No. 631,795. Patented Aug. 29, 1899.

F. H. L. JAMES.

EVENING DEVICE FOR COTTON OPENERS.

(Application filed May 18, 1899.)

(No Model.) 2 Sheets—Sheet 1.

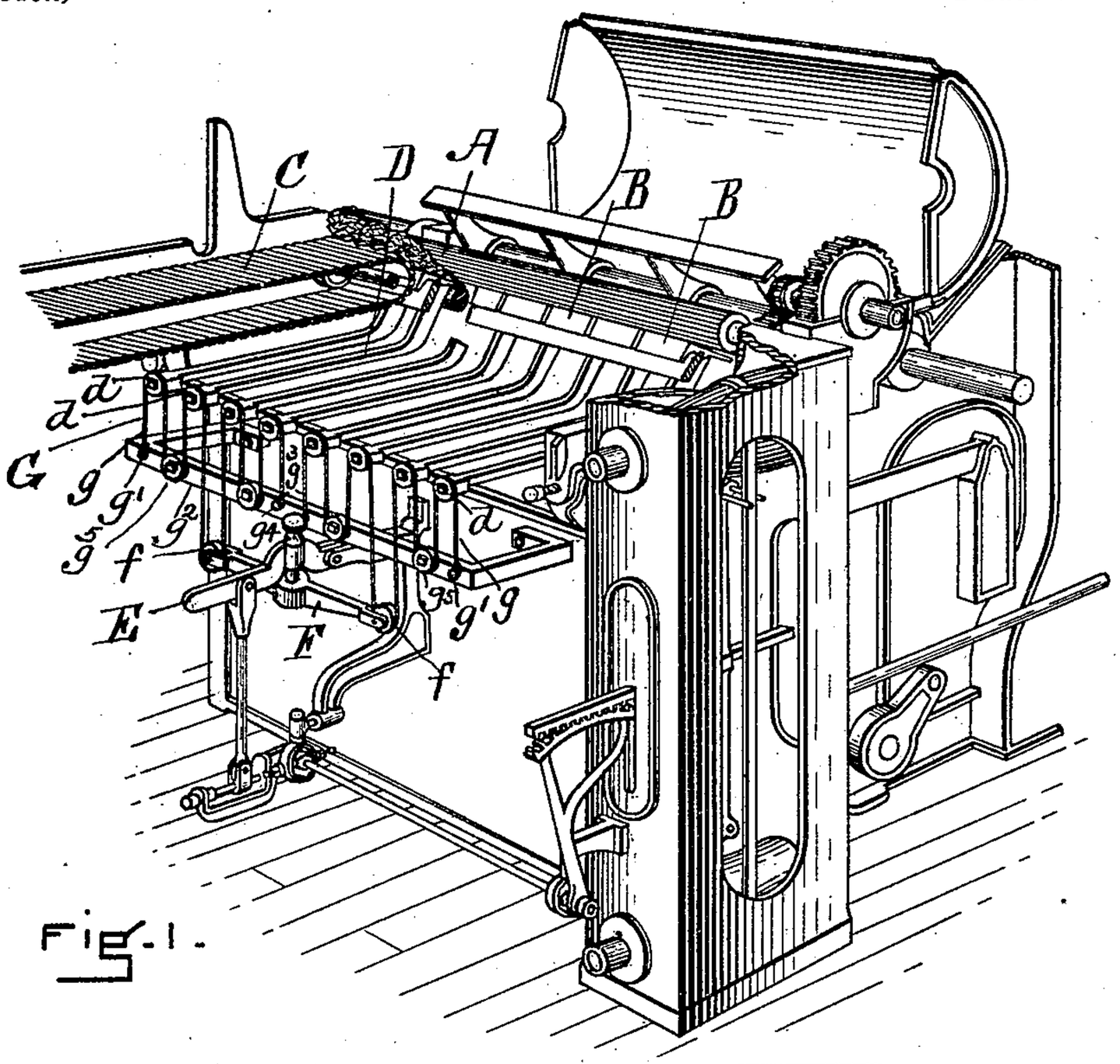

Fig. 1.

