

R. W. SMITH.
 Turntables for Railways and Bridges.
 No. 155,550. Patented Sept. 29, 1874.

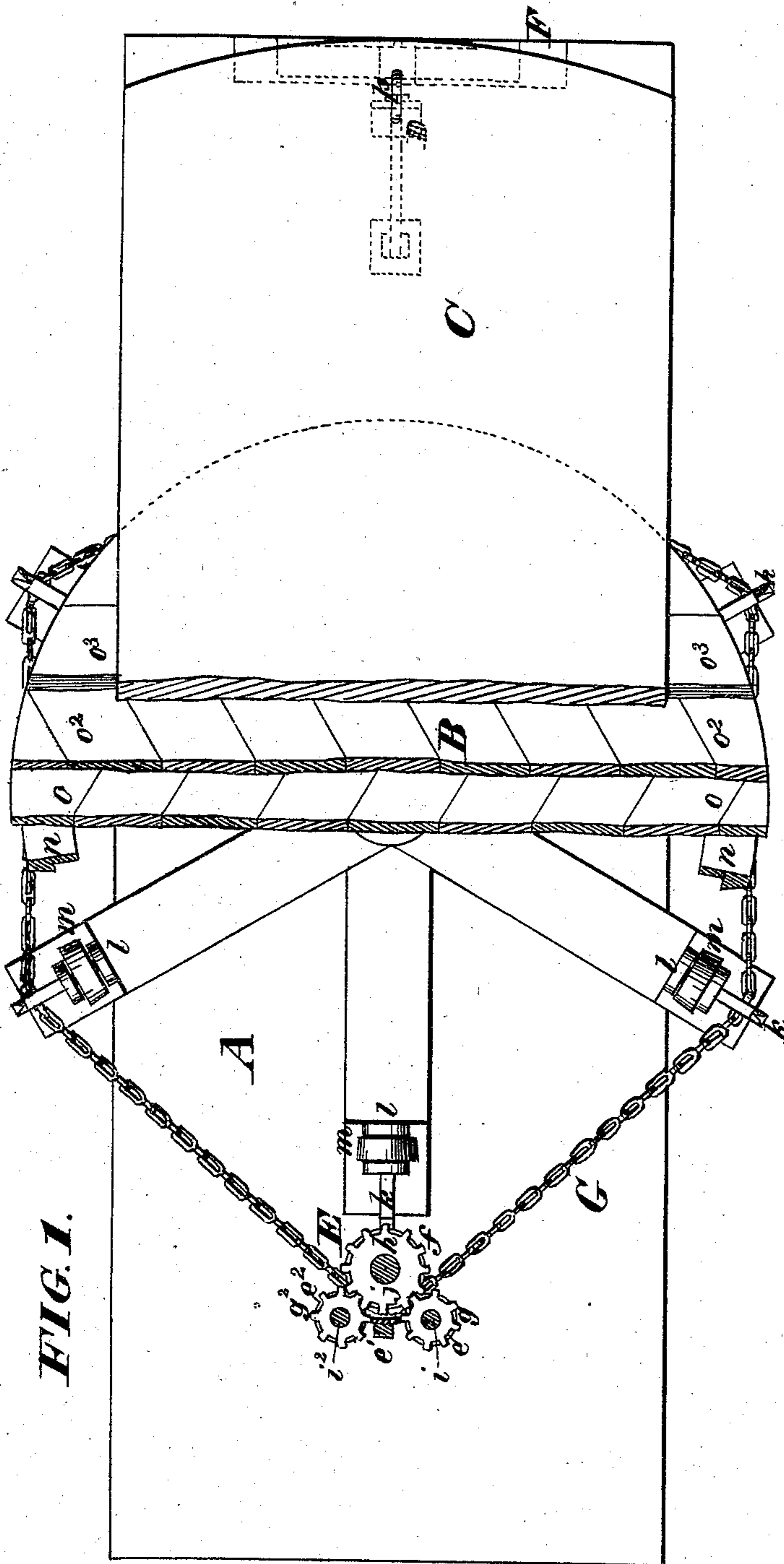


FIG. 1.

