

No. 704,281.

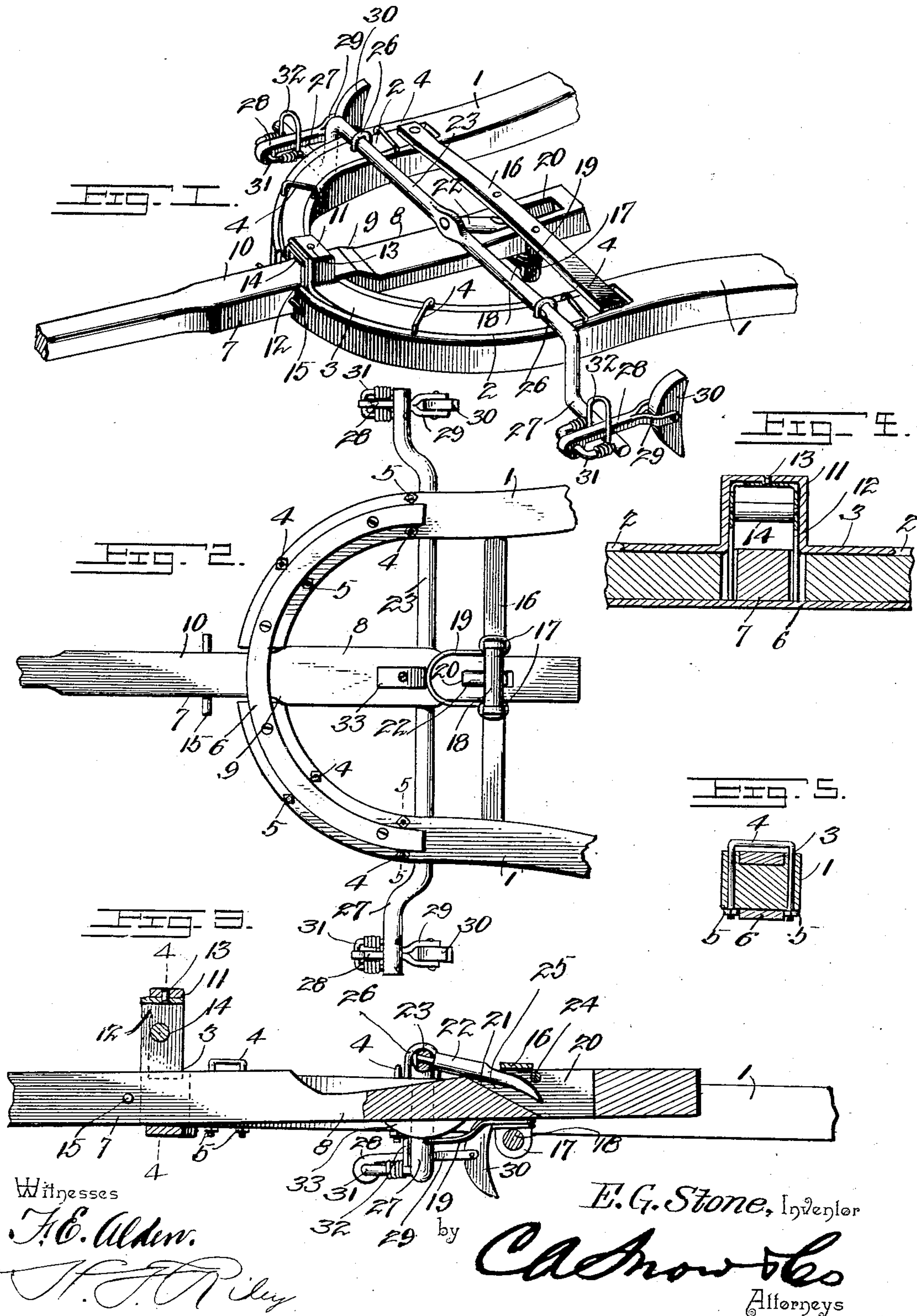
Patented July 8, 1902.

