

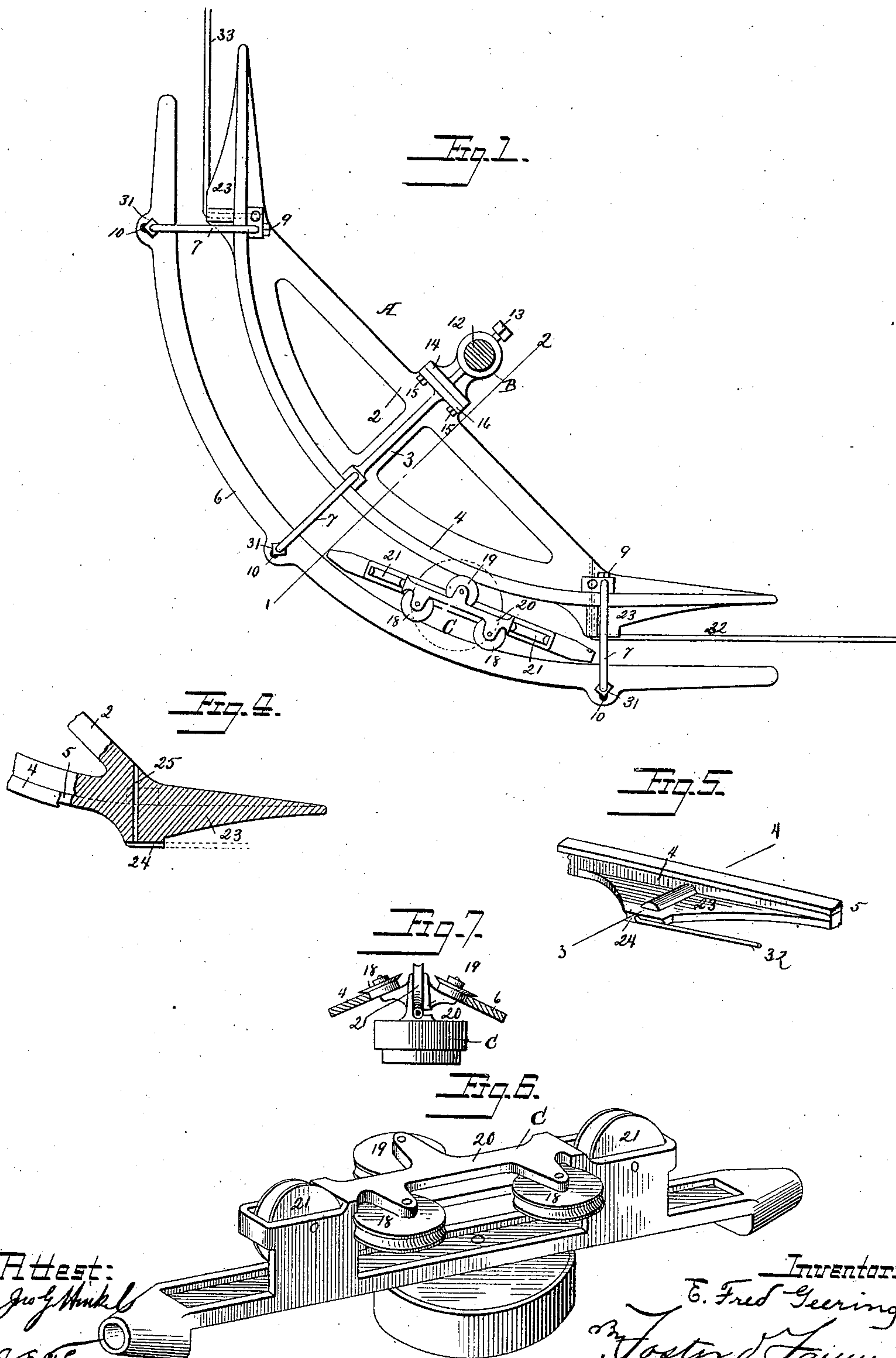
(No Model.)

2 Sheets—Sheet 1.

E. F. GEERING.
STORE SERVICE APPARATUS.

No. 370,778.

Patented Oct. 4, 1887.



Attest:
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Inventor:
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(No Model.)

2 Sheets—Sheet 2.

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Fig. 2.

