

No. 686,971.

Patented Nov. 19, 1901.

F. H. L. JAMES.
EVENING DEVICE FOR COTTON OPENERS.

(Application filed Dec. 18, 1899.)

(No Model.)

3 Sheets—Sheet 1.

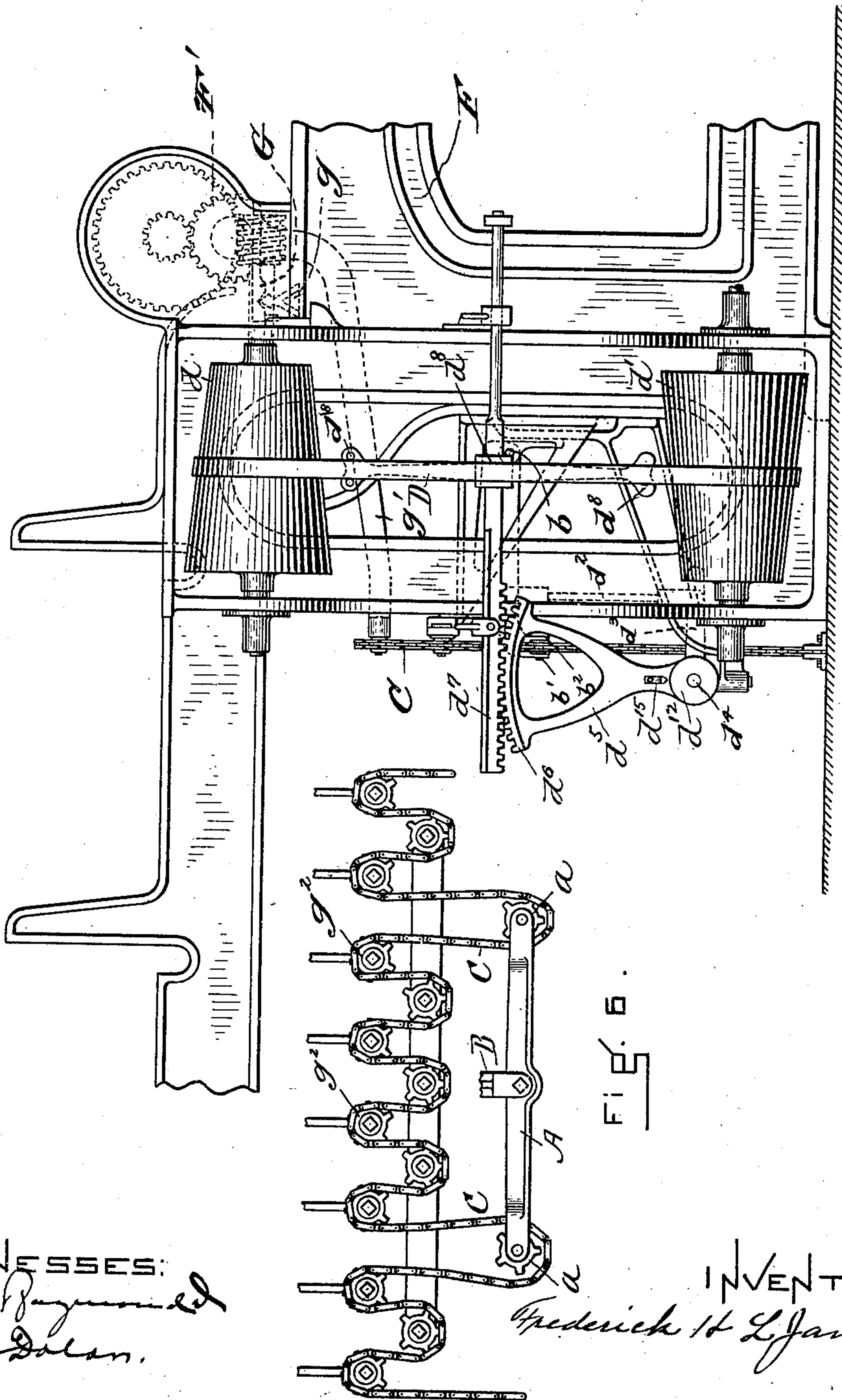


Fig. 1.

Fig. 6.