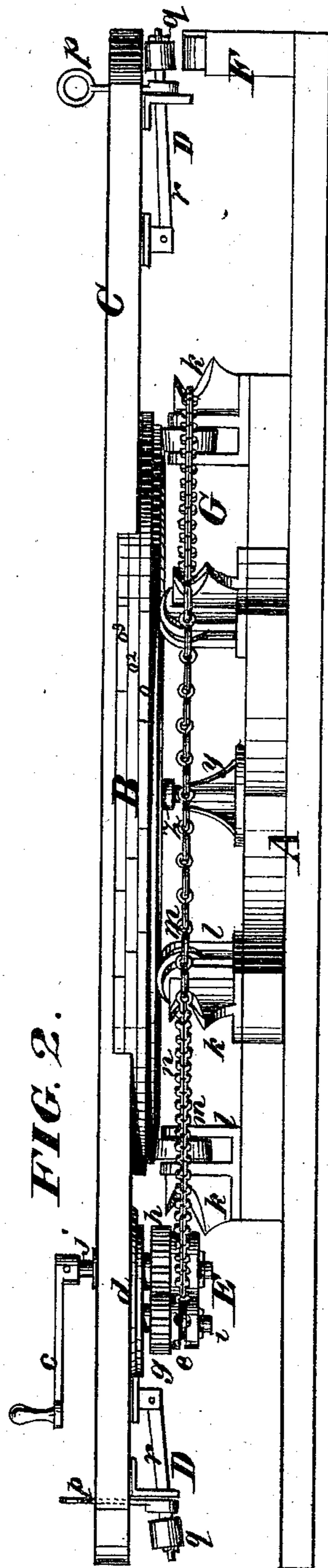


FIG. 2.

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FIG. 3.

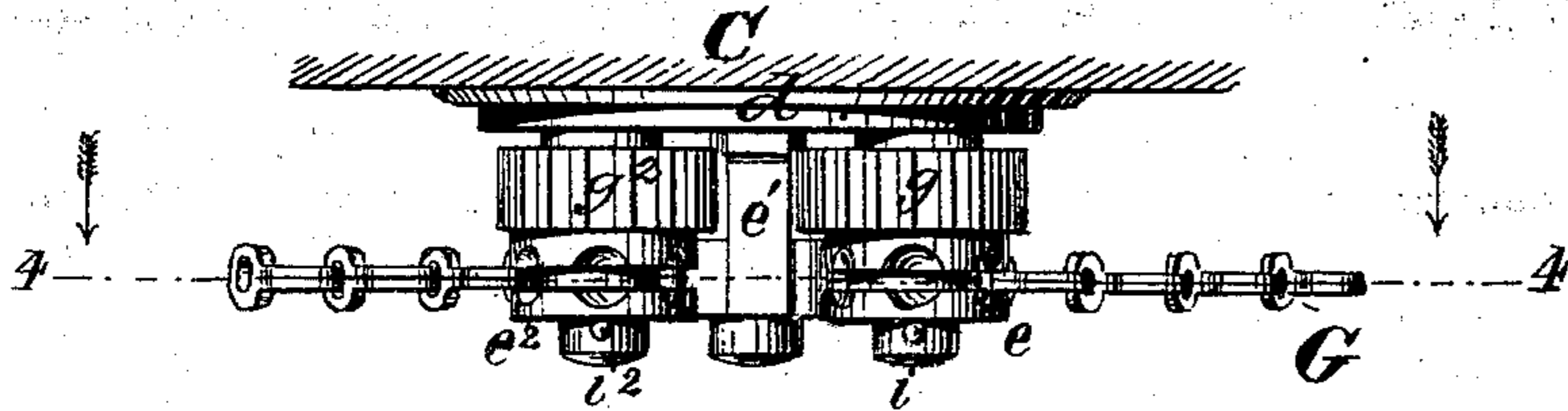


FIG. 4.

