

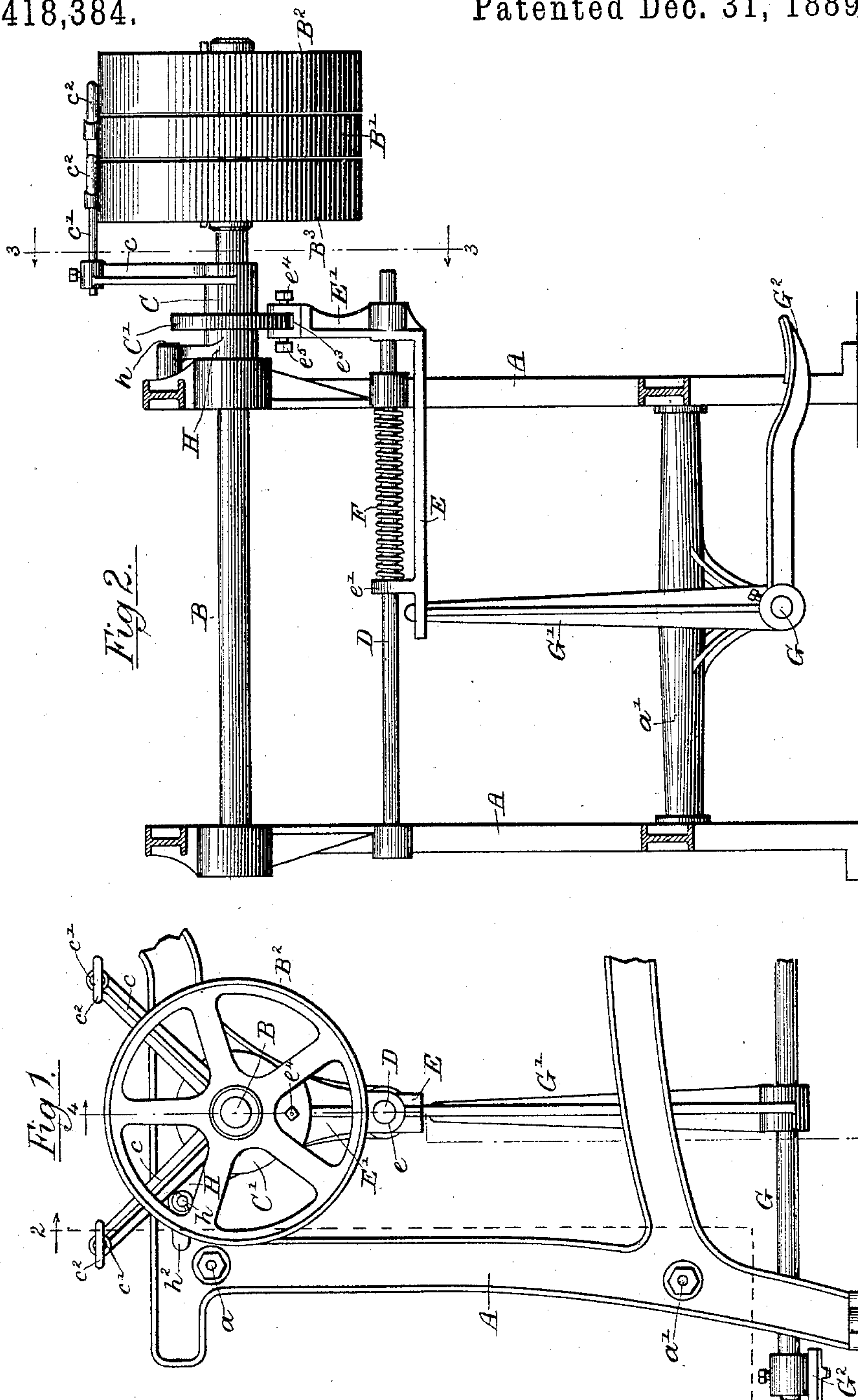
(No Model.)

2 Sheets—Sheet 1.

G. C. ROBERTS.  
BELT SHIFTING DEVICE.

No. 418,384.

Patented Dec. 31, 1889.



Witnesses:

*Wm. J. Heming*

Inventor:

*George C. Roberts.*

By Clayton. Poole & Brown

Attys.