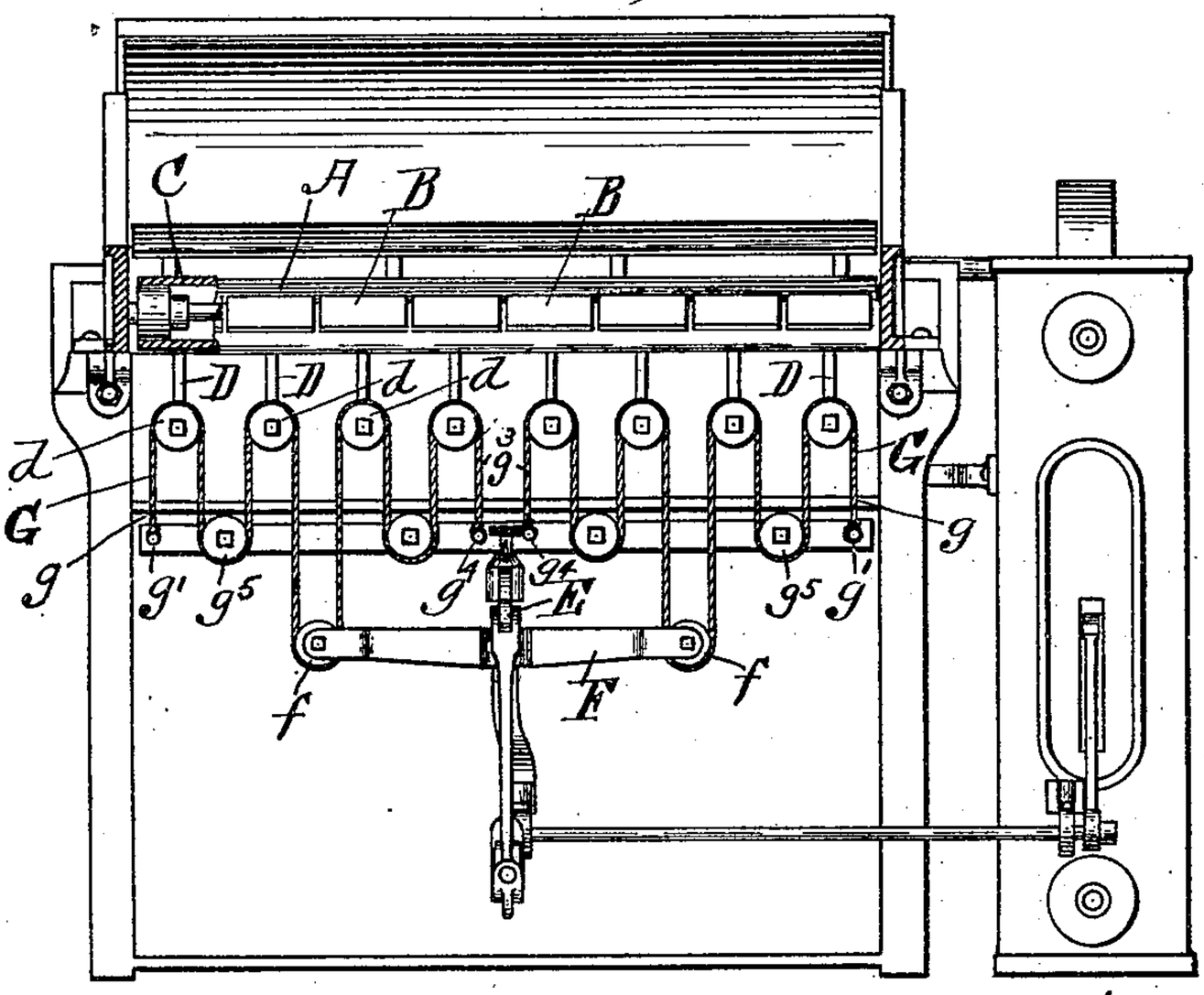

Fig. 2.

WITNESSES

INVENTOR

Frederick H L James

No. 631,795. Patented Aug. 29, 1899.

F. H. L. JAMES.

EVENING DEVICE FOR COTTON OPENERS.

(Application filed May 18, 1899.)

(No Model.) 2 Sheets—Sheet 2.