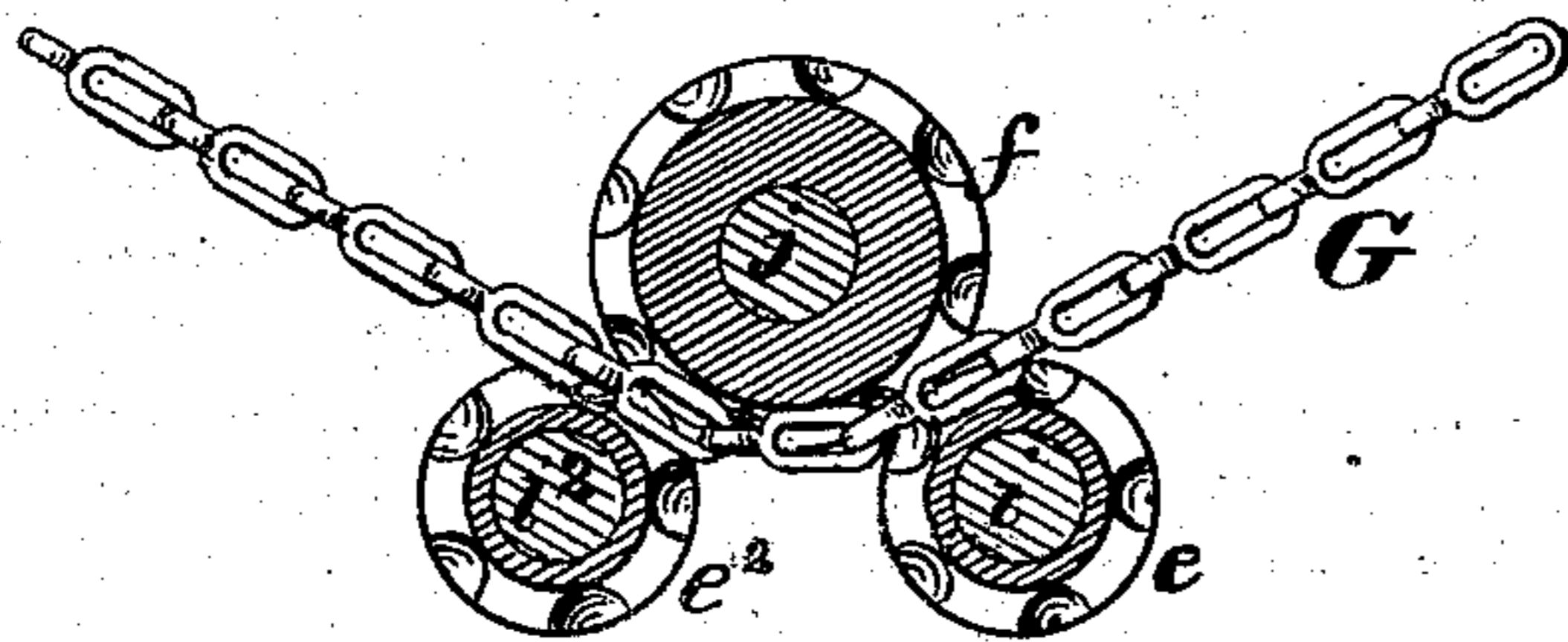


FIG. 5.

