

No. 671,080.

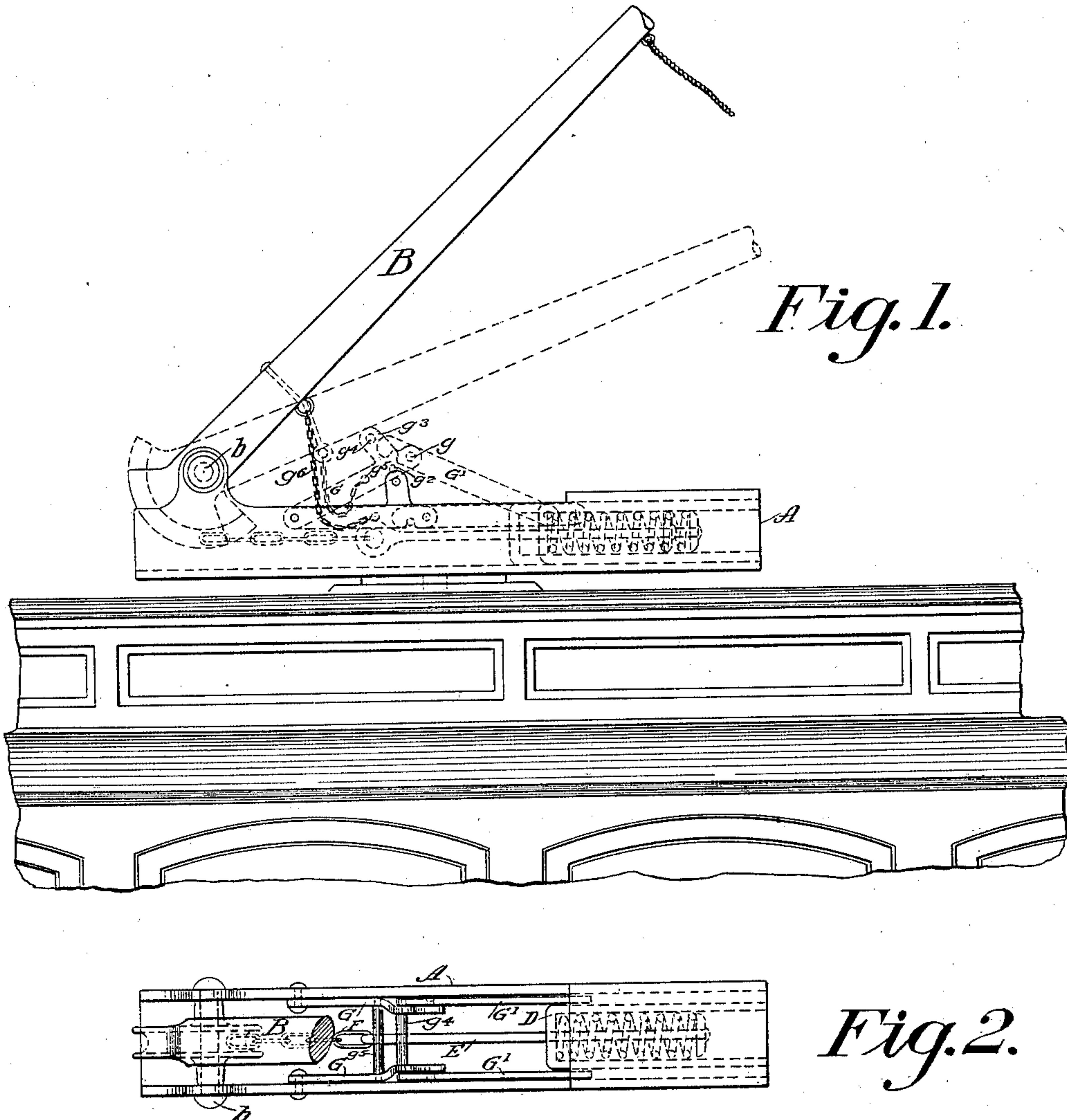
Patented Apr. 2, 1901.