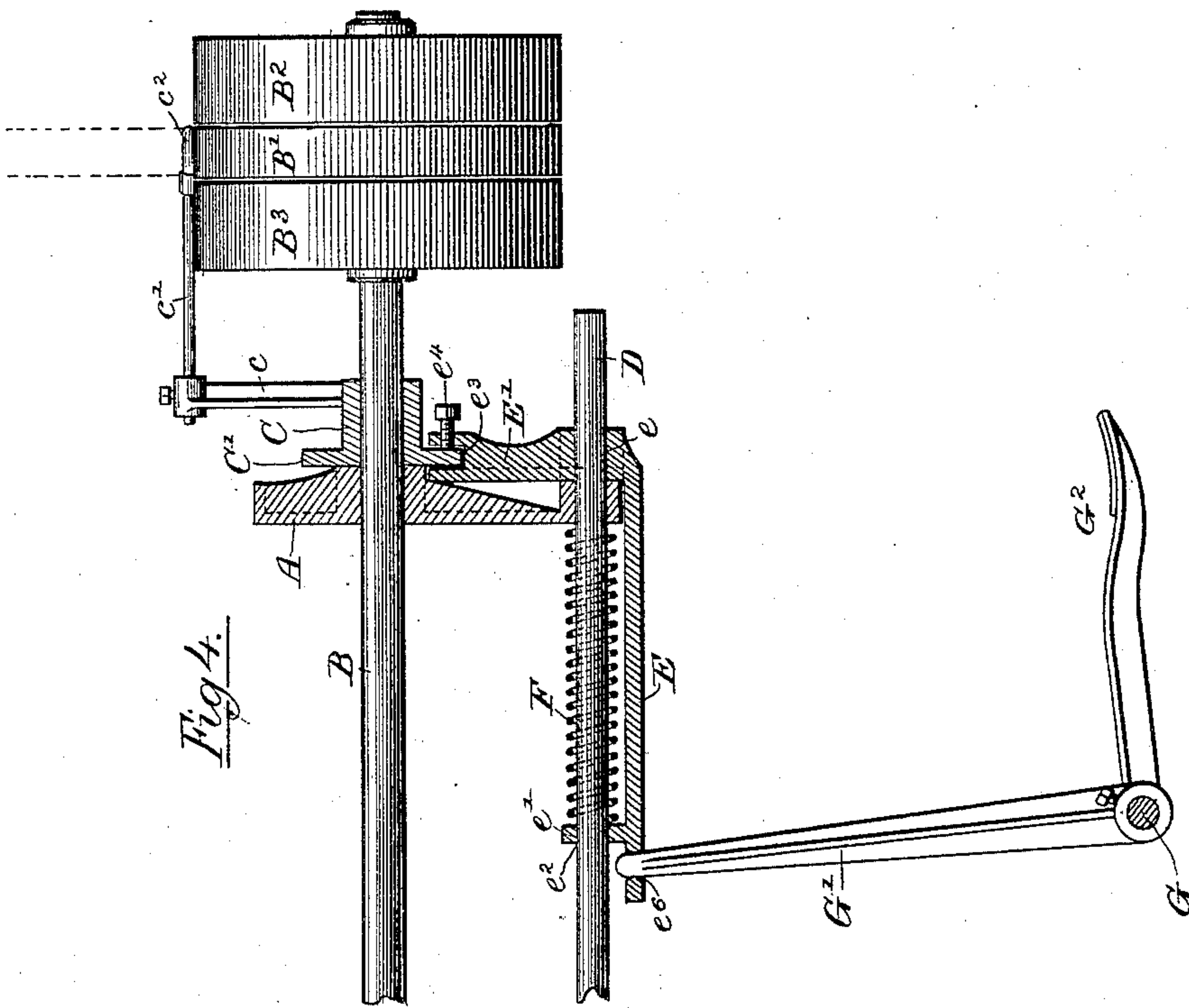
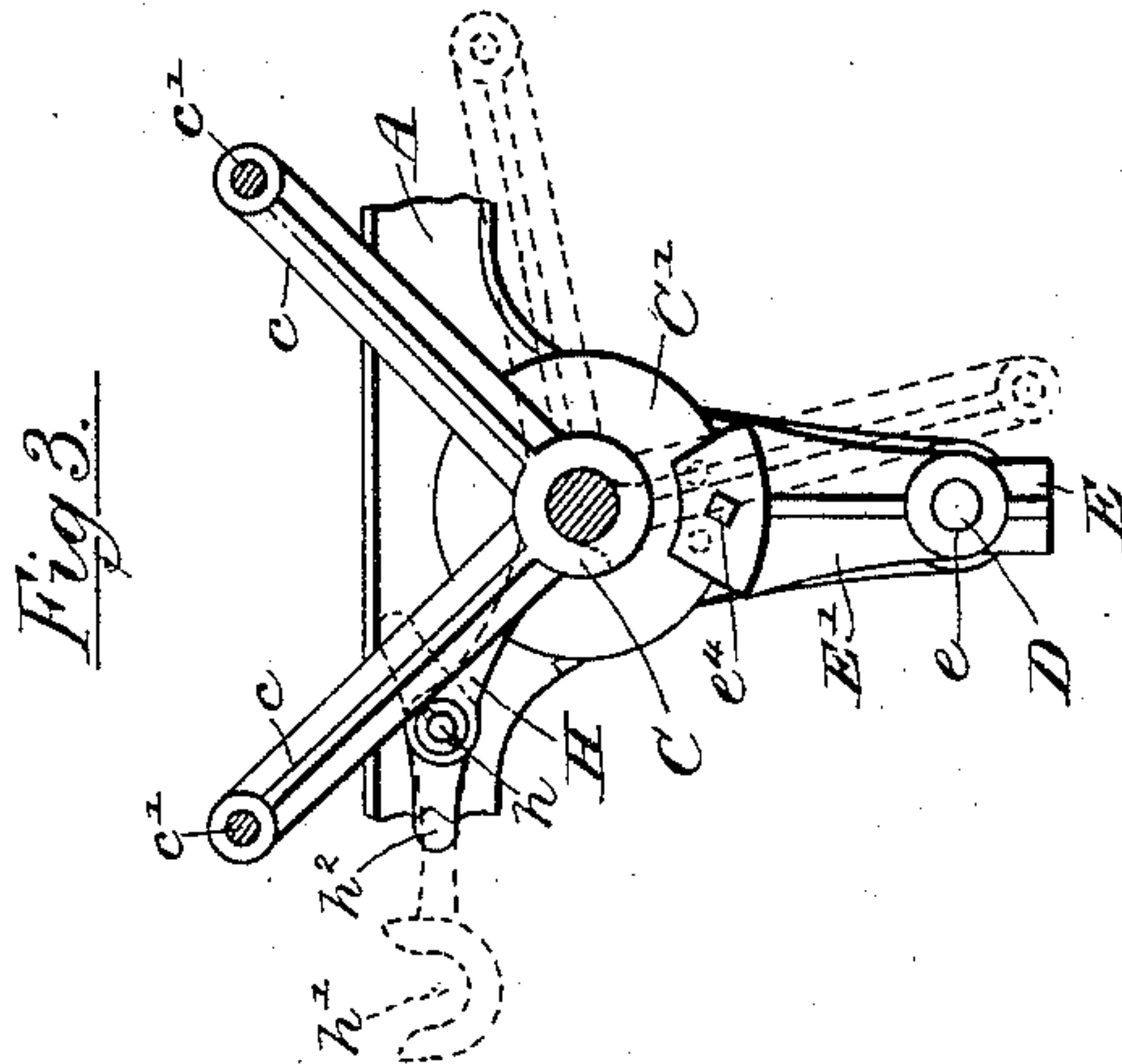
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*Wm. R. Rhem.*

