

No. 682,457.

Patented Sept. 10, 1901.

J. L. CUSHING.
EMERGENCY BRAKE.

(Application filed Oct. 11, 1900.)

(No Model.)

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Fig. 1.

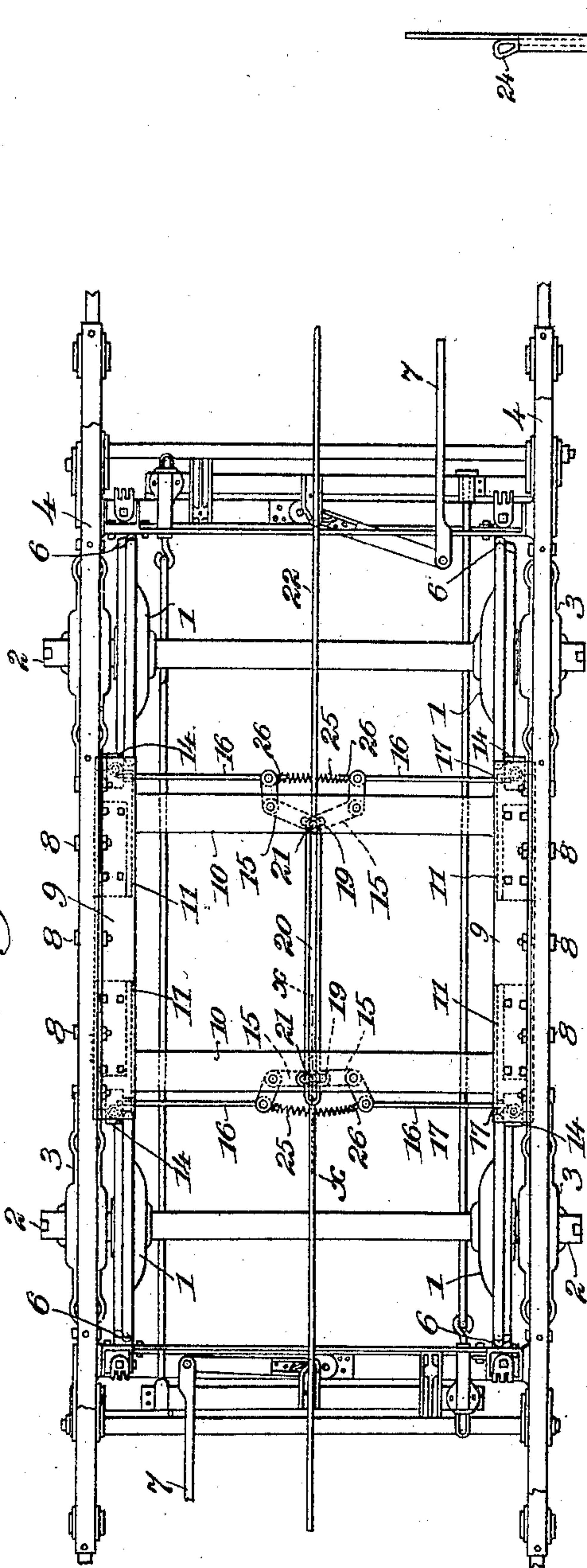
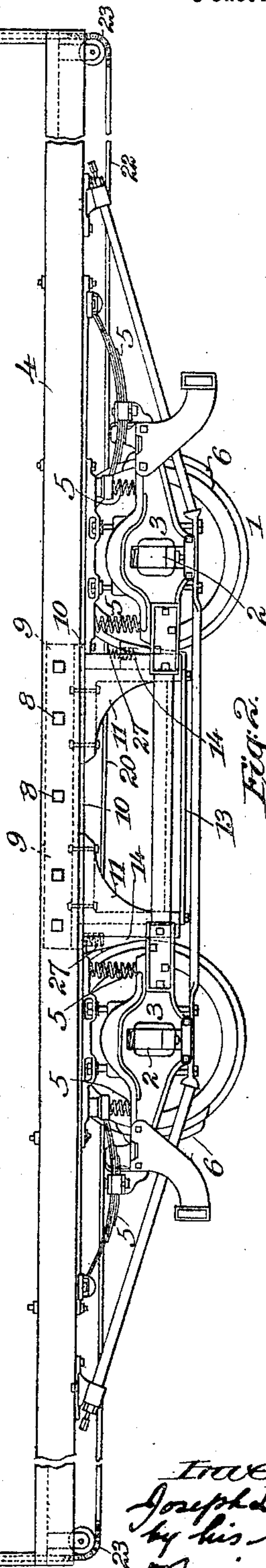


Fig. 2.



