

No. 777,581.

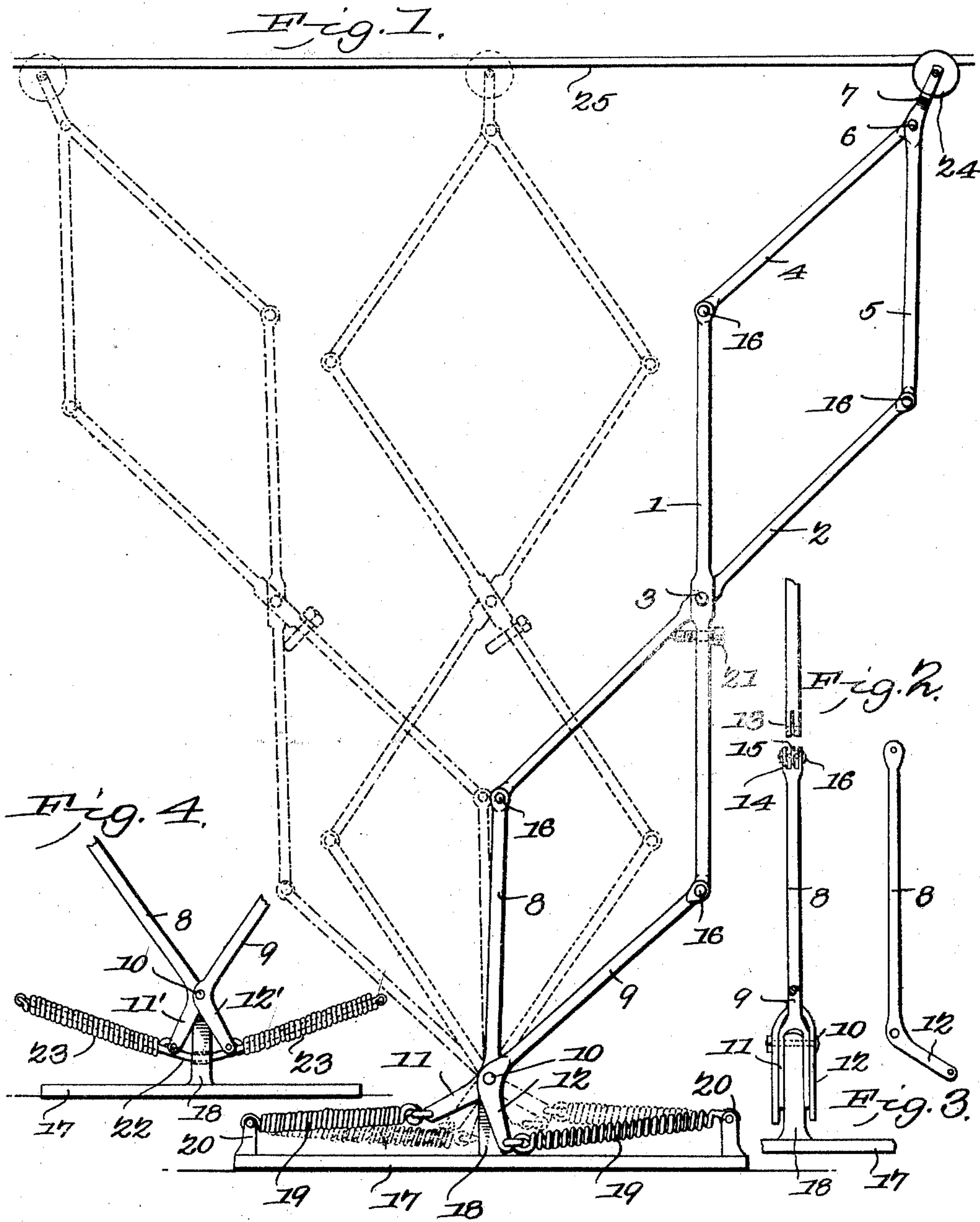
PATENTED DEC. 13, 1904.

