

**No. 641,339.**

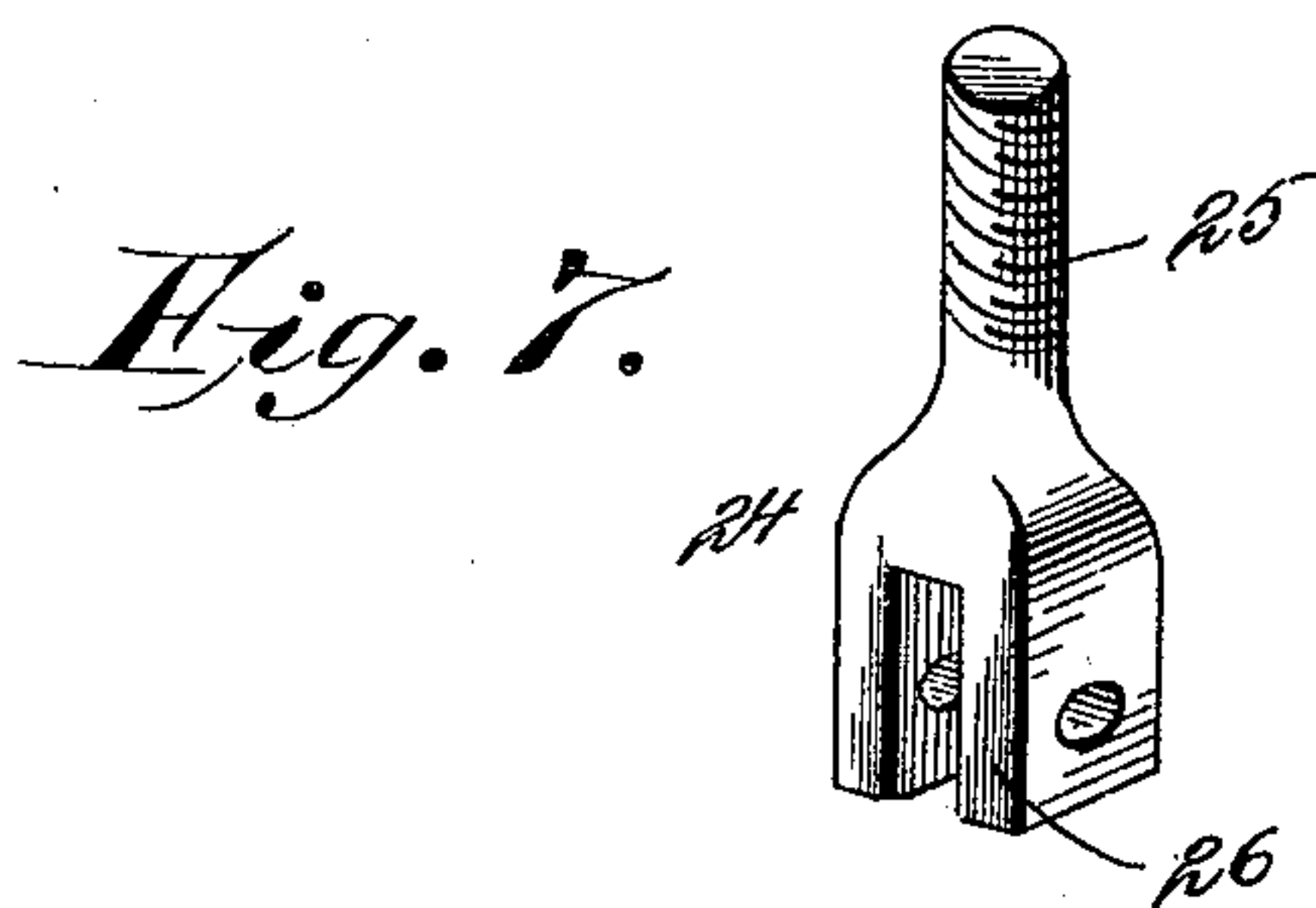
