

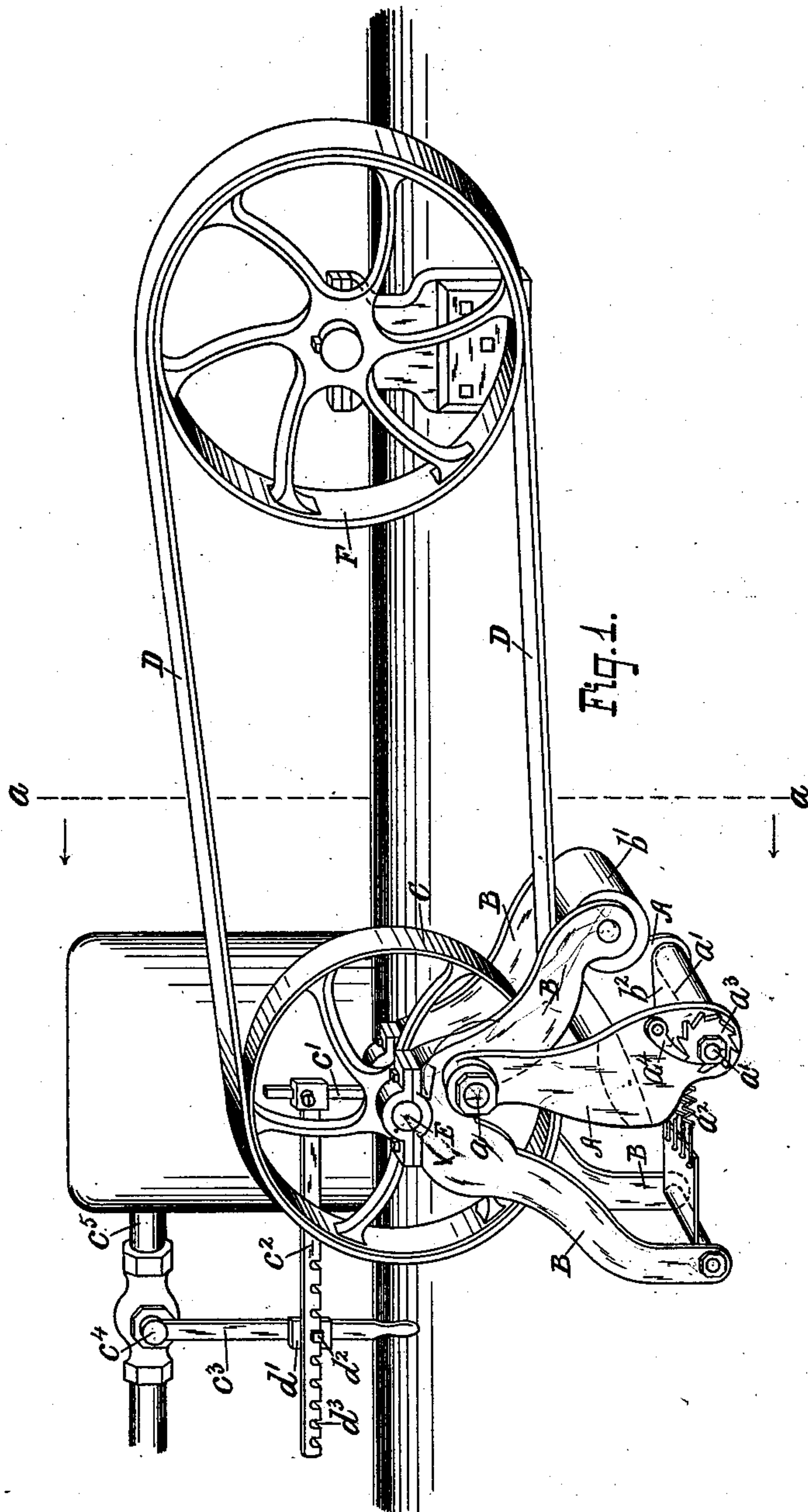
(No Model.)

2 Sheets—Sheet 1.

A. KLEINSTIVER.  
REGULATING MECHANISM.

No. 508,947.

Patented Nov. 21, 1893.



