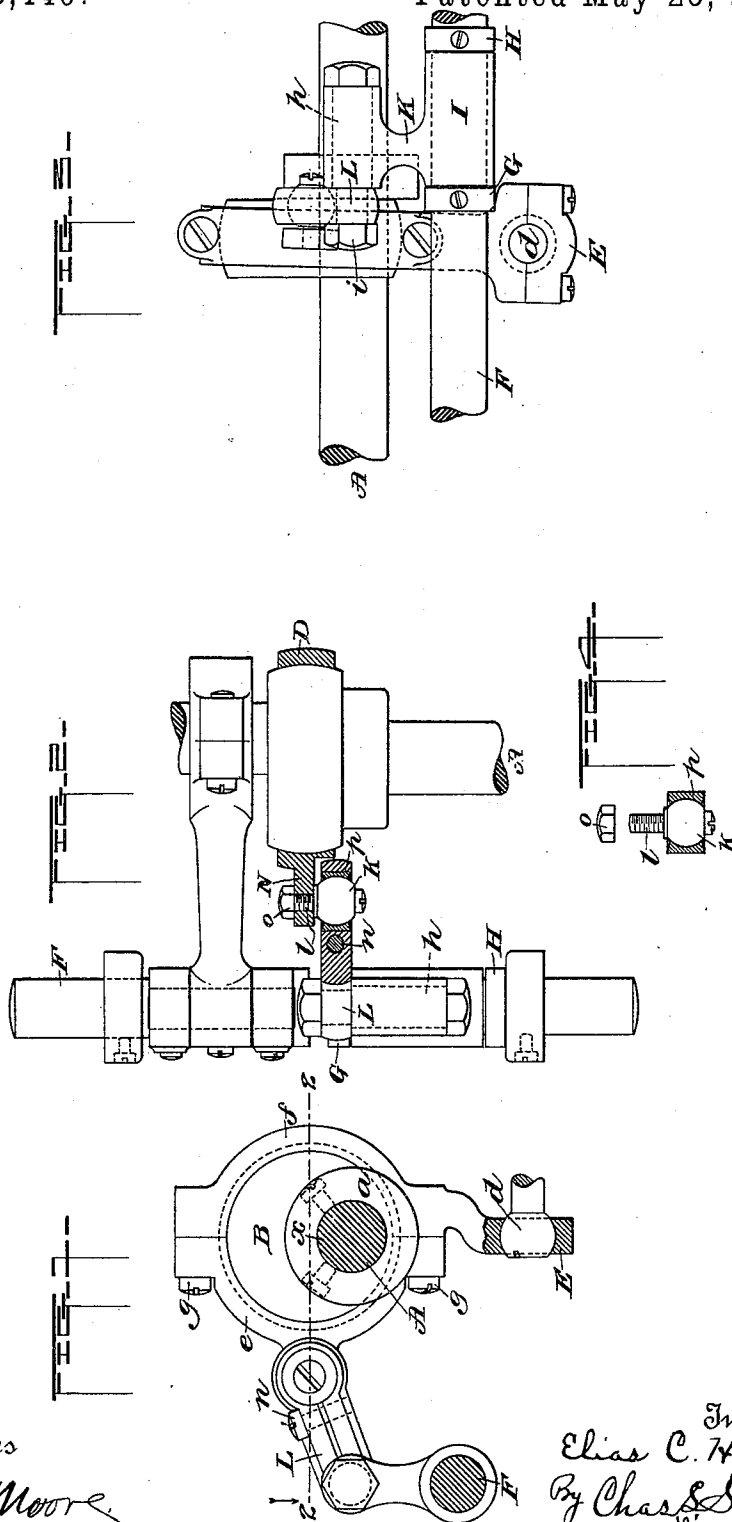


(No Model)

E. C. HOLLAND.
MECHANISM FOR TRANSMITTING MOTION.

No. 583,440.

Patented May 25, 1897.



Witnesses

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UNITED STATES PATENT OFFICE.

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MECHANISM FOR TRANSMITTING MOTION.

SPECIFICATION forming part of Letters Patent No. 583,440, dated May 25, 1897.

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To all whom it may concern:

Be it known that I, ELIAS CALVIN HOLLAND, a citizen of the United States, residing at Austin, in the county of Cook, State of Illinois, have invented certain new and useful Improvements in Mechanism for Transmitting Motion, of which the following is a description, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention relates to an improved means or connection for transmitting motion from a ball-eccentric to a vibrating part, and, while I have herein shown the invention as applied to a sewing-machine for transmitting motion from the main shaft to the looper rocker-shaft for vibrating the latter sidewise, it will be understood that I do not desire to limit myself to this application to a sewing-machine nor to the special parts thereof, the invention being designed for use in any machine where such a construction is desirable. Since the end of the connection opposite the ball-eccentric is pivoted to the part which it drives by a ball-stud, said connection must necessarily have an oscillatory motion on the ball-eccentric, this motion being on an axis passing centrally through the eccentric transverse to the shaft. It is extremely undesirable, however, to permit said connection to oscillate on an axis passing through the eccentric and ball-stud, since it would give the rod a wobbling motion.