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Inventor.

*George C. Roberts*

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# UNITED STATES PATENT OFFICE.

GEORGE C. ROBERTS, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE TROY LAUNDRY MACHINERY COMPANY, OF TROY, NEW YORK.

## BELT-SHIFTING DEVICE.

**SPECIFICATION** forming part of Letters Patent No. 418,384, dated December 31, 1889.

Application filed April 29, 1889. Serial No. 309,005. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE C. ROBERTS, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Belt-Shifting Devices; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in belt-shifting devices adapted more especially for use upon ironing-machines of that class which are employed more especially for ironing shirt-bosoms, and which embrace as their main operative parts or elements a revolving ironing-roller and a reciprocating ironing-table, to which the article to be ironed is secured, and which is given reciprocatory movement by means of a smooth driving-roller, which is rotated alternately in opposite directions, and which acts upon the under side of the ironing board or table, so as to press the latter toward or against the ironing-roller, and carries the said table endwise solely by its frictional engagement therewith.

The invention consists in the matters hereinafter described, and pointed out in the appended claims.

In the accompanying drawings, illustrating my invention, Figure 1 is a partial side elevation of a machine embodying the same. Fig. 2 is a sectional elevation of the same, taken upon line 2 2 of Fig. 1. Fig. 3 is a detail section taken upon line 3 3 of Fig. 2. Fig. 4 is a detail section taken upon line 4 4 of Fig. 1.

As illustrated in the said drawings, the main frame of the machine consists of two parallel side plates or castings A A and horizontal transverse girts  $a a a' a'$ , located at the top and bottom of the machine.

B is the main or drive shaft of the machine, which shaft is mounted in the frame-plates A, and is provided with a fixed pulley B' and two loose pulleys B<sup>2</sup> B<sup>3</sup>. The fixed pulley B' is secured upon the said shaft B between the two loose pulleys B<sup>2</sup> B<sup>3</sup>, and the usual arrangement of straight and crossed belts is employed for driving the said shaft in opposite

directions, either belt being shifted from one of the loose pulleys to the fast pulley in accordance with the direction to which it is wished that the shaft should turn.

C is a sleeve mounted to slide endwise upon the drive-shaft B and adapted also to turn thereon, said sleeve being provided with two shifter-arms  $c c$ , to the ends of which are attached fingers  $c' c'$ , carrying at their ends loops  $c^2 c^2$ , adapted to engage the driving-belts. Said sleeve C is provided with an annular flange C'.

D is a guide-rod mounted upon the machine-frame parallel with the shaft B, and E is an L-shaped slide-bar provided with a bearing-aperture  $e$ , engaging the end of the guide-rod D, which extends outside of the frame-plate A, and having at its inner end, near the middle of the machine, a lug  $e'$ , provided with a bearing-aperture  $e^2$ , and which engages said shaft at a point inside of the frame.

The part or arm E' of the bar E, which is arranged at right angles with the guide-rod D, extends to a point adjacent to the sleeve C, and is provided with a notch or groove  $e^3$ , into which the said flange C' is inserted.  $e^4$  is a set-screw passing through the said arm E' and engaging the outer face of the flange C'.  $e^5 e^5$  are other set-screws also passing through said arm and bearing against the inner surface of said flange. When the parts are in operative position, the said flange C' is rigidly clamped to the arm E' of the bar E by means of the said set-screws, so that both the sleeve C and the bar E are held from turning on the shaft B and guide-rod D, while at the same time said parts C and E are free to slide endwise on said shaft and guide-rod.

F is a coiled spring placed between the inner surface of the frame-plate A and the lug  $e'$  of the bar E, and acting to thrust or carry the said bar E and the sleeve C inwardly, or toward the machine-frame.

G is a horizontal rock-shaft located at the lower part of the machine parallel with the side frame-plates and having bearings upon the lower girts  $a' a'$ . Said rock-shaft is provided with an upwardly-extending arm G', the upper end of which engages a hole  $e^6$ ,



Fig. 4, in the sliding bar E, and at the end of said rock-shaft is located a foot-lever  $G^2$ . By pressing downwardly upon the foot-lever  $G^2$  the rock-shaft arm  $G'$  will be moved laterally, so as to carry the slide-bar E and sleeve C outwardly against the action of the spring F, and thereby shift or move the belts upon the pulleys. The parts are so arranged that the said spring will hold the belt normally in position, with one belt upon the intermediate fixed pulley  $B'$  and the other upon the adjacent inner loose pulley  $B^3$ , so that by partially depressing the foot-lever  $G^2$  the two belts may be moved outwardly until both are upon the loose pulleys, and by fully depressing the foot-lever one belt will be brought upon the fixed pulley and another upon the outer loose pulley  $B^2$ , thereby giving a reverse movement to the drive-shaft B. In the use of this device, therefore, rotation of said shaft alternately in opposite directions is produced by pressing downwardly upon the foot-lever and allowing the same to rise, so that the direction of movement of the shaft B and the parts driven thereby is completely under the control of the operator.