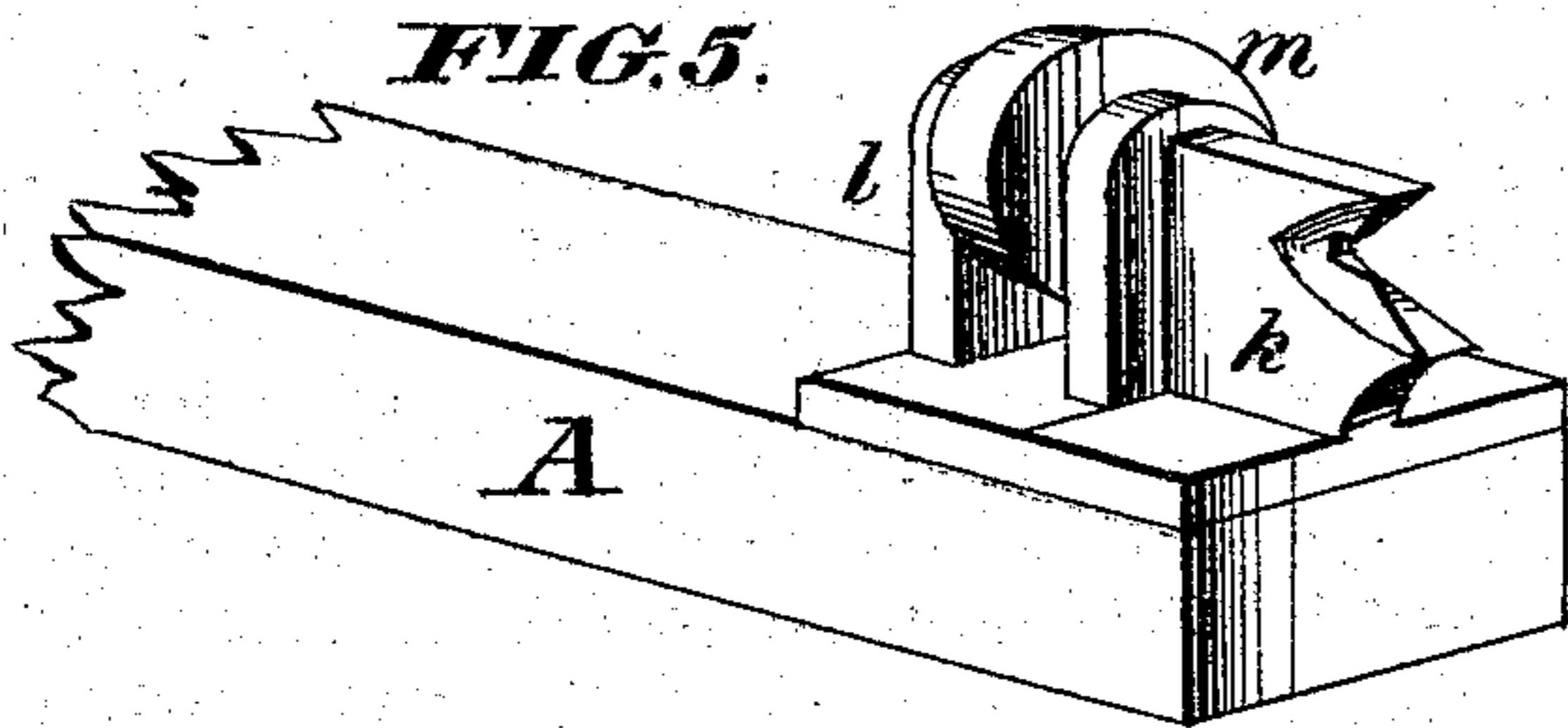


FIG. 6.