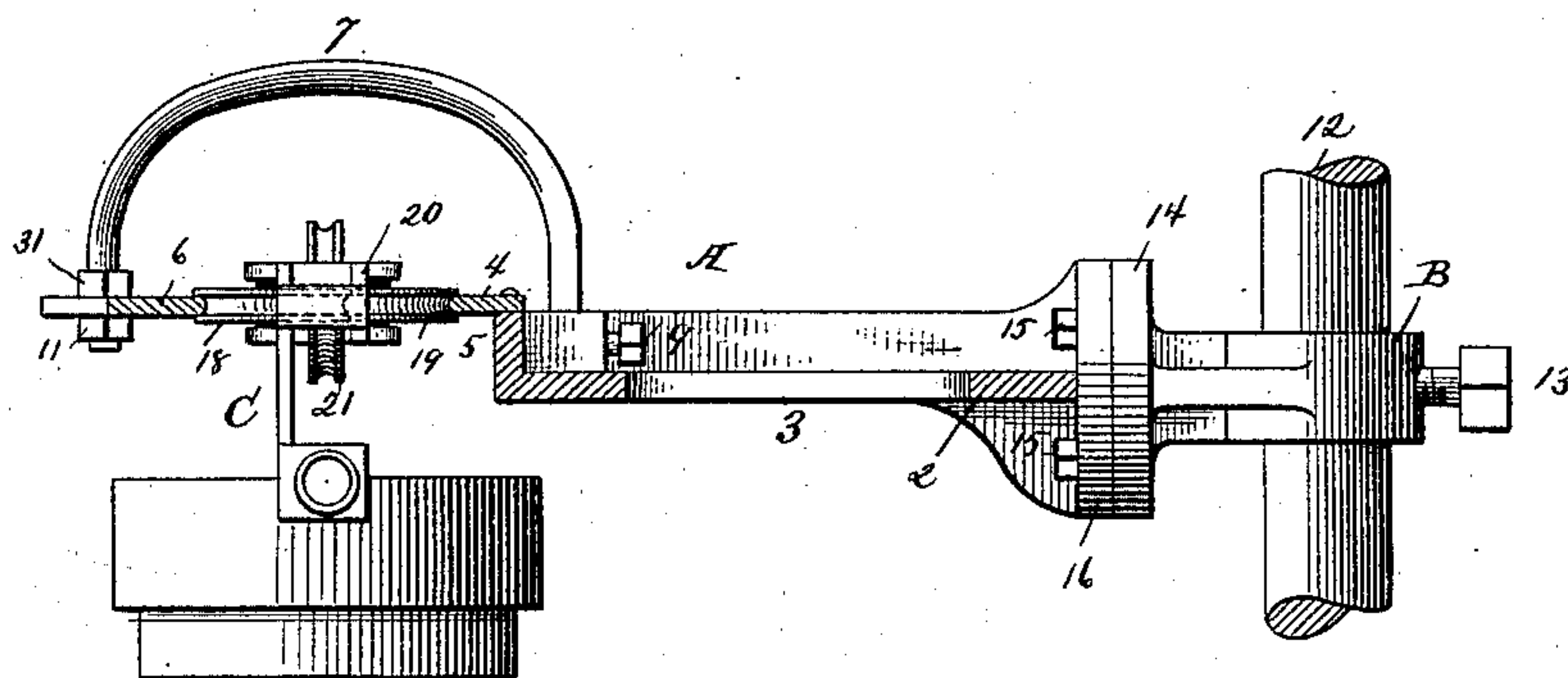
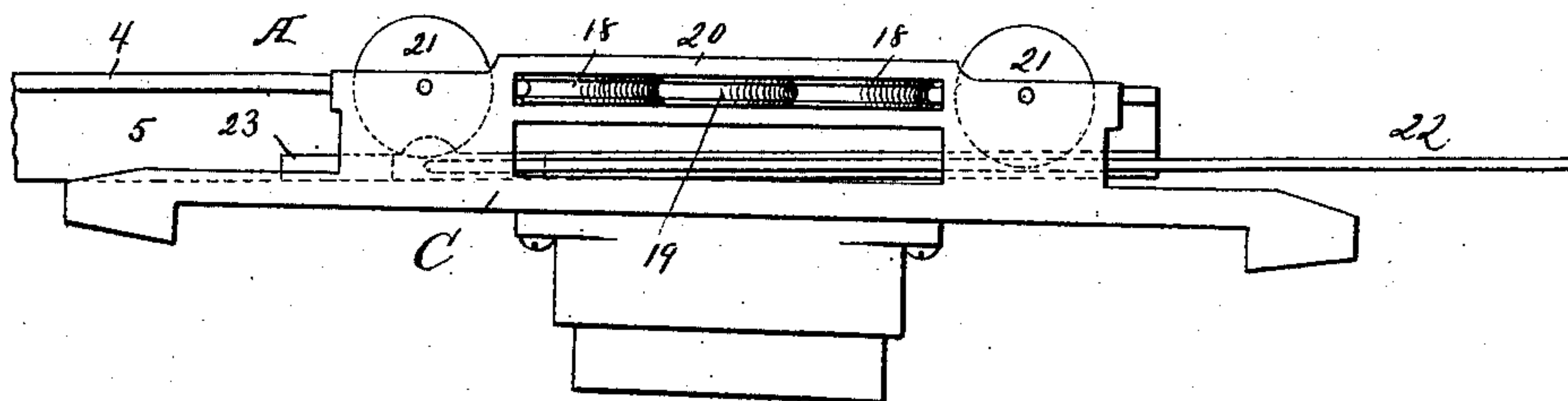


Fig. 3.