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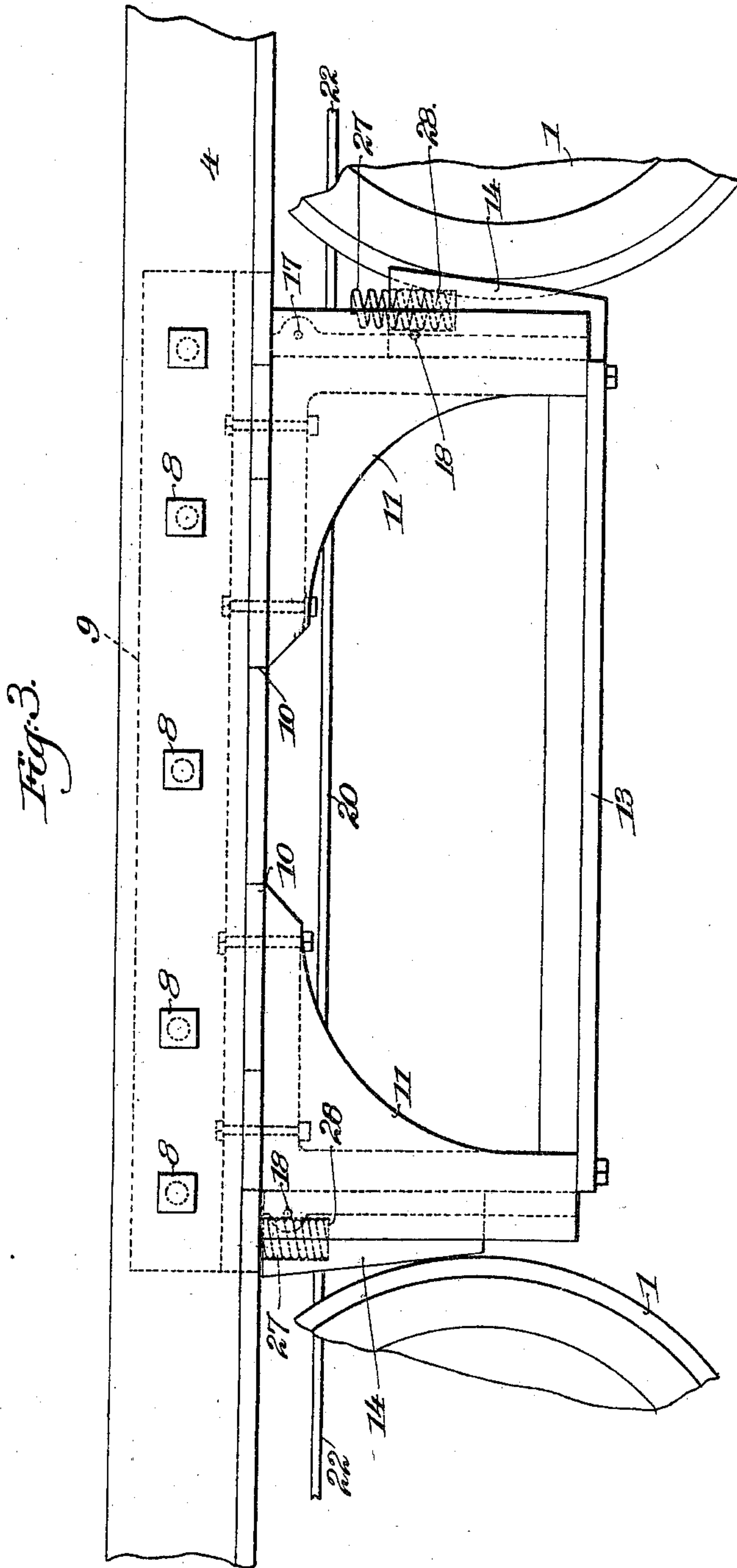