E. G. STONE.
AUTOMATIC VEHICLE BRAKE.

(Application filed Sept. 20, 1901.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses

J. E. Alden.

J. H. Riley

E. G. Stone, Inventor

by *C. H. Snow & Co.*
Attorneys

No. 704,281.

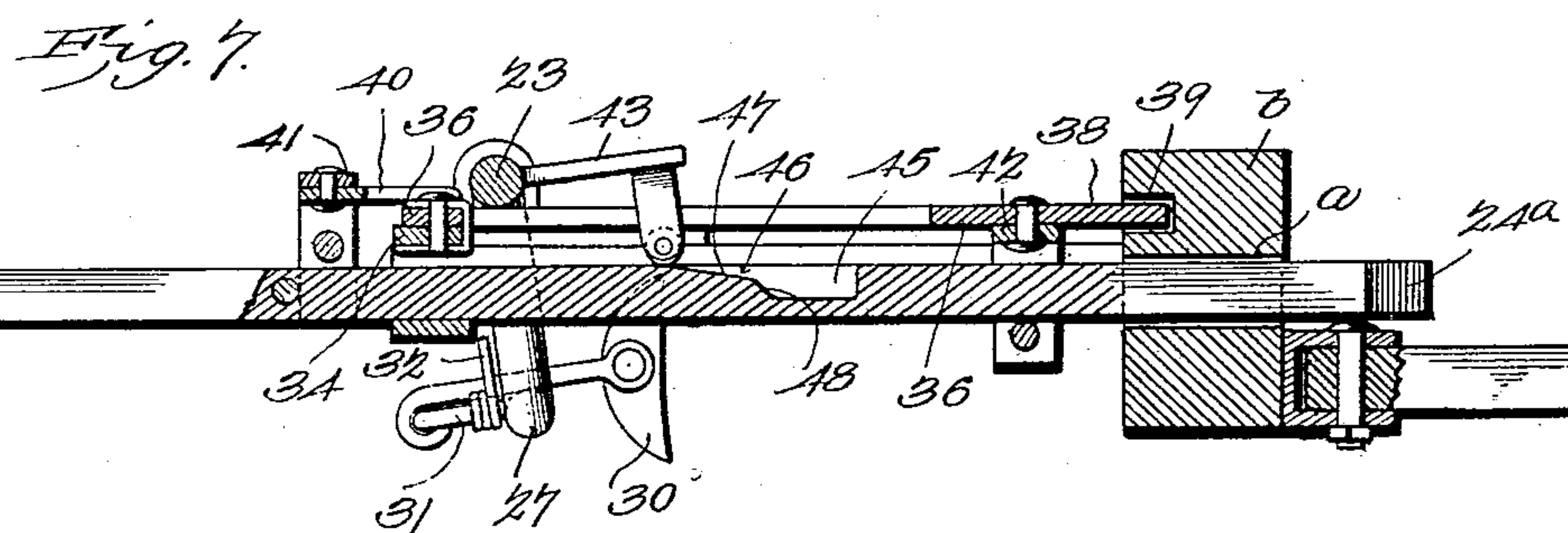
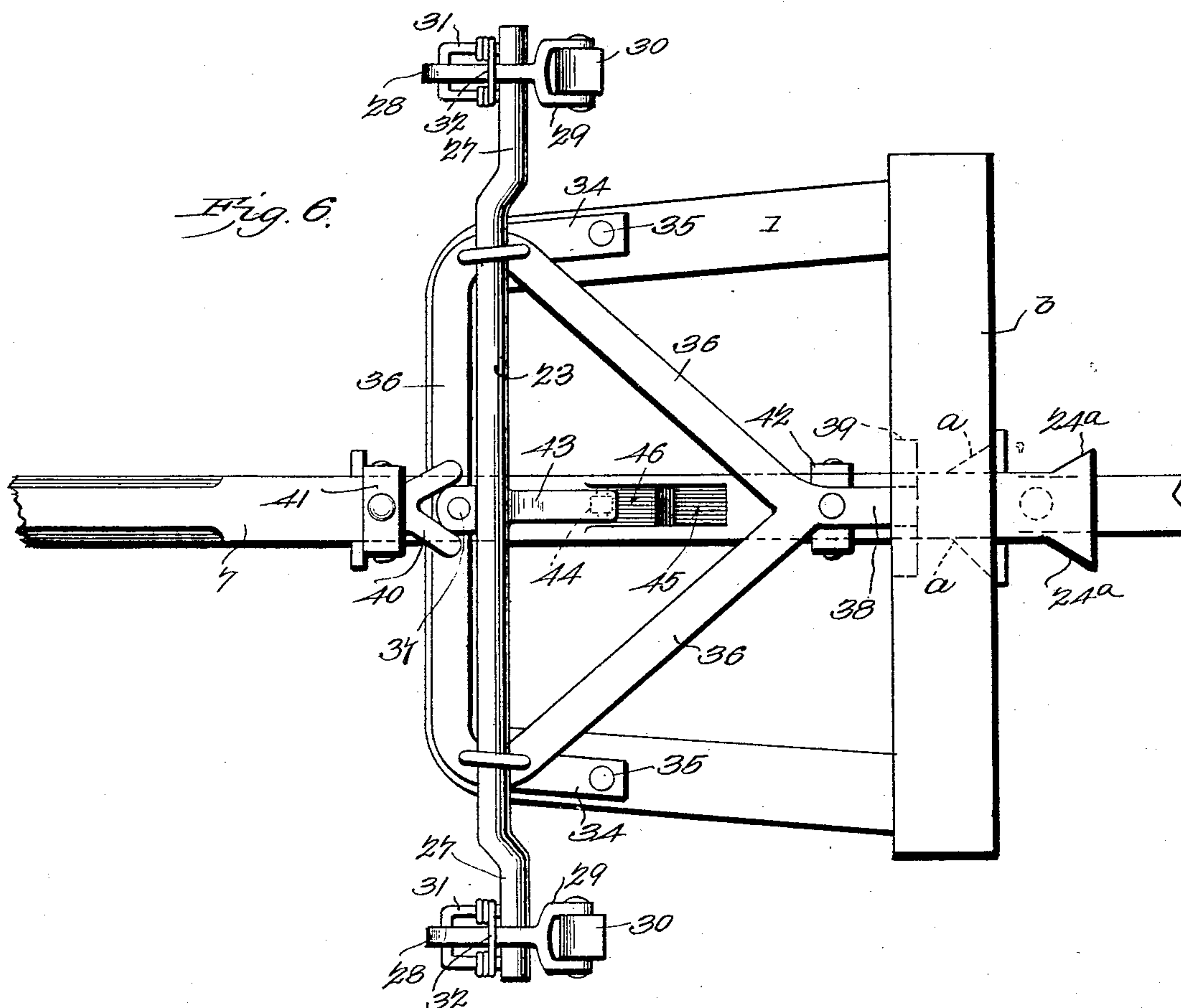
Patented July 8, 1902.