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UNITED STATES PATENT OFFICE.

E. FRED. GEERING, OF DETROIT, MICHIGAN, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE LAMSON STORE SERVICE COMPANY, OF BOSTON, MASSACHUSETTS.

STORE-SERVICE APPARATUS.

SPECIFICATION forming part of Letters Patent No. 370,778, dated October 4, 1887.

Application filed October 16, 1886. Serial No. 216,449. (No model.)

To all whom it may concern:

Be it known that I, E. FRED. GEERING, a citizen of the United States, and a resident of Detroit, Wayne county, Michigan, have invented certain new and useful Improvements in Store-Service Apparatus, of which the following is a specification.

My invention relates to that class of store-service apparatus in which single straight tracks and curves are used; and my invention consists in constructing the curve and the car, as fully set forth hereinafter, so as to permit the car to traverse the curve-sections freely, with but little friction and without danger of derailing.

In the drawings forming part of this specification, Figure 1 is a plan showing part of two straight wire track-sections and the improved curve-section. Fig. 2 is an enlarged section on the line 1 2, Fig. 1. Fig. 3 is an edge view of one end of the inner rail of the curve-section. Fig. 4 is an enlarged horizontal section on the line 3 4, Fig. 5. Fig. 5 is a detached perspective view of part of the inner curved rail. Fig. 6 is a perspective view of the car. Fig. 7 is a section illustrating a modification.

In that class of store-service apparatus in which the cars travel upon wireways difficultly has been experienced in changing the direction of the way in such manner as to avoid the liability of the cars to either run off the track at the curves or to be arrested at such points, owing to the excess of friction. I overcome these difficulties by the use of curve-sections connecting with the straight wire sections, provided with two parallel curved tracks in connection with cars, each provided with one pair of wheels arranged vertically for traversing the wire tracks, and with additional wheels arranged at an angle to the others for traversing the curve-sections. The curve-sections may be variously constructed, and may be used in connection with cars of different forms, provided each curve-section has two parallel rigid tracks and each car two sets of wheels, one in a horizontal and the other in a vertical plane.

In the construction of curve shown in the drawings there is a metallic frame, A, in the

form of an arc, and chord 2, a connecting-strip, 3, bracing the whole with the inside rail, 4, at the edge of the arc. As shown, there is a curved flange, 5, at the curved edge of the frame, to which a separate rail-piece is bolted, and which elevates the track above the upper face of the frame.

The outside track, 6, consists of a curved bar upon the same horizontal plane as the rail 4, the inner edge of which track-bar is parallel to the outer edge of the rail 4. The outer rail is supported in position in relation to the inner rail by means of yokes 7, each being an arched or curved bar, one end fitting a socket in the frame A, where it is secured by a set-screw, 9, and the other end extending through a radial slot, 10, in the rail 6, and being threaded and supplied with a shoulder, 31, and nut 11, so that the outer rail may be adjusted to and from the inner rail, and there secured and held in place by means of the nuts and yokes.

The frame A is supported in any desirable manner. When, as shown, it is constructed to be suspended, it is provided with an eye or socket to receive the suspension-bar 12, and with a set-screw, 13, to hold it in place. The socket may be formed in a separate socket-piece, B, provided with a disk, 14, corresponding to a similar disk, 16, upon the frame, and bolts 15 secure the disks together. This permits the curve-piece to be removed readily from its support and the ready adjustment of the curve-piece to a suitable angle or inclination, the bolt-holes in the disk 16 permitting the latter to turn slightly upon the fixed disk 14 when the bolts are loosened.

The car C is provided at its outer side with two grooved wheels, 18 18, and at the opposite side with a single grooved wheel, 19, this arrangement facilitating the turning of the car by securing positive bearings upon both rails without binding and with little friction or resistance. The wheels 18 19 turn upon bearings supported by the frame 20 of the car, and the latter also supports the bearings of the vertical grooved wheels 21 21, which run upon the wire track, and are preferably arranged with their bearings upon a line midway between the bearings of the wheels 18 19.

The frame is otherwise constructed and provided with a receptacle, as circumstances may require.

The portions 32 33 of the wireway terminate at about the points where the wheels 18 19 take their bearings upon the curved rails. To support and define the position of the wire sections, the curve-section is provided with blades 23 23, each projecting from one of the rails or its supports, (the inner rail support or frame, A, as shown,) the edge of the blade having a groove, 24, to receive the wire, and a recess or opening, 25, extending laterally from said groove through the frame. The wire extends from the groove into the hole, and after being drawn taut is secured by means of a set-screw, which is brought to bear firmly upon it.

