

(No Model.)

J. H. LOUDON.

TRAVELING EMERY WHEEL FOR CARD GRINDERS.

No. 323,172.

Patented July 28, 1885.

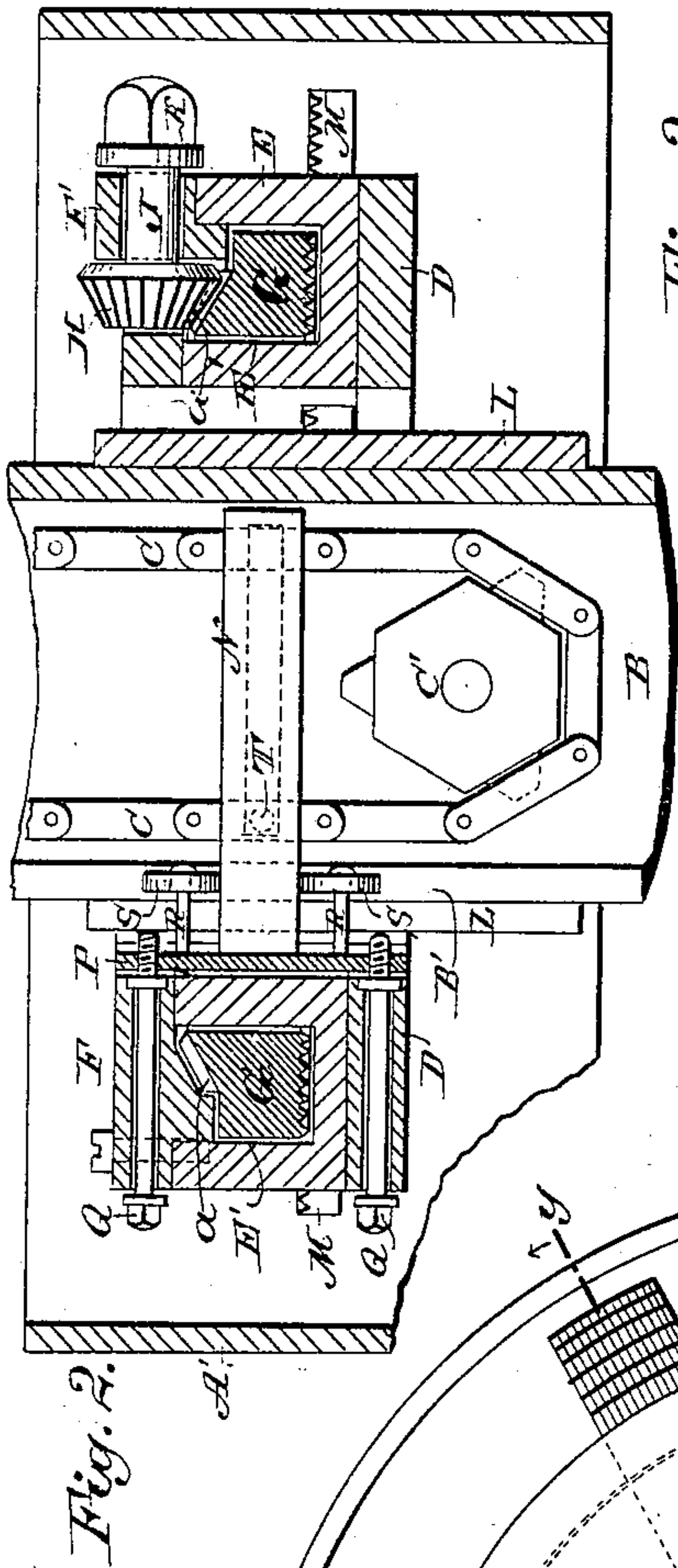


Fig. 3.