H. S. GOUGHNOUR.
TROLLEY.

(Application filed June 8, 1900.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:

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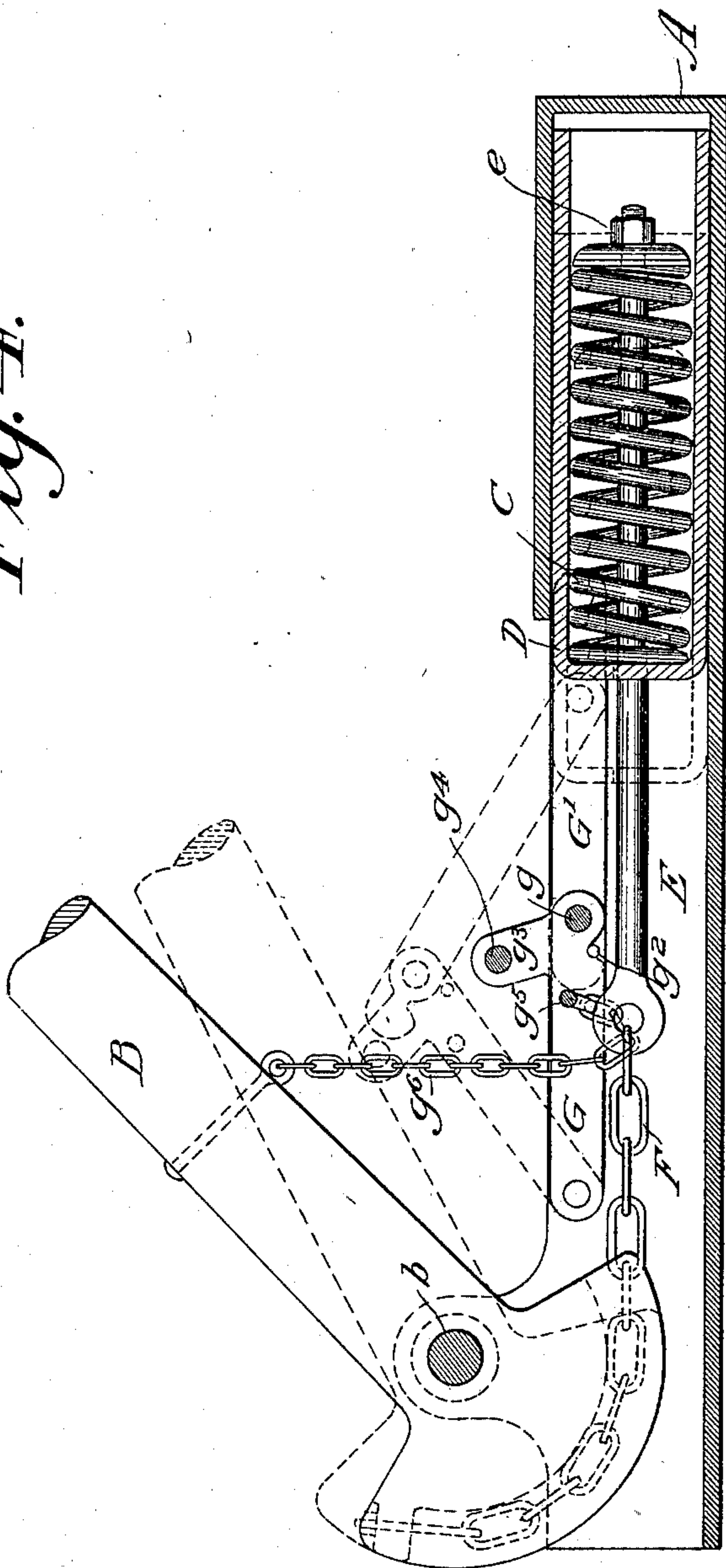
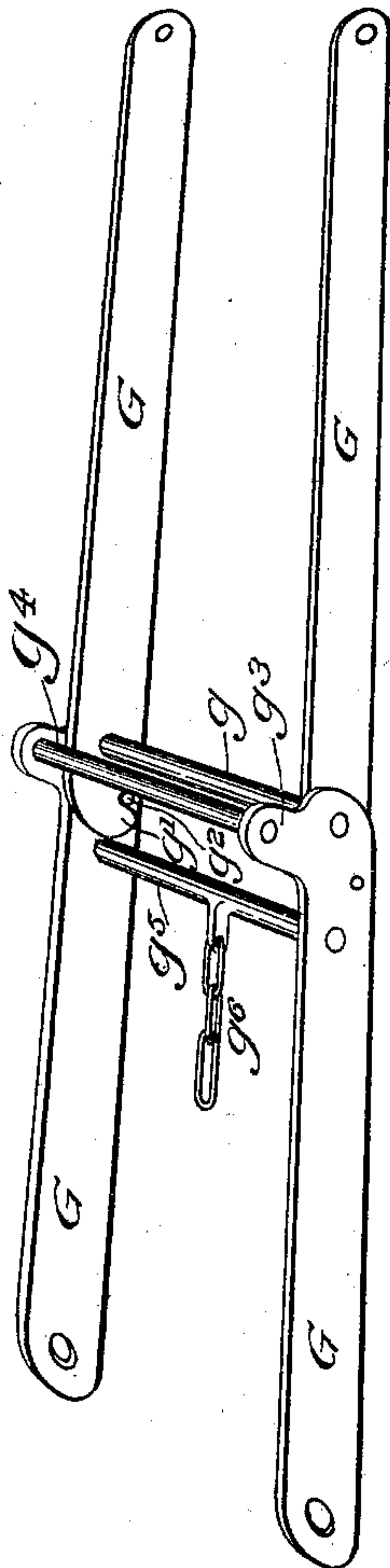
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2 Sheets—Sheet 2.



