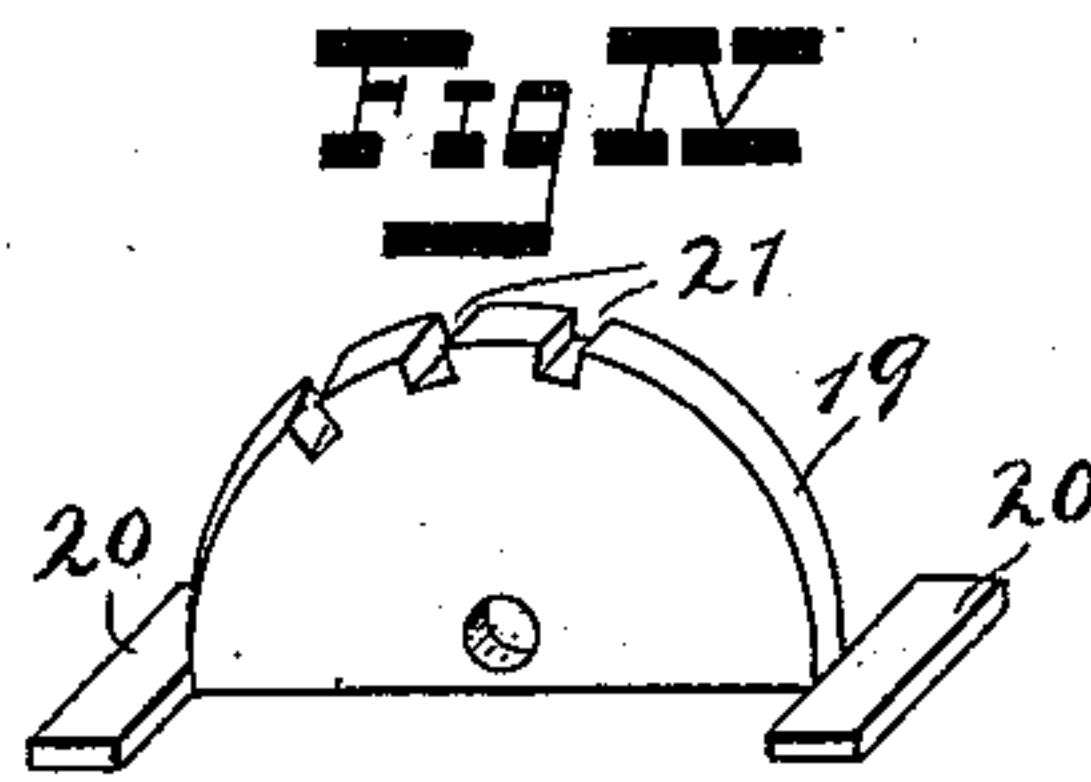