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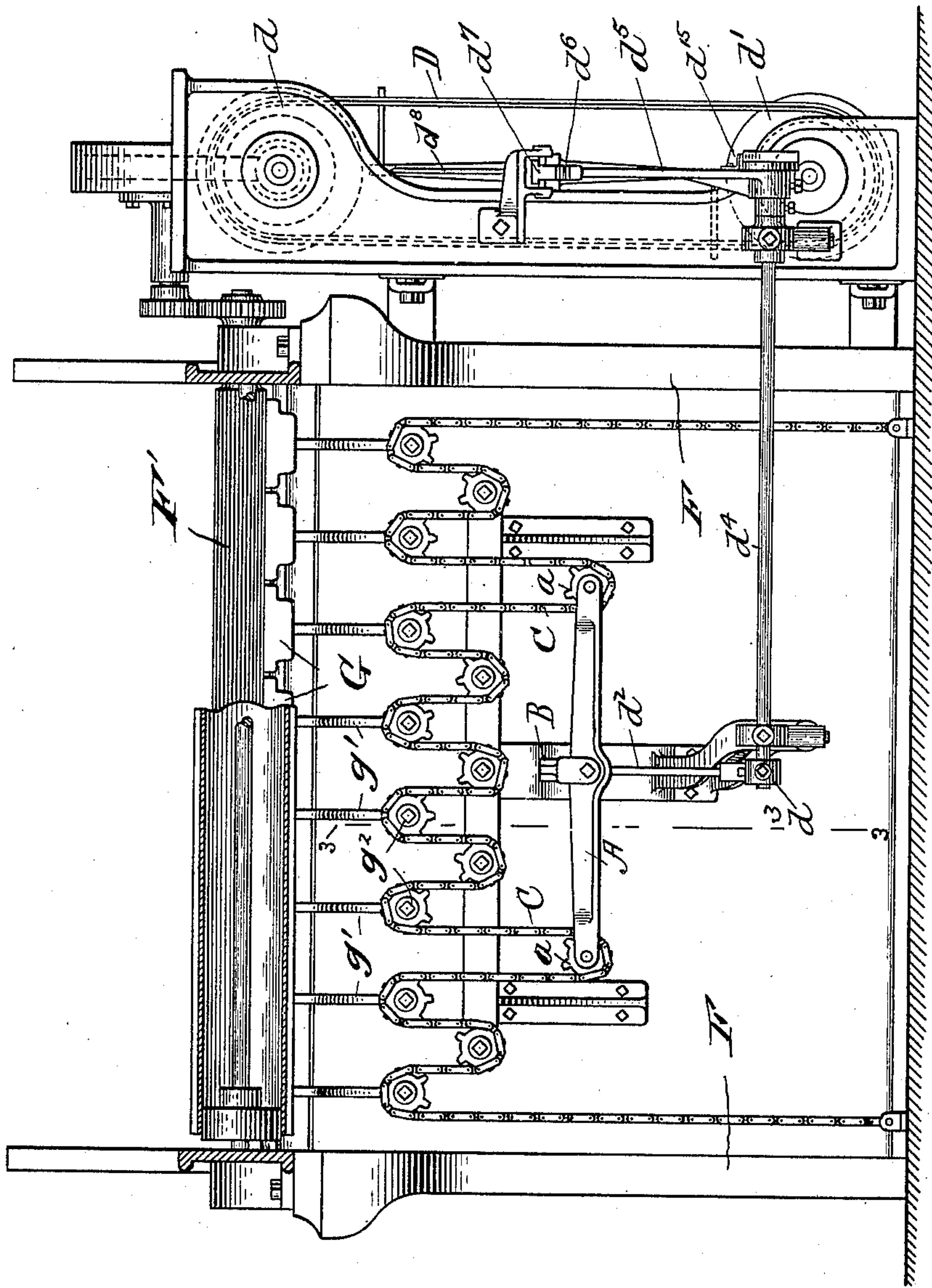


FIG. 2.

