

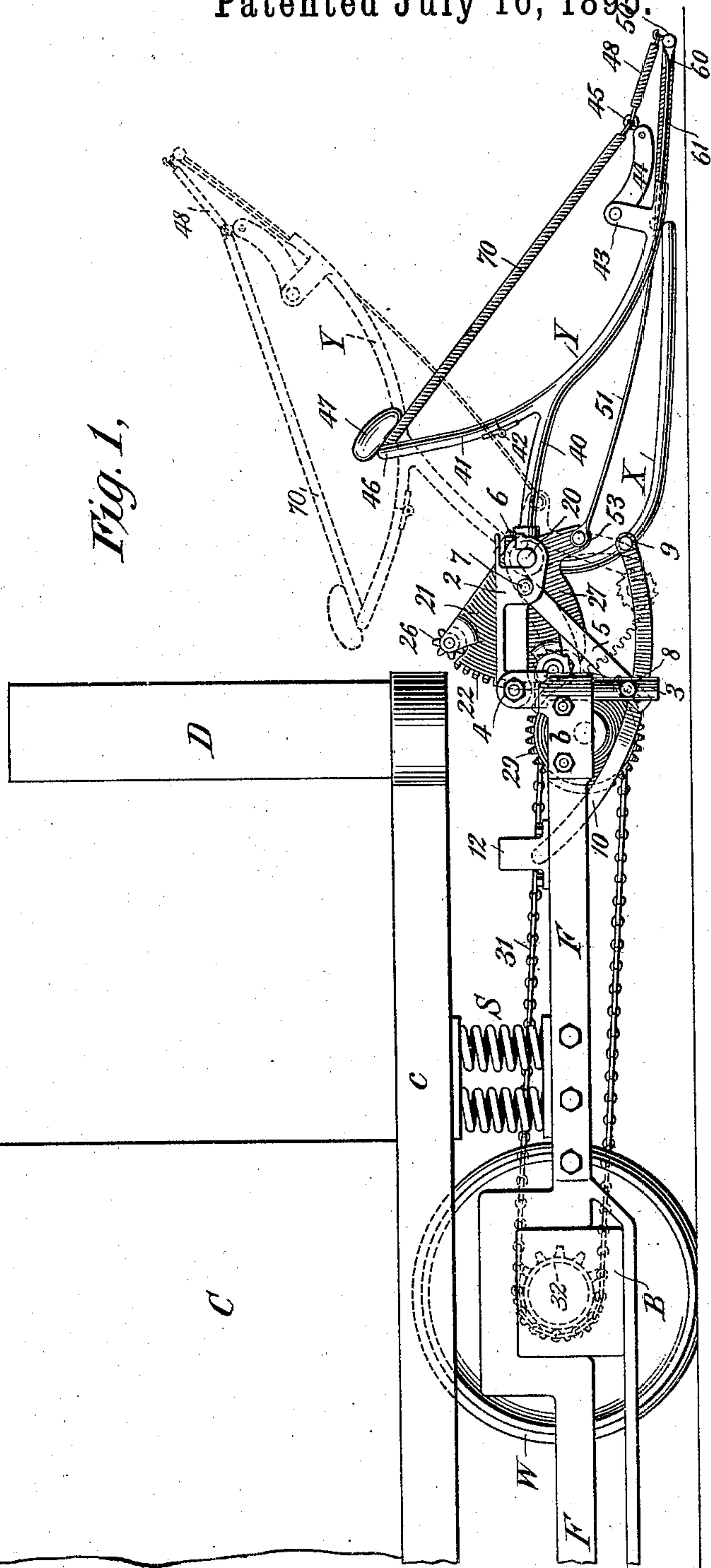
