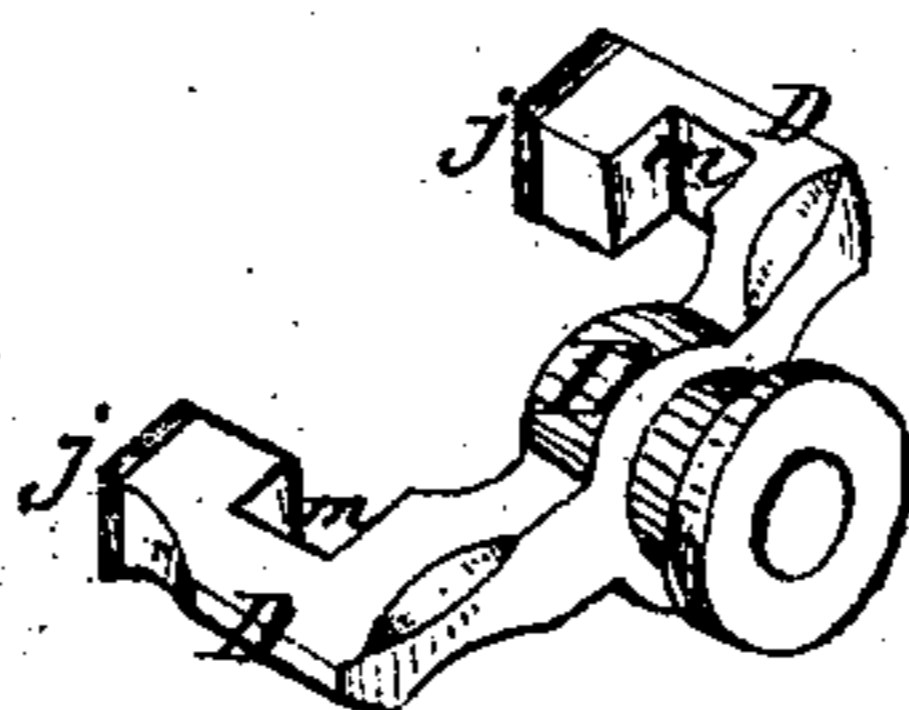


Figure 5.



Witnesses

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Inventor.
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By his Attorney,
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UNITED STATES PATENT OFFICE.

GEORGE CLISBEE, OF MARLBOROUGH, MASSACHUSETTS.

IMPROVEMENT IN FRICTION-CLUTCHES.

Specification forming part of Letters Patent No. 117,234, dated July 18, 1871.

To all whom it may concern:

Be it known that I, GEORGE CLISBEE, of Marlborough, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Friction-Clutches for Pulleys, &c.; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing which makes part of this specification, and in which—

Figure 1 represents a view, in perspective, of a sewing-machine frame with the devices constituting my invention arranged upon its driving-shaft. Fig. 2 is a horizontal section of the same, showing the pulley locked with the driving-shaft and the brakes drawn from contact with the said pulley. Fig. 3 is a central vertical section of the same, the pulley being drawn away from the friction-collar and the mechanism consequently stopped. Figs. 4, 5, and 6 represent detached views of the cam-shaped ways and the yoke having grooves which traverse their surfaces to more clearly illustrate their peculiar construction and arrangement.

My invention relates to devices for throwing into and out of gear the pulley employed to operate mechanism; and it consists in mounting a yoke-shaped frame provided with brake-blocks, of leather or other suitable material, in such relation to the driving-pulley as that, by pressure upon a treadle, the pulley is driven by the action of inclined ways within the arms of the yoke upon a collar on the shaft with which it clutches, while the brake-blocks are removed from contact with said pulley, and by releasing the treadle from pressure the pulley is unclutched and the brakes applied, so that the mechanism receives no jar or derangement, as will be more fully described.