It is the object of my invention, therefore, to allow for the necessary oscillation, but to prevent that which is undesirable, and while I am aware that it has been heretofore proposed to provide means for accomplishing the above object on a sewing-machine the present invention is designed to obviate certain difficulties existing in such heretofore proposed means.

The invention consists, primarily, of a main shaft, a ball-eccentric thereon, a strap or collar embracing said ball-eccentric and connected to the vibrating part, a rocking crank, and a ball connection between the rocking crank and said strap.

Secondly, the invention consists in a main shaft, a ball-eccentric thereon, a strap or collar embracing the same and connected to the

vibrating part, a shaft parallel with the main shaft, a crank sleeved thereon, and a ball-and-link connection between said crank connection and the strap or collar.

Finally, the invention consists in the matters hereinafter described, and referred to in the appended claims.

In the accompanying drawings, which illustrate the invention, Figure 1 is a side view, partly in section, showing the connection between the ball-eccentric on the main shaft and the shaft to be vibrated, together with means for allowing the necessary motion to the connecting-rod. Fig. 2 is a plan view, partly in section, illustrating my invention; and Fig. 3 is a rear view of the same. Fig. 4 is a detail view of the ball-and-stud connection between the link and strap.

In the drawings, A represents the main shaft, B the ball-eccentric thereon, and *a* the hub, through which screws pass to secure the eccentric on the shaft, which shaft passes through the opening *x*, eccentrically set. The connection as a whole is shown at D, and *d* is the ball-stud uniting the connecting-rod with the looper-shaft. (Not shown.) The connection or, as it is technically termed, "connecting-rod" D is formed in two parts or pieces *e f*, of semicircular shape, forming a split ring or collar having a downwardly-projecting shank with an enlarged head E, in which the ball-stud *d* is pivoted. The two parts *e f* of the collar are united by screws *g*, the inner faces of said parts *e f* being concaved to conform to the convex periphery of the ball-eccentric.

Since the end of the connecting-rod opposite the ball-eccentric is pivoted to the looper-shaft by a ball-stud, said rod must have an oscillatory motion on the ball-eccentric on any axis, passing centrally through the eccentric parallel to the looper-shaft and vertical to the driving-shaft and also on any axis parallel to the driving-shaft and vertical to the looper-shaft. In order to allow for this movement, but to prevent motion on an axis vertical to both driving and looper shafts which would cause wobbling of the connecting-rod, I provide the following construction: On an axis parallel with the main shaft, but below the plane thereof, is a second shaft F, which has a rock-

ing movement. Sleeved on this shaft F between the two collars G H, which prevent lateral displacement, is a crank I, having an upwardly-extending arm K, formed with a sleeve on its upper end, through which passes a bolt or stud *h*. One end of a link L embraces this stud, being held in position by the nut *i* on the bolt, while the other end of said link embraces the collar *p*, formed with a socket receiving a ball *k*, formed with the screw-stud *l*, screwed into the rearwardly-extending lug N of the strap or collar D and held by the nut *o*. The sides of the link are caused to embrace the stud and ball by means of the screw *n*, which acts to hold the sides of said link together.

In the rotation of the main shaft and ball-eccentric by reason of the ball-stud connection with the vibrating looper-shaft there will be a tendency to swing the strap or collar on its axis, but by reason of the rocking crank and ball-and-link connection between said crank and the strap or collar the collar will swing on the axis, passing through the eccentric transverse to the shaft, but will prevent any oscillation on an axis through the center of the eccentric and the ball-stud.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In combination with a driving-shaft and a part to be vibrated, means for transmitting motion from said driving-shaft to the vibrating part comprising a ball-eccentric on said driving-shaft, a strap or collar embracing the same and connected to the vibrating part, a rocking crank, and a universal-joint connection between said rocking crank and the strap or collar; substantially as described.

2. The combination with the main shaft provided with a ball-eccentric and a strap or collar embracing the same, of a vibrating part and connections between said strap or collar and the vibrating part, a shaft, a crank thereon, and a universal-joint connection between

said crank and the strap or collar; substantially as described.

3. The combination with the shaft and the eccentric thereon, a strap or collar embracing the same and a part to be vibrated, of an oscillating connection between said strap or collar and the part to be vibrated, a rocking crank and a free-joint connection between said rocking crank and the strap or collar; substantially as described.

4. As a means for transmitting motion in combination with the driving-shaft and a part to be driven, an eccentric on said driving-shaft, a strap or collar embracing the same, a ball-joint connection between said strap or collar and the part to be driven, a rocking crank, a stud on said strap or collar provided with a ball and a link connection between said rocking crank and the ball; substantially as described.

5. The driving-shaft, a part to be driven, the eccentric on said driving-shaft and the oscillating connection between said eccentric and the part to be driven, a shaft, a crank sleeved thereon having an upwardly-extending portion, a stud passing through said upper portion, a link fixed at one end to said stud, a ball-stud upon the strap or collar to which the opposite end of said link is secured; substantially as described.

6. In the herein-described mechanism, the driving-shaft, the spherical eccentric thereon, the concave strap embracing the same and provided on its rear portion with a lug, a ball-stud secured to said lug, a link provided with a socket for the reception of said ball, and a rocking crank to which the opposite end of said link is fixed; substantially as described.

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

ELIAS CALVIN HOLLAND.

Witnesses:

PHEBE FANNING,
CHESTER McNEIL.