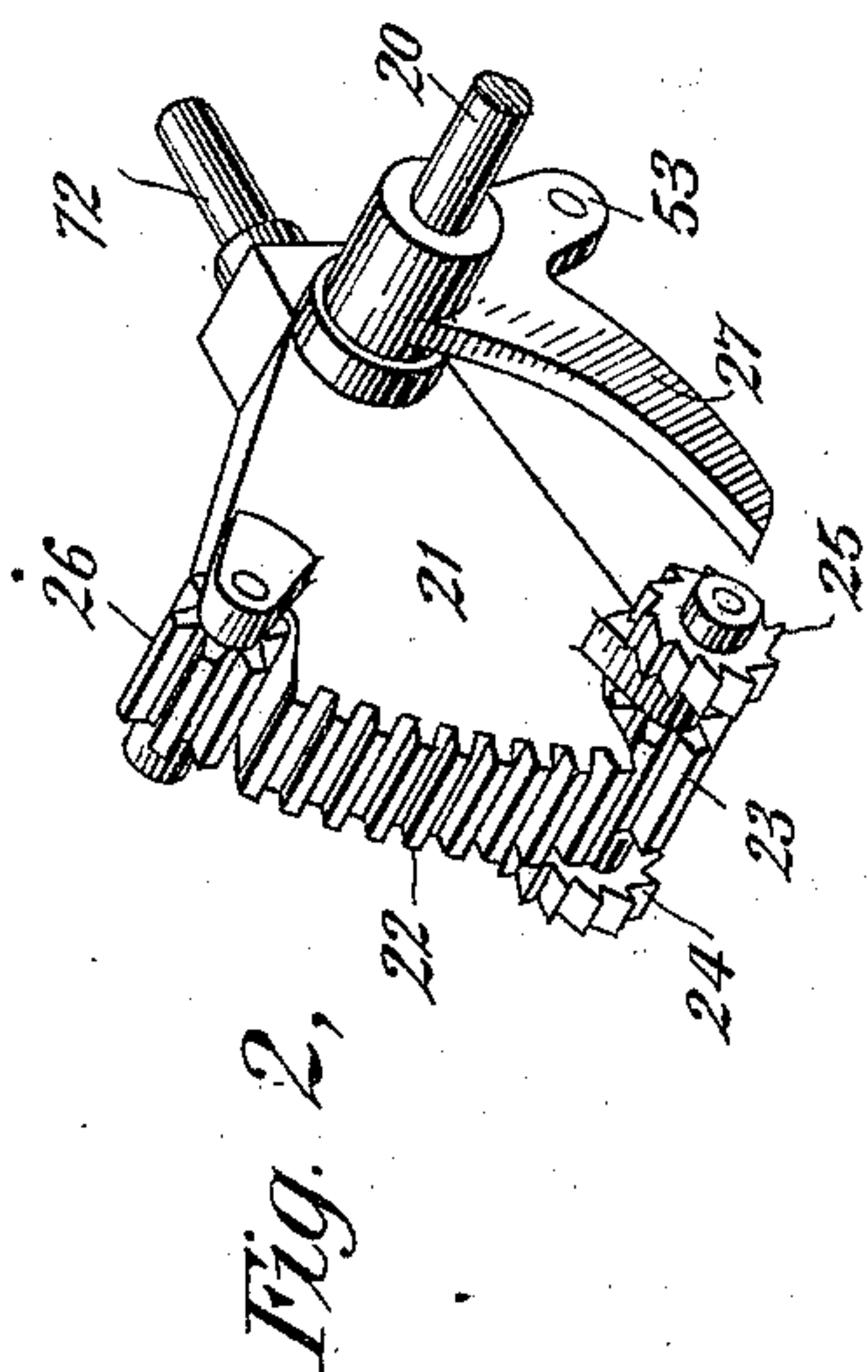
(No Model.)