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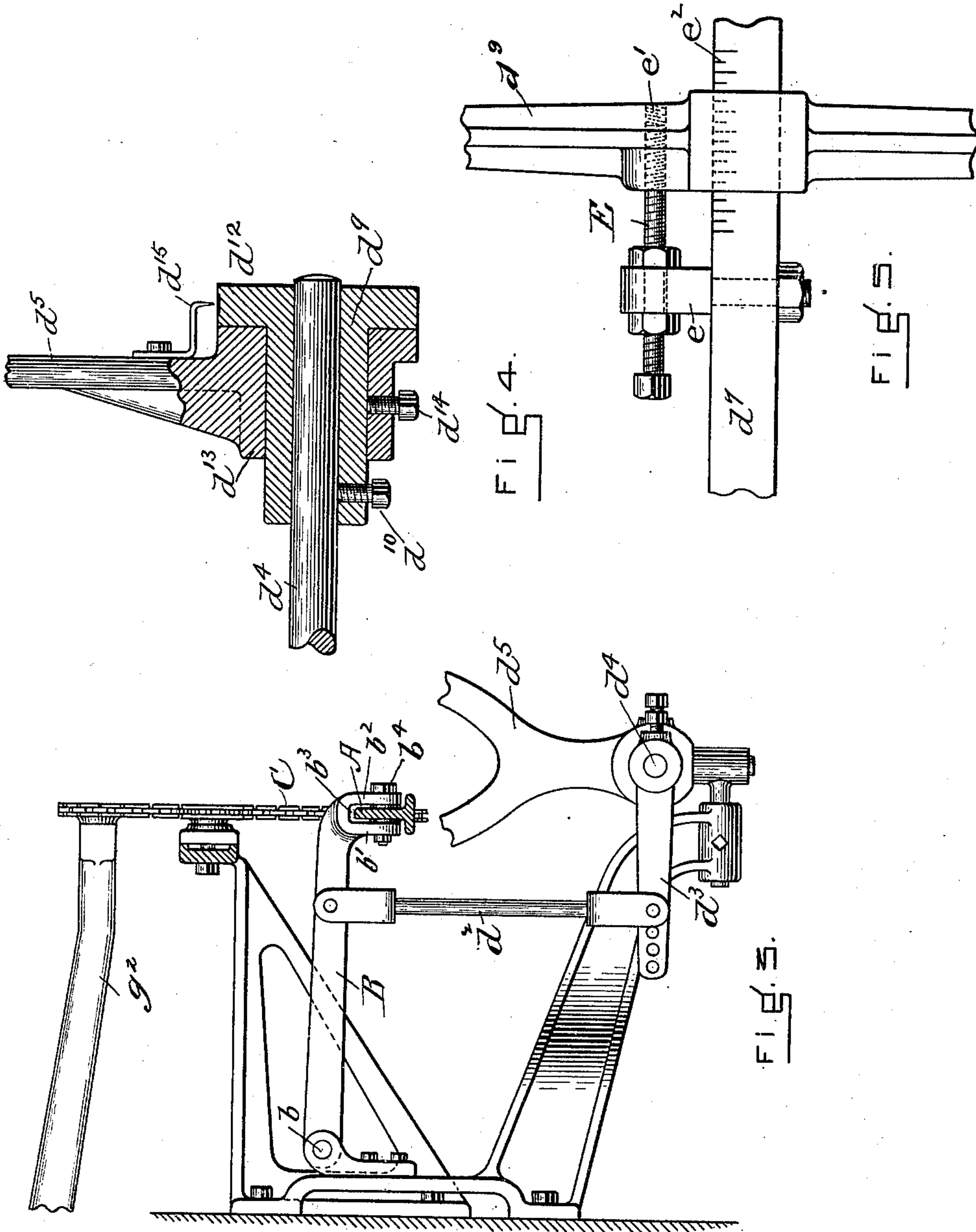
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(No Model.)

3 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

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EVENING DEVICE FOR COTTON-OPENERS.

SPECIFICATION forming part of Letters Patent No. 686,971, dated November 19, 1901.

Application filed December 18, 1899. Serial No. 740,774. (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, county of Providence, and State of Rhode Island, have invented a new and useful Improvement in Evening Devices for Cotton-Openers and Similar 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.

The invention is an improvement upon that described in my Letters Patent of the United States No. 631,795, dated August 29, 1899; and it consists in means whereby the machine may be started without the waste and loss of time now due to uneven operation incident to the beginning of the making of the lap and whereby also the minor adjustment in the evening device is obtained between the cone-belt-shifter lever and the cone-belt.

