

(No Model.)

2 Sheets—Sheet 1.

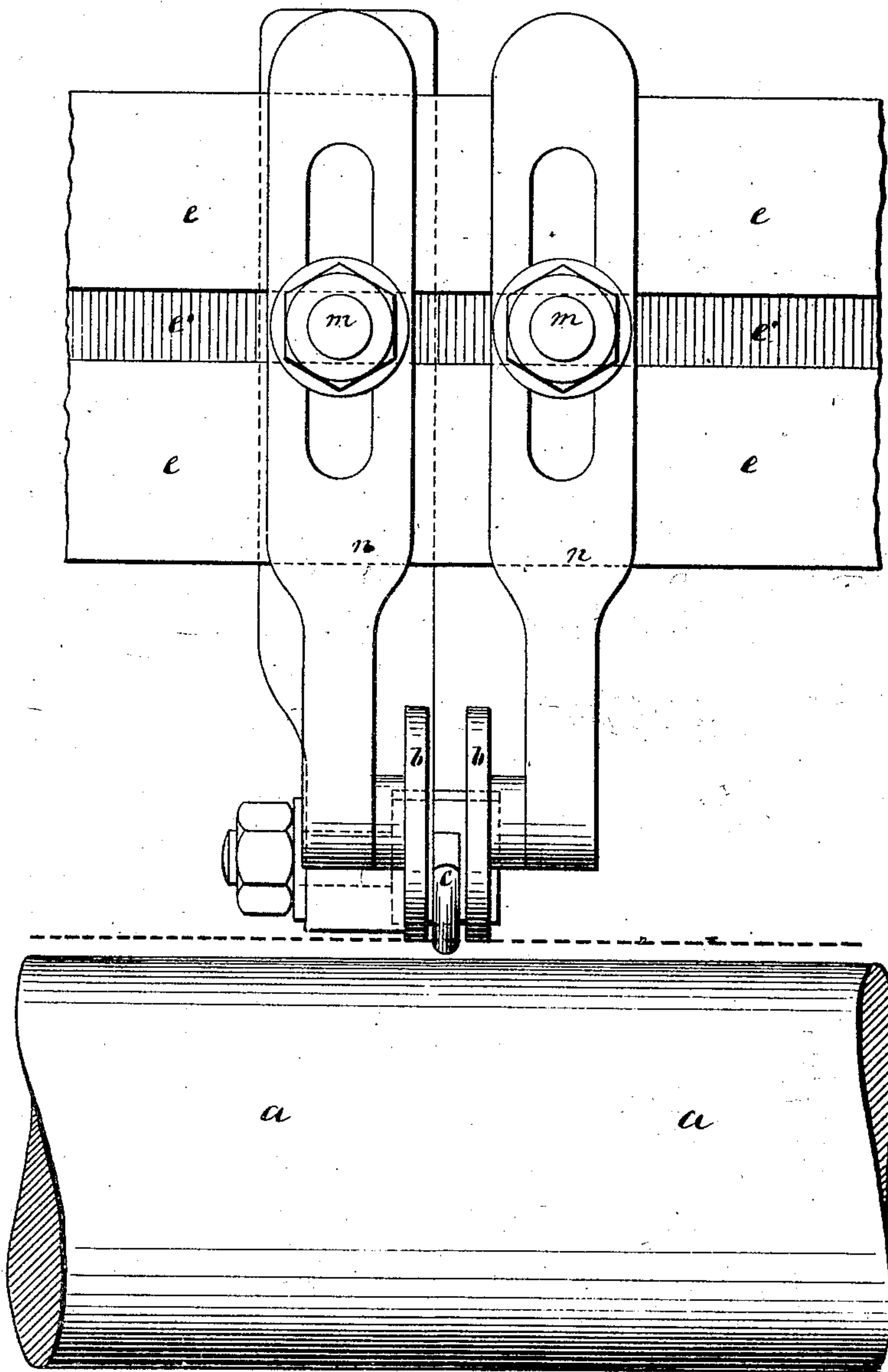
T. REMUS.