In the accompanying drawing, A represents the driving-pulley (in the instance shown) mounted loosely upon the shaft of a sewing-machine, it being, of course, understood that a number of pulleys may be arranged on the same shaft, and my friction-clutch applied to each as desired, thereby rendering it admirably adapted for use in factories, mills, &c., and, in fact, for any and all varieties of machinery where it is an object to instantaneously stop the motion of the machinery operated by the revolution of the pulley without injury to the mechanism to which it imparts motion. Secured to the driving-shaft B, in such a manner as

to be adjusted thereon, is a friction-collar, C, which is placed in relation to the pulley A, as shown in Figs. 2 and 3 of the drawing, and, when impinging on the countersunk part of said pulley made to receive it, it imparts motion thereto. Suspended by a rod, E, from the bed-plate H of a sewing-machine or lathe, or in any other equivalent or well-known manner, are arranged the cam-shaped ways, within the central part of which the driving-shaft loosely revolves, and over the outer sides *b b'*, which are curved or cam-shaped, the grooves *m m* in the brake-yoke D traverse, so that when pressure is applied to the treadle which is secured to the yoke D, or the same result obtained by other mechanical equivalents, the yoke is caused to traverse the curved sides of the ways F and thereby thrust the pulley up against its friction-collar C. The inclined curved ways F are centrally connected to and move with the pulley A by reason of the lugs *a*, which are cast with and form a part of said ways F, and said lugs are arranged to work within an annular recess, *c*, on the shank or journal *g* of the pulley A, thus causing the ways F to move horizontally on the shaft and carry backward and forward with them the driving-pulley. The yoke D is kept in position on the shaft and made adjustable thereon by means of the lugs *e* cast on the adjustable collar G, which fit into and revolve within an annular recess, *f*, formed in the end of the yoke-frame D, the same being held in position on the cam-surfaces *b b'* of the ways F by the grooves *m m*, which latter traverse the surfaces *b b'* with the result above stated. When arranged for sewing-machines a spiral spring coiled around the upright E and connected with the yoke D serves the purpose of drawing back said yoke when the treadle is released from pressure; it is evident, however, that the same result may be obtained by other well-known mechanical contrivances, such as levers, &c., so arranged as to cause the ways F to move the pulley up against the friction-collar C, and, when released, to admit of its playing back so that the driving-shaft B may revolve independent of the pulley A. As the yoke D traverses the curved or cam-shaped surfaces *b b'* of the ways F, moving in the arc of a circle therewith, its extended ends are furnished with flexible brake-blocks, of a suitable elastic material, which bear upon the face of the pulley when the same is released from contact with the friction-collar C, thereby serving as an agent to lessen the

jar consequent upon an instant stoppage of said pulley.

When the pulley is idle its face impinges against the brake-blocks *j*, and, consequently, the shaft revolves without it. By exerting pressure upon the treadle the cam-shaped ways *F* are moved forward and carry the pulley hard up against the friction-collar, and thus motion is imparted to it. At the same time the pressure upon said treadle causing the ways *F* to move in place by the action of the grooves *m* in the yoke *D*, as hereinbefore explained, serves to release the pulley from the action of the brake-blocks *j*, and holds them in such relation to said pulley as to bring them instantly against its face upon the release of the treadle and the consequent backward movement of the pulley, whereby its revolution is instantaneously arrested without jar or derangement to the operative parts of the machine.

Having described my invention, I claim—

1. The combination of the yoke *D* with the cam-

shaped ways or inclined planes *F*, for the twofold purpose of locking the pulley *A* with the friction-collar *C* when it is desired to set the mechanism in motion, and of applying the friction-brakes when it is desired to stop it, in the manner and for the purpose substantially as herein shown and described.

2. The yoke *D* and the inclined planes or cam-shaped ways *F*, held upon the shaft by means of the collar *G*, and so arranged as that by the adjustment of the latter the horizontal motion of the pulley may be changed, more or less, to compensate for wear of the friction-collar, or said pulley, or for other purposes, as herein shown and described.

In testimony whereof I have hereunto signed my name.

GEORGE CLISBEE.

Witnesses:

E. C. WHITNEY,
CHAS. L. FLINT.