Referring to the drawings, Figure 1 is a view in side elevation of enough of a cotton-opener to show the application of my invention thereto. Fig. 2 is a view, principally in end elevation, of a cotton-opener, showing portions of the evening devices. Fig. 3 is a view in vertical section, enlarged, upon the dotted lines 3 3 of Fig. 2 and in elevation, of parts back of said line. Fig. 4 is a detail view, enlarged, of a cone-belt-adjusting device, to which reference will hereinafter be made. Fig. 5 is a view, enlarged, of a modified means for cone-belt adjustment, which will also be hereinafter described. Fig. 6 illustrates the relation between the ends of the evenner-plate levers, the evenner-lever, and the flexible connections when there is no lap between the evenner-plates and the feed-roll.

Referring to the drawings by letter, F designates the frame of the scutcher or opener, in which is mounted the feed-roll F' in working relation to a series of evenner-plates G, which are fulcrumed on the knife-edge bar *g* and have the arms or levers *g'* extending therefrom, all as is customary in scutcher constructions and as shown in my patent above referred to, said evenner-plate arms or levers *g'* being provided at their forward ends with the

sprocket-pulleys *g*², over which passes the flexible connection C, which connects said evenner-plate levers with one another and with the evenner-lever A in the usual manner.

In the patent referred to the usual construction between the evenner-lever and the lever which is connected with the cone-belt shifter is shown—that is, the two are made adjustable with respect to each other by means of an adjusting-screw carried by the cone-belt-shifter lever. The lower end of said adjusting-screw is seated in a shallow socket at the center of the evenner-lever, and at the end of the operation of the machine upon the passing of the lap from the evenner-plates and feed-roll the outer ends of the evenner-plate levers drop, and thereby permit the evenner-lever to drop with respect to the end of the adjusting-screw and become entirely disengaged from it, and upon the starting of the machine and the interposition of the lap between the evenner-plates and the feed-roll the evenner-lever is drawn upward by the lifting of the outer ends of the evenner-plate levers. This construction is open to some objection, for the reason that unless the evenner-lever is so moved that its socket truly engages the end of the adjusting-screw the operation of the evenner-plates will be uneven, and irregular lap will be produced. It is therefore necessary for the operator or attendant to stand by the evenner-lever upon the starting of the machine to see that the evenner-lever is moved into its proper operative relation with the adjusting-screw and if not so moved to place it by hand in such position, and on account of the peculiarity of the construction of these parts the latter operation is very frequently required. My present invention does away with this necessity for attention and hand adjustment, means being provided by which the evenner-lever A is attached to the cone-belt-shifter lever B in a permanent manner, presently to be described, so that upon the removal of the lap from the evenner-plates and roll it does not drop from the cone-belt-shifter lever, but retains its normal or working relation thereto. The sections C of the flexible chain connections between the evenner-lever

and the ends of the evener-plate levers do drop with respect to the rolls or sprocket-wheels a of the evener-lever slightly, (see Fig. 6;) but the relation between the flexible connections and the sprocket-wheels is such that a reengagement between them is made automatically without the necessity for hand help or watching.

Referring to Fig. 3, which illustrates the permanent construction between the cone-belt-shifter lever B and the evener-plate lever A, it will be seen that the cone-belt-shifter lever B is pivoted at b and has its outer end forked or separated into two arms $b' b^2$, between which is a space b^3 of sufficient size to receive a portion of the evener-lever A, and a pivot-pin b^4 , supported by these arms $b' b^2$, extends through the evener-lever at the center of its length and serves to permanently fasten it to the lever B. The lever B is connected with the cone-belt D, running over the cone-pulleys $d' d''$ by means of a long link d^2 , pivoted at its upper end to the lever B and at its lower end to the lever d^3 , which lever is fastened to the rock-shaft d^4 . This rock-shaft has suitable bearings and carries at its outer end a sector-gear d^5 , having teeth d^6 , which mesh with the teeth of the horizontally-sliding rack-bar d^7 , suitably attached to the machine and engaging, by means of the belt-shifter arm d^8 , the cone-belt D.