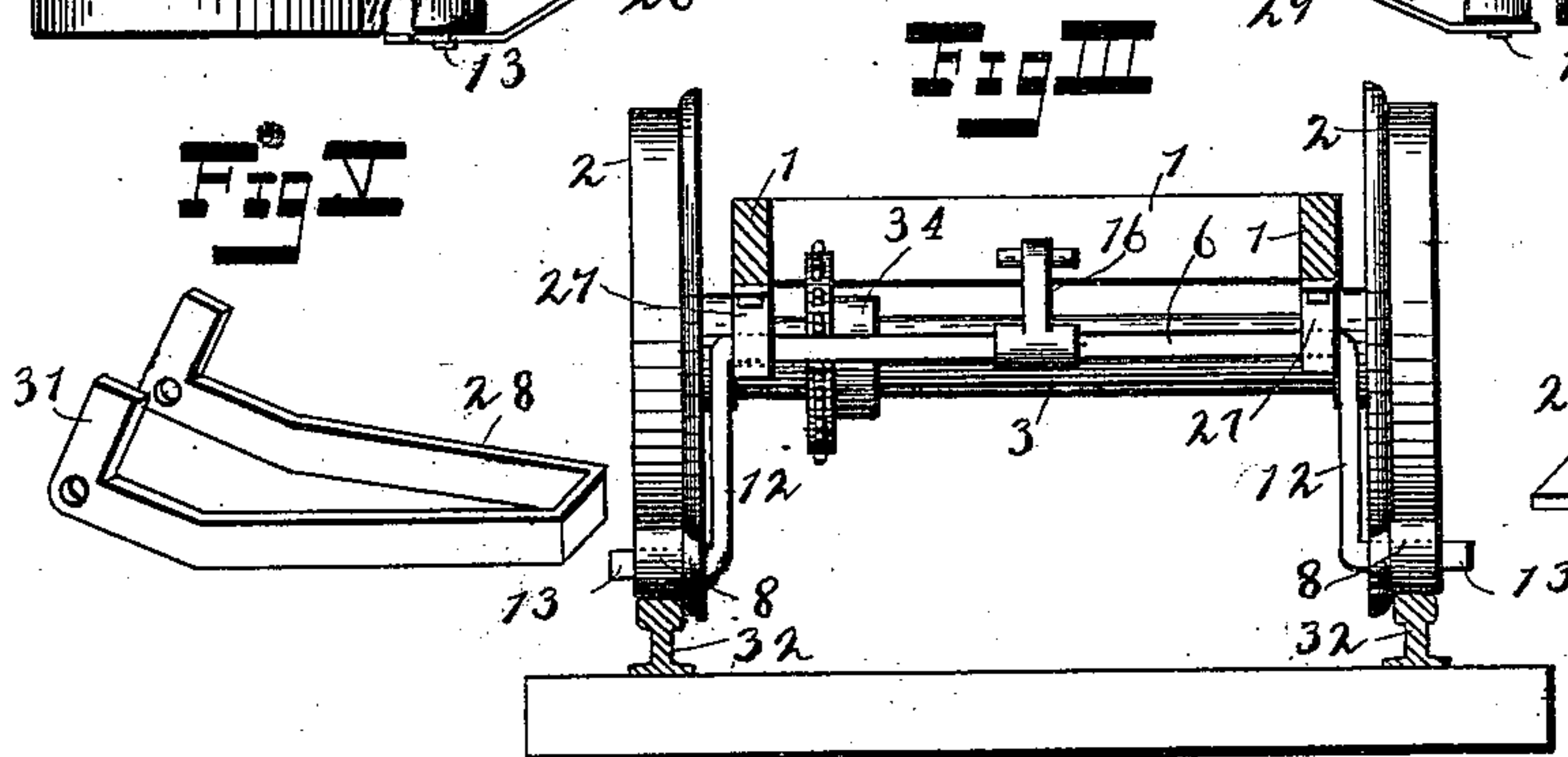
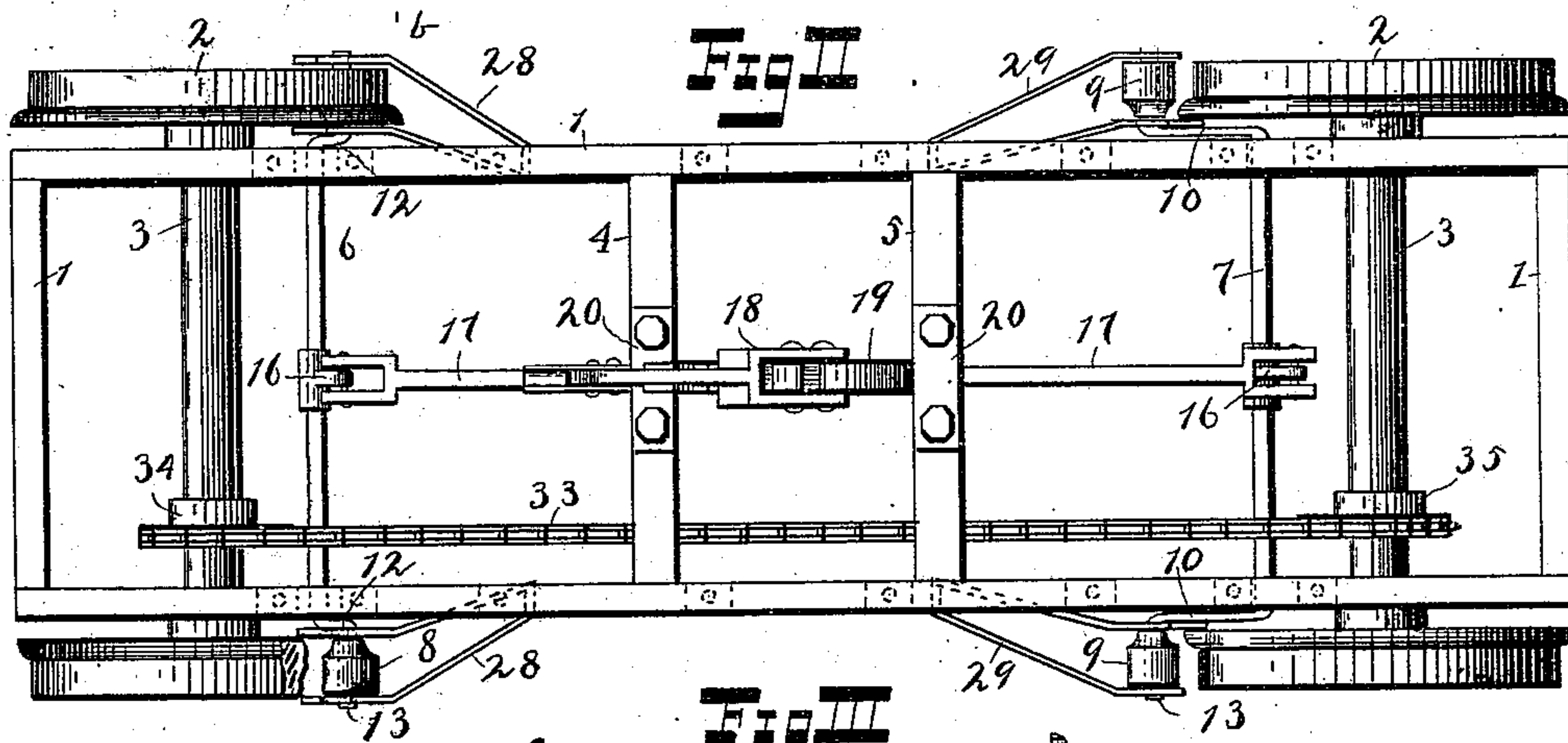