The ends of the rails 4 6, instead of being parallel, like the curved parts, slightly diverge, so that as the car approaches the curve it will pass between the rails without possibility of abutting against the rails, and the grooved peripheries of the wheels 18 19 will engage with the bearing edges of the rails 4 6 before reaching the curved portions and before the forward wheel, 21, passes beyond the end of the straight section of the track. The rails 4 6 are also inclined slightly upward from the ends toward the part where they begin to curve, so that the bearing edges of the rails at the ends will exactly coincide with the grooves of the wheels 18 19 at the point where the latter first come into contact with the rails, but then rise, so as to gradually lift the car thus mainly supported by the rails until the forward wheel is above the end of the wire section, by which time said wheel will be elevated above the said wire section. The car is thus caused to pass onto the curved rails and from the straight way-section without shocks or jolts, and as it has but a single wheel at one side it can turn or swing freely to accommodate itself to its curved path with but little friction, while, as it has two wheels at the opposite side, it is prevented from tilting out of a horizontal plane.

It is not absolutely essential that the wheels 18 19 be in a plane at right angles to the wheels 21. They may be set at an inclination thereto, as shown in Fig. 7, the rails 4 6 being also inclined.

Without limiting myself to the precise construction and arrangement of parts shown, I claim—

1. In a store-service apparatus, a curve-section provided with two parallel curved track-rails connecting with the straight rails, in combination with cars provided with two sets of wheels arranged at an angle to each other, whereby one set of wheels supports the car upon the straight rails and the other set supports it upon the curved rails, substantially as described.

2. The combination, with the wireway section of a store-service apparatus, of a curve-section having two parallel curved track-rails

with bearings midway between and at or about the ends of said rails for supporting the terminals of the wire sections, substantially as described.

3. The combination, with the curved track-rails 4 6 of a curve-section, of straight wire sections terminating between the said rails, and cars provided with two independent sets of wheels arranged at angles to each other, whereby they respectively engage the straight and curved parts of the way, substantially as described.

4. The combination of the two track-rails 4 6, having a blade projecting laterally from one rail toward the other, and a wire section terminating at the edge of said blade midway between said curved rails, substantially as described.

5. The combination of the curve-section composed of two parallel track-rails, and a blade, 23, projecting from one rail toward the other, and having a recess, 25, and a wire section bearing against the edge of the blade and bent and extending into the recess and there secured, substantially as described.

6. The parallel track-rails of a curve-section arranged in the same horizontal plane, and having a blade extending from one rail toward the other and terminating midway between the two to form a bearing for the end of a wire section, and having a lateral recess into which the wire extends, substantially as described.

7. The combination, in a curve-section, of a frame having a curved edge, a parallel curved track-rail in the same horizontal plane, provided with slots, and yokes carried by the frame and extending into said slots, and adjustably secured therein, substantially as described.

8. The combination of a frame, A, a curved track-rail secured thereto, a second track-rail parallel with the first and in the same horizontal plane, and connecting-yokes extending through slots in the outer rail and provided with nuts, substantially as described.

9. The combination, with the straight wire sections, of a curve-section connecting the terminals of the straight sections and provided with track-rails inclined from the ends upward, said rails being in the same horizontal plane, substantially as and for the purpose set forth.

10. The combination, with straight way-sections, of curve-sections connecting the straight sections and composed of two parallel curved track-rails in the same horizontal plane and having their ends diverging upon opposite sides of the terminals of the straight sections of the track, the ends of the latter sections terminating midway between the curved rails, substantially as described.

11. The combination, with the straight way-sections, of parallel curved rails in the same horizontal plane and on opposite sides of the ends of the straight sections, said rails being

inclined upward from the ends, substantially as and for the purpose set forth.

12. The combination, with the straight way-sections, of the curved track-rails on opposite 5 sides and independent of the ends of said straight sections, and diverging and inclined to support cars having two sets of wheels, substantially as and for the purpose set forth.

13. A car for store-service apparatus pro- 10 vided with two sets of wheels arranged at angles to each other, as described, whereby the car is supported on the straight sections of track by one set of wheels and on the curved sections of track by the other set, substantially 15 as set forth.

14. A car for store-service apparatus provided with a set of vertical supporting-wheels

arranged one in front of the other centrally above its longitudinal axis, and with a second set 20 of supporting-wheels arranged at an angle to the first set on opposite sides thereof, in combination with a way composed of straight sections of track and curve track-sections connecting the straight sections, the curve-sections consisting of two parallel curved rails, 25 substantially as and for the purpose described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

E. FRED. GEERING.

Witnesses:

WM. N. PERRY,
JOHN W. FOX.