APPARATUS FOR CUTTING GROOVES IN CARD BOARD, &c.

No. 362,180.

Patented May 3, 1887.

Fig. 1.



WITNESSES:

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INVENTOR  
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ATTORNEYS

(No Model.)

2 Sheets—Sheet 2.

T. REMUS.

APPARATUS FOR CUTTING GROOVES IN CARD BOARD, &c.

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Fig. 2.

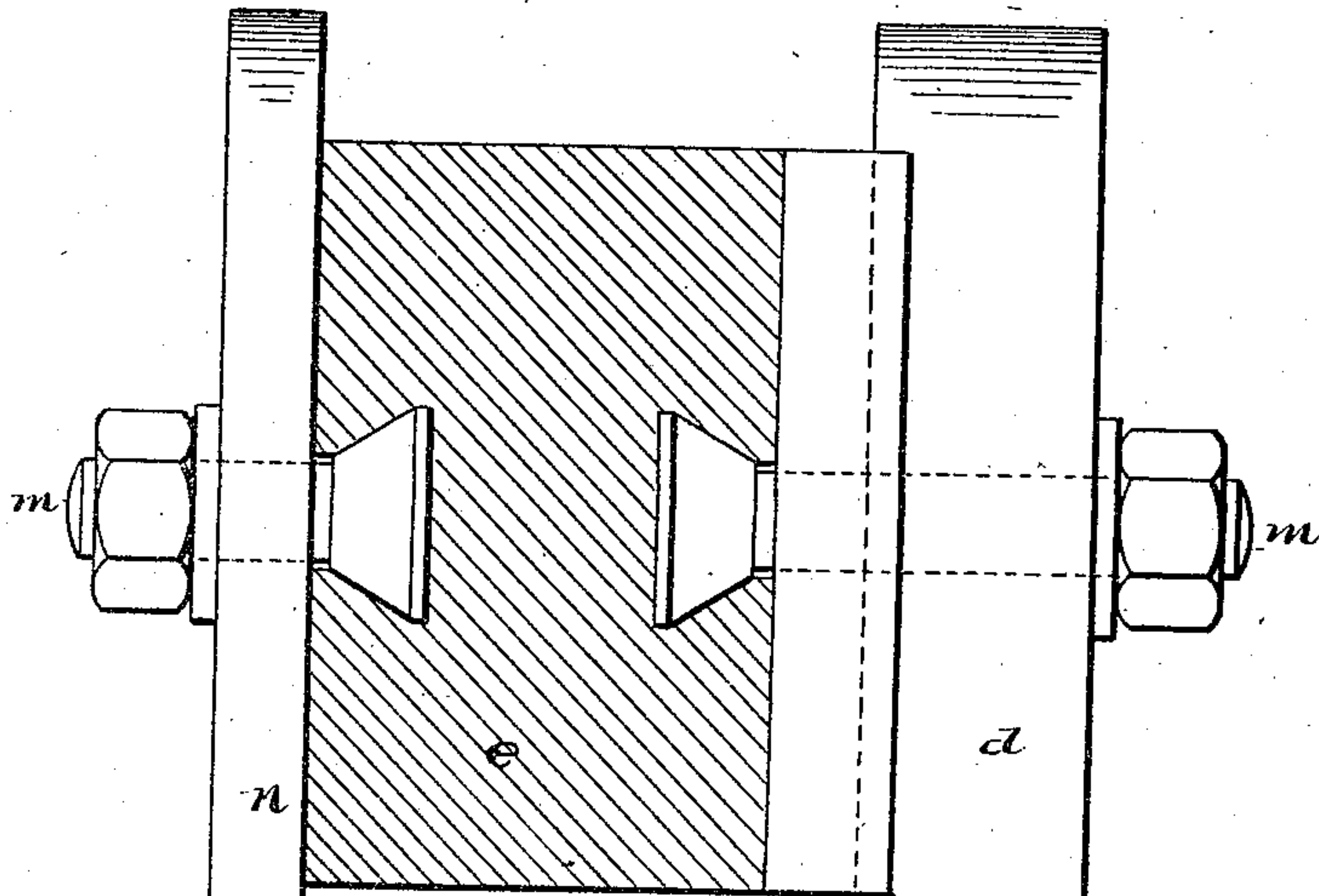


Fig. 5.