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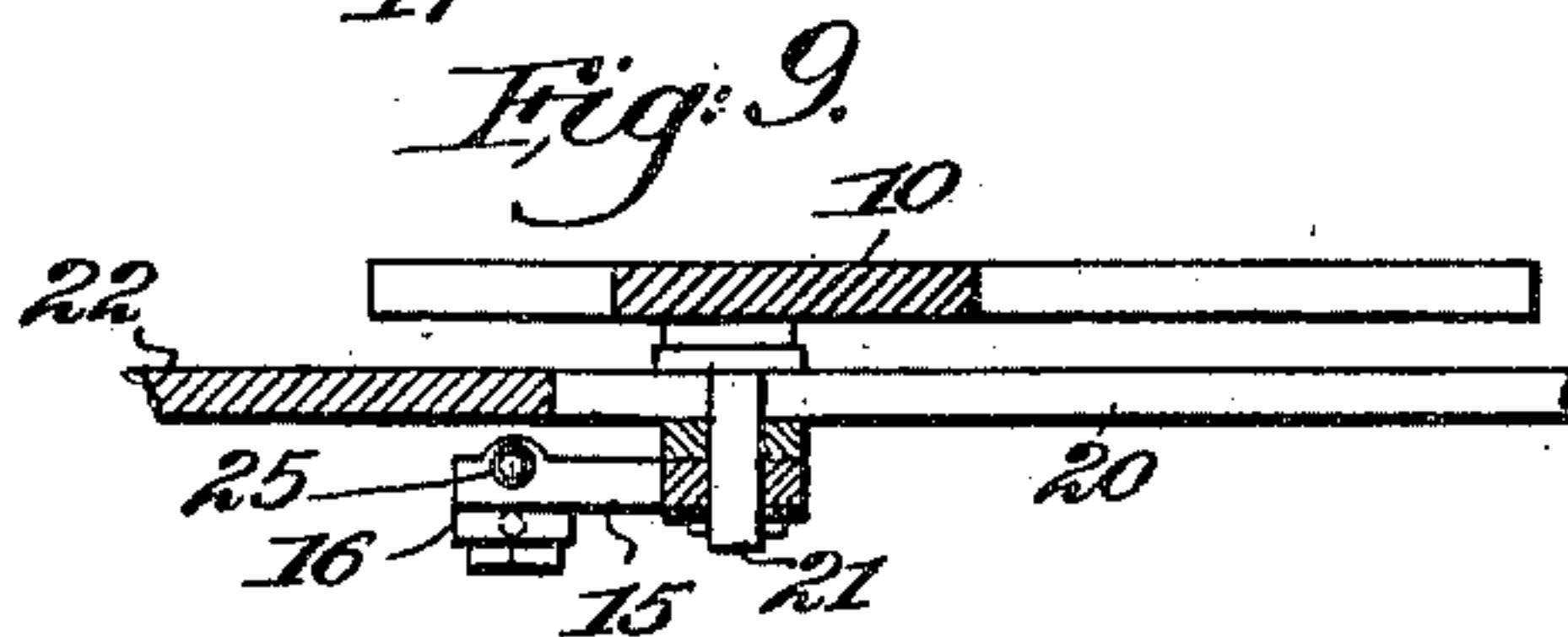