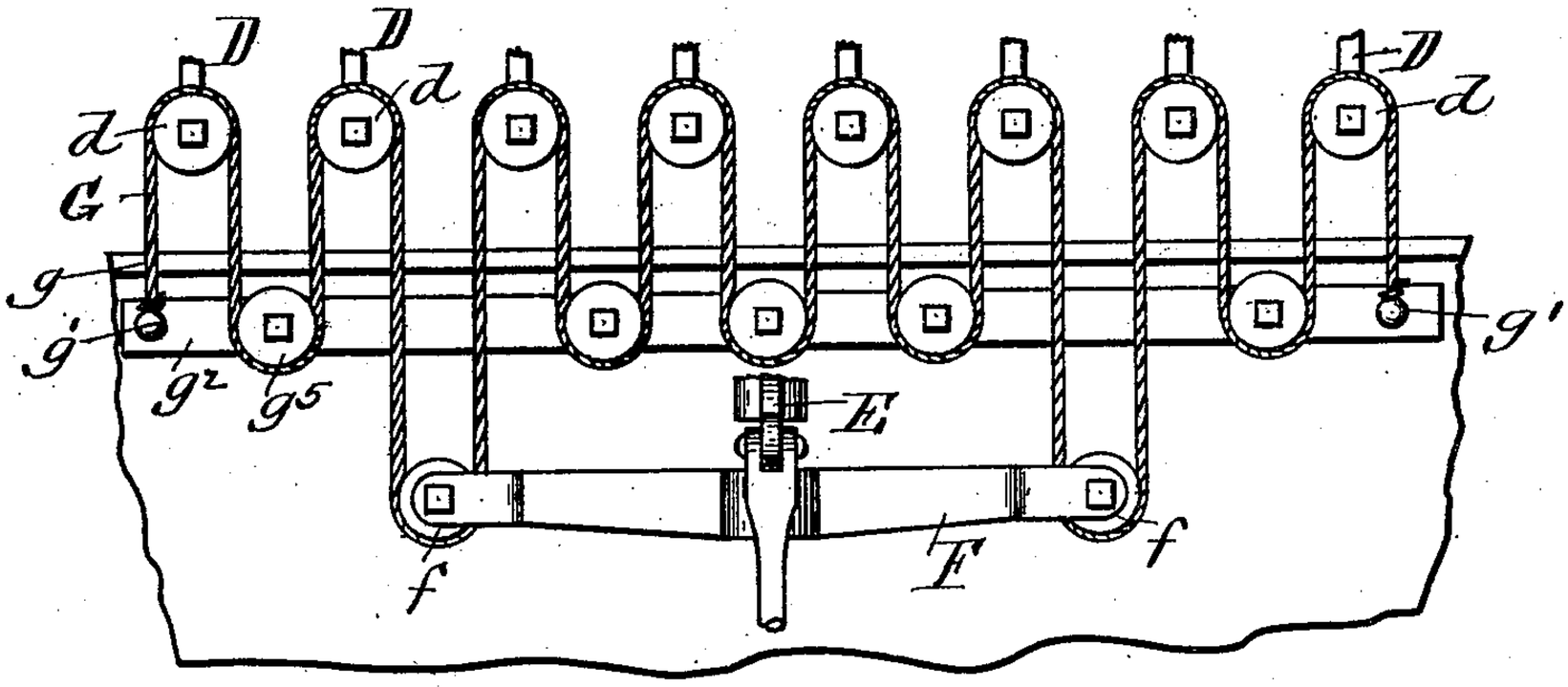

Fig. 3.