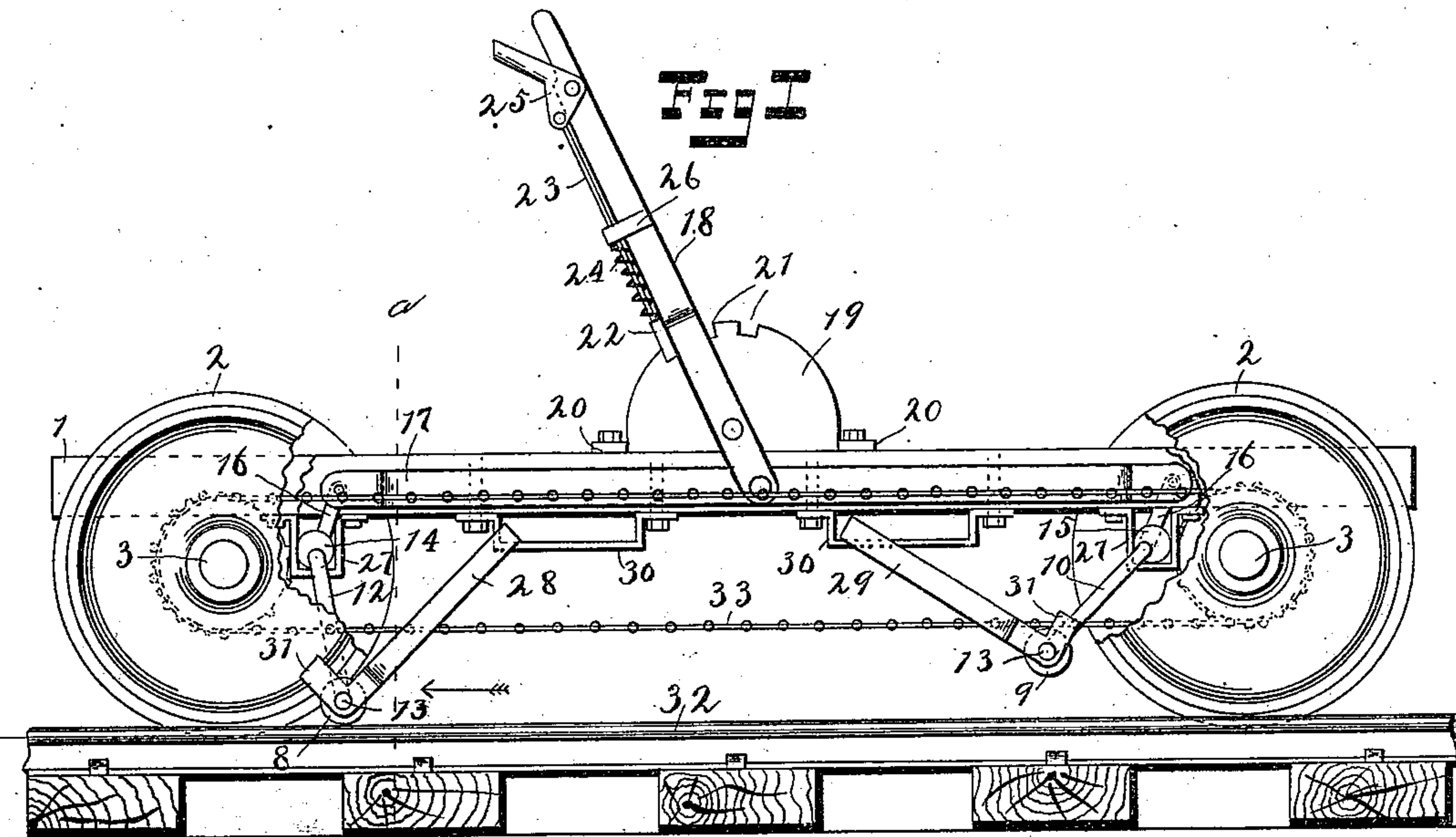