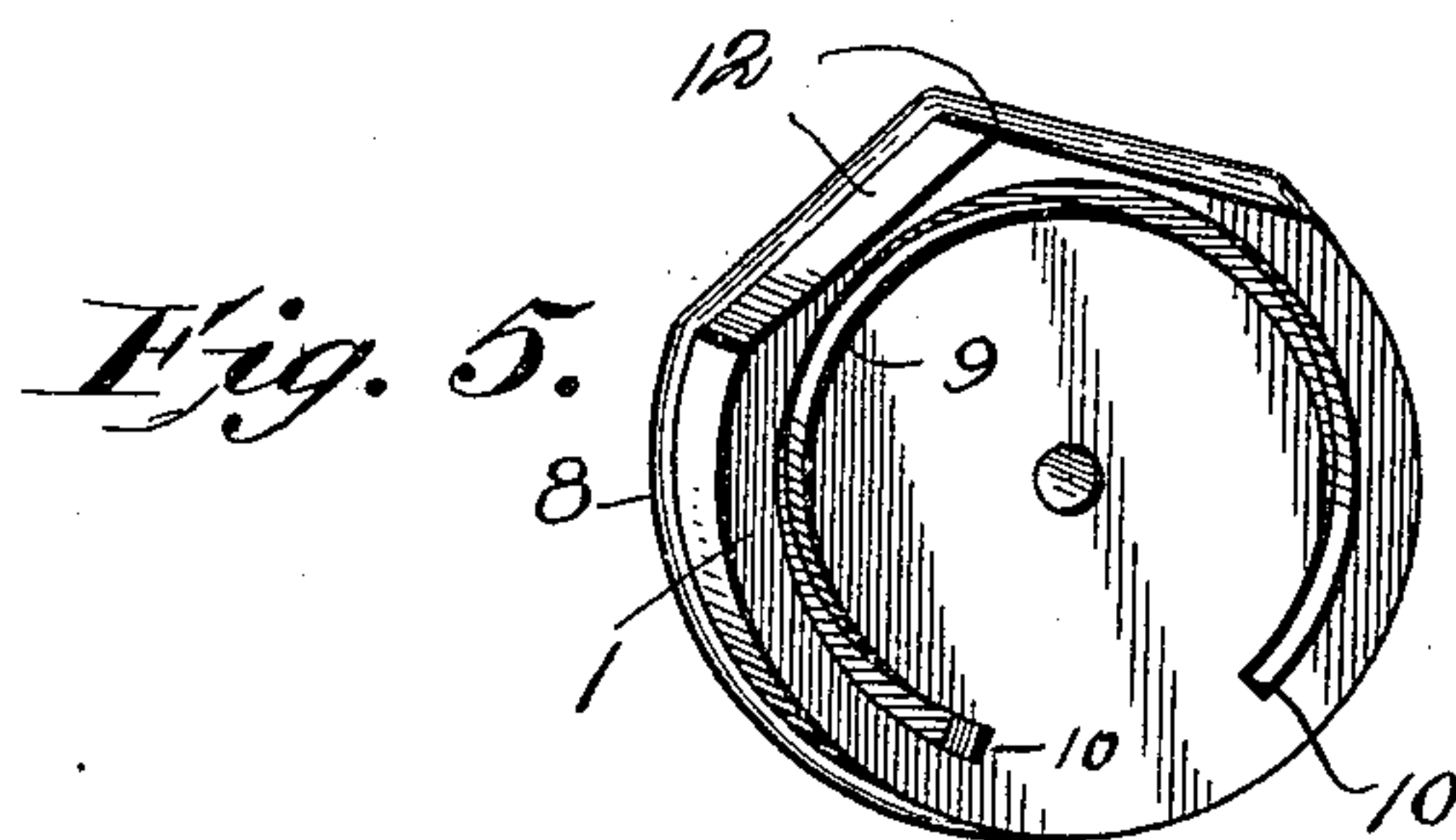
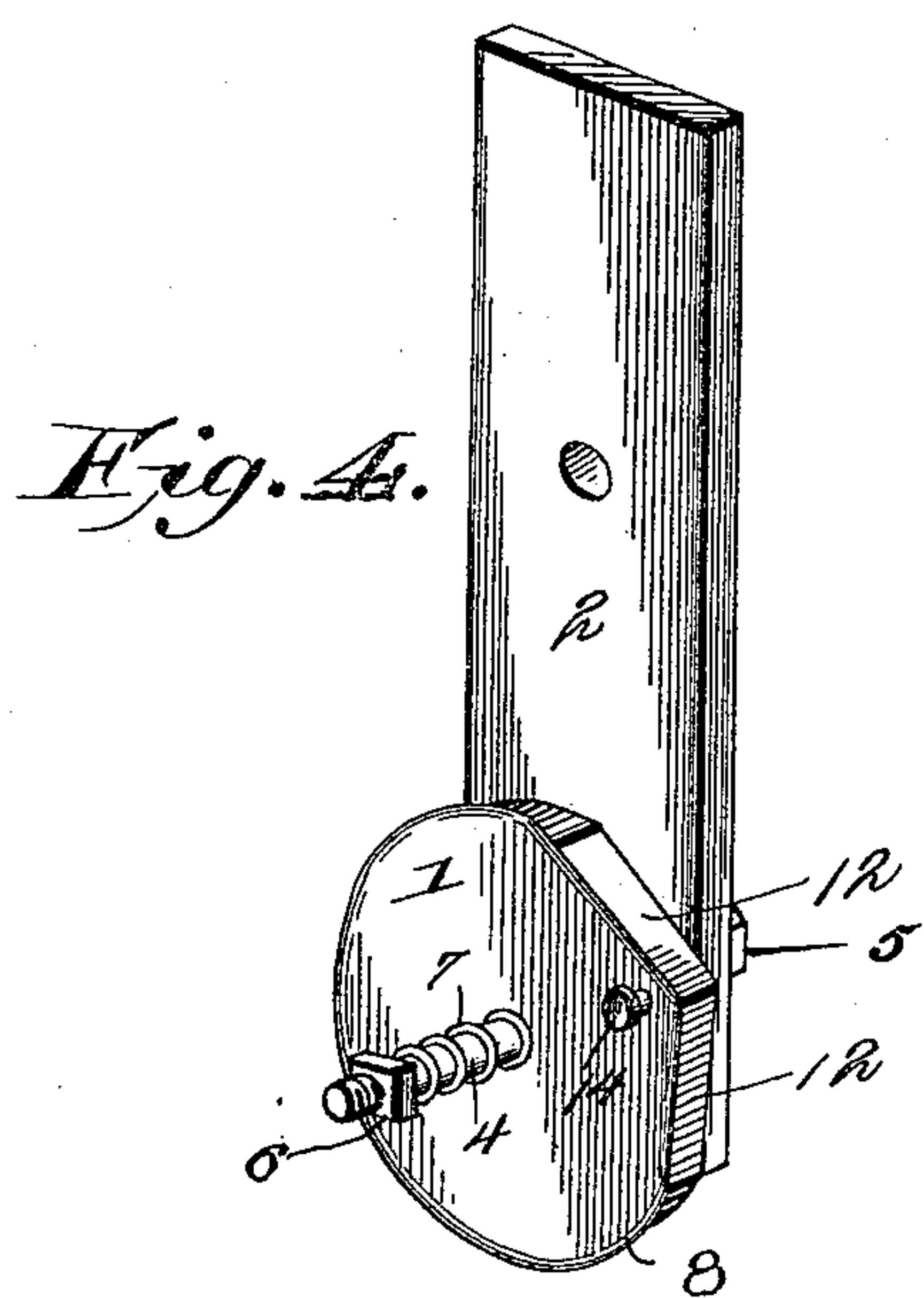