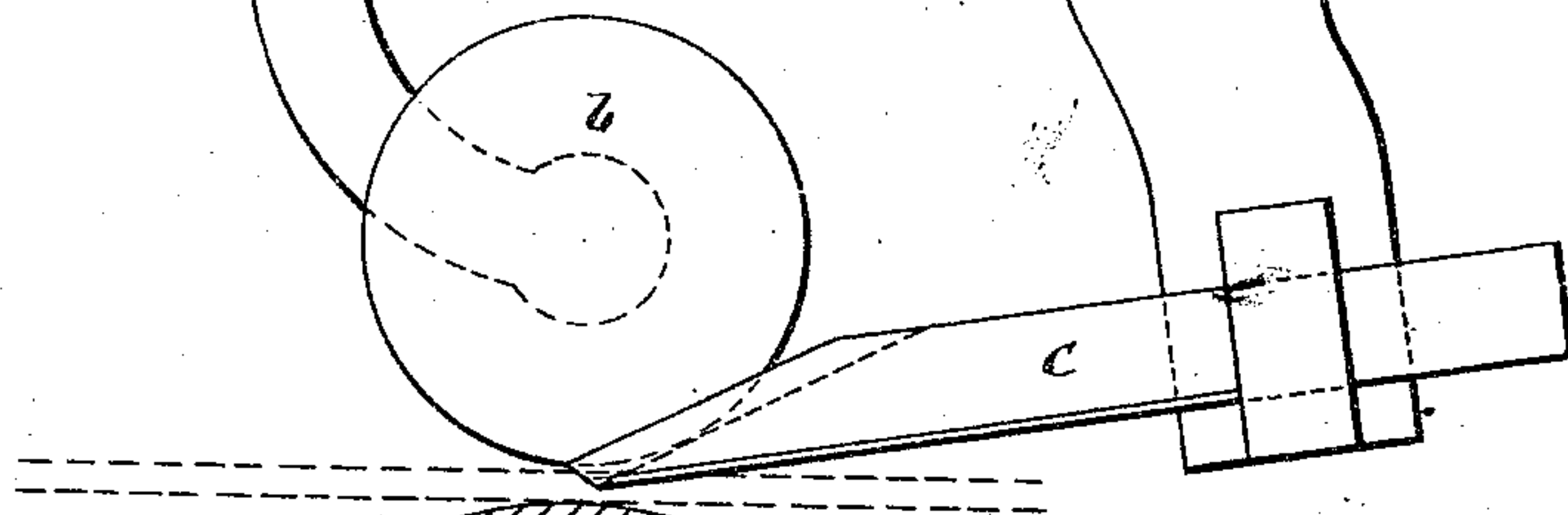


Fig. 3.