In order that there may be provision for adjustment between the evener-lever A and the belt D, the sector-gear d^5 is attached to the rock-shaft d^4 in a manner to be turned thereon and fastened in its adjusted position. I prefer for this purpose the construction represented in Fig. 4, where d^9 represents a long collar fastened to the rock-shaft d^4 by a set-screw d^{10} . This collar has at its outer end an enlargement or head d^{12} , and the sector-gear has a hub d^{13} of a size to fit the collar and bear against the head d^{12} . It is adjustably secured upon the collar in any position to which it may be turned thereon by the locking-screw d^{14} . By loosening this screw the position of the sector-gear, and consequently of the rack and belt-shifter, may be varied in one direction or the other, according to the requirements of the work, and after they have been so moved the parts are fastened in their adjusted position by locking the sector-gear to the rock-shaft by means of the locking-screw d^{14} . The extent of the movement of the sector-gear may be ascertained by means of a pointer d^{15} , attached thereto and having operative relation to the outer surface of the head d^{12} , and by a scale marked on said surface of the head. In lieu of this method of adjusting the cone-belt B there may be employed the construction represented in Fig. 5, which comprises the adjusting-screw E, mounted upon the rack-bar d^7 by means of a holder e , bolted thereto and in which the screw is adapted to be turned. The screw screws into a threaded hole e' in the belt-shifter arm d^8 and serves to move it back or forth upon

the rack-bar, the belt-shifter being fitted to the rack-bar to be movable thereon. The turning of the screw will cause the belt-shifter to be moved in one direction or the other, and by means of check-nuts the screw may be fastened in any position to which it has been moved, thereby locking the belt-shifter to the rack-bar. The rack-bar may have a scale e^2 marked upon it to assist, in connection with the belt-shifter, in determining its position and the extent of its adjustment.

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

1. In an evener device for cotton-openers, &c., the combination with suitable lap-forming devices; of a series of evener-plate levers, a belt-shifter lever; a belt-shifter; connections between said shifter-lever and said shifter; an evener-lever; a permanent, pivotal connection between said evener-lever and said belt-shifter lever; whereby said evener-lever is permanently secured to and movable with said belt-shifter lever; and connections between said evener-lever and said evener-plate levers.

2. In an evener device for cotton-openers; the combination with suitable lap-forming devices; of a belt-shifter lever pivoted to the frame of the machine and having its outer end forked; belt-shifting devices connecting said shifter-lever with a cone-belt; an evener-lever having a permanent, pivotal connection with the forked end of said shifter-lever so as to be permanently connected thereto and movable therewith; and flexible connections between said evener-plate levers and said evener-lever.

3. In an evener device for cotton-openers, &c., the combination with the lap-forming instrumentalities, of a belt-shifter lever operatively connected therewith, a rock-shaft operatively connected with said belt-shifter lever, a radial arm carried by said rock-shaft, a belt-shifter connected with said radial arm, and means for adjusting the said arm to change its radial position and vary the length of movement of said belt-shifter.

4. In an evener device for cotton-openers, &c., the combination with the lap-forming instrumentalities, of evener-plate levers, an evener-lever, flexible connections between said evener-plate lever and said evener-lever, a belt-shifter lever pivoted to the frame of the machine with which said evener-lever is pivotally and permanently connected, a belt-shifter operatively connected with said belt-shifter lever, and means intermediate said belt-shifter lever and said belt-shifter for adjusting the position of said belt-shifter.

5. In an evener device for cotton-openers, &c., the combination with lap-forming instrumentalities, of a belt-shifter lever B, an evener-lever A pivoted therein and permanently secured thereto, a belt-shifter d^8 , a rock-shaft d^4 operatively connected with said belt-shifter lever B, a hub d^9 on said rock-

shaft, a radial arm d^5 adjustably mounted on said hub, and connections between said arm d^5 and said belt-shifter d^8 to operate the latter.

6. The combination in a device of the character specified of the evener-lever connected with the evener-plate levers and permanently pivoted to the cone-belt-shifter lever, said cone-belt-shifter lever, a rock-shaft connected therewith to be operated thereby, the cone-
10 belt, the cone-belt shifter, a rack-bar con-

nected at one end to the cone-belt shifter and at the other with a sector-gear, said sector-gear mounted upon the rock-shaft, and means whereby its radial position may be changed upon said rock-shaft, as and for the purposes 15 set forth.

FREDERICK H. L. JAMES.

Witnesses:

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