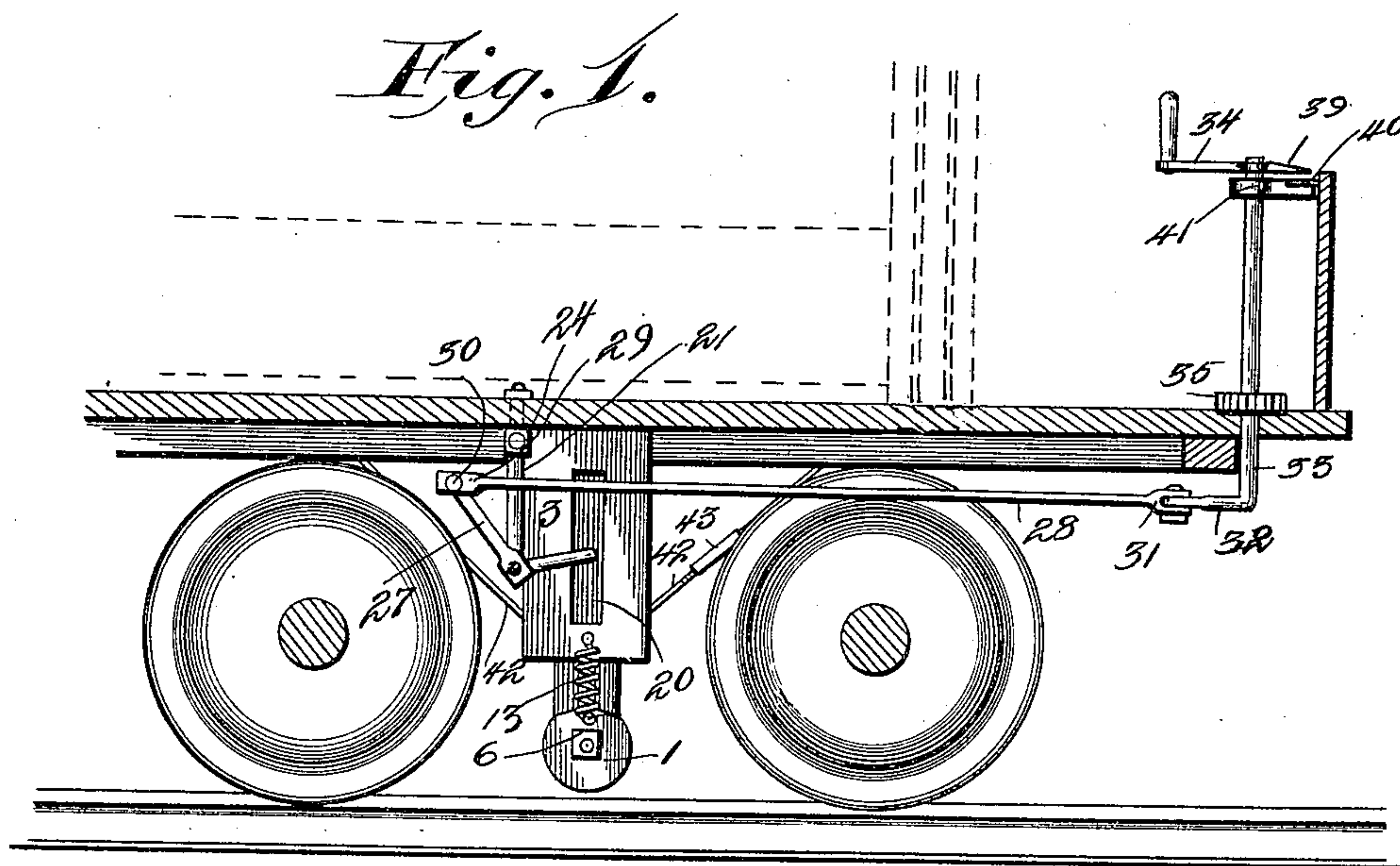
**Patented Jan. 16, 1900.**