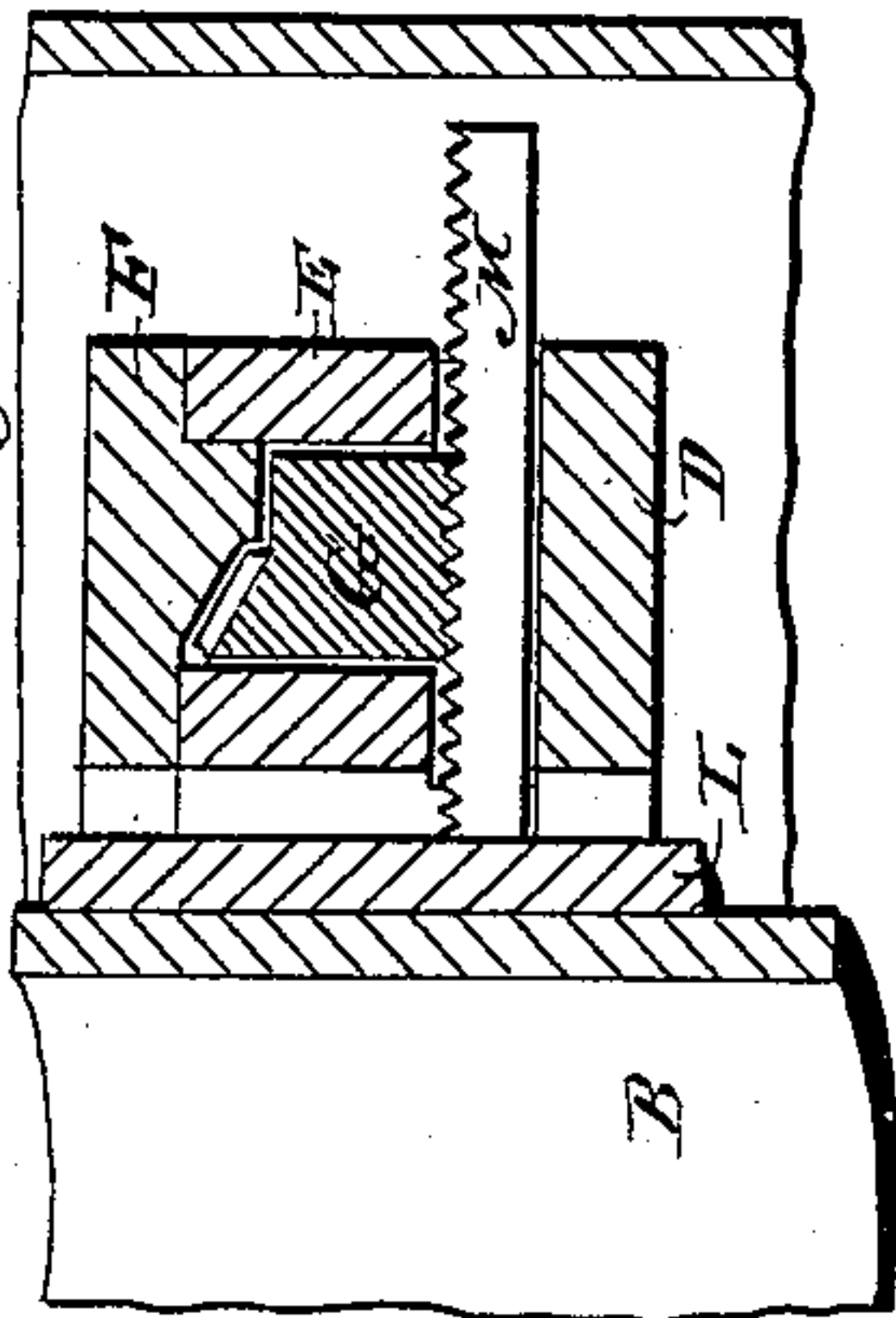


Fig. 6.