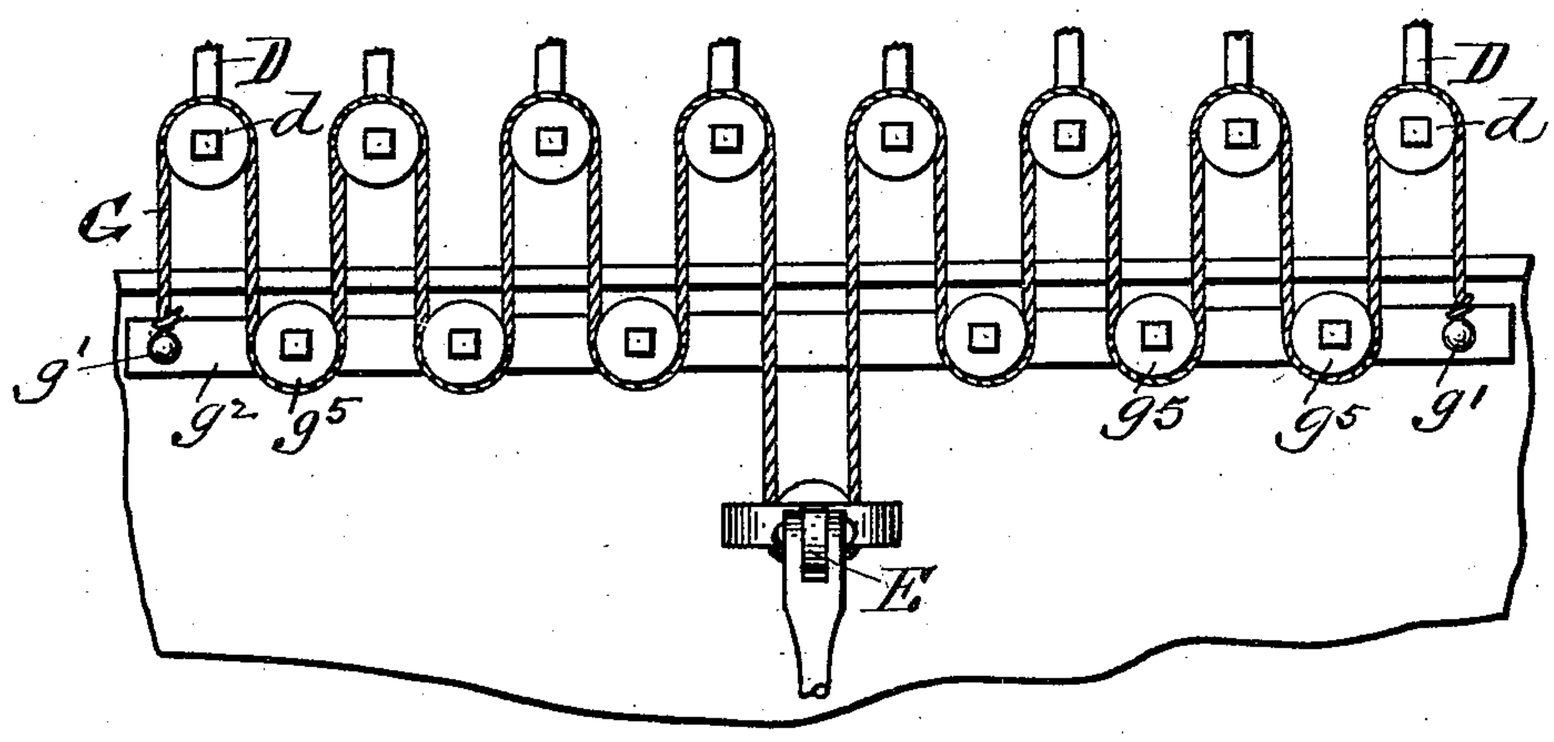

Fig. 4.

WITNESSES:
F. F. Raymond 2d,
J. M. Dolan.

INVENTOR
Frederick H. L. James

UNITED STATES PATENT OFFICE.

FREDERICK H. L. JAMES, OF PAWTUCKET, RHODE ISLAND, ASSIGNOR TO THE SACO & PETTEE MACHINE SHOPS, OF NEWTON, MASSACHUSETTS.

EVENING DEVICE FOR COTTON-OPENERS.

SPECIFICATION forming part of Letters Patent No. 631,795, dated August 29, 1899.

Application filed May 18, 1899. Serial No. 717,254. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK H. L. JAMES, a citizen of the United States, residing at Pawtucket, in the county of Providence and State of Rhode Island, have invented a new and useful Improvement in Evening Devices for Cotton-Openers and Analogous Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature, wherein—

Figure 1 is a view in perspective of enough of a cotton-opener machine to illustrate the construction and application of my invention. Fig. 2 is a view principally in end elevation thereof. Figs. 3 and 4 are enlarged detail views to which reference is hereinafter made.

The invention consists in means for connecting the outer ends of the evener-plate levers with the cone belt-shifter, whereby the movements of the levers are transmitted to the devices for shifting the belt upon the cones. Before describing this construction I will briefly indicate the parts to which it is applied and which are parts in common use.

A is the evener feed-roll; B, the various evener-plates; C, a section of the feeding-apron; D, the feed-plate levers, which are hung in the usual or any desired way. The outer ends of the levers have rolls or pulleys *d* mounted upon them to freely turn vertically upon a horizontal axis in line with the levers. Below the levers is a lever E, connected in the usual way with the cone belt-shifter. Across and beneath it extends the lever F, which is connected with it also in the usual way. The outer ends of the lever are forked and support between the arms of the forks by horizontal pivots or axes the rolls or pulleys *f*. I prefer that both the rolls or pulleys *d* and *f* be grooved.

The lever F is connected with the levers D by a cord or chain G, which may be in two lengths, as represented in Figs. 1 and 2, or in one length, as represented in Figs. 3 and 4. When two lengths are employed, the outer end *g* of each length is made fast at *g'* to a stationary bar g^2 and the inner ends g^3 are made fast to said bar at g^4. Between these points of attachment, which are stationary, each chain or cord passes over rolls or pulleys on the ends of the evener-plate levers, about the stationary rolls or pulleys g^5 on the fixed bar, and about the pulleys *f* on the lever F, the course of each length being well represented in Fig. 2, where, beginning at the fixed ends g^4, it will be seen that the rope or chain first extends upward over a roll or pulley on the end of an evener-plate lever, then downward about a pulley on the fixed bar, then upward again over another roll or pulley upon an evener-plate lever, then downward about the pulley *f* at one end of the lever F, then upward about a pulley or roll on an evener-plate lever, then downward around a roll or pulley on the fixed bar, then upward again around a pulley or roll on an evener-plate lever, and then downward to the place of its attachment to the fixed bar.