A principal object of the construction described in the sleeve C and notched arm  $E'$ , adapted to be rigidly secured to the collar  $C'$  of said sleeve, is to enable the angular position of the shifter-arms  $c c$  to be changed or shifted according to the direction in which the belts approach the belt-pulleys, or, in other words, according to the location of the counter-shaft with reference to the shaft B of the machine. A changed position of the said shifter-arms is shown in the drawings, Fig. 3, in dotted lines. When it is desired to change the angular position of said arms  $c c$ , the set-screws in the arm  $E'$  of the slide-bar E are loosened to free the said flange  $C'$ , and the sleeve C and the arms may be turned upon the shaft until the arms are brought into the desired position, and the sleeve again clamped in position by the use of said set-screws in the arm  $E'$ , or other clamping device thereon. The employment of a flanged sleeve in connection with a sliding part to which said sleeve may be clamped is an important advantage, as affording a cheap and simple means of obtaining angular adjustment of the belt-shifting arms. The particular slide-bar illustrated, having only a single rod, would turn freely upon the same were it not for its rigid connection with the sleeve C. This construction in the said slide-bar is of great advantage, owing to its cheapness and simplicity.

It will of course be understood that in the operation of an ironing-machine of the character above referred to it seldom becomes necessary to arrest the belt-shifter in the middle of its throw, so as to bring both driving-belts on the loose pulleys, and thus allow the stoppage of the machine, inasmuch as the ironing-board itself ceases to move after becoming free from the drive-roller at the

end of each reciprocation thereof. In order, however, to provide means for holding the belt-shifter in position with the belts on the loose pulleys, in order that the machine may remain motionless at times when it is not in use, I employ a swinging detent H, which is pivoted upon a stud  $h$ , arranged parallel with the drive-shaft at the side of the machine-frame outside of the same and adjacent to the shaft B. The free end of said detent is arranged to rest against or near that part of the shaft B adjacent to the frame-plate, and the outer surface of said detent is so arranged that when resting near said shaft, and the sleeve C is brought into contact with it by the action of the spring E, the belt-shifting arms will be held in their intermediate position with the belts upon the loose pulleys. The said pivoted detent H affords a convenient means of stopping the machine, inasmuch as it is only necessary for this purpose to throw said detent over toward the shaft at the time the sleeve C and belt-shifting arms are thrust outwardly. Said arm H is shown as provided with a lug  $h^2$ , which engages the flange of the frame and sustains the arm in an outwardly-extending position convenient for the operator when said arm is free from the sleeve, as clearly shown in dotted lines in Fig. 3. Said detent may, however, hang by gravity free from the said sleeve when not in use. The said detent H is shown as provided with a notched head  $h'$ , adapted to fit over the shaft; but this construction is not essential.

I claim as my invention—

1. The combination, with a machine-frame, of a drive-shaft, fast and loose pulleys upon said shaft, a revoluble flanged sleeve upon the shaft provided with shifter-arms, and a slide-bar mounted on the frame detachably secured to said sleeve, substantially as described.

2. The combination, with a machine-frame, of a drive-shaft provided with fast and loose pulleys, a revoluble flanged sleeve upon the shaft provided with shifter-arms, a guide-rod parallel with the shaft, an L-shaped slide-bar engaging said guide-rod and provided with clamping devices engaging the flange of the sleeve to hold the shifter-arms in a desired angular position, a spring actuating said slide-bar in one direction, and a foot-lever connected with said slide-bar for moving the same in the opposite direction, substantially as described.

3. The combination, with a drive-shaft provided with fast and loose pulleys, of a revoluble flanged sleeve upon the shaft provided with shifter-arms, a guide-rod parallel with the shaft, a slide-bar mounted upon said guide-rod and provided with a notch to receive said flange, and with set-screws to clamp said flange within the notch, substantially as described.

4. The combination, with a drive-shaft, of fast and loose pulleys upon the shaft, a revo-



luble sliding sleeve upon the shaft provided  
with shifter-arms, a spring applied to move  
said sleeve in one direction, a foot-lever con-  
nected with said sleeve, and a pivoted de-  
5 tent arranged to swing into position to en-  
gage said sleeve for holding the belts on the  
loose pulleys, substantially as described.

In testimony that I claim the foregoing as  
my invention I affix my signature in presence  
of two witnesses.

GEORGE C. ROBERTS.

Witnesses:

ALLEN CONKLING,  
C. CLARENCE POOLE.