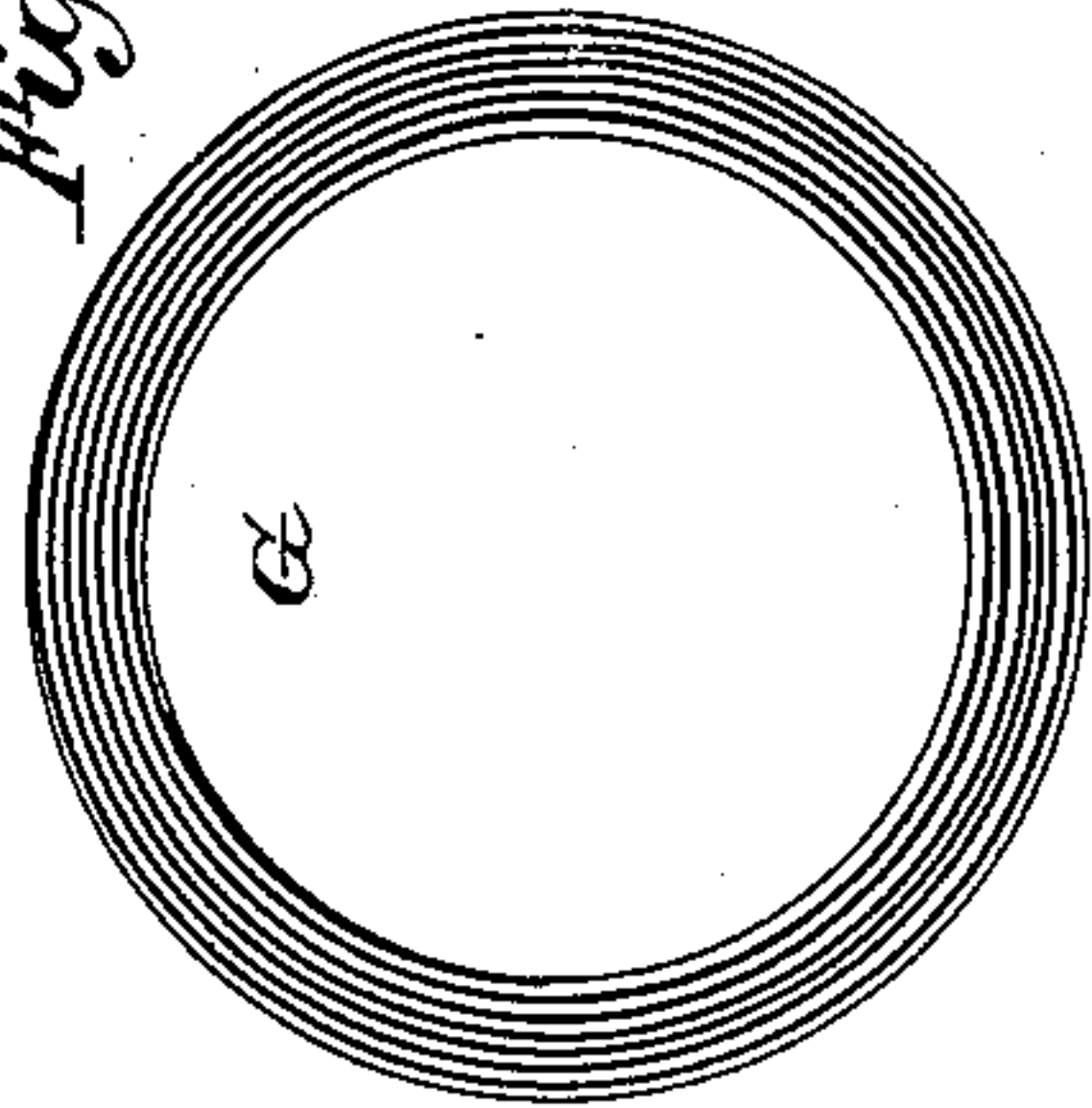


Fig. 5.