**A. S. SLYKER.**  
**CAR BRAKE.**

(Application filed July 20, 1899.)

(No Model.)

**2 Sheets—Sheet 1.**



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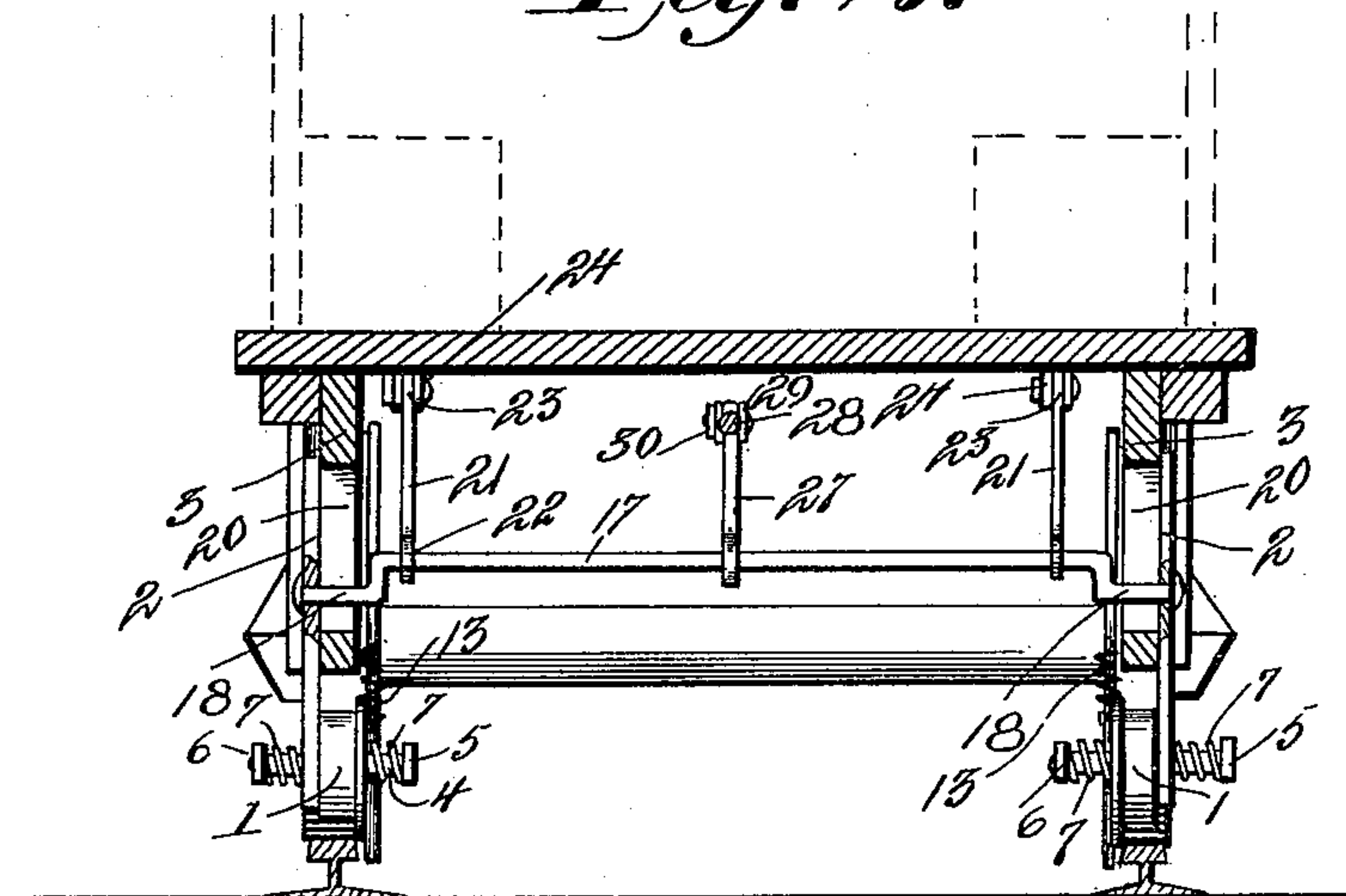