(No Model.)

D. H. GRANT.
CAR BRAKE.

No. 550,000.

Patented Nov. 19, 1895.



Witnesses.
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UNITED STATES PATENT OFFICE.

DANIEL H. GRANT, OF RAYMORE, MISSOURI.

CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 550,000, dated November 19, 1895.

Application filed August 20, 1895. Serial No. 559,898. (No model.)

To all whom it may concern:

Be it known that I, DANIEL H. GRANT, a citizen of the United States, residing at Raymore, in the county of Cass and State of Missouri, have invented certain new and useful Improvements in Car-Brakes, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to improvements in car-brakes.

The object of my invention is to provide a simple, cheap, and efficient brake adapted to be applied to the trucks of street or railroad cars.

My invention consists in a brake in which a roller is forced in front of one or more of the car-wheels, the roller being of sufficiently small relative diameter that the wheel of the car will tend to climb upon it for purposes hereinafter fully set forth.

My invention further comprises certain novel features of construction hereinafter fully set forth and claimed.

In the accompanying drawings, illustrative of my invention, Figure 1 represents a vertical elevation view of a car-truck to which my invention has been applied, portions of the frame and car-wheels being broken away in order to more clearly show the operating parts.

Fig. 2 represents a plan view of a car-truck to which my brake has been applied, one of the rear wheels being shown broken away. Fig.