E. G. STONE.
AUTOMATIC VEHICLE BRAKE.

(Application filed Sept. 20, 1901.)

(No Model.)

2 Sheets—Sheet 2.



Witnesses
E. P. Stewart
J. W. Garner

by *E. G. Stone, Inventor*
C. A. Snow & Co
Attorneys

UNITED STATES PATENT OFFICE.

ENOCH GARNET STONE, OF BLOOMINGTON, TENNESSEE, ASSIGNOR OF ONE-HALF TO DIXON A. ROBINSON, OF BLOOMINGTON, TENNESSEE.

AUTOMATIC VEHICLE-BRAKE.

SPECIFICATION forming part of Letters Patent No. 704,281, dated July 8, 1902.

Application filed September 20, 1901. Serial No. 75,860. (No model.)

To all whom it may concern:

Be it known that I, ENOCH GARNET STONE, a citizen of the United States, residing at Bloomington, in the county of Putnam and State of Tennessee, have invented a new and useful Automatic Vehicle-Brake, of which the following is a specification.

The invention relates to improvements in automatic vehicle-brakes.

10 The object of the present invention is to improve the construction of automatic vehicle-brakes and to provide a simple and comparatively inexpensive one adapted to engage the front wheels of a vehicle and capable of effectually checking and stopping the forward rotation of the same and adapted to permit the wheels to rotate freely when backing a vehicle.

15 A further object of the invention is to provide an automatic brake of this character which when the brake-shoes are in engagement with the front wheels will permit a limited vibration of the front axle independently of the tongue or pole to prevent the latter from whipping against the draft-animals should the wheels strike a stone or other obstruction.

20 Another object of the invention is to provide means for holding the tongue and for preventing the same from moving freely and whipping against the draft-animals when the brake is applied and when the front axle and the front hounds are capable of a limited movement independently of the tongue or pole.

25 The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

30 In the drawings, Figure 1 is a perspective view of a portion of a running-gear provided with an automatic vehicle-brake constructed in accordance with this invention. Fig. 2 is a reverse plan view. Fig. 3 is a longitudinal sectional view. Fig. 4 is a detail sectional view on the line 4 4 of Fig. 3. Fig. 5 is a similar view on the line 5 5 of Fig. 2. Fig. 6 is a top plan view, partly in section, of a modified form of my improved automatic vehicle-

brake. Fig. 7 is a longitudinal sectional view of the same.

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

1 1 designate front hounds designed to be mounted on a front axle in the ordinary manner and provided with curved front portions having curved grooves 2 in their upper faces to form a curved way for a slide 3, which is secured to the front hounds by clips 4 or other suitable fastening devices. The clips 4, which are approximately U-shaped, are provided at the lower faces of the front hounds with nuts 5, and in practice the slide 3 is designed to be provided with a suitable covering of sheet metal to exclude dust and other accumulations from the way formed by the curved groove of the hounds. The front portions of the hounds are connected by a curved bottom bar 6, which forms a rigid brace for supporting the front portions of the hounds. The front ends of the hounds are spaced apart to receive the tongue or pole 7, which has an enlarged rear portion 8, tapered at the front end at 9 and adapted to engage the front ends of the hounds, as clearly shown in Fig. 2, whereby when it is drawn forward by the horses or other draft-animals it will be held rigid with the front hounds. The tongue is provided in advance of the enlarged portion 8 with a narrow portion 10, of less width than the space between the front ends of the hounds, whereby when the tongue is moved backward in an application of the brake the front axle will be permitted a limited vibratory movement independently of the tongue or pole to prevent the latter from whipping against the draft-animals should the front wheels strike a stone or other obstruction. The slide is provided at its center with an upwardly-extending loop 11, of rectangular form, located over the space between the front ends of the hounds and receiving a cuff 12, which extends downward from the sides of the loop to the bottom bar and which receives the tongue or pole. The cuff is secured to the top of the loop by a rivet or other suitable fastening device 13, and its sides are spaced apart by a transverse spacing roll or bar 14, which also limits the up-