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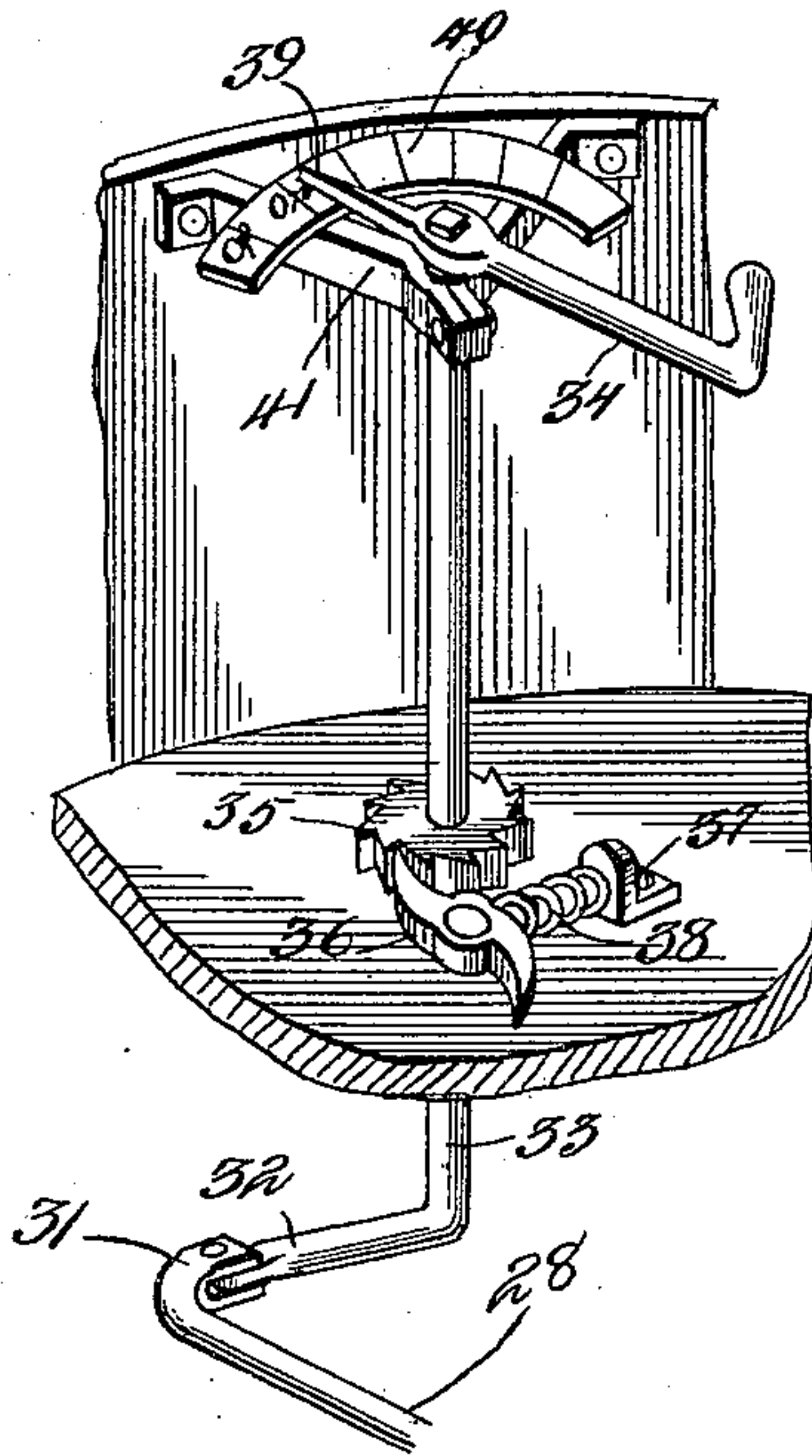
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2 Sheets—Sheet 2.