3 represents a vertical sectional view taken in the direction of the arrow on the vertical dotted line *a b* of Fig. 1. In this view the chain 33, the connecting-rod 17, and the yokes 28 are removed. Fig. 4 represents a perspective view of the lever-locking plate 19. Fig. 5

represents a perspective view of the yoke 28. In the various views similar numerals of reference indicate similar parts.

1 indicates a rectangular truck-frame of ordinary design, which is provided with two transverse beams, designated by 4 and 5.

2 indicates the car-wheels.

3 designates the two axles to which the car-wheels are secured, the axles being connected to the truck-frame in the ordinary manner.

For the purposes of explanation the right end of the truck, as shown in the first two figures, is assumed to be the forward end of

the truck, the truck moving from left to right. Located beneath the frame 1 to the front of the rear axle and to the rear of the forward axle, respectively, are the two transverse rock-shafts 6 and 7. Near the center of each rock-shaft 6 and 7 is secured an upwardly-extending arm 16. The two arms 16 are connected together by means of a horizontal connecting-rod 17, the ends of which are preferably bifurcated and pivoted to the upper ends of the arms 16. Reciprocal movement is imparted to the connecting-rod 17 by means of a lever 18, the lower end of which is bifurcated and pivoted to the connecting-rod 17 near its center. The bifurcated lower end of the lever 18 embraces a vertical plate 19 and is pivoted thereto at a point above the pivotal connection with the connecting-rod 17. The vertical plate 19 is provided at its front and rear ends, at its bottom edge, with two transverse horizontal plates 20, which are secured one upon the top side of each beam 4 and 5. The upper edge of the plate 19 is arcuate and is provided with three notches 21, into which is adapted to engage the lower end 22 of a sliding rod 23, which lies parallel to the lever on its rear side. The upper end of the rod 23 is pivoted to a bell-crank 25, which is pivoted to the lever 18 near its upper end, and is adapted to be operated by the hand when clamping the lever. A clip 26, secured at its ends to the lever 18, embraces the rod 23 and serves as a guide for the lower end of the rod 23. A coil-spring 24 encircles the rod 23 between the lower enlarged end of the rod 23 and the clip 26. The tension of this coiled spring is such as will tend to force the lower end of the rod 23 into a notch 21 when the lever 18 is in the proper position. The rock-shaft 6 is U-shaped, the vertical legs or arms 12 extending downwardly and at their extreme lower ends are bent at right angles outwardly, as indicated by 13. Upon each portion 13 is mounted a roller 8, which is revoluble upon this portion of the rock-shaft. Upon each side of the roller 8 and pivoted to the horizontal portion 13 is the end of a U-shaped link or yoke 28, the closed portion of the link being in sliding connection with a U-shaped bracket 30, secured to the under side of the side beams of the frame 1. Both side beams are provided with such brackets

upon their under sides, one forward of the rear car-wheel and one to the rear of each forward car-wheel.

The roller 8 is so shaped as to conform to the shape of the periphery of the car-wheel, a portion of the roller being hollowed out at its inner end so as to fit the flange of the wheel. The inner leg of the link 28 is provided with an upwardly-extending arm 31, which prevents the roller from being forced inwardly. Upon each end of the horizontal portion of the rock-shaft 6 is secured a cam 14, which is mounted within a U-shaped bracket 27, secured to the under side of the side beam of the truck to the rear of the bracket 30. A similar bracket is provided in front of the forward bracket 30, in which is mounted a cam 15, secured upon each end of the horizontal portion of the rock-shaft 7. The rock-shaft 7 is similar in form to the rock-shaft 6, and is provided with arms 10, similar to the arms 12, the lower ends of the arms 10 being turned at right angles outward and having mounted on the said ends rollers 9, similar to the rollers 8. A link 29, similar to the link 28, has a sliding connection at one end with the forward bracket 30, the other end being pivoted to the ends 13 of the rock-shaft. Secured upon the rear axle is a sprocket-wheel 34, which is connected by means of a sprocket-chain 33 with a sprocket-wheel 35, secured upon the forward axle.

32 indicates the rail of the car-track.