2 Sheets—Sheet 1.

M. WEISS.
CAR FENDER.

No. 542,720.

Patented July 16, 1895.



WITNESSES:

C. E. Ashley
W. S. Place

INVENTOR:

Morris Weiss
By his Attorney
W. B. Vauzige

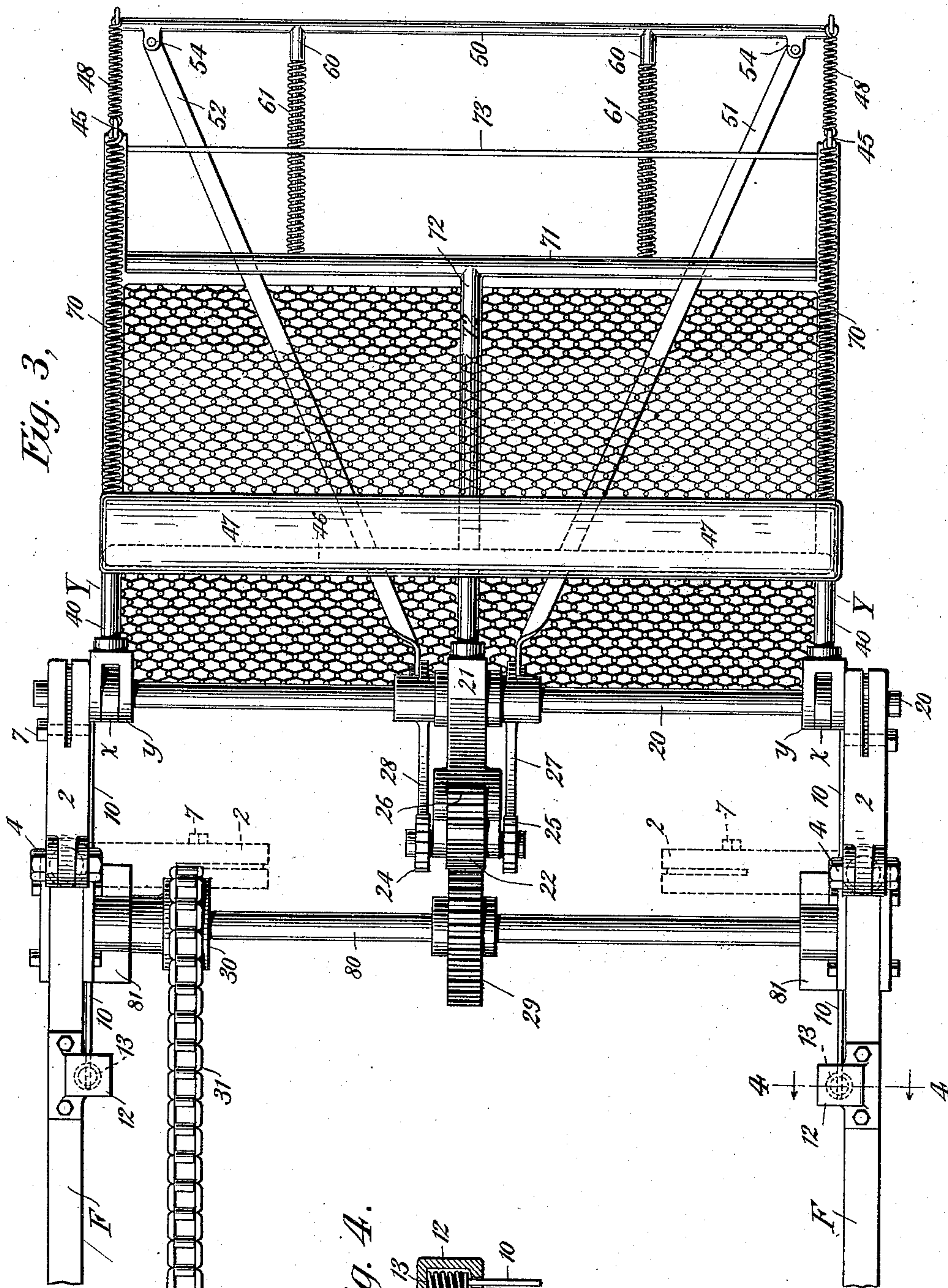
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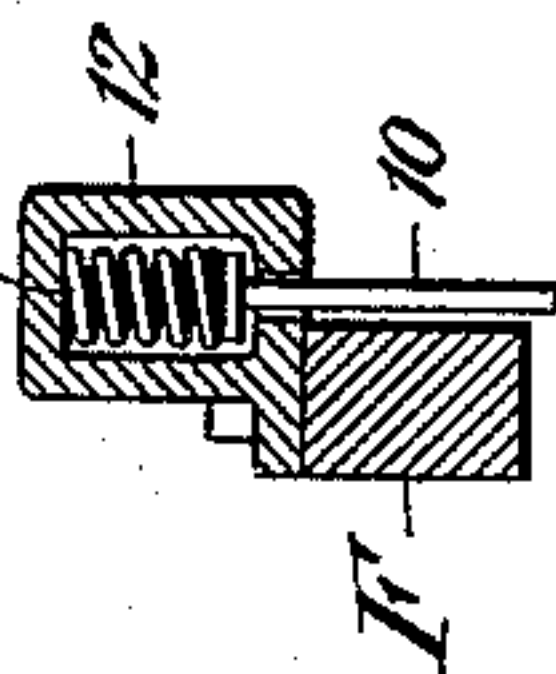
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Fig. 4.