UNITED STATES PATENT OFFICE.

HENRY S. GOUGHNOUR, OF JOHNSTOWN, PENNSYLVANIA, ASSIGNOR TO
THE LORAIN STEEL COMPANY, OF PENNSYLVANIA..

TROLLEY.

SPECIFICATION forming part of Letters Patent No. 671,080, dated April 2, 1901.

Application filed June 8, 1900. Serial No. 19,639. (No model.)

To all whom it may concern:

Be it known that I, HENRY S. GOUGHNOUR, of Johnstown, in the county of Cambria and State of Pennsylvania, have invented a new and useful Improvement in Trolleys, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

My invention has relation to trolleys, and is designed to provide means of novel and effective character whereby when the trolley-wheel leaves the overhead conductor the trolley-pole will be caused to automatically assume a position where it cannot come in contact with span-wires or other overhead structures; also, to provide means for returning said pole to operative position controlled by the usual trolley-rope.

With these objects in view my invention consists in the combination, with a pivoted trolley-pole and a spring for holding the same normally in operative position, of toggle devices or their equivalent, which normally hold said spring under tension, and a connection between said toggle devices and the trolley-pole whereby the said devices will be automatically tripped by the action of the pole in assuming an upright position, thereby releasing the tension of the spring and permitting the pole to drop by gravity until stopped by its engagement with the said toggle devices, its position at such engagement being sufficiently low to enable it to clear overhead structures. A further depression of the pole, effected by a pull on the usual trolley cord or rope, returns the toggle devices to their normal position and restores the tension of the spring.

The invention also consists in the novel construction and combination of parts, all as hereinafter described, and pointed out in the appended claims, reference being had to the accompanying drawings, forming a part of this specification.

In the drawings, Figure 1 is a side elevation showing my improved trolley applied to a car, the position assumed by the trolley-pole when the tension on its spring is relieved being indicated by dotted lines. Fig. 2 is a plan view, with the pole broken away,

of the trolley-base. Fig. 3 is a view, partly in side elevation and partly in vertical section, showing the operative parts on a larger scale; and Fig. 4 is a perspective view of the toggle device.

The letter A designates the base-bracket, which is swiveled to the roof of the car in any suitable manner.

B is a trolley-pole pivoted to the bracket at b.

C is a helical spring which normally holds the pole in elevated position. This spring is seated in a slide D, mounted to move longitudinally in guides in the bracket A. One end of the spring bears against the front end of said slide and the other end against an adjusting-nut of a rod E, which is connected to the lower end portion of the pole by a chain F.