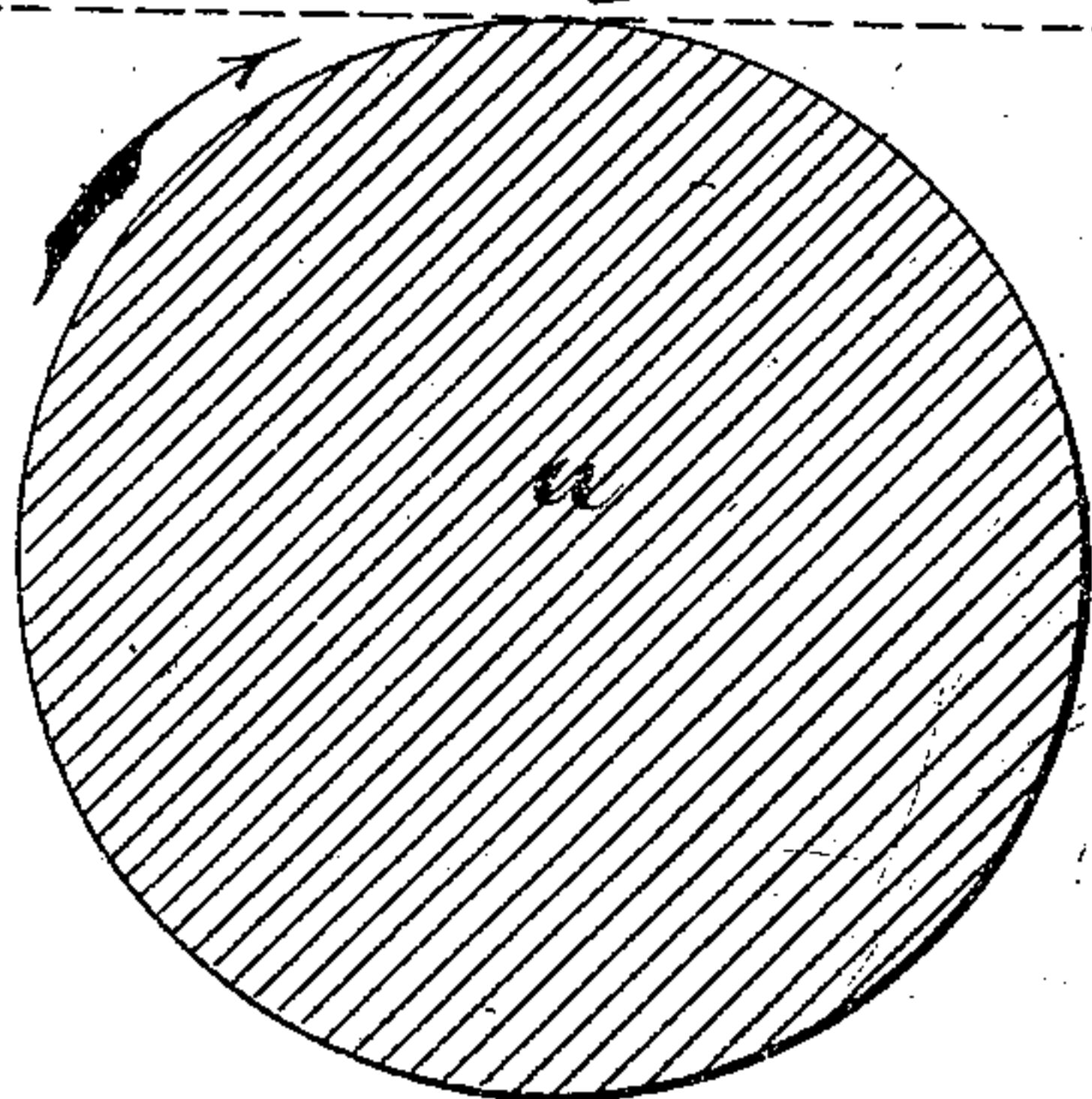


Fig. 4.

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# UNITED STATES PATENT OFFICE.

THEODOR REMUS, OF DRESDEN, SAXONY, GERMANY, ASSIGNOR OF ONE-HALF TO JEAN SCHERBEL, OF SAME PLACE.

## APPARATUS FOR CUTTING GROOVES IN CARD-BOARD, &c.

SPECIFICATION forming part of Letters Patent No. 362,180, dated May 3, 1887.

Application filed November 13, 1886. Serial No. 218,745. (No model.) Patented in Belgium October 15, 1886, No. 74,850, and in France October 15, 1886, No. 176,040.

*To all whom it may concern:*

Be it known that I, THEODOR REMUS, a subject of the Emperor of Russia, residing at the city of Dresden, in the Kingdom of Saxony, Empire of Germany, have invented certain new and useful Improvements in Apparatus for Cutting Grooves in Card-Board and other Similar Materials, of which the following is a specification.

10 The object of my invention is to provide a new and improved machine for cutting grooves in card-board or like material for the purpose of facilitating the bending of the said card-board for the manufacture of boxes, &c.