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UNITED STATES PATENT OFFICE.

MORRIS WEISS, OF NEW YORK, N. Y.

CAR-FENDER.

SPECIFICATION forming part of Letters Patent No. 542,720, dated July 16, 1895.

Application filed April 27, 1895. Serial No. 547,306. (No model.)

To all whom it may concern:

Be it known that I, MORRIS WEISS, a citizen of the United States, residing in the city of New York, county and State of New York, have invented certain new and useful Improvements in Car-Fenders, of which the following is a specification.

My invention is an improvement in car-fenders for saving life and avoiding injury. It is designed to be applied to street-cars or tramways.

I support my fender upon a special frame, rigidly carried by the wheels and axles—that is to say, there are no springs or cushions between the said frame and its support, the frame being independent of the spring-supported car-frame and journaled directly on the axle. By this means the fender or fender-frames are freed from the bobbing, oscillating “butterfly” motion of the car-body, and said fenders may be normally located nearer the street-surface and are independent of variations in load. I hinge my fender upon this special frame, so that its free side may be automatically depressed, but not elevated, with respect to its normal position. For this purpose I connect points intermediate its hinged and its free side by a mechanical device, which may be adjusted to its normal position and there held or supported by friction or spring-pressure against depression; but upon striking or encountering an obstacle the friction or spring is overcome and the free side is depressed. This frame I prefer to place in a position such that it follows a special fender arranged to be automatically elevated by the act of striking an obstacle. Both fenders are preferably supported on the special frame, as above described.

The upwardly-movable fender is fixed upon a shaft extending across the special frame, and there is a cog-wheel fixed upon a parallel shaft, preferably driven from a similar wheel upon the axle, as by a sprocket-chain. The cog-wheel on one shaft gears with that on the other, but the cog-wheel upon the fender-shaft normally runs free, and there are two pawls fixed in position to lock said wheel and the fender-shaft together. These pawls are operated independently by spring-retracted strips connecting with a movable cross-bar at the free or front side of the fender. When

the fender strikes or encounters any obstacle the rod or rods is or are given a longitudinal movement, causing one or both pawls to engage the freely-running cog-wheel on the fender-shaft, whereby the wheel is locked to the shaft and a movement of rotation is imparted to said shaft, which operates to elevate the free side of the fender. There is a toothed rack-segment in a frame, in line with the toothed wheel, and there is a second free-running toothed wheel journaled in the frame at the opposite side of the toothed rack, the wheel and the rack being in a frame fixed to the fender-shaft. When the toothed wheel is locked by the pawls the wheel engaging it rotates the fender-shaft, so as to bring the rack into mesh. The rack passing along or being moved along brings the free-running cog-wheel into mesh with the driven wheel. This results in holding the fender in its elevated position as long as the said driven wheel receives motion from the moving car and until the car stops, when it is caused to resume its normal position.

Upon the special rigidly-supported frame at opposite sides there are brackets with bearings for the shaft carrying the fender frames or fenders, and the said shaft is slipped into its bearings and locked in position. The brackets are hinged to the frame, and when the fender-shaft is removed said brackets are folded inwardly out of the way, and the fender may be placed upon the opposite end of the car.

The accompanying drawings illustrate my invention.