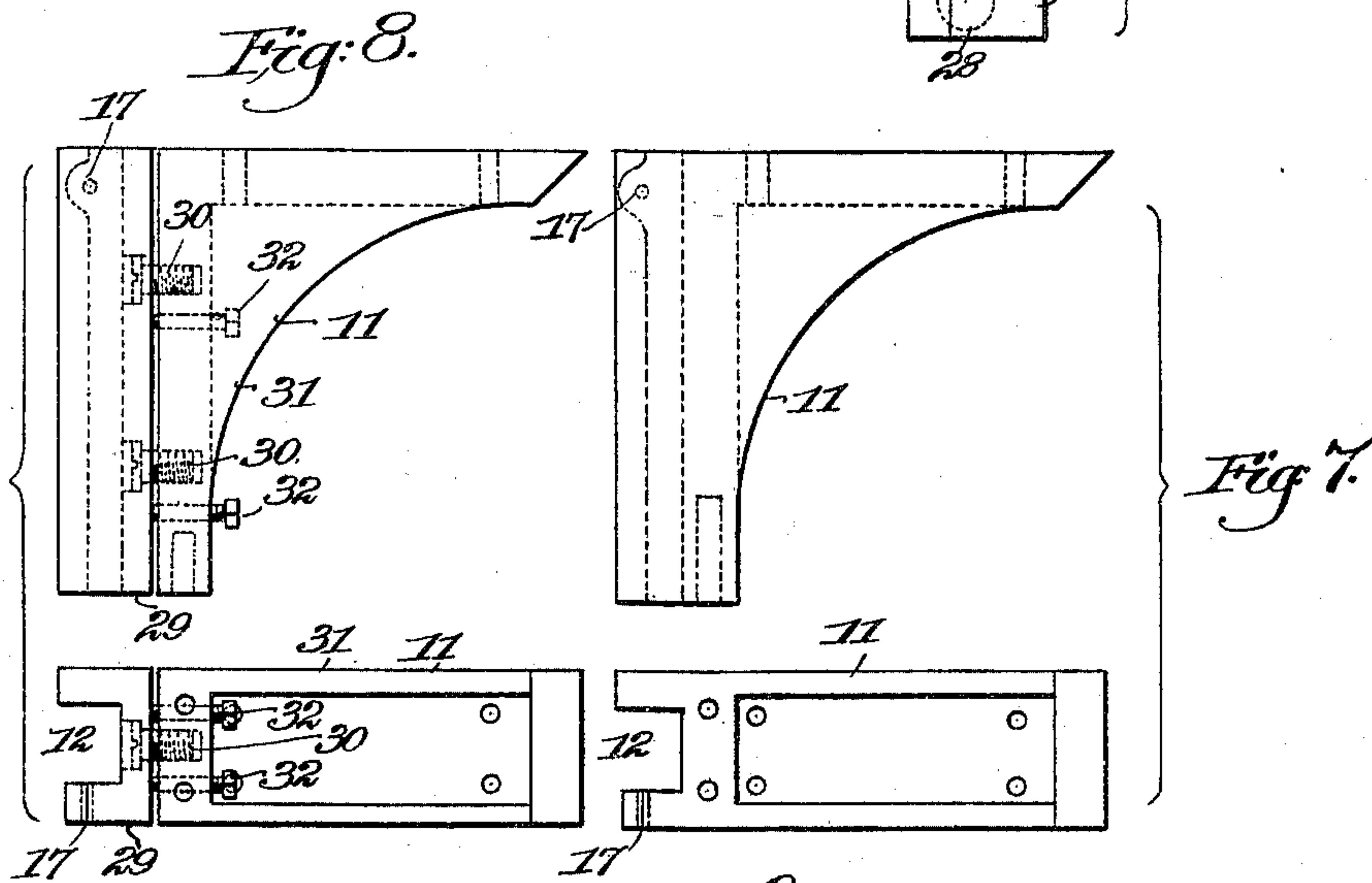
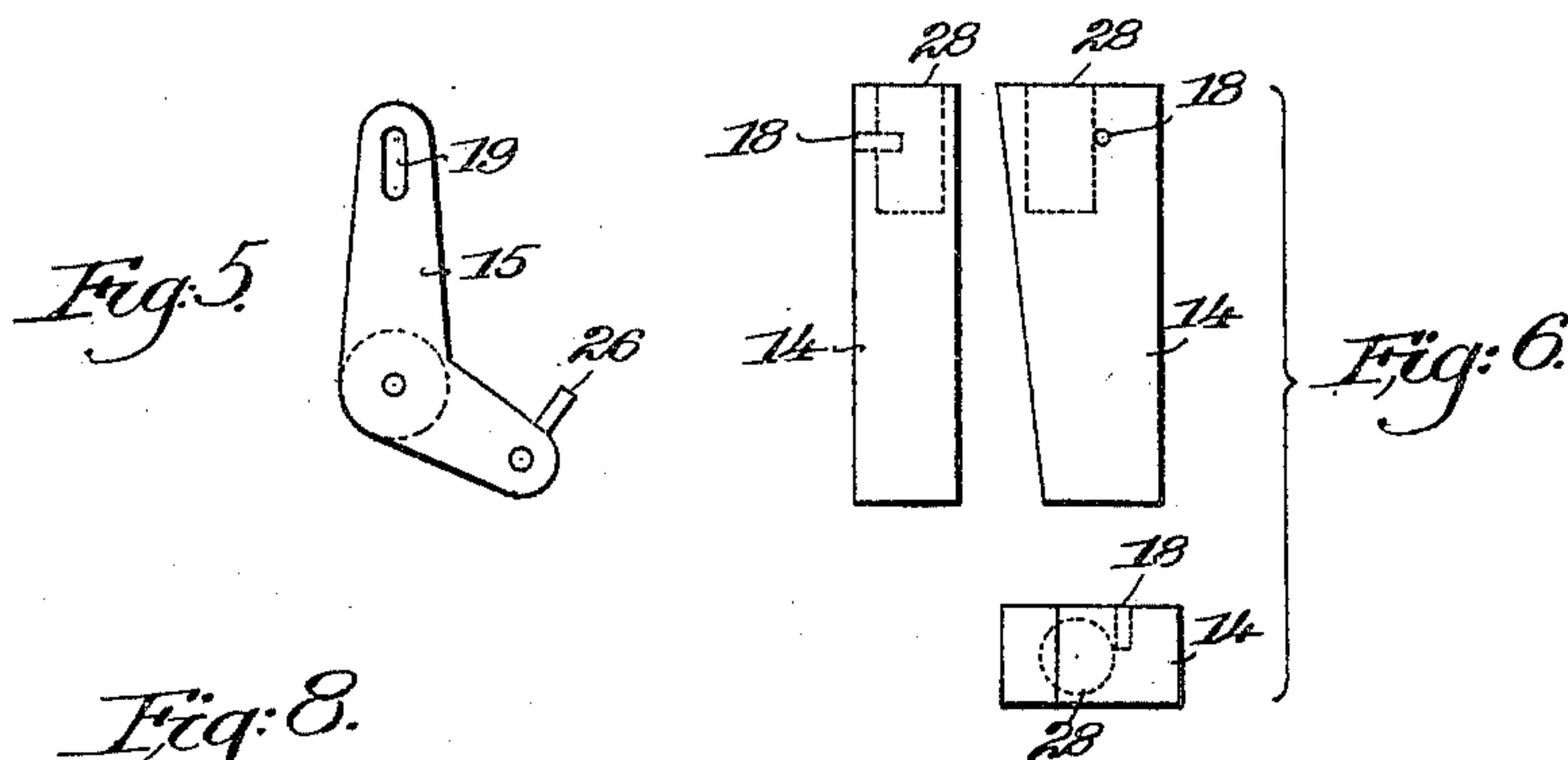
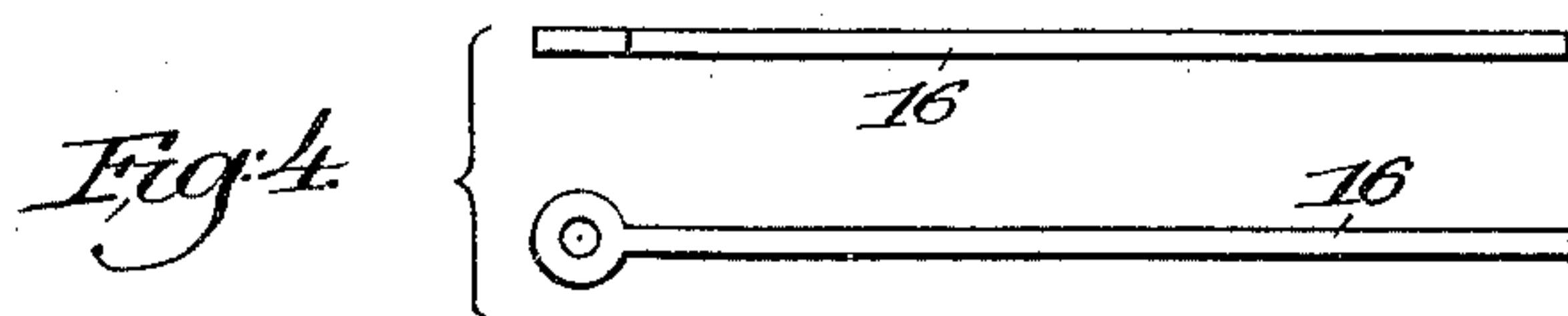
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UNITED STATES PATENT OFFICE.