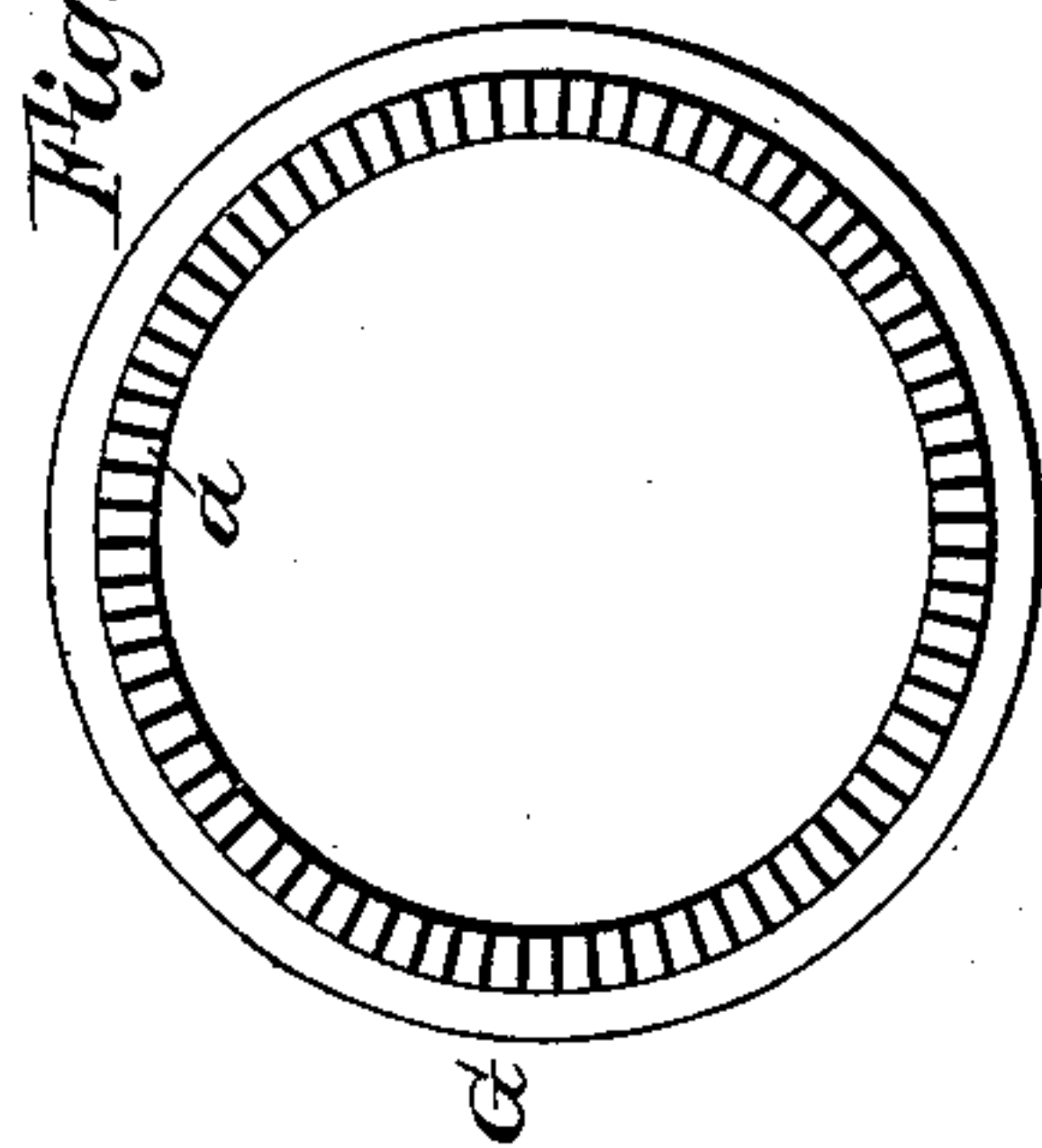


Fig. 4.