15 The invention consists in the combination of two rollers, of a grooved cutter located between them, the rollers and cutters being held by suitable supports above a roller which carries the card-board, as will be fully described and set forth hereinafter, and finally pointed out in the claims.

In the accompanying drawings, Figure 1 is a front view of my improved apparatus for cutting grooves in card-board, parts of the 25 roller being broken away and shown in section. Fig. 2 is a cross-sectional view of Fig. 1. Figs. 3 and 4 are detail cross-sectional views of the cutter. Fig. 5 is a detail side view of a modification of the roller.

30 Similar letters of reference indicate corresponding parts.

The rail or bar *e* is provided in each face with a longitudinal dovetailed groove, *e'*, in which the dovetailed ends of screw-bolts *m* are 35 mounted to slide, said screw-bolts being passed through slots in arms *d* and *n*. Two slotted arms, *n*, are arranged side by side on the same side of the rail or bar *e*. On the lower end of each arm *n* a roller, *b*, is pivoted, said rollers 40 being adjacent to each other. On that side of the rail or bar *e* opposite the one provided with the arms *n* the slotted arm *d* is located, on the lower end of which a grooved cutter-blade, *c*, is held, the point of which is between 45 the two rollers *b b*. Said cutter is grooved or made hollow, and may be semicircular in cross-section, as indicated in Fig. 1, or it may be made V-shaped, as shown in Fig. 3, or U-shaped, as shown in Fig. 4. The distance between the two rollers *b b* is equal to the width

of the end of the cutter. The top of the cutter is beveled inward and downward toward the point, and then beveled downward and back in the inverse direction, as shown in Fig. 2, so that the upper parts of the cutting edge 55 of the cutter will first enter the paper or card-board and the bottom parts later, the upper parts of the cutting edge thus cutting in advance of the lower parts. The card-board rests upon the roller *a* directly below the rollers *b* and cutter *c*, and when revolved in the direction of the arrow, Fig. 2, carries the card-board and cuts the desired groove.

The arms *n*, carrying the rollers *b b*, and the arm *d*, carrying the cutter *c*, can be adjusted 65 higher or lower, according to the thickness of the card-board, and can likewise be shifted lengthwise on the roll *e*. In case the grooves have to be cut in quite soft card-board the rollers *b* are provided along the edge with a 70 cutting flange or projection, *b'*, which cuts into the card-board a short distance and the cutter then completes the groove.

I hereby disclaim in this application the subject-matter covered by my application No. 75 202,832, filed May 21, 1886, consisting of a pair of knife-holders pivoted on the bar to swing toward and from each other in a plane parallel to that of the bar in the axis on which the knife-holders and circular cutters are mounted, 80 and of a gage having its point adjacent to the edges of the circular cutters.

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

1. In an apparatus for cutting grooves in 85 card-board and like material, the combination, with the rail *e*, of the arms held on the same, rollers held on the lower ends of the arms, and a cutter held on an additional arm, the point of the cutter being between the two rollers, 90 and of a card-board-carrying roller below the above-mentioned rollers, and the cutter between them, substantially as shown and described.

2. The combination, with a rail, of adjust- 95 able arms on the same, two rollers held on the arms, a knife held on an additional arm and having its point located between the rollers, the top of said knife being beveled downward and inward to within a short distance from the 100

bottom of the cutter and then beveled in the reverse direction to the bottom edge of the cutter, and a card-board-carrying roller below the above-mentioned roller, and cutter  
5 between them, substantially as shown and described.

3. In an apparatus for cutting grooves in card-board or like material, the combination, with a rail, of holders on the same, two rollers having cutting-flanges mounted on the  
10 holders at one side of the rail, a cutter mounted on an arm or holder on the opposite side of

the rail, the point of which is between the two rollers, and a card-board-carrying roller below the rollers and cutter, substantially as  
15 shown and described.

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

THEODOR REMUS.

Witnesses:

PAUL DRUCE LUMILER,  
EMIL DOMSCH.