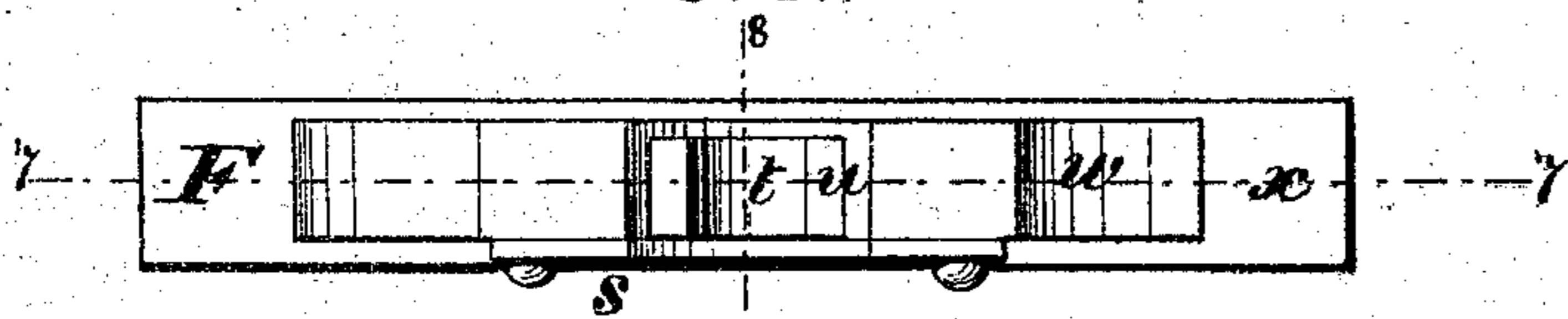


FIG. 7.