J. L. YOUNG.
TROLLEY POLE.

APPLICATION FILED AUG. 26, 1904.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses

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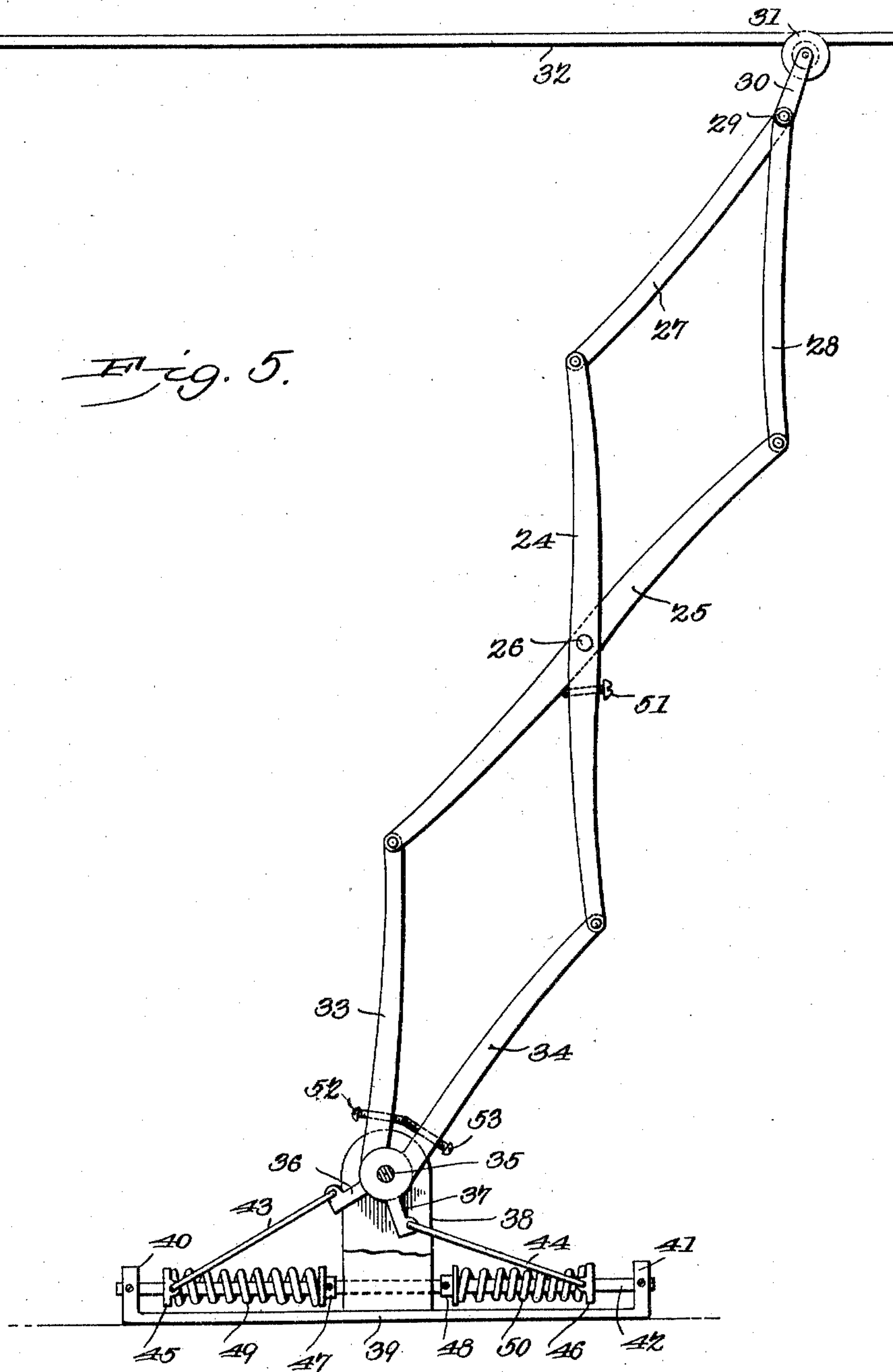
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2 SHEETS—SHEET 2.

Fig. 5.



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UNITED STATES PATENT OFFICE.

JOHN L. YOUNG, OF COLUMBUS, GEORGIA.

TROLLEY-POLE.

SPECIFICATION forming part of Letters Patent No. 777,581, dated December 13, 1904.

Application filed August 26, 1904. Serial No. 222,318. (No model.)