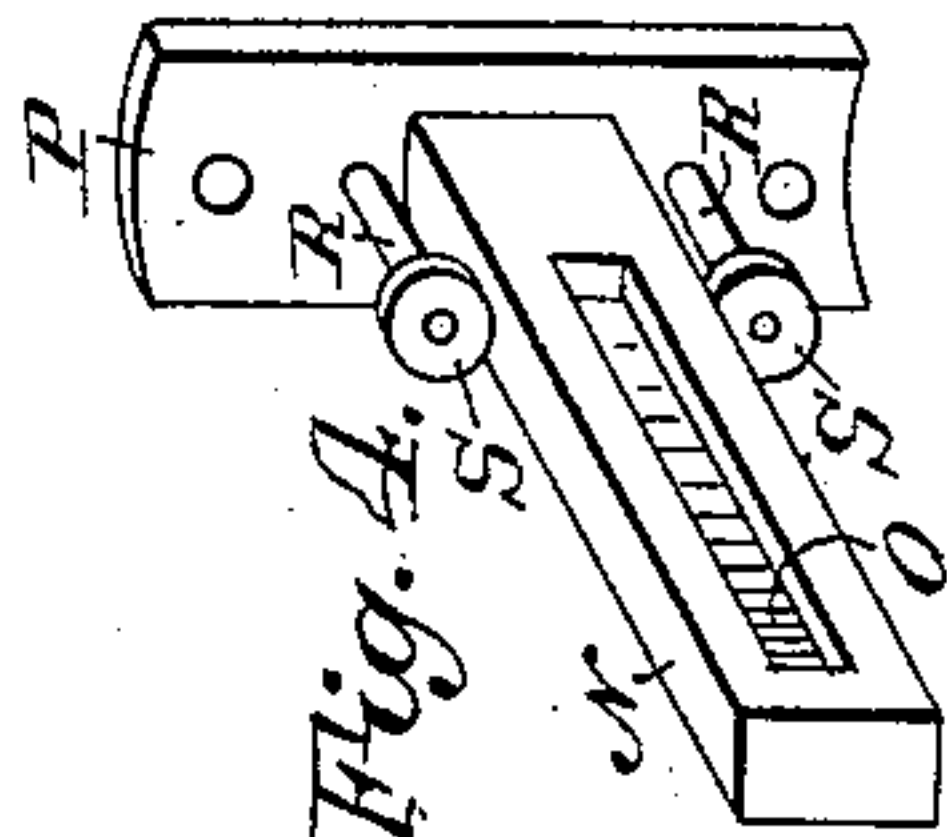
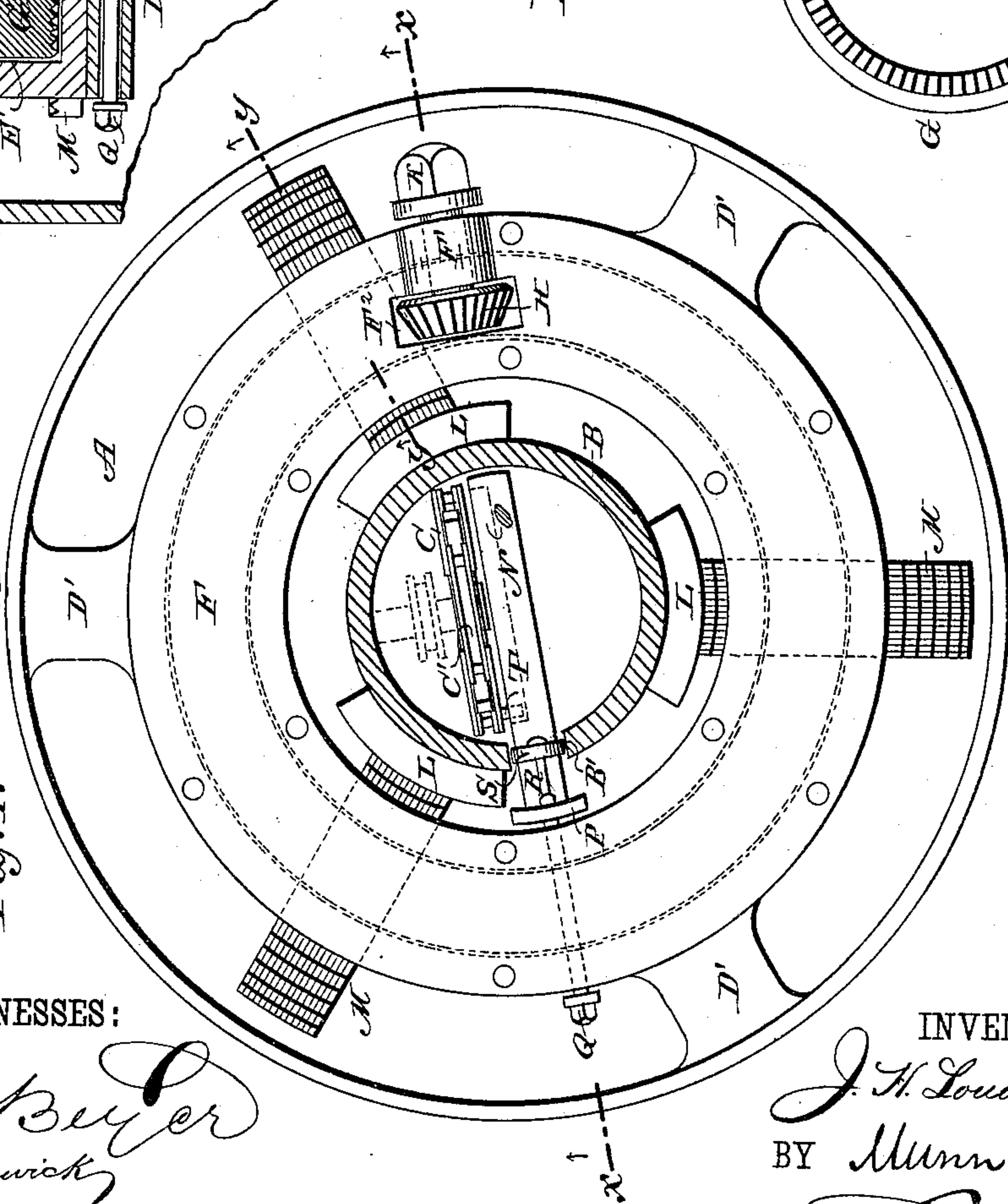


Fig. 1.