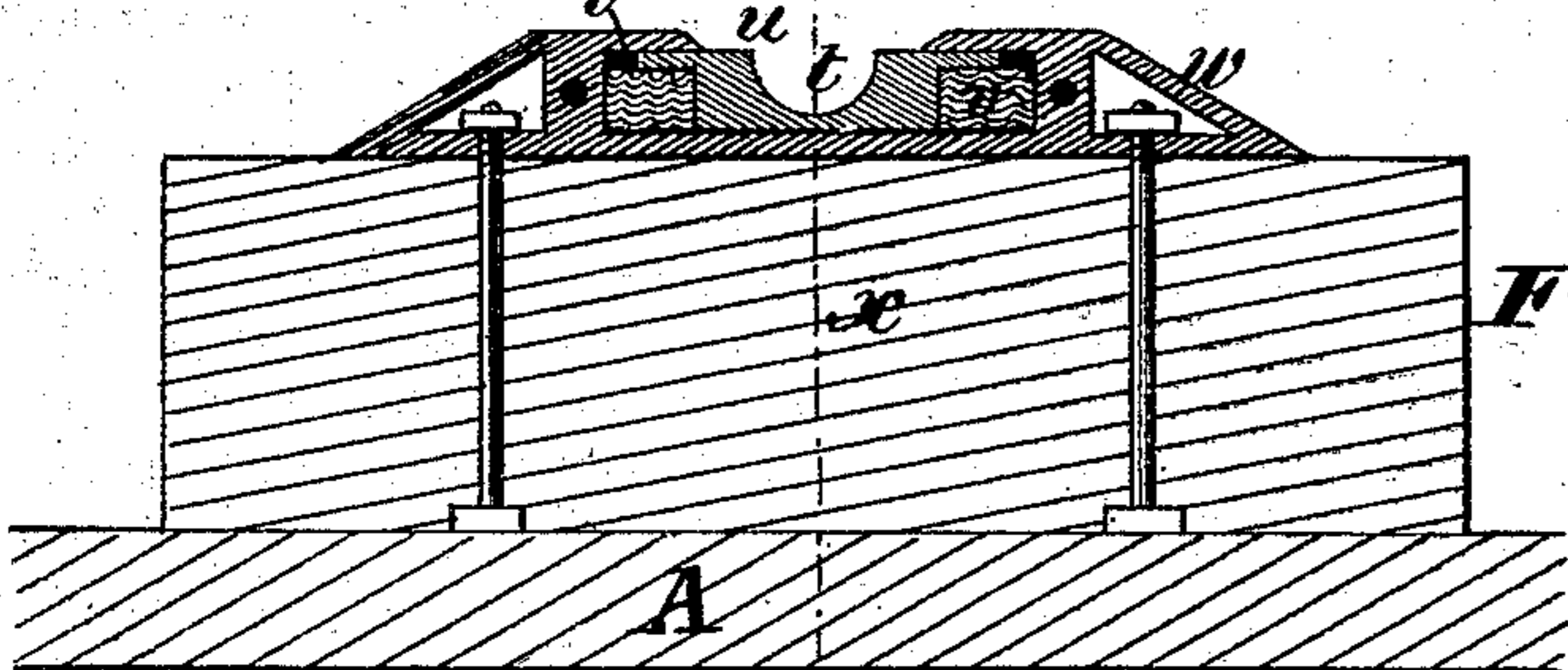
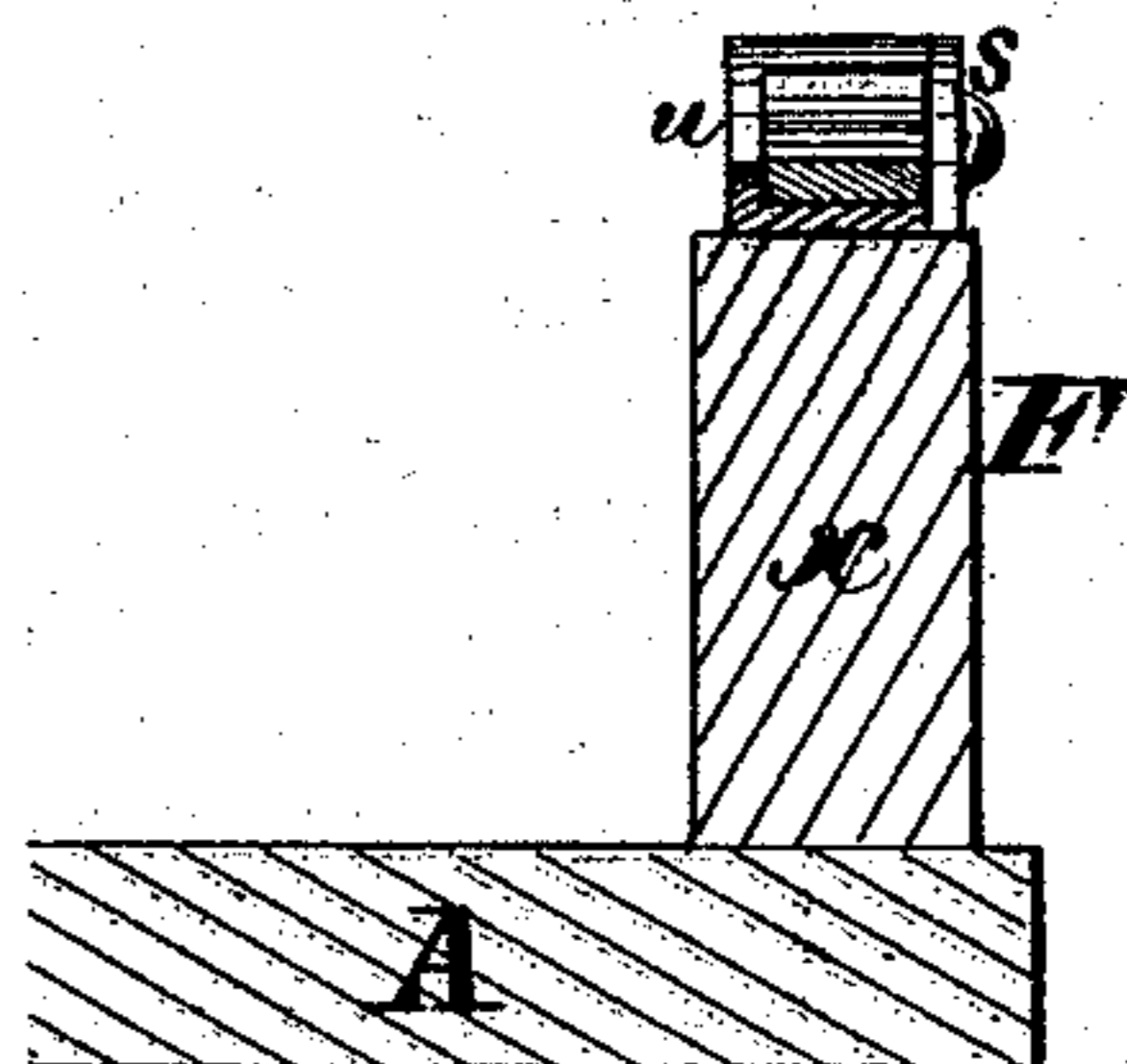


FIG. 8.