ward movement of the tongue or pole, the rearward movement of the latter being limited by a stop consisting of a transverse pin 15, extending through the tongue or pole in advance of the front hounds and projecting laterally and arranged to engage the hounds, as clearly shown in Figs. 1 and 2. The rear portion of the pole is arranged in a guide of a cross-bar 16, and the guide consists of a pair of depending arms 17, extending downward from the cross-bar 16 at opposite sides of the center thereof and provided at their lower ends with bearings for journals of a roller 18. The ends of the cross-bar 16 are suitably secured to the ends of the curved slide, and the guide receives the rear portion of the tongue or pole and supports a spring 19, for a purpose hereinafter described. The rear portion of the tongue or pole is provided with a longitudinal slot 20, having an inclined front wall 21 and receiving an arm 22 of a rock-shaft 23 and adapted when the pole is moved rearward to have the inclined wall 21 engage the arm for partially rotating the rock-shaft. The inclined wall moves the arm rearward, and a transverse pin 24, which extends across the slot, is located in rear of the arm and is adapted to swing the same forward when the tongue moves forward or outward. The arm, which extends centrally from the rock-shaft, is provided with a tapered lower portion 25, having a rounded upper or rear edge, to be engaged by the transverse pin. When a vehicle in descending a grade moves forward on the draft-animals, the tongue will be carried rearward in the guides and the brake will be applied, and as soon as the draft-animals exert a forward strain on the tongue or pole the wheels will be relieved of the brake. The rock-shaft 23 is journaled in suitable bearings 26 of the slide and is provided at its ends with depending approximately L-shaped arms 27. The bearings 26, which may be of any desired construction, are located at opposite sides of the slide slightly in advance of the cross-bar, and the central portion of the shaft is enlarged at the point of attachment to the arm; but the arm may be formed integral with the rock-shaft, as will be readily understood. The arms 27 at the ends of the rock-shaft are provided with forwardly-extending horizontal clips, the transverse portions of which pass through the front ends of links 28, provided with forked or bifurcated rear portions 29, in which are mounted brake-shoes 30. The front ends of the links are provided with eyes or openings to receive the clips 31, and the brake-shoes, which are arranged to engage the front wheels of a vehicle, are capable of holding the same against forward rotation, and they are adapted to swing upward automatically when the wheels rotate backward, whereby the vehicle may be backed freely without applying the brake. The links are arranged in vertical guides 32, consisting of approximately U-shaped loops

mounted on the sides of the clips and extending upward from the same.

The spring 19 is approximately U-shaped, and it extends beneath the rear portion of the tongue from the arms 17, and it is arranged to be engaged by a tapering block or wedge 33, secured to the lower face of the tongue or pole and adapted when the said tongue or pole is moved rearward to engage the spring, whereby the tongue is pressed upward and is clamped and prevented in a great measure from whipping against the draft-animals when the narrow portion 10 is between the front ends of the hounds and the enlarged portion 8 carried away from the same. The spring is provided at its ends with coils, which are disposed on the arms 17 of the cross-bar 16.

It will be seen that the automatic vehicle-brake is simple and comparatively inexpensive in construction, that it is strong and durable, and that it is positive and automatic in its operation.

In Figs. 6 and 7 of the drawings I show a modification of my improved automatic vehicle-brake in which the narrowed portion of the tongue operates in an opening *a* in the front axle *b*. In this form of my invention the front portions of the hounds are connected together by a bar 34, which is bolted or otherwise secured on their upper sides, as at 35. A plate or frame 36, which may be either of the form here shown or of any other suitable form, bears on the said bar 34 and is pivoted thereon by a pin 37 at a point in the center of said bar. Said plate or frame has a rearwardly-extending arm 38, which enters and operates in a guide-slot 39 in the front axle at the center thereof. An arm 40 extends from the front side of the said plate or frame at the center thereof. A cuff or yoke 41 depends from said arm 40, and a similar cuff or yoke 42 depends from the arm 38. The tongue is carried by and is adapted to play longitudinally in the said cuffs. The rear end of the tongue is enlarged to form a stop 24^a, which by engagement with the front axle limits the forward movement of the tongue. The rock-shaft 23, which carries the brake-shoes 30, is journaled in bearings 26 on the plate or frame 36. The latter being pivoted on the hounds and carrying the tongue adapts the front axle to turn to a limited extent independently of the tongue to prevent the tongue from whipping, as hereinbefore described. Said rock-shaft has at its center a rearwardly and downwardly extending lever-arm 43, having a roller 44 at its free end. The tongue is formed with a guide-slot 45 in its upper side to receive the free end of said arm 43 and with a cam 46 to engage and operate said lever, and hence automatically operate the brakes. It will be observed by reference to Fig. 7 of the drawings that the said cam has two faces 47 48, disposed at such an angle as to cause the cam by engagement

with the lever to quickly apply the brakes on the initial rearward movement of the tongue, and as the latter continues to move rearwardly increase the friction between the brake-shoes and the front wheels.