G G' designate toggle-arms arranged in two parallel pairs, the members G of which are pivoted at their forward ends to the bracket A and the members G' of which are pivoted at their rear ends to the forward end portion of the slide D. The adjacent ends of the toggles of each pair are pivotally connected by a rod or pin g, which also connects the two pairs of toggles. The toggles G' are formed with hook extensions g', which are designed to engage pins or studs g² on the members G, as shown in Figs. 3 and 4, and thus normally insure the toggles being held in their straightened positions. The members G are provided also with upward extensions g³, connected by a cross bar or rod g⁴. Said members G are also connected by a bar or rod g⁵, to which is connected one end of a short chain g⁶, whose opposite end is connected to the trolley-pole a short distance above its pivot.

The operation is as follows: When from any cause the trolley-wheel leaves the conductor and assumes an upright position, the resulting pull on the chain g⁶ disengages the hooks g' from the pins or studs g² and the toggles assume the buckled positions shown in dotted lines in Figs. 1 and 3. This of course releases the tension of the spring C, the slide D moving forward to the position indicated in said figures. The pole therefore drops by gravity until it comes in contact

with the cross-bar g^4 , the spring C receiving the impact of its fall and acting as a cushion therefor. In this position the pole is sufficiently low to avoid contact with span-wires and other ordinary overhead structures. To reset the spring and the pole to operative position, all that is required is a downward pull on the usual trolley cord or rope, thereby further depressing the trolley-pole and forcing the toggles back to their straightened positions, which of course also moves the slide D backward, compresses the spring, and elevates the pole.

In addition to its peculiar function of causing the pole to automatically assume a depressed position whenever the conductor leaves the wire the trolley-base above described has the advantage of being a very low base, which will permit the car to pass under low bridges and other low overhead structures and is in general a simple and efficient trolley-base. Herein and in the claims I have used the word "tension" in referring to the spring C as indicating the active condition of the spring, whether that condition be caused by extension or by compression. In the arrangement shown the active condition of the spring is due to compression; but it is obvious that the spring may be so arranged as to be operative under extension.

I do not wish to limit myself to the particular construction, arrangement, and combination of parts which I have herein shown and described, since various modifications thereof may be made without departing from my invention as pointed out in the appended claims.

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

1. In a trolley, the combination of a base, a pole pivoted thereto, a slide mounted in said base, a spring seated in said slide and bearing at one end against the same, a connection between the trolley-pole and the opposite end of the spring, means for normally holding said slide against movement and for automatically releasing the holding means when the pole escapes the trolley-wire, said holding means being arranged when released to be engaged by the pole in a depressed position thereof and thereby returned to normal position.

2. In a trolley, the combination of a base,

a pole pivoted thereto, a reciprocable spring-carrying member mounted on said base, a spring seated in said member and bearing against one end thereof, a connection between the opposite end of said spring and the pole, locking devices for normally holding said member against the action of the spring, and a connection between the pole and the said locking devices, the latter being also arranged to be engaged by the pole when it is depressed below its normal working position.

3. In a trolley, the combination of a base, a pole pivoted thereto, a spring-carrying member mounted on the base to move horizontally toward and away from the lower end of the pole, a spring seated in said member and bearing against the end thereof which is nearest the lower end of the pole, a flexible connection between said pole and the opposite end of the spring, means for normally holding said member against the action of the spring, and means for automatically releasing the same when the pole leaves the wire and for returning the same to normal position by manipulation of the said pole.

4. In a trolley, the combination of a base bracket or support, a pole pivoted thereto, a slide mounted thereon, a spring seated in said slide and bearing against the same at one end, and a connection between the opposite end of said spring and the lower portion of the pole, toggles connected to the said slide and to the bracket or support, and normally holding said slide and spring in working position, a trip connection between said toggles and the pole, and means whereof extreme depression of said pole returns the toggles, and thereby the slide and spring, to normal working position.

5. In a trolley, the combination of a base bracket or support, a pole pivoted thereto, a slide mounted therein, a spring seated in said slide and connected to the pole, the toggles pivoted to said bracket and slide, locking devices for holding said toggles in their straightened positions, a trip connection between the toggles and the pole, and a member carried by said toggles and arranged to be engaged by the pole in its depressed position.

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

HENRY S. GOUGHNOUR.

Witnesses:

BLANCHE M. SMITH,
H. W. SMITH.