JOSEPH L. CUSHING, OF LOWELL, MASSACHUSETTS.

EMERGENCY-BRAKE.

SPECIFICATION forming part of Letters Patent No. 682,457, dated September 10, 1901.

Application filed October 11, 1900. Serial No. 32,670. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH L. CUSHING, a citizen of the United States, residing at Lowell, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Emergency-Brakes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to emergency-brakes for cars.

The object of the present invention is to provide an emergency-brake which may be attached to cars without in any way interfering with the ordinary brake and which may be quickly applied and with great force.

To the above end the present invention consists in the brake hereinafter described and claimed.

In the accompanying drawings I have shown my emergency-brake applied to a four-wheeled truck—such, for instance, as is now commonly employed on electrically-propelled street-cars. My invention, however, is not limited thereto, but may be employed on cars having more than one truck, whether of the electric or steam railroad type.

In the illustrated embodiment of my invention, Figure 1 is a top plan view, and Fig. 2 is a side elevation, of a car-truck provided with my improved brake. Fig. 3 is an enlarged side elevation of my brake and a portion of the truck, showing one brake block or wedge in its normal or raised position and the other in its operative position for braking the car. Fig. 4 shows the detent-rods, Fig. 5 the bell-crank lever, and Fig. 6 the brake-wedge in detail. Fig. 7 illustrates the guide-piece for the brake-wedge, Fig. 8 showing a modified form thereof. Fig. 9 is a sectional view on line *xx* of the bell-crank levers and the slotted actuating device.

1 represents the car-wheels, supporting, by means of suitable journals and boxes 2, the truck-frame 3. The longitudinal side timbers 4 of the car-body are supported on the truck-frame 3, suitable springs 5 being interposed to reduce the jar and jolting caused by any unevenness in the track. Brake-shoes 6 and brake-rods 7 are provided, whereby the speed may be diminished or the car

stopped, as desired. All this is of the usual form and construction and constitutes no part of my invention.

Secured to the longitudinal frame-timbers 4 in any desired manner—conveniently by the bolts 8—are the angle-irons 9, connected by the struts 10, having T-shaped ends. Rigidly secured to the ends of these struts and the horizontal web of the angle-irons 9 are the angularly-shaped brake-wedge guide-pieces 11, having a recess or guideway 12 adjacent to the periphery of the wheels 1. An inverted-T iron 13 connects the lower ends of these pieces 11, thus providing a rigid and firm construction. Arranged to slide in said guideways 12 are the brake blocks or shoes 14, which, as shown in Fig. 6, are substantially wedge-shaped. These brake blocks or wedges are normally held in the upper portion of the guideway 12 and out of contact with the wheel, suitable mechanism being provided whereby the rearmost set may be released to descend and engage the periphery of the rear wheels, the direction of rotation of the same tending to force the wedge-shaped blocks downward, and thus effectually brake the car. The mechanism by which this is accomplished is as follows: Pivottally mounted upon the struts 10 are the bell-crank levers 15, to the shorter arms of which are pivoted the detent-rods 16. These rods are arranged to have a slight longitudinal movement in a bearing 17 in the lug or ear on the part 11. A hole 18 in the brake-wedge 14 is engaged by the ends of these rods, locking said blocks in their raised or normal position. When the levers 15 are oscillated, however, the ends of the rods will be withdrawn, allowing the wedge to fall and brake the car. The longer arms of the levers 15 are provided with the slots 19 and are actuated by the slotted link 20 and pin 21, as shown in Figs. 1 and 8, the length of the link being such that when in its normal position all the rods 16 will be in their locking position, but movement in either direction will actuate the levers and rods to apply the brake to the one or the other pair of wheels. The link may be actuated in any suitable manner, as by the rod 22, chain 23, and handle 24, conveniently placed for the operator. In order to avoid accidental withdrawal of the rods 16 from the holes in the brake-wedges, suitable springs

25 have been provided, which are supported by the lugs 26 on the levers 15, said springs tending normally to force the rods longitudinally and maintain them in the holes 18. I have also provided the coiled spring 27, seated in a recess 28 in the top of the brake-block 14, being compressed between the bottom of the recess 28 and the end of the strut 10 when the block is in its raised position. The object of this spring 27 is to impart an initial impulse to the wedge when released by the rods 16, thus insuring its descent and the breaking of the car.