Witnesses

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Jas. E. Edmunds

Inventor

Abel Kleinstiver

By P. J. Edmunds  
Atty

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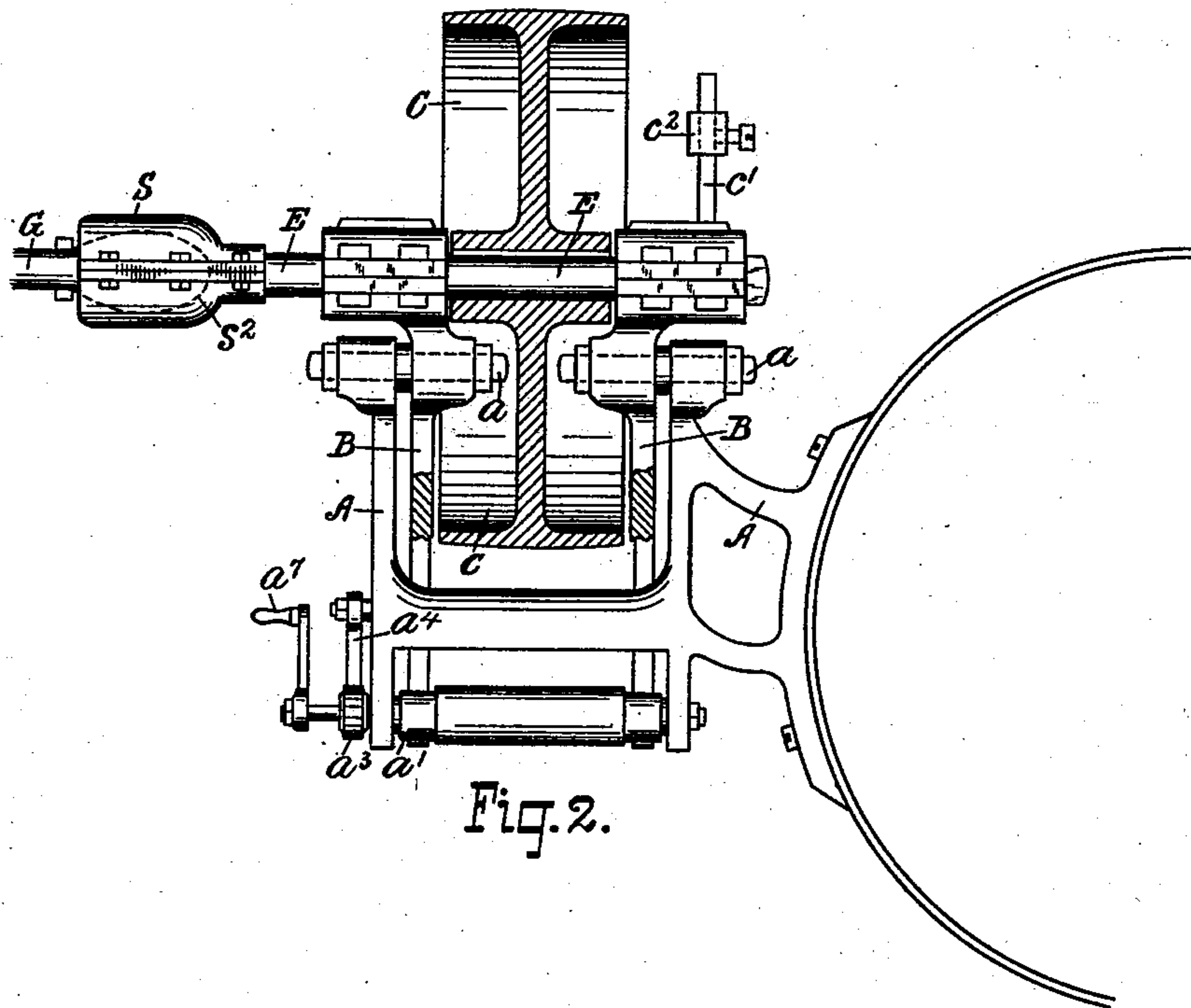


Fig. 2.