To all whom it may concern:

Be it known that I, JOHN L. YOUNG, a citizen of the United States, residing at Columbus, in the county of Muscogee and State of Georgia, have invented a new and useful Trolley-Pole, of which the following is a specification.

This invention relates to trolleys, and has for its object to provide an improved form of trolley-pole which is arranged to automatically shift its position by a reversing of the direction of movement of the car, so as to always trail without requiring manual manipulation, as is ordinarily necessary. It is furthermore designed to maintain the trolley-wheel in contact with the trolley-wire at all times, particularly when the pole is being automatically shifted, and to prevent the trolley-wheel from jumping the trolley-wire under rocking movements of the car.

Another object of the invention is to arrange the pole so that it may be readily connected with the ordinary form of stands now in common use.

With these and other objects in view the present invention consists in the combination and arrangement of parts, as will be hereinafter more fully described, shown in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that changes in the form, proportion, size, and minor details may be made within the scope of the claims without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is a side elevation of a trolley-pole of the present invention, shown in full lines at one limit of its movement and in dotted lines at its opposite limit and also at an intermediate position. Fig. 2 is a detail elevation illustrating one of the joints included in the trolley-pole. Fig. 3 is a detail side elevation of one of the lower trolley-pole members. Fig. 4 is a detail elevation of a modified arrangement of tension device. Fig. 5 is a side elevation of another form of the invention.

Like characters of reference designate corresponding parts in each and every figure of the drawings.

The present pole includes a lazy-tong construction and is made up of a pair of intermediate crossed rods or pole-sections 1 and 2, which are pivotally connected at their point of intersection, as indicated at 3. Upper links or pole-sections 4 and 5 are pivotally connected to the upper extremities of the members 1 and 2, respectively, and said links or members 4 and 5 are pivotally connected at their upper ends, as indicated at 6, one of the members 4 and 5 being extended above the pivotal connection 6 and formed into a harp 7, which is rigid with the member 5 and set at an angle thereto so as to assume an upright position in the upright position of the pole. To the lower ends of the members 1 and 2 are pivotally connected the lower pole-sections or rods 8 and 9, which converge downwardly and are pivotally connected near their lower ends, as at 10, from which pivotal connection said members are bowed outwardly, as at 11 and 12, so as to diverge downwardly, and are bifurcated or forked.

Each of the pole members 1 and 2 terminates at each end of the members in a fork 13, as best indicated in Fig. 2, to fit within the forked terminal 14 of the adjacent pole member, the latter fork having an intermediate longitudinal partition 15 to fit between the members of the fork 13, with a pivot-pin 16 set through the two forks and the partition 15, thereby forming a strong and durable pivotal connection.

For the support of the lower end of the pole there is the usual stand or turn-table 17, provided at its center with an upstanding post 18, which is straddled by the lower forks 11 and 12 and is pierced by the pivotal connection 10, which therefore serves to mount the pole upon the post 18 as well as to pivotally connect the lower pole members 8 and 9.

As shown in Fig. 1 of the drawings, helical springs 19 are connected to the lower terminals of the lower pole members 8 and 9 and also to the turn-table or stand, as at 20, thereby to form a tension device for separating the lower ends of the pole members 8 and 9 upon their pivotal support 10, and thus extend the lazy-tong pole construction to its limit, which is gaged by the limiting set-screw 21, pierc-

ing one of the intermediate pole members 1 and 2 below and adjacent their pivotal connection 3, so as to engage with the other pole member.

5 A modified form of tension device has been shown in Fig. 4, wherein the lower terminals 11' and 12' of each pole are forked, there being an arcuate rod 22 passed through the post 18 and the fork members 11' and 12', with
10 helical springs 23 embracing the end portions of the rod and connected to the respective pole-terminals 11' and 12' and also to the respective ends of the rods, so as to tend to normally separate the lower ends of the rod members, and thus extend the pole.

