

(No Model.)

2 Sheets—Sheet 1.

J. McCRAITH.

APPARATUS FOR VARYING SPEED IN TRANSMISSION OF POWER.

No. 580,327.

Patented Apr. 6, 1897.

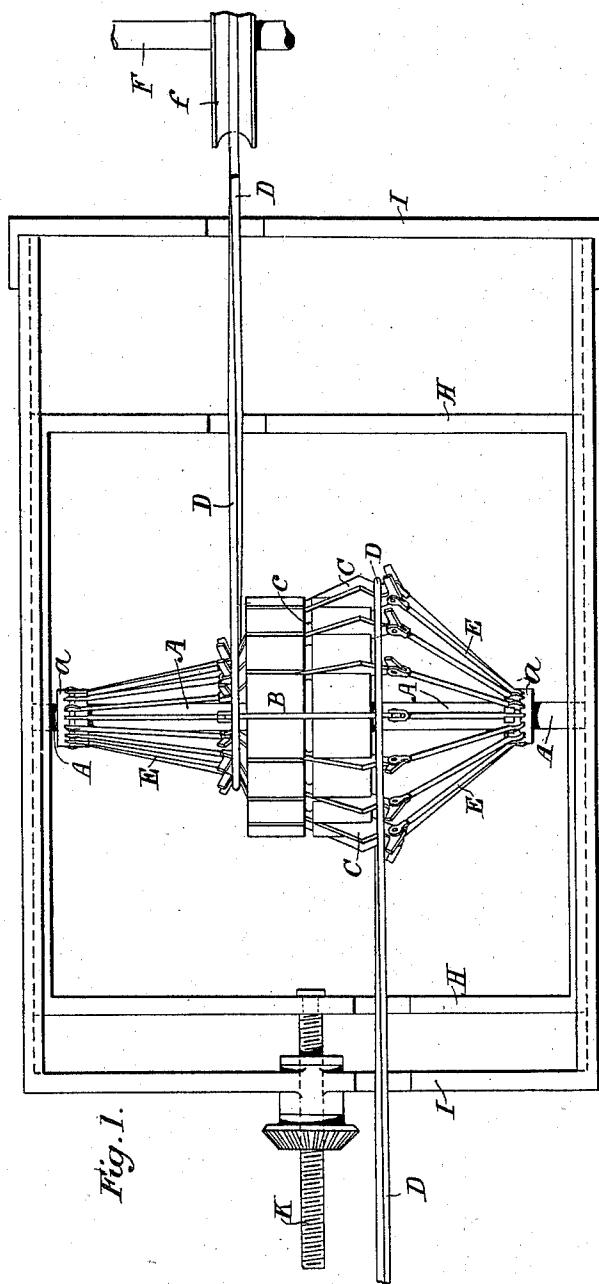


Fig. 1.

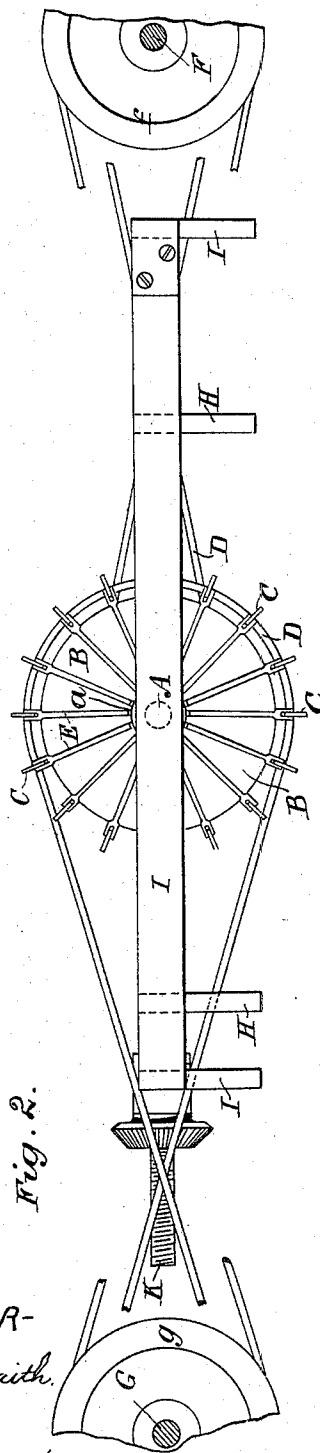


Fig. 2.