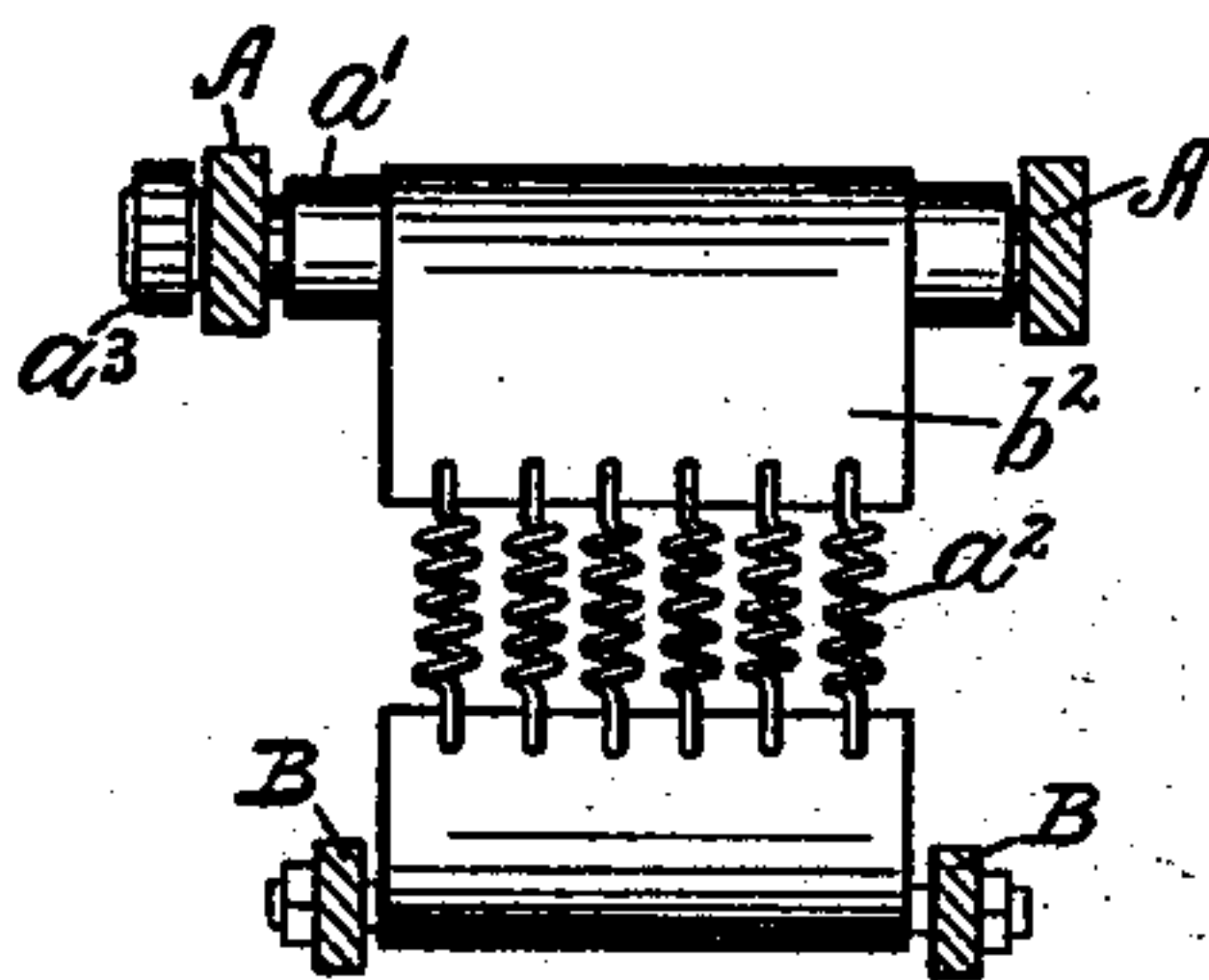


Fig. 3.

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# UNITED STATES PATENT OFFICE.

ABEL KLEINSTIVER, OF PETROLEA, CANADA, ASSIGNOR OF ONE-HALF TO  
BENJAMIN S. VAN TUYL, OF SAME PLACE.

## REGULATING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 508,947, dated November 21, 1893.

Application filed August 18, 1891. Serial No. 402,972. (No model.) Patented in Canada July 7, 1888, No. 29,466.

*To all whom it may concern:*

Be it known that I, ABEL KLEINSTIVER, a subject of the Queen of Great Britain, and a resident of Petrolea, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Regulating Mechanisms, (for which I have obtained Letters Patent in Canada, No. 29,466, dated July 7, 1888,) of which the following specification, taken in connection with the accompanying drawings, forms a full, clear, and exact description.