What is claimed is—

1. In an automatic vehicle-brake, the combination of the front hounds, a tongue or pole capable of longitudinal movement, a laterally-movable support mounted on the hounds and capable of movement independently thereof, brake-shoes, and operating mechanism mounted on the support and actuated by the tongue or pole and carrying the brake-shoes, substantially as described.

2. In an automatic vehicle-brake, the combination with a running-gear having a pole capable of longitudinal movement, a support mounted on the running-gear and capable of lateral movement independently thereof, whereby when the brake is applied the pole is prevented from whipping against the animals, a shaft carried by the support and provided with brake-shoes, and connections between the shaft and the pole, substantially as described.

3. In an automatic vehicle-brake, the combination with a running-gear having a pole capable of longitudinal movement, of a slide mounted on the running-gear and capable of a limited movement laterally of the running-gear, whereby the pole is prevented from whipping against the animals, a shaft mounted on the slide and provided with arms located at its center and ends, the central arms being connected with the pole, and brake-shoes mounted on the arms at the ends of the shaft, substantially as described.

4. In an automatic vehicle-brake, the combination with a pole capable of longitudinal movement, of front hounds having curved ways and located at opposite sides of the pole, a curved slide mounted in the curved ways, a shaft carried by the slide and connected with the pole, and brake-shoes connected with the shaft, substantially as described.

5. In an automatic vehicle-brake, the combination of the hounds provided with curved ways, a curved slide mounted in the ways, a rock-shaft journaled on the slide and provided at its ends with brake-shoes and having a central arm, and means for actuating the central arm, substantially as described.

6. In an automatic vehicle-brake, the combination of the front hounds provided with curved grooves and spaced apart, a curved

slide provided at its front with a loop, a transverse bar connecting the ends of the slide and provided with a guide, a tongue passing through the loop and through the guide and provided with a slot, a rock-shaft having a central arm arranged in the said slot, and brake-shoes carried by the rock-shaft, substantially as described.

7. In an automatic vehicle-brake, the combination with a running-gear having a longitudinally-movable tongue or pole, of a slide, a guide connected with the slide and receiving the tongue or pole, a spring mounted on the guide and engaging the lower face of the tongue or pole, and a shaft mounted on the slide and operated by the tongue or pole and provided with brake-shoes, substantially as described.

8. In an automatic vehicle-brake, the combination of a running-gear having a longitudinally-movable tongue provided with a slot, a slide mounted on the running-gear, a shaft having a central arm arranged in the slot and adapted to be engaged by one of the walls thereof to move the shaft in one direction, a pin mounted on the tongue and extending across the slot and adapted to engage the arm to move the shaft in the opposite direction, and brake-shoes carried by the same, substantially as described.

9. In an automatic vehicle-brake, the combination of a running-gear having a longitudinally-movable tongue, a slide, a guide connected with the slide and receiving the tongue, a spring mounted on the guide and arranged at the bottom of the tongue, and a wedge mounted on the tongue and arranged to engage the spring, substantially as described.

10. In an automatic vehicle-brake, the combination of the front hounds spaced apart, a slide, a tongue extending between the hounds and provided with an enlarged portion to engage the same and having a narrow portion to permit a limited movement of the hounds independently of the pole, brake-shoes, and mechanism mounted on the slide and actuated by the tongue for carrying the brake-shoes into and out of engagement with the wheels, 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.

ENOCH GARNET STONE.

Witnesses:

RUTHIE JULIAN,
E. C. ANDERSON.