In Fig. 8 I have shown a modified form of the wedge guide-piece 11, designed to facilitate the raising of the brake-wedge after an emergency stop has been made. As shown in the drawings, this comprises a guideway-block 29, secured by means of the counter-sunk screw-bolts 30 to the supporting-block 31. The releasing-bolts 32 are arranged to hold said guide-block 29 a short distance from the supporting-block 31, so that by simply unscrewing these bolts 32 the guideway-block 29 may move slightly toward the supporting-block 31, thus loosening the brake-wedge sufficiently to permit its being easily raised to its normal position.

I am aware that brakes have been devised in which the rotation of the wheels tended to force the brake-shoe into close contact therewith; but these brakes were inefficient and defective in that the supporting means for the shoes were not rigidly mounted upon the truck. So far as I know the prior art I am the first to produce an emergency-brake adapted for use in connection with the ordinary brake in which a brake-wedge is arranged to slide in a rigidly-supported guideway and wedge the wheel, the rotation of the latter driving the brake-wedge in still farther between the guideway and the wheel.

I am aware of the patent to Marden, No. 74,235, dated February 11, 1868; but it is to be noted that the surfaces of the so-called "wedge-brakes" of said patent, which engage the tread-surfaces of the wheels, are curved to fit said tread-surfaces, so that after the brakes have been applied to the wheels they are prevented from being driven by the wheels into closer contact therewith.

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

1. A car-truck, having, in combination, a frame, wheels and axles carried thereby, brake-wedges, detents normally supporting the brake-wedges out of contact with the wheels, guideways for said wedges rigidly mounted on the frame between the wheels and adjacent to their tread-surfaces, means for actuating the detents to release the brake-wedges, spring-actuating devices for starting the brake-wedges and connections between the detent-actuating devices, substantially as described.

2. A car-truck having, in combination, a

frame, wheels and axles carried thereby, a brake-wedge normally supported out of contact with the wheel, a rigid support, a guideway for the brake-wedge secured to said support, supporting-screws interposed between said guideway and said support, to permit movement of the guideway toward the support to loosen the brake-wedge, substantially as described.

3. A car-truck, having, in combination, a frame, wheels and axles carried thereby, brake-wedges normally supported out of contact with the wheels, guideways for said wedges rigidly mounted on the frame between the wheels and adjacent to their tread-surfaces, and means for releasing the wedges comprising an actuating device movable in two directions and mechanism arranged to release one set of wedges upon movement of the actuating device in one direction and the other set upon movement in the other direction, substantially as described.

4. A car-truck, having, in combination, a frame, two pairs of wheels carried thereby, brake-wedges supported normally out of contact with said wheels, guideways for said brake-wedges rigidly mounted on the frame, and means for releasing the brake-wedges comprising bell-crank levers, detent-rods pivoted thereto, a slotted actuating device, and sliding pivotal connections between the levers and the actuating device, whereby movement of said device in one direction will release the brake-wedges for one pair of wheels, and movement in the other direction will release the brake-wedges for the other pair of wheels, substantially as described.

5. A car-truck, having, in combination, a frame, wheels and axles carried thereby, a brake-wedge, normally supported out of contact with the wheel, a guideway for said wedge mounted on the frame adjacent to the tread of a wheel, means for releasing the brake-wedge so that it will engage the wheel and by the motion of the same be wedged into close contact therewith, and means for loosening the brake-wedge, substantially as described.

6. A car-truck, having, in combination, a frame, wheels and axles carried thereby, a brake-wedge, the braking-surface of which is inclined to the tread-surface of the wheel, a guideway for said wedge rigidly mounted on the frame adjacent to the tread of a wheel, a detent normally supporting the brake-wedge out of contact with the wheel and means for actuating the detent to release the brake-wedge so that it will engage the wheel and by the motion of the same be wedged into close contact therewith, substantially as described.

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

JOSEPH L. CUSHING.

Witnesses:

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