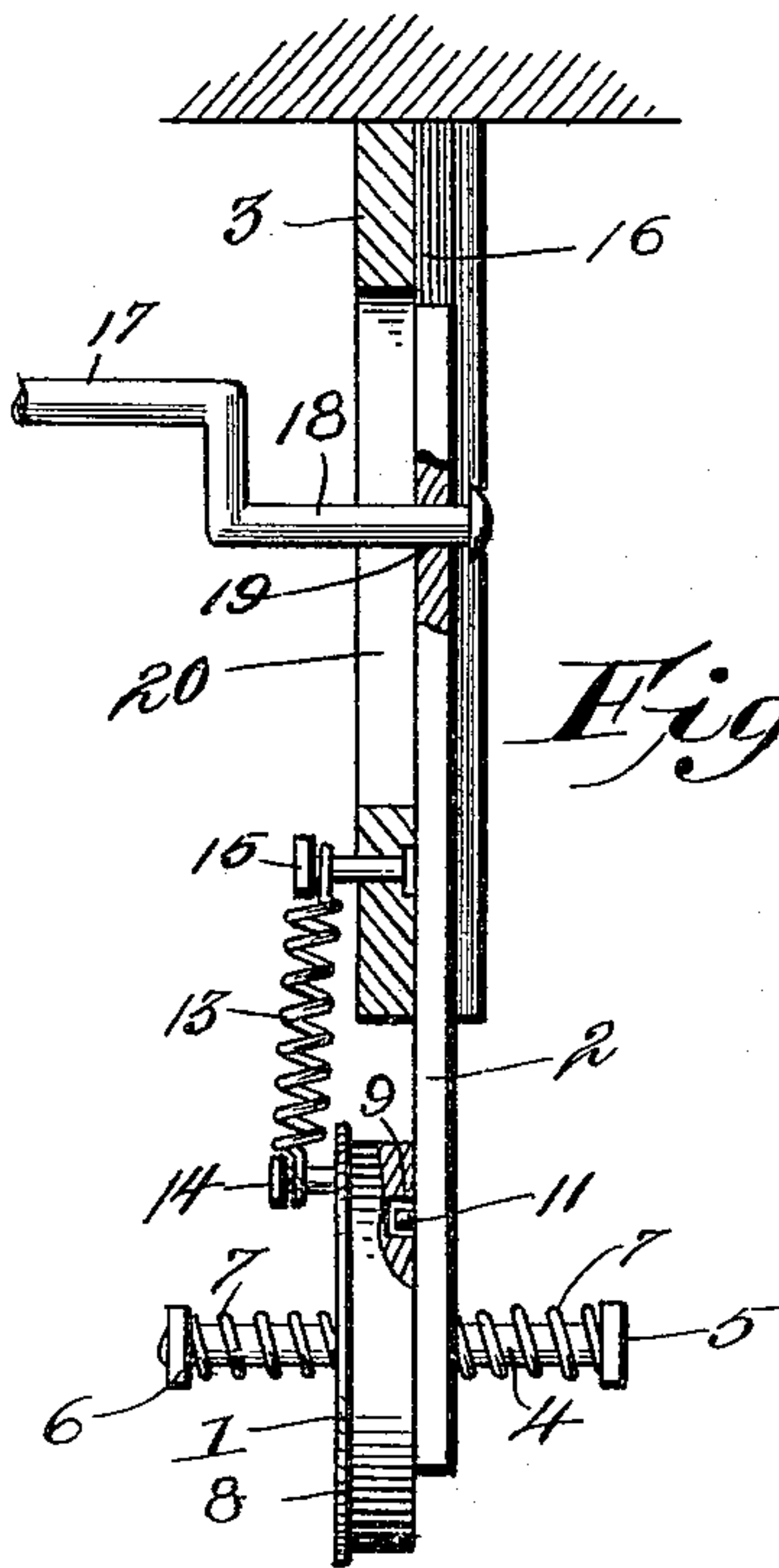
*Fig. 2.*



*Fig. 6.*



*Fig. 3.*



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# UNITED STATES PATENT OFFICE.

ALFRED S. SLYKER, OF WILKES-BARRÉ, PENNSYLVANIA.

## CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 641,339, dated January 16, 1900.

Application filed July 20, 1899. Serial No. 724,536. (No model.)

*To all whom it may concern:*

Be it known that I, ALFRED S. SLYKER, a citizen of the United States, residing at Wilkes-Barré, in the county of Luzerne and State of Pennsylvania, have invented a new and useful Car-Brake, of which the following is a specification.

This invention relates to car-brakes of the class known as "track-brakes," and the invention has for its object to provide a simple, efficient, and reliable track-brake embodying mechanism in connection with shoes which are adapted to be pressed into contact with the rails, the said shoes having a movement independent of the remainder of the operating mechanism, whereby they are adapted to adjust themselves to the rails and to lock themselves against further movement, so as to slide in engagement with the rails and produce an effective frictional engagement, which will cause a quick stoppage of the car or vehicle to which the improved brake mechanism is applied.

Other objects and advantages of the invention will appear more fully in the course of the ensuing description.

The invention consists in a car-brake embodying certain novel features, details of construction, and arrangement of parts, as hereinafter described, illustrated in the drawings, and incorporated in the claims.

In the accompanying drawings, Figure 1 is a longitudinal section through a sufficient portion of a car truck and body to illustrate the application of the present improvements thereto. Fig. 2 is a cross-section taken adjacent to the brake-shoes and operating crank-shaft looking toward said parts. Fig. 3 is an enlarged detail vertical section through one of the hangers and the parts connected thereto, showing also the relation of the crank-shaft to said parts. Fig. 4 is a perspective view of one of the brake-shoe carriers, showing a shoe attached thereto. Fig. 5 is a detail perspective view of one of the brake-shoes looking toward the outer surface thereof. Fig. 6 is a detail perspective view showing the brake-staff, detent, and the means for holding said detent in engagement with the brake-staff, showing also the connection between the lower end of the staff and the brake-rod. Fig. 7 is a detail perspective view of one

of the clips which pivotally support the links in which the crank-shaft is hung.

Similar numerals of reference designate corresponding parts in all the figures of the drawings.

The present invention contemplates the use of an oscillating brake-shoe 1, which is substantially circular or wheel-shaped in construction and which is journaled on a sliding brake-shoe carrier 2, mounted to move in a rectilinear and preferably vertical path in a pendent hanger 3, secured to and projecting downward from the bottom of a car or other vehicle in connection with which the improved brake is to be used. It will be understood that two of these brake-shoes, carriers, &c., are employed, one at each side of the car, for frictional engagement with the two rails upon which the car is traveling, said shoes being adapted by means hereinafter described to be forced with any desired pressure into contact and frictional engagement with the rails.