-WITNESSES-

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BY

Howen Howen

HIS ATTORNEYS.

(No Model.)

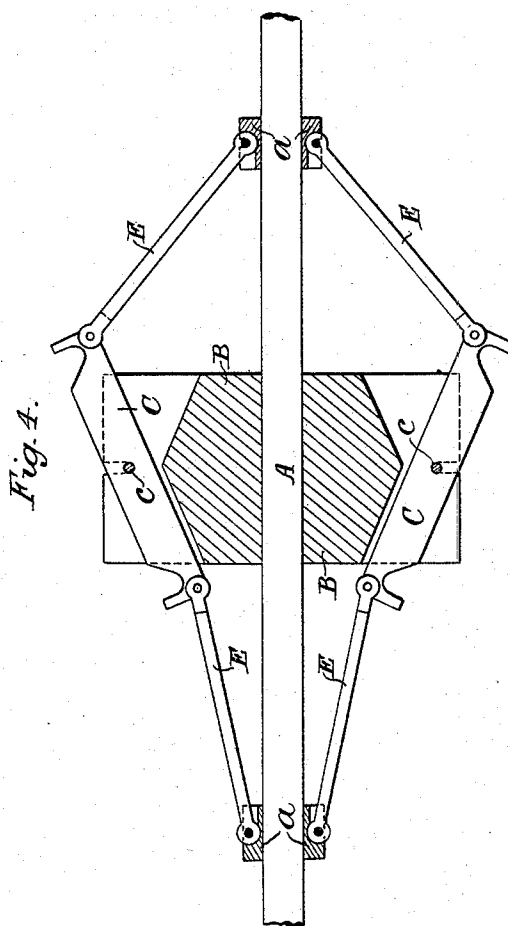
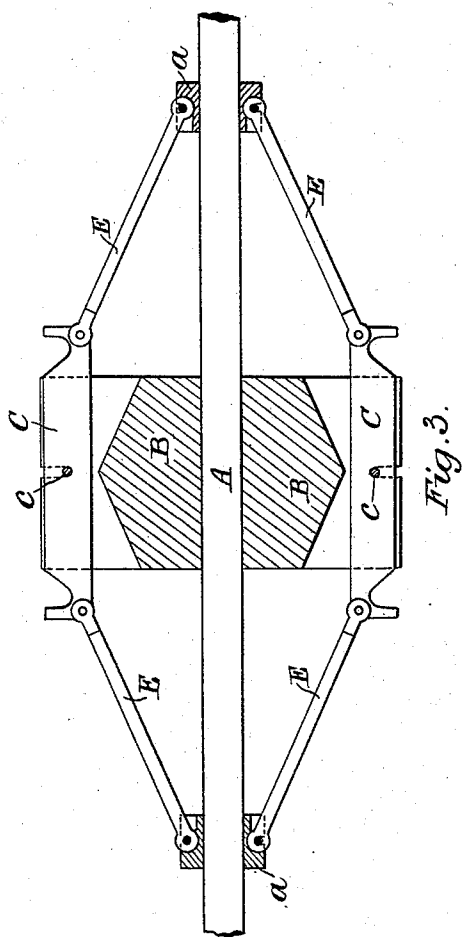
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UNITED STATES PATENT OFFICE.

JEREMIAH McCRAITH, OF MELTON-MOWBRAY, ENGLAND.

APPARATUS FOR VARYING SPEED IN TRANSMISSION OF POWER.

SPECIFICATION forming part of Letters Patent No. 580,327, dated April 6, 1897.

Application filed January 19, 1897. Serial No. 619,796. (No model.)

To all whom it may concern:

Be it known that I, JEREMIAH McCRAITH, doctor of medicine, a subject of the Queen of Great Britain and Ireland, residing at The Elms, Melton-Mowbray, in the county of Leicester, England, have invented certain Improvements in Apparatus for Varying Speed in the Transmission of Power, of which the following is a specification.