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UNITED STATES PATENT OFFICE.

ROBERT W. SMITH, OF TOLEDO, OHIO.

IMPROVEMENT IN TURN-TABLES FOR RAILWAYS AND BRIDGES.

Specification forming part of Letters Patent No. **155,550**, dated September 29, 1874; application filed June 6, 1874.

To all whom it may concern:

Be it known that I, ROBERT W. SMITH, of the city of Toledo, in the county of Lucas and State of Ohio, have invented a new and useful Improvement in Turn-Tables for Street-Railways and Bridges, of which the following is a specification:

This invention relates to means for changing the course of cars on street-railways, and for opening and closing the draws of swing-bridges. The object of the first part of the invention is to construct a turn-table with the machinery or working parts nearer the surface of the ground than has heretofore been practicable, so as to obviate the difficulty ever incident to other small turn-tables of dirt or rubbish getting into the machinery or working parts. The object of the second part of the invention is to arrest the turn-table in an elastic manner, so as to avoid shocks caused by the sudden stoppage of the turn-table. The object of the third part of the invention is to provide for releasing the turn-table with facility, and at the same time to adapt it to be locked in position automatically. The object of the fourth part of the invention is to provide strong and simple means for rotating the turn-table from the top thereof.

The working parts are attached to the under side of the turn-table or projections thereof, and are simple and compact. The turn-table is arrested by an elastic buffer, with which rollers attached to pivoted arms engage automatically, and hand links or lifters attached to these arms provide for readily releasing the turn-table. The turn-table is rotated by means of a hand-crank or its equivalent applied to a vertical shaft which extends upward through the turn-table. The lower end of this shaft carries a spur-wheel and a sprocket-wheel fixedly attached thereto, and these coact with pairs of smaller wheels of the same character, to embrace a stationary chain and to travel along the same. This chain is stretched horizontally from the said propelling-wheels around radial sprocket-arms which project from the stationary base of the turn-table or its wall-plates.

Figure 1 is a plan view of a turn-table illustrating this invention, a portion of the table proper or floor being broken away to expose

parts beneath. Fig. 2 is a vertical elevation of the same. Fig. 3 is an elevation of the chain-propelling gear on a larger scale. Fig. 4 is a horizontal section on the line 4 4, Fig. 3. Fig. 5 is a perspective view of a portion of the base, representing a supporting-roller and one of the sprocket-arms. Fig. 6 is a plan view of the buffer. Fig. 7 is a vertical section on the line 7 7, Fig. 6. Fig. 8 is a vertical section on the line 8 8, Figs. 6 and 7.

A stationary base, A, of proper shape and construction, is arranged in an excavation in the road-bed of a street-railway, or on a suitable pier in a bridge, to support a turn-table, B, of the construction hereinafter described. A pivot, *z*, projects downward from the center of the turn-table, and rests in a step, *y*, on the base-frame. In the illustration the turn-table has a circular central portion or table proper, and is extended in length by a floor or platform, C. The working parts are attached to the under side of this floor, and consist, first, of a pair of pivoted latches, D, and, secondly, of chain-propelling gear E. A fixed buffer, F, at a given point, provides for holding the turn-table in position. This buffer consists of a wooden base, *x*, a cast-iron box, *w*, bolted to the top of this base, a pair of rubber springs or cushions, *v*, within the box, and a follower, *u*, supported between the cushions. The retaining-notch *t* is formed in the follower *u*. The cushions *v* are arranged at the ends of the follower, which are in the line of the movement of the turn-table, and they thus serve to receive the thrust of the latches D, and to cushion the same, so as to prevent any considerable shock or strain resulting therefrom. The ends of the follower have horizontal flanges at top, and the box *w* has flanges, which project over the former to secure the follower from displacement. A plate, *s*, bolted to one face of the box, provides for introducing and removing the follower and cushions. The latches D consist essentially of pivoted arms *r*, with rollers *q* at their free extremities, and hand links or lifters *p*, attached to the arms and projecting upward through the turn-table or floor, for lifting the arms and rollers, of which the latter constitute the heads of the latches, and, striking the beveled ends of the buffer F, engage automatically therewith. The central portion or table