Passing horizontally through the lower end of the brake-shoe carrier or beam 2 is a spindle 4, provided at one end with a head 5 and at the opposite end with a tension-nut 6. The shoe 1 is mounted at an intermediate point on said spindle, and on opposite sides of the shoe are arranged spiral springs 7, which encircle the spindle 4 and bear at their outer ends against the head 5 and nut 6, the tension of said springs being exerted to hold the shoe 1 at the proper point for an effective engagement with its respective rail. Said springs equalize the pressure on the shoe and allow said shoe to move laterally with respect to the car for enabling it to automatically maintain itself in engagement with the rail and permit the flange 8 at the inner side of the shoe to bear constantly against the side of the head of the rail in a manner that will be readily understood. This arrangement of springs in connection with the brake-shoe is also advantageous where it becomes necessary to throw on the brakes and use them when the car is rounding a curve, the springs enabling the shoe to shift laterally sufficiently to keep in alinement with the rail.

The shoe 1 is provided upon one side with a curved or annular groove 9. This groove extends nearly around the shoe, just within



the periphery thereof, and terminates at its opposite ends in shoulders 10, which are adapted to come in contact with a stop pin or projection 11, extending from one side of the brake-shoe carrier or beam 2, said groove 9 being concentric with the spindle 4. By the arrangement described the brake-shoe 1 may oscillate within certain limits, and when one of the shoulders 10 comes in contact with the stop 11 the shoe is held from further rotational movement and thereafter slides in contact with the rail. At the point where the shoe bears against the rail when it reaches its limit of oscillatory movement in one direction the shoe is provided with a peripherally-flattened surface 12. Two of such peripherally-flattened portions or surfaces 12 are provided on each shoe, and they are located in such position that they bear against the rail when the respective shoulder 10 strikes against the stop 11. When the car is moving in one direction, one of said flattened surfaces is brought into operation, and when the car is moving in the opposite direction the remaining flattened surface is brought into use. Resistance is offered to the oscillatory movements of the brake-shoe by a retracting or resistance spring 13, one end of which is attached to a wrist-pin 14 on the shoe 1 and the other end to a pin or stud 15 on the hanger 3. When the shoe 1 comes in contact with a rail, the first tendency is for the shoe to begin to rotate. As this occurs the spring 13 offers resistance to such rotation, and the further the shoe 1 is turned the more resistance will be given by the spring 13, and the greatest resistance of the spring will be offered just as one of the shoulders 10 comes in contact with the stop 11, at which time one of the flattened surfaces 12 is brought into engagement with the rail. The springs 7 also resist the oscillatory movements of the shoes 1, and by means of the tension-nut 6 the resistance offered by said springs may be increased or diminished, and also the resistance of said spring to the lateral movement of the brake-shoe or the sliding movement of said brake-shoe on the spindle 4.

Each of the hangers 3 is in the form of a pendent pedestal projecting downward from the bottom of the car adjacent to the lines of the rails. Each hanger comprises parallel vertical grooves 16, in which the brake-shoe carrier 2 slides and by means of which it is guided in its rectilinear movement. Mounted transversely beneath the floor of the body is a rock-shaft or crank-shaft 17, having bent ends or terminal cranks 18, the ends of which are inserted through or journaled in openings 19 in the brake-shoe carriers 2, so that when said shaft is rocked or oscillated the brake-shoe carriers will be depressed or elevated, according to the direction in which the shaft is turned. In order to permit of the movements of the terminal cranks 18, the hangers are provided with longitudinal slots 20, in which the

cranks may work up and down in imparting corresponding movements to the carriers. The shaft 17 is swung and supported beneath the car-body by means of pivotal links 21, the lower ends of which are formed with openings 22, in which said shaft is received and journaled. The links 21 are pivotally mounted at their upper ends, as shown at 23, in clips 24, preferably consisting of bolts 25, secured to the bottom of the car or passing there-through and having their lower ends forked, as shown at 26, to straddle the upper extremities of said links. By means of the arrangement just described the rock or crank shaft 17 is not only journaled for oscillatory movement, but is adapted to swing longitudinally beneath the car-body for the purpose of allowing the terminal cranks thereof to move up and down in vertical and rectilinear paths, thus preventing any binding action between the rock-shaft and brake-shoe carriers.

At an intermediate point the rock-shaft 17 is provided with a crank-arm 27, and connected pivotally to the end of said crank-arm is a brake-rod 28, the rear end of which is forked or bifurcated, as shown at 29, and connected to the crank-arm by means of the bolt 30. The brake-rod 28 extends toward the end of the car, where it is forked or bifurcated, as shown at 31, to receive pivotally a crank-arm 32, extending laterally from the lower end of a brake-staff 33, having an operating-handle 34, and provided with the usual ratchet-wheel 35, adjacent to the car-floor. Coöperating with said ratchet-wheel is a double-ended detent 36, which may be operated by the foot of the motorman. Arranged at a distance from one end of the detent 36 is a lug or bracket 37, and interposed between said lug or bracket 37 and the end of the detent 36 is a spring 38, the tension of which is exerted to hold the detent in engagement with the ratchet-wheel, thus enabling the brakeman or motorman to apply the brakes without paying attention to the detent.