Figure 1 is a complete side view of a section of a street-car with my fender-frames in position. The dotted lines indicate the position of the advanced fender immediately after an obstacle has been encountered, by which it is automatically elevated. Fig. 2 is a detail of the mechanism for automatically bringing the elevating device into operation. Fig. 3 is a complete plan view of the fenders and attachments, and Fig. 4 is a detail of construction taken on the line 4 4 of Fig. 3.

C is a car-body. c is the car-sill. W is the car-wheel; B, the axle-box. Resting upon the axle-box is a special frame F. This frame is rigidly attached to the axle-boxes; but the car-body C and its sill or frame c are supported

upon springs S. I provide two fenders or fender-frames, one of which follows the other in the line of movement of the car. Both fenders are supported upon the special frame

5 F. To provide for such support I arrange brackets composed of a vertical member 3 in a bearing *b* at the end of the rigid frame F. The horizontal member of the bracket 2 is pivoted to the vertical member at 4, and a
10 diagonal brace 5, pivoted at 7 and 8, completes the structure of the bracket. At the angular free extremity of the bracket there are slotted bearings 6 to receive a special shaft or rod 20, forming a portion of both fen-
15 ders. An extension of the diagonal brace 5 extends over the rod 20, and by removing the pin 8 the brace 5 assumes a vertical position, when the rod 20, with its fenders, may be re-
20 moved and the brackets may be folded inward, taking a position inside of the advance line of the dashboard D.

X is the fender-frame located nearer the car. It is hinged at *x* upon the rod 20. From a point intermediate its hinged and its free
25 sides, as 9, a mechanical connection consisting of a curved section of strap-iron 10 extends to a box 12, Fig. 4, containing a spring 13. When the free side of the fender X encounters any obstacle, the connection 10 is
30 thrust lengthwise, compressing the spring 13, so that the free end of X is depressed to an extent such that nothing can pass under it. When the obstacle is removed, the fender X assumes its normal position.

35 Y indicates the frame of a fender, which precedes the fender described and which is automatically elevated when encountering any obstacle animate or inanimate. The mechanism described and illustrated is a me-
40 chanical embodiment of the operation of a man with a shovel or scoop in the act of "scooping up" a quantity of earth or coal. The frame Y has two branches 40 and 41. The branch 40 is journaled upon the rod or shaft
45 20. The branch 11 is divided and united by a hinge 42. Upon the opposite end of the frame Y is a bracket, and the link 44 is pivoted thereto at 43. The free end of the link 44 terminates in an eye 45, and a sheet of
50 woven wire or any suitable elastic substance is connected between the end 46 of the frame Y and the end 45 of the link 44. Helical springs 70 are placed at the edges of the elastic fabric to impart additional strength and
55 to provide for bagging at the center of the sheet. An elastic device 47 in the nature of a cushion or buffer is placed at the inner edge of the frame. The frame is preferably composed of metal piping, which may be covered
60 with india-rubber. The cross-brace 71 unites the two side pieces and the section 72 unites the central point of the cross-brace 71 with the rod 20. There is also a rod 73 provided to strengthen the structure and unite the two
65 side members. A movable cross-bar 50 forms the extreme advanced side of the frame Y. It is supported upon telescopic rods 60 and ex-

pansion-springs 61 act to separate the cross-pieces 50 and 71. Compression-springs 48 of less strength operate against the force exerted
70 by the springs 61.

80 is a special shaft journaled at 81 upon the special frame F. Shaft 80 is rotated by sprocket-wheels 30 and 32 and chain 31 from the axle of the car. Fixed upon the shaft 80
75 is a toothed wheel 29.

Referring to Fig. 2, 21 is a frame journaled upon the rod or shaft 20 and fixed upon the rod 72, forming part of the fender-frame. 23 is a cog-wheel journaled in projections from
80 the frame 21 upon a short sectional shaft. Toothed wheels 24 and 25 are at opposite ends of the section of shafting. The wheels 23, 24, and 25 are firmly fixed upon the shaft-section and normally run free. 22 is a toothed rack
85 forming part of the frame 21, and 26 is a toothed wheel running freely in brackets connected to the frame 21. Upon the shaft 20 there are two pawls 27 and 28, Fig. 3, in position to engage with the toothed wheels 25
90 and 24, respectively. Thrust rods or strips 51 and 52 are pivoted to the movable cross-bar 50, respectively, at the points 54. The opposite end of rod 51 is pivoted to a projection upon the pawl 27 at 53, and the rod 52 is
95 similarly pivoted to a similar projection upon the pawl 28.