proper of the turn-table is composed of horizontal courses of planking $o\ o^2\ o^3$, each course crossing the grain of the others, with a circular metallic track-bar or annular rim-plate bolted to its under side to unite the courses, and to form a rail or track for the supporting-rollers m . These are mounted in brackets l , formed on the wall-plates of the base, and radial sprocket-arms k are attached to the wall-plates adjoining these rollers, or to the roller-brackets. An endless chain, G , embraces the sprocket arms k , and is stretched between the same as a whole and the propelling-gear E . The propelling-gear consists of a vertical rotary shaft, j , a pair of stud-shafts, $i\ i^2$, a spur-wheel, h , and a sprocket-wheel, f , fixedly attached to the shaft j , a pair of spur-wheels or pinions, $g\ g^2$, and sprocket-wheels $e\ e^2$, mounted loosely on the stud-shafts $i\ i^2$, and a keeper, e^1 , between the supplemental spur and sprocket wheels. The shaft j is mounted loosely in a plate, d , attached to the bottom of the turn-table, and the stud-shafts $i\ i^2$ project from this plate, and the keeper e^1 is attached thereto. The upper end of the rotary shaft j receives a hand crank or lever, c , by the rotation of which the turn-table is propelled the required distance, the operator standing on the turn-table. The chain is stationary, except as it is lifted from the sprocket-arms successively by the propelling-gear in its movement. The chain may be of any approved construction, and the sprocket-wheels and sprocket-arms will in all cases be conformed thereto. In the illustration the chain is composed of weldless links having loops at right angles to each other. The sprocket-wheels are correspondingly constructed with circumferential grooves to receive the main members of the links, and with indentations or sockets to receive the laterally-projecting portions, by which the necessary traction is obtained. The sprocket-arms operate to guide the chain and to prevent it from slipping, and are constructed with large flaring-mouth notches, with narrow grooves at bottom, corresponding with the circumferential grooves in the sprocket-wheels. The spur-wheels and sprocket-wheels, although separately described, are preferably formed together, the pair on each shaft consisting of a single cast-

ing. The keeper e^1 operates to prevent any displacement of the links of the chain between the supplemental sprocket-wheels.

The turn-table represented in the drawing is adapted to receive a complete rotation. When this is not necessary a chain may be employed with ends attached to the wall-plates or sprocket-arms. The mechanism may be otherwise modified in mechanical detail.

In working this turn-table it is first released by pulling the proper hand link or lifter p , which disengages the roller q of the retaining-latch D from the buffer F . The hand crank or lever c is then rotated. The sprocket-wheels $f\ e\ e^2$ travel along the chain G , which is held by the sprocket-arms k . The propelling-gear lifts the chain from the sprocket-arms successively as it passes them. When the turn-table reaches its second position the latch D , which then reaches the buffer F , engages automatically with the latter, and the turn-table is secured.

The following is claimed as new:

1. The rotary table $B\ C$, having the catches D and propelling-gear E attached to its under side, and operated through the floor or platform, substantially as herein described.
2. The buffer F , having the rubber cushions v and notched follower $u\ t$, substantially as described, for the purpose set forth.
3. The latches D , consisting of the pivot-arms r , rollers q , and hand links or lifters p , in combination with the buffer F , as and for the purpose specified.
4. The stationary chain G , in combination with the propelling-gear E , attached to the turn-table, and sprocket-arms k , applied to the wall-plates or base, substantially as herein described, as means for rotating the turn-table, in the manner set forth.
5. The combination of the spur-wheels $h\ g\ g^2$, sprocket-wheels $f\ e\ e^2$, and keeper e^1 , substantially as herein described, for the purpose specified.

In testimony of which invention I hereunto set my hand this 27th day of April, 1874.

R. W. SMITH.

Witnesses:

I. A. HAMILTON,
DANIEL HOWELL.