The operating-handle 34 is extended beyond the staff to form a pointer 39, which traverses a graduated arc 40, applied to the bracket 41, in which the staff is journaled, the said bracket being secured at its ends to the dashboard or other convenient support. This graduated arc may have represented thereon the words "Off" and "On" for the purpose of indicating to the motorman the position of the brake-shoes and brake mechanism and may also be provided with other words or signs to indicate when the flattened portion of the brake-shoe is in engagement with the rail and also intermediate positions.

In some cases it may be found necessary and desirable to effectively brace the hangers for the brake-shoe carriers, and for this purpose I employ braces 42, each of which may be attached at one end to the hanger near its lower end and secured at its opposite end to any convenient point on the truck or to the car-body itself. Each brace is preferably com-



posed of two sections, the adjacent ends of which are threaded to receive a turnbuckle 43, by means of which the brace may be tightened in order to give the required support to the hanger.

From the foregoing description it will be seen that I have provided a simple, effective, and reliable track-brake and operating mechanism for the brake-shoes which will operate easily, with great leverage, and with uniform smoothness to thrust the shoes into engagement with the rails and withdraw the same therefrom. It is the purpose of this invention to make the retracting or resistance springs 13 sufficiently heavy to offer a very decided and material resistance to the rotation or oscillation of the brake-shoes, and from the construction described it will be apparent that the farther said shoes are oscillated from their points of rest the greater will be the resistance offered by such springs. Where the brakes are vigorously applied the flattened surfaces of the shoes are brought into engagement with the rails, and the tendency is to elevate the car and its load, thereby causing the shoes to slide in engagement with the rails, which will bring the car to a stop within a short distance. Another important advantage of this invention resides in the manner of mounting the brake-shoes so that they may shift automatically and adjust themselves laterally beneath the car, so as to maintain a proper engagement with the rails, thus enabling the brakes to be applied on curves.

From the foregoing it is thought that the construction, operation, and many advantages of the herein-described car-brake will be apparent to those skilled in the art without further description, and it will be understood that changes in the size, shape, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

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

1. In a track-brake, the combination of a vertically-sliding brake-shoe carrier, an oscillating brake-shoe mounted thereon, and operating means for said carrier.

2. In a track-brake, a vertically-sliding brake-shoe carrier, means for reciprocating said carrier, and an oscillating brake-shoe mounted on said carrier and consisting of a wheel journaled on the carrier and having a flattened braking-surface, substantially as described.

3. In a track-brake, the combination with brake-operating mechanism, of a vertically-movable brake-shoe carrier, an oscillating brake-shoe mounted thereon, and a tension-spring coöperating with said brake-shoe and mounted on and movable up and down with the carrier, substantially as described.

4. In a track-brake, the combination with brake-operating mechanism, of a slidable brake-shoe carrier, a stationary hanger for said carrier, an oscillating brake-shoe on said carrier, and a resistance-spring interposed between and connecting said shoe and hanger.

5. In a track-brake, the combination with brake-operating mechanism, of a brake-shoe carrier movable up and down, an oscillating brake-shoe on said carrier, and means on the movable carrier for limiting the movements of said brake-shoe.

6. In a track-brake, the combination with brake-operating mechanism, of a brake-shoe carrier movable up and down, an oscillating brake-shoe mounted thereon, shoulders on said brake-shoe, and a limiting-stop on the movable carrier coöperating with said shoulders, substantially as described.

7. In a track-brake, the combination with a sliding brake-shoe carrier, of an oscillating brake-shoe mounted thereon and provided with a concentric groove terminating in shoulders, and a stop on the carrier entering said groove and coöperating with said shoulders.

8. In a track-brake, the combination with a vertically-slidable brake-shoe carrier, of a flanged rail-engaging brake-shoe thereon, and means on the carrier permitting said brake-shoe to yield laterally with relation to the carrier and beneath the car, substantially as described.

9. In a track-brake, the combination with a brake-shoe carrier, of a flanged rail-engaging brake-shoe journaled thereon, and equalizing-springs on opposite sides of said brake-shoe, substantially as described.

10. In a track-brake, the combination with a brake-shoe carrier, of a flanged rail-engaging brake-shoe adapted to yield laterally with respect to said carrier, equalizing-springs for sustaining said shoe in working position, and a device for adjusting the tension of said springs.

11. In a track-brake, the combination with a brake-shoe carrier, of a spindle thereon, a flanged rail-engaging brake-shoe journaled on said spindle, a spring encircling said spindle and operating upon the brake-shoe, and means for adjusting the tension of said spring, substantially as described.

12. In a track-brake, the combination with a brake-shoe carrier, of an oscillating flanged rail-engaging brake-shoe journaled thereon, and a resistance-spring connected eccentrically to said brake-shoe and acting with increasing force as the brake is applied, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

ALFRED S. SLYKER.

Witnesses:

JOHN H. SIGGERS,

FLORENCE E. WALTER.