This invention has for its object to provide a simple and efficient arrangement by means of which speed can be very readily altered in the transmission of power.

According to this invention balances or levers are centered to a support in a circular series, the respective ends of the series constituting pulleys over which bands or chains can be passed. When the ends of the balances or levers forming one of the pulleys are moved toward each other, the pulley which they constitute is reduced in diameter, and at the same time as the balances or levers turn on their centers the pulley constituted by the other ends is increased in diameter. The expansion and contraction may be effected in any suitable way, but in order that my invention and the manner in which it can be practically carried out may be well understood I will describe an arrangement according thereto, with reference to the accompanying drawings.

Figure 1 is a plan, and Fig. 2 a side elevation, of the arrangement. Fig. 3 shows the arrangement forming the pulleys, drawn to a larger scale, with the pulleys of the same diameter. Fig. 4 is a similar view, but with one pulley reduced and the other increased in diameter.

The apparatus consists of an axle A, having secured to it a frame or carrier B, in slots around which are centered at *c* a number of balances or levers C, each of which is so shaped at each end that the series of balances or levers form a pulley at each side or end of the frame or carrier for the reception of driving bands or chains. The ends of each of the balances or levers C are in connection by ribs or arms E, umbrella-spoke fashion, with a collar or tube *a* capable of sliding on the axle A, so that the expanding at one side and contraction at the other are analogous to the

opening and closing of two umbrellas. Thus when the ends of the balances or levers C at one side or end of the drum are moved inward toward the axle A those at the other end are moved outward away from the axle A, and by the contraction a small pulley is formed and by the expansion a large pulley is formed, as shown in Fig. 4, while when the balances or levers C are parallel with the shaft, as shown in Fig. 3, the pulleys are equal. Driving bands or chains D are passed over the respective pulleys thus formed, one band or chain leading from a pulley *f* on the motor-shaft F and the other leading to a pulley *g* on the axle G or the like to be driven. The requisite alteration in the diameters of the pulleys can be effected as follows: The axle A, which carries the aforesaid frame or carrier B and balances or levers C, is mounted in bearings in a frame or support H, so that the axle A, with the carrier B and balances or levers carried by it, can be moved transversely upon the support I by a screw K or other device operated by a handle at any convenient situation, transmission-gear intervening, if necessary, and when moved in one direction one of the bands or chains causes the ends of the series of balances or levers constituting one pulley to be moved inward, while the other ends constituting the other pulley move outward, and thus the diameters of the respective pulleys are decreased and increased, respectively, and the speed is regulated accordingly. By moving the carrier-axle in the opposite direction the reverse alteration in the relative diameters of the pulleys takes place.

My invention can be used for varying speed in motor-cars and locomotive, portable, or stationary machinery generally.

I wish it to be understood that I use the term "band" in the following claims in a sufficiently general sense to include other such driving means, as chains, &c.

I claim as my invention—

1. As a means for varying speed in the transmission of power, a duplex pulley consisting of a carrier, a circular series of levers, centered to the carrier and bands passing around said series of levers on opposite sides of their centers whereby when their one ends

are moved inward or toward each other, the pulley constituted thereby is reduced in diameter, the pulley constituted by their other ends being increased in diameter, substantially as described.

5 2. As a means for varying speed in the transmission of power, a duplex pulley consisting of an axle, a carrier thereon, a circular series of levers, centered to the carrier,
10 slidable collars on the axle, connected by ribs to the said levers and bands passing around said series of levers on opposite sides of their centers, whereby when the one ends of the series of levers are moved inward or toward
15 each other, and the collar appertaining thereto is moved outward along the axle, the other ends of the series of levers are moved outward, or away from each other, and the col-

lar appertaining thereto is moved inward along the axle, substantially as described.

3. As a means for varying speed in the transmission of power, a duplex pulley consisting of an axle, a carrier thereon, a circular series of levers, centered around the said carrier, and bands passing over the respective pulleys so formed, in combination with means for moving the said axle laterally, so as to contract the one pulley and cause the other to expand, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

J. McCRAITH.

Witnesses:

JNO. BARKER WARING,
WALTER W. BALL.