When the parts are in their normal position, as shown in full lines in Fig. 1, rotating wheel 29 engages with the free-running pin-
100 ion 23. If, now, the cross-bar 50 encounters any obstacle, one or both of the rods 51 52 are moved lengthwise, and pawls 27 and 28, one or both, engage the ratchet-wheels 25 and 24, respectively, the rotation of pinion 23 is
105 blocked, the toothed wheel 29 runs out of pinion 23 into the teeth of rack 22, depressing said rack and elevating the free or advanced end of the fender. The rack 21 passes across the line of engagement with wheel 29, and the
110 free-running pinion 26 engages with the wheel 29. When this condition is reached the fender has been elevated to the position shown by the dotted lines in Fig. 1, and is there maintained as long as the car is in motion.
115

When the car is stopped the parts may be caused to resume their normal position by reverse movement of the car, or by arranging the wheel 32 to turn freely in a reverse di-
120 rection.

What I claim, and desire to secure by Letters Patent, is—

1. The combination of a street car, having wheels and axles, a car body frame, spring supported upon axle boxes, a frame journaled
125 directly upon the axles, and a fender supported by or upon the last named frame only, a hinge joint between said fender and said truck frame and a curved bar pivoted to said fender at one end and supported on a spring
130 cushion at its opposite end, substantially as described.

2. The combination with a street car of two fenders hinged to a car frame, a mechanical

connection between a second point in one fender and the car frame, yielding in one direction only, and a mechanical connection between a second point on the second fender and the car frame, yielding in one direction only, all so arranged that, when striking an obstacle, the one fender moves upward and the other fender moves in a respectively opposite direction, substantially as described.

3. The combination with a street car of a fender hinged to a frame or stationary part thereof, an elevating device consisting of a driving and a driven wheel for gradually and regularly elevating the free end of the fender and means for automatically bringing the elevating device into operation, substantially as described.

4. The combination with a street car of a fender located on a rotating shaft, a toothed wheel supported on said shaft capable of free rotation, means for rotating said wheel, a locking device for securing said wheel and its shaft together, a movable contact on the fender and a mechanical connection between said contact and said locking device, whereby the fender is elevated, substantially as described.

5. The combination with a car of a fender frame, a shaft therefor, a wheel supported on said shaft, means for rotating said wheel, a suitable locking device for connecting and disconnecting said wheel and shaft, and a mechanical connection between said locking device and a contact point on said fender, substantially as described.

6. The combination with a car of a fender frame, a shaft therefor, a wheel supported on said shaft, means for rotating said wheel, a toothed rack in line with said wheel, a suitable

locking device for connecting and disconnecting said wheel and shaft, and a mechanical connection between said locking device and an actuating point on said fender, substantially as described.

7. The combination with a car of a fender, a turning support therefor, a wheel, a rack and a pinion supported in line on said support and a driven wheel in position to engage with said wheel, rack and pinion successively, whereby said fender may be elevated, substantially as described.

8. The combination with a car of a fender, a turning or rotary support therefor, a wheel, a rack, and a pinion supported in line on said support, a driven wheel in position to engage with said wheel, rack and pinion, successively, and means for automatically bringing the driving and driven parts into engagement whereby said fender is elevated, substantially as described.

9. The combination in a street car of suitable running gear composed of wheels and axles, a car body supported thereby, a shaft mechanically connected with a wheel or axle of the car and rotated thereby, a fender hinged or rotatably connected to a frame or stationary part of a car, a driving wheel carried by said shaft, a driven wheel connected with the fender and a suitable device for connecting and disconnecting said driving and said driven wheel to elevate the free end of the fender by a gradual rotary movement, substantially as described.

MORRIS WEISS.

Witnesses:

E. B. FOWLER,
W. S. PLACE.