This invention relates to mechanism which is interposed between the engine and a driven machine; and while it may be used in connection with various classes of machinery, it is particularly adapted for, and advantageously used in connection with a thrashing machine.

The object is, when the machine is choked or overcrowded, or when any obstruction suddenly interferes with its operation, to permit the driven machine to reverse, or turn backward, without reversing the operation of the engine, thereby preventing all sudden jarring of the latter, and the instant that the obstruction is removed, the operation of the machine will be continued, thereby preventing any damage to the engine, or any breakage of the driven machine.

The invention consists of the improved construction and combination of parts of the same, as will be hereinafter first fully set forth and described, and then pointed out in the claims.

Reference is had to the accompanying drawings wherein—

Figure 1. is a perspective view of the mechanism, embodying my invention. Fig. 2. is an end view on the line, *a, a*, of Fig. 1. showing the tension pulley, partly in section, the tightener pulley removed, and the arms supporting the latter, broken away in order to illustrate the remaining parts more clearly. Fig. 3. is a detail plan view of the flexible band and connections.

A, designates a bracket, rigidly secured to the boiler, or any other suitable support; and B, designates a swinging frame, pivoted on the pivot bars, *a*, secured in bracket, A. In one end of this swinging frame, B, the

tightener pulley, *b'*, is secured, to revolve perfectly free, and over this tightener pulley, *b'*, the belt, D, passes.

C, designates a pulley, which is rigidly secured to, and revolves with the shaft, E, the latter being held in place in bearings in the swinging frame, B; and, D, is a belt, which passes over the pulley, C, and the driving wheel, F, which communicates motion from the latter to said pulley, C.

*b*<sup>2</sup>, is a flexible band, formed of a piece of belting, or other suitable material, one end of which is secured to the spool, *a'*, the latter being supported by, and revolving in bearings in the bracket, A.

*a*<sup>2</sup>, are springs, secured at one end to this flexible band, *b*<sup>2</sup>, and at the other end, to the swinging frame, B.

*a*<sup>3</sup>, is a ratchet, rigidly secured on the spool, *a'*, as shown; and, *a*<sup>4</sup>, is a dog, which engages with said ratchet. This dog is pivoted on the bracket, A, so that by revolving the spool, *a'*, the flexible band, *b*<sup>2</sup>, will be wound around said spool, *a'*, which will shorten the flexible band, *b*<sup>2</sup>, and increase the tension of the springs, *a*<sup>2</sup>, on the lower end of the swinging frame, B. This will draw this end of the pivotal swinging frame, B, toward the driving wheel, F, and move the upper end of said pivotal swinging frame, B, together with the pulley, C, and shaft, E, away from said driving wheel, F. The result of this is, to increase the tension of the belt, D, on the pulley, C, and wheel, F.

*c'*, is an upright, rigidly secured to the swinging frame, B; and, *c*<sup>2</sup>, is a notched bar, which is adjustable vertically on, and pivotally clamped to the upright, *c'*, by a set screw, or other suitable clamping device; and, *c*<sup>3</sup>, is a lever, which is rigidly secured to the stem, *c*<sup>4</sup>, of the valve, secured in the steam pipe, *c*<sup>5</sup>; and, *d'*, is a slide, which is clamped to, and is adjustable vertically on the lever, *c*<sup>3</sup>, by a set screw, *d*<sup>2</sup>, or other suitable securing device, the projecting shank of which set screw, *d*<sup>2</sup>, is fitted and adjusted to rest in the notches, *d*<sup>3</sup>, of the bar, *c*<sup>2</sup>.

The amount of steam passing through the steam pipe, *c*<sup>5</sup>, is regulated, according to the vertical adjustment of the slide, *d'*, on the



lever,  $c^3$ , and according to the horizontal adjustment of the lever,  $c^3$ , in the notched bar,  $c^2$ .

The shaft, E, is supported by, and held in place in bearings in the swinging frame, B, and the outer end is loosely coupled to the rod, G, by a coupling, S, and this rod, G, is connected with a thrashing machine, separator, or other machinery, to operate it by means of a beveled wheel and pinion or other well known devices.