My invention is operated as follows: When it is desired to apply the brake, the lever 18 is drawn backward at its upper end until the lower end of the rod 22 is over the slot 21 on the left of the plate 19, at which time the spring 24 forces the lower end of the rod 22 into the slot, thus locking the lever in that position. During the rearward movement of the upper end of the lever the lower end, being pivoted to the connecting-rod 17, forces the said rod forward, thus rocking the arms 16 and causing the rock-shafts to rock in a direction that the roller 8 will be forced under the rear wheel and the roller 9 away or to the rear of the forward wheel. This position of the parts is shown in Fig. 1. By compressing the bell-crank 25 the rod 22 may be withdrawn from the rear slot 21 and the lever then moved forward to a central or a forward position. When placed in the central position, both rollers will be removed from under the wheels and lie above the track. When the lever is placed so that the rod 22 engages the forward slot 21, the rock-shafts will be so rocked as to force the roller 9 upon the rail and under the forward car-wheel. This position is never used excepting in such cases as when the car is moving to the left. The cams 14 and 15 are eccentrically formed for the purpose of more easily withdrawing the rollers from under the wheels. The brackets 30 serve to prevent the rollers from being drawn too far beneath the car-wheels when they are

applied against the wheels. As soon as the roller 8 is placed in the position shown in Fig. 1, with the car moving to the right, the wheel begins to climb upon the roller and causes the roller to revolve in the opposite direction to the way the car is moving. The roller bearing upon the rail and revolving in the direction stated, and also bearing the weight of the rear car-wheel and that end of the car, tends to pull the car rearwardly or in the opposite direction to which the car is moving, and at the same time it tends to reverse the movement of the car-wheel, and consequently the direction of the movement of the axle and the sprocket-wheel 34. The reversing of the movement of the sprocket-wheel 34 causes the chain 33 to act in a manner upon the sprocket-wheel 35 as to cause it to revolve rearwardly and, through the intermediacy of the forward axle, causes the forward wheels to revolve rearwardly, thus bringing the car quickly to a stationary position. The outer leg 31 of the link or yoke 28 29 may be dispensed with, if desired, as the flange of the wheel prevents the roller from being forced too far inward.

Various other modifications of my invention may be made without departing from its spirit.

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

1. In a car brake, the combination with a truck frame, of two axles journaled thereto, each axle being provided with two wheels adapted to run on a track, gearing connecting the two axles whereby motion from one is imparted to the other, two rock shafts pivoted to the truck frame parallel to the axles and each rock shaft being provided with a roller at each end adapted to be forced between the track and one of the wheels, a crank arm on each rock shaft, a rod connecting each crank arm, a lever pivoted upon the truck frame and to the connecting rod, and means for locking the lever in a desired position, substantially as described.

2. In a car brake, the combination with a truck frame, of two axles journaled thereto, each axle being provided with two wheels adapted to run on a track, the chain wheels 34, and 35 secured one upon each axle, the chain, 33, connecting the chain wheels, the rock shafts 6 and 7 each provided with a crank arm, the rod, 17, connecting the crank arms, means for reciprocating the connecting rod, a crank arm at each end of each crank shaft having revoluble thereon a roller adapted to be forced between the track and the adjacent wheel, substantially as described.

3. In a car brake, the combination with the truck frame, of two axles provided with carrying wheels adapted to run on the track rails, the axles being revoluble in bearings mounted upon the truck frame, two rock shafts mounted upon the truck frame and provided with a crank arm each, a roller chock block rev-

olubly mounted upon the crank arm of each
of said rock shafts and adapted to be inserted
one between the track rail and one of the
wheels of the rear axle and the other between
5 the track rail and one of the wheels of the
forward axle, means for making such inser-
tions or withdrawing therefrom, and gearing
connecting the two axles whereby similar di-

rection of motion is imparted from one axle
to the other, substantially as described. 10

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

DANIEL H. GRANT.

Witnesses:

J. W. DOORES,

T. W. DANNER.