15 From the foregoing description it will be understood that the lazy-tong pole construction tends to trail in either direction of movement of the car, and the trolley-wheel 24, which is of common or preferred form, is maintained in engagement with the trolley-wire 25 through the tension of the springs, which serve to support the pole in an elevated position as well as to extend the lazy-tong construction. When the direction of movement
25 of the car is changed, the pole will partially collapse under the endwise pressure thereon of the car and the trolley-wire until the pole assumes a vertical position, after which it will be extended under the action of the springs, so as to compensate for the increased distance
30 between the trolley-stand and the trolley-wire until the pole reaches the proper trailing position, when it will be supported in this position by the spring. It will thus be understood that the shifting of the trolley-pole from one trailing position to the opposite trailing position is automatic and controlled by reversing the direction of movement of the car,
35 whereby it is not necessary to manually shift the trolley-pole, as in the ordinary form of pole.

40 It will here be explained that the set-screw 21 is designed to render the lazy-tong construction rigid in the most effective trailing position of the pole, and it is not necessary to shift the set-screw except to take up wear or where the car is transferred to another line wherein the distance between the top of the car and the trolley-wire differs from the distance for which the pole was originally set.
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In Fig. 5 of the drawings there has been shown another form of the present invention wherein the intermediate crossed pole-sections
55 24 and 25 are pivotally connected, as at 26; but instead of being straight, as in Fig. 4, the end portions of each section are slightly curved or bowed in opposite directions, with the corresponding ends of the two sections diverged. The uppermost sections 27 and 28
60 are bowed inwardly and are pivotally connected at their upper ends, as at 29, one of the upper sections being extended to form a trolley-harp 30, carrying the usual trolley-wheel
65 31, which is designed to travel upon the trol-

ley-wire 32. The lowermost sections 33 and 34 of the pole are bowed inwardly and downwardly and are pivotally connected, as at 35, and provided with the respective diverged extensions 36 and 37. The pivotal connection 70 35 is supported upon a bracket 38, which rises from the base or stand 39. At the opposite ends of the stand 39 are the upstanding posts or shoulders 40 and 41, which support a substantially horizontal bar 42. Links 43 and 44 75 are pivotally connected to the lower extremities 36 and 37 of the pole and are provided at their outer ends with the followers 45 and 46, mounted to slide upon the rod 42. At opposite sides of the bracket 38 and fixed upon the
80 rod 42 are the shoulders or abutments 47 and 48, there being suitable helical springs 49 and 50, embracing the rod between the shoulders or abutments and the respective followers, thereby to place a tension upon the pole and
85 maintain the latter yieldably extended. An adjustable set-screw 51 pierces the lower portion of the intermediate pole-section 24 in the path of the pivotal movement of the pole-section 25, thereby to form a stop for limiting
90 the extension of the pole. Similar limiting-screws 52 and 53 pierce the lower portions of the pole-sections 33 and 34 for mutual engagement.

The particular advantage of the pole construction having the bowed sections resides in the greater leverage obtained to open or extend the pole automatically when the car drops away from the trolley-wire when passing over low places in the track. 100

Having thus described the invention, what is claimed is—

1. A trolley-pole including a lazy-tong construction made up of intermediate crossed pole-sections which are pivotally connected at their point of crossing, upper pole-sections pivotally connected to the upper ends of the intermediate sections and having a mutual pivotal connection at their upper ends, a harp carried by one of the upper pole-sections, lower pole-sections pivoted to the lower ends of the intermediate sections with their lower ends pivotally connected, a support for the pivotal connection of the lower pole-sections, and a tension device to yieldably extend the lazy-tong construction. 110 115

2. In a trolley, the combination with a support having a post, of a trolley-pole made up of intermediate crossed pole-sections pivotally connected at their point of crossing, downwardly-converged lower pole-sections hinged to the intermediate sections and pivotally connected near their lower ends, said lower ends being diverged and forked to straddle the post with the pivotal connection of the pole-sections engaging the post as a support, upwardly-converged pole-sections pivotally connected to the intermediate crossed sections with their upper ends pivotally connected, one of the upper pole-sections provided at its up- 120 125 130

per end with a harp, and a tension device connected to the lower ends of the lower pole-sections to yieldably extend the lazy-tong construction.

- 5 3. A trolley-pole including a lazy-tong construction having crossed and pivotally-connected pole-sections, and a set-screw piercing one of the pole-sections and extended into the path of the pivotal movement of the other

section to form a stop therefor to limit the extension of the lazy-tong construction.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JOHN L. YOUNG.

Witnesses:

W. L. BOWMAN,

E. J. HULL.