The operation is as follows:—The tension of the belt,  $b^2$ , is first set or regulated by the crank,  $a^7$ , to the extent of the power required to drive the machine, and the belt,  $b^2$ , is held at this tension by the ratchet,  $a^3$ , and dog,  $a^4$ , so that when the driven machine is choked or overcrowded, or when any obstruction suddenly resists or retards its operation, the operation of the whole of the mechanism, from the driven machine, to the pulley, C, is also resisted or retarded; this increases the tension of the belt, D, on the pulley, C, and wheel, F, and this increased tension tends to draw the pulley, C, toward the driving wheel, F, and to incline the upper end of the swinging frame, B, on the bracket, A, over toward said wheel, F, which lowers the other end of the swinging frame, B, carrying the tightener pulley,  $b'$ . This draws the latter down from the belt, D, and permits the belt, D, to rest loosely on the pulley C. At the same time, the springs,  $a^2$ , are expanded, and are retained expanded until the object or the cause of the over resistance is removed. This loosening of the belt, D, permits the machine and mechanism to be reversed, or to instantly reverse or turn slightly backward momentarily at least, without reversing the engine, or without jarring or injuring it in any way whatever, and at the same time as the upper part of the swinging frame, B, is inclined over toward the wheel, F, and the tightener pulley,  $b'$ , is drawn down from the belt, D, the upright,  $c'$ , is also inclined over toward the wheel, F, because it is rigidly secured to the swinging frame, B. This draws the regulating bar,  $c^2$ , and lever,  $c^3$ , over toward the wheel, F, and closes the valve in the steam pipe,  $c^5$ , according to the distance the swinging frame, B, is adjusted; so that the distance that the swinging frame, B, and pulley, C, are adjusted toward the wheel, F, is in proportion to the extent and suddenness of the resistance caused by the obstruction in the driven machine, and by means of the lever,  $c^3$ , regulating bar,  $c^2$ , and upright,  $c'$ , the steam is shut off instantly in proportion to this resistance; thereby permitting the mechanism and driven machine to reverse without reversing or suddenly checking or jarring the engine, and thereby prevent all possibility of breakages, which have been the case heretofore.

This mechanism may be adapted to, and operate a thrashing machine or separator, or any other machinery, and particularly, that class where a reverse motion such as described, would be an advantage.

Having thus described my invention, I claim—

1. The combination in a regulating mechanism of a supporting frame or bracket, a swinging frame pivoted thereon, a pulley journaled on said swinging frame, a tightening pulley mounted in said swinging frame, and a spring connected to said swinging frame and adapted to place the same under tension, substantially as set forth.

2. The combination with a regulating mechanism, of a supporting frame or bracket, a swinging frame pivoted thereon, a pulley journaled on said swinging frame, a tightening pulley mounted on said swinging frame, a spring connected to said swinging frame and adapted to place the same under tension, a connecting bar attached to said swinging frame, and a valve-lever adjustably connected to said bar, substantially as set forth.

3. The combination in a regulating mechanism, of a supporting frame or bracket, a swinging frame pivoted thereon, a pulley mounted on said swinging frame, a tightening pulley mounted on said swinging frame, a spring connected to said swinging frame and adapted to place the same under tension, a notched bar connected to said swinging frame, a valve lever, and a slide adjustably mounted on said valve lever and having a projection adapted to engage the notches in said bar, substantially as set forth.

4. The combination with a regulating mechanism, of a supporting frame or bracket, a swinging frame pivoted thereon, a pulley journaled in said swinging frame, a tightening pulley mounted on said swinging frame, a spring connected to said swinging frame and adapted to place the same under tension, an arm mounted on said swinging frame, a connecting bar having at one end a socket embracing and longitudinally adjustable along said arm on the swinging frame and at the other end a series of notches, a valve lever, and a slide longitudinally adjustable along said valve lever and provided with a projection adapted to engage the notches in the connecting bar, substantially as set forth.

5. The combination in a regulating mechanism, of a supporting frame or bracket, a swinging frame pivoted thereon, a pulley journaled in said swinging frame, a tightening pulley mounted in said swinging frame, a spool mounted on the supporting frame, a flexible elastic band connected at one end to said spool and at its other end to said swinging frame, and a ratchet wheel on said spool, and a dog on the supporting frame adapted to engage said ratchet wheel, substantially as set forth.

In testimony whereof I affix my signature in the presence of the two undersigned witnesses.

ABEL KLEINSTIVER.

Witnesses:

P. J. EDMUNDS,  
A. EDMUNDS.