WITNESSES:

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JOSEPH H. LOUDON, OF WESTERLY, RHODE ISLAND.

TRAVELING EMERY-WHEEL FOR CARD-GRINDERS.

SPECIFICATION forming part of Letters Patent No. 323,172, dated July 28, 1885.

Application filed May 28, 1884. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH H. LOUDON, of Westerly, in the county of Washington and State of Rhode Island, have invented a new and Improved Traveling Emery-Wheel for Card-Grinders, of which the following is a full, clear, and exact description.

The object of my invention is to provide certain new and useful improvements in the traveling emery-wheels of machines for grinding cards whereby the wear of the wheel can be taken up and the wheel can be adjusted to fit very accurately and nicely on its shaft without impeding its longitudinal movement on the latter.

The invention consists of a grinding-wheel mounted on a shaft so as to turn and slide longitudinally thereon, the said wheel being provided with an adjustable hub for taking up the wear.

The invention further consists in the combination, with a grinding-wheel, of a series of radially-moving bars having their inner ends shaped to fit against a shaft, and having one surface screw-threaded, on the screw-threaded surface of which bars the screw-threaded surface of a ring rests, which is held in a suitably-grooved ring, whereby, by turning the ring held in the grooved ring, the sliding bars will be moved toward or from the shaft in such a manner as to press the ends of the sliding bars against the shaft.

The invention further consists in the combination, with a grinding-wheel and a longitudinally-slotted tubular shaft, of anti-friction rollers held on the wheel and running on the edges of the slot.

The invention also consists in the various parts and details and combinations of the same, as will be fully described, and set forth hereinafter in the claims.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side view of my improved traveling emery-wheel for card-grinders. Fig. 2 is a cross-sectional view in plan of the same on the line *xx*, Fig. 1. Fig. 3 is a cross-sectional view in plan on the line *yy*, Fig. 1. Fig. 4 is a perspective view of the grooved stud held on the inner casting of the wheel and

passing into the slotted tubular shaft. Fig. 5 is a plan view of the upper surface of the adjusting ring of the traveling emery-wheel. Fig. 6 is a plan view of the under side of the said wheel.

The emery for grinding the cards is applied in any suitable manner on the rim *A'* of the wheel *A*, which wheel travels on a tubular shaft, *B*, containing an endless chain, *C*, passing over sprocket-wheels *C'* in the ends of the tube, all in the usual manner. The wheel *A* is provided with a ring, *D*, connected with the rim *A'* by short spokes *D'*. On the said ring *D* an annularly-grooved ring, *E*, is held, the groove *E'* in the ring *E* being formed in that surface opposite the one resting on the ring *D*. A top ring, *F*, of the same diameter as the ring *E* is placed on the same, and the rings *D E F* are securely bolted together. In the annular groove *E'* in the ring *E* a ring, *G*, is placed, which is provided on its undersurface with a screw-thread, as shown in Fig. 6, and on its opposite surface with beveled cogs *a*, as shown in Fig. 5. A beveled pinion, *H*, engages with the teeth *a*, and is mounted on a short shaft, *J*, journaled in the projection *F'* of the ring *F*, and is provided on its outer end with a squared head, *K*, for turning the said shaft *J*. The top ring, *F*, is provided with a slot, *F''*, in which the pinion *H* can turn. Segmental plates *L*, fitting against the outer surface of the tubular shaft *B*, are secured to the inner ends of short bars *M*, held radially in grooves cut in the bottom of the ring *E*, the said bars *M* being screw-threaded in their upper surfaces and arranged in such a manner that the screw-threads formed on the bottom of the ring *G* can engage with the screw-threads on the bars *M*.

It is evident that the screw-threads in the upper surfaces of the bars *M* must be cut spirally, so that the said threads can engage with the thread on the under side of the ring *G*.