It will be seen that each of the evener-plate-lever ends is connected with the lever F in a manner to move the same upward or to permit it to move downward, and that as one or more of the evener-plate levers move upward they draw up the cord or chain, which, being fixed at both ends, exerts an upward draft upon the end of the lever F, causing it to be moved up a distance equal in extent to that traversed by the end of one of the levers or some of the distances traversed by as many of the levers as may be moved upward. The downward movement or movements of the ends of the evener-plate levers produce the reverse effect upon the end of the lever F—that is, it is permitted to fall instead of being moved upward. It will be understood that both of the cord or chain lengths are simultaneously operative upon the ends of the said lever F. The movement of the lever F is communicated to the cone belt-shifter in the usual way.

In Fig. 3 I have represented the cord or chain connection as being in one length instead of two lengths, and there is then used an additional roll or pulley upon the fixed bar about which the central section of the rope or chain extends instead of the two attaching-points of Figs. 1 and 2.

In Fig. 4 a one chain or cord construction is represented, in which the chain or cord extends at its center about a roll or pulley carried directly by the lever E, the cross-lever F being dispensed with.

The advantages of the invention arise from the simplicity and directness of the connection between the evener-plate levers and the cone belt-shifter lever and from the increased extent or movement communicated directly by the said levers to the cone belt-shifter lever and also from the automatic compensating nature of the construction.

I would not be understood as limiting the invention to its precise application herein shown and described either with regard to the arrangement of rolls or pulleys with respect to each other or to the particular cord and roll shown. For instance, a sprocket-chain and sprocket-wheels may be used in lieu of a rope or chain and ordinary grooved pulley or rope, the cord or chain may take a different path between the rolls or pulleys or connect them in a different order, and the rolls and pulleys may be dispensed with altogether or have substituted other equivalent antifriction devices.

I have stated that the ends of the flexible transmitting connection and certain pulleys over which it extends were mounted on a fixed rail or support. I would not, however, be understood as limiting the invention to this device for supporting the pulleys and the attaching devices for securing the connection thereto, but may employ in lieu thereof any stationary support or supports for the same purpose, a rail or bar being used because it seems to be the simpler construction.

Having thus fully described my invention, I claim and desire to secure by Letters Patent of the United States—

1. In an evening mechanism for cotton-openers and analogous machines a lever connected with the cone belt-shifter to actuate the same, the evener-plate levers and one or more flexible evener connections a portion or portions of which extend from some of said evener-plate levers to said cone belt-shifter lever, and portions of which connect other of said evener-plate levers with fixed pulleys or supports, as and for the purposes set forth.

2. In an evening mechanism for cotton-openers and analogous machines the combination of a lever connected with the cone belt-shifter, the evener-plate levers, a fixed bar or support and flexible connections extending from the bar or support to the evener-plate levers and to the said cone belt-shifter lever or a lever carried thereby, as and for the purposes set forth.

3. In an evening mechanism for cotton-openers and analogous machines the combination of the evener-plate levers, pulleys or rolls *d* mounted at or near the outer ends thereof, a fixed rail or support, pulleys or rolls mounted thereon, a lever to operate the cone belt-shifter, a second lever mounted upon said first-named lever and having a roll or pulley at or near each outer end, and one or more flexible connections having their outer end or ends attached to said fixed support and extending about the pulleys or rolls upon said evener-plate levers, the pulleys or rolls upon said fixed rail or support and the pulleys or rolls upon said intermediate lever, as and for the purposes set forth.

4. In an evening mechanism for cotton-openers and analogous machines the combination of the evener-plate levers, pulleys or rolls *d* mounted at or near the outer ends thereof, a fixed rail or support, pulleys or rolls mounted thereon, a lever to operate the cone belt-shifter, a second lever mounted upon said first-named lever and having a roll or pulley at or near each outer end and flexible transmitting connections having their outer and inner ends attached to said fixed support, and extending about the pulleys or rolls upon said evener-plate levers and the pulleys or rolls upon said fixed rail or support, and each having at the center of its length a downward-extending loop to engage the pulley or roll upon the second lever, as and for the purposes set forth.

FREDERICK H. L. JAMES.

Witnesses:
F. F. RAYMOND, 2d,
J. M. DOLAN.