A stud, *N*, provided with a longitudinal groove, *O*, is secured at right angles to a plate, *P*, which is held by bolts *Q* to the rings *D* and *F* in such a manner that the flat sides of the said stud *N* will be parallel with the sides of the slot *B'* in the tubular shaft *B*, the bolts *Q* passing through the rings *D* and *F* from the inner to the outer edges, as is shown in Fig. 1. At each side of the stud *N* a short pin, *R*, pro-

jects from the plate P, on the outer end of each of which pins R an anti-friction roller, S, is held to turn, which rollers run on the edges of the slot B' and assist in holding the stud N in place, and in preventing undue friction. The chain C is provided with a stud, T, which passes into the groove O of the stud N.

The operation is as follows: If the shaft J is turned, the ring G will be turned, and thereby the radial bars M will be moved toward or from the tubular shaft B, so that the wheel A can be centered on the said shaft and held thereto with sufficient force to prevent wobbling while running. If the plates L wear off, as they are apt to, they can easily be tightened up by simply turning the shaft J slightly, so as to cause the ring G to move the radial bars M toward the middle of the shaft B. The stud N, secured to the wheel, and passing into the tubular shaft B through the slot B', locks the wheel to the shaft and causes it to revolve the shaft, and the stud T on the chain C, passing into the groove O of the stud N, couples the chain with the said stud in such a manner that when the chain C is moved it will move the wheel A on the tubular shaft B in the direction of the length of the said shaft in the usual manner. At the end of the shaft where the chain C passes over the sprocket-wheel C' the stud on the chain will slide from one end of the groove O to the other, and the emery-wheel will then be moved in the inverse direction. The emery-wheel is thus drawn from one end of the tubular shaft to the other and back again, and so on, and at the same time it is revolved.

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

1. The combination, with a shaft, of a grinding-wheel mounted on the said shaft to turn with the same and to slide on the shaft in the direction of its length, which wheel is provided with an adjustable hub for taking up the wear of the wheel and adjusting the wheel to fit accurately and nicely on its shaft without impeding its longitudinal movement on said shaft, substantially as herein shown and described.

2. The combination, with a grinding-wheel provided with radially-movable bars adapted at their inner ends to clamp on a shaft, which bars have one surface screw-threaded, of a ring capable of rotation and having one surface screw-threaded, the screw-threaded sur-

face of the ring resting on the screw-threaded surface of the radially-movable bars, and of means for turning the ring, substantially as herein shown and described.

3. The combination, with a grinding-wheel provided with radially-movable bars adapted at their inner ends to clamp on a shaft, which bars have one surface screw-threaded, of a ring capable of rotation and having one surface screw-threaded in such a manner that it can engage with the screw-threads on the radial bars, and having cogs cut in the opposite surface, a pinion adapted to engage with the cogs on the said ring, and means for turning the said pinion, substantially as herein shown and described.

4. The combination, with a grinding-wheel, of the radially-sliding bars M, having one surface screw-threaded transversely, segmental plates L, secured to the inner ends of the bars M, the ring D, supporting the bars M, the ring G, having one surface screw-threaded and the other provided with cogs, the grooved ring E, containing the ring G, the pinion H, and the shaft J, on which it is mounted, substantially as herein shown and described.

5. The combination, with a grinding-wheel, of the radially-sliding bars M, having one surface screw-threaded transversely, the segmental plates L on the inner ends of the bars M, the grooved ring E, the rings D and F, held against the ring E, the ring G, within the ring E, which ring G has a screw-thread on one surface and cogs on the other, the pinion H, and the shaft J, substantially as herein shown and described.

6. The combination, with a grinding-wheel, and a longitudinally-slotted tubular shaft, of a stud projecting from the wheel through the slot of the shaft, and of anti-friction rollers projecting from the wheel and running on the edges of the slot, substantially as herein shown and described.

7. The combination, with a grinding-wheel and a longitudinally-slotted tubular shaft, of the plate P, held on the wheel, the stud N, projecting from the plate P, the pins R, projecting from the plate P at the sides of the stud N, and of the rollers S, mounted on the ends of the pins R, substantially as herein shown and described.

JOSEPH H. LOUDON.

Witnesses:

GEORGE H. LAWTON,
EDWARD H. JAMES.