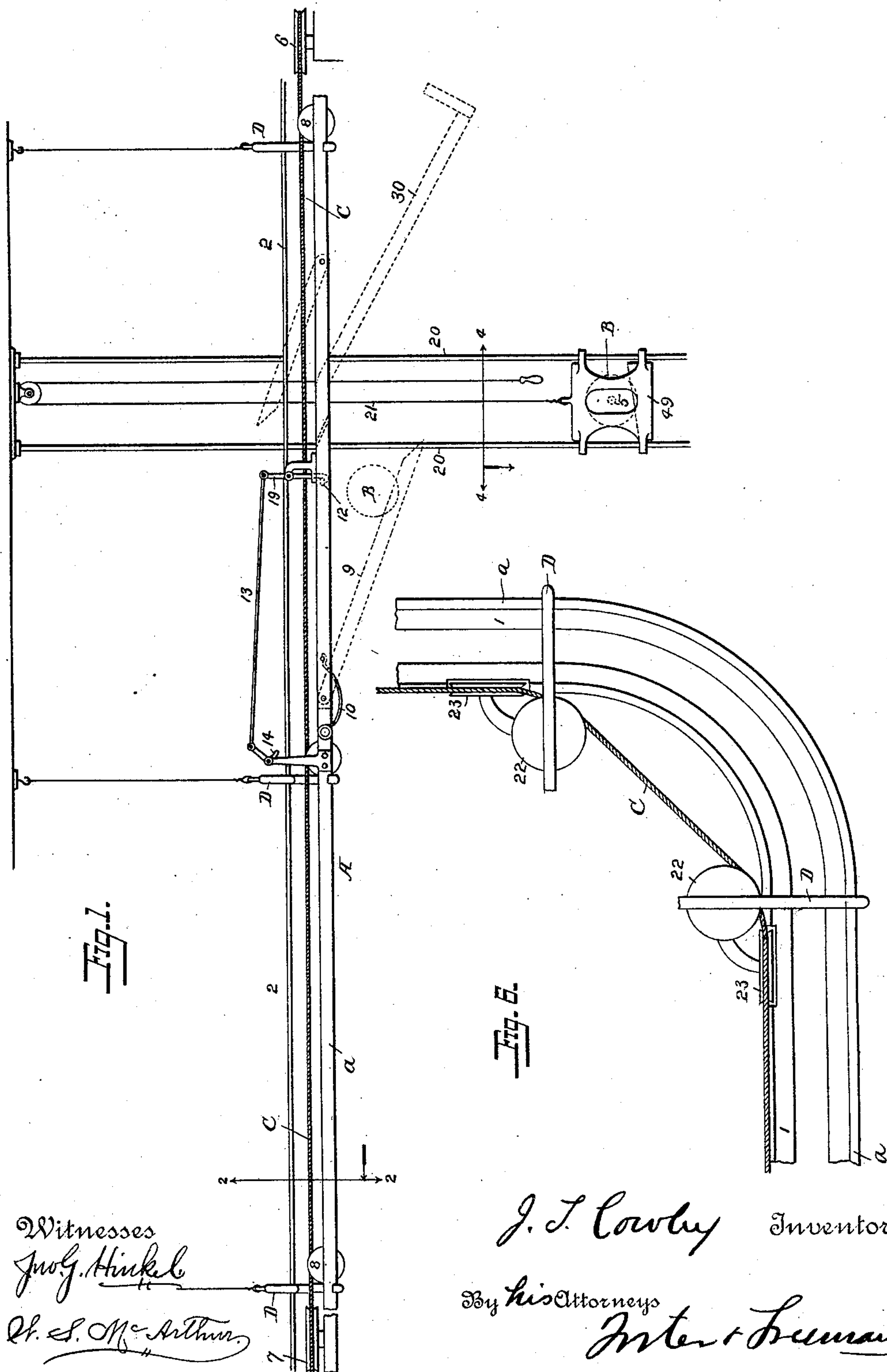


3 Sheets—Sheet 1.

Patented May 19, 1891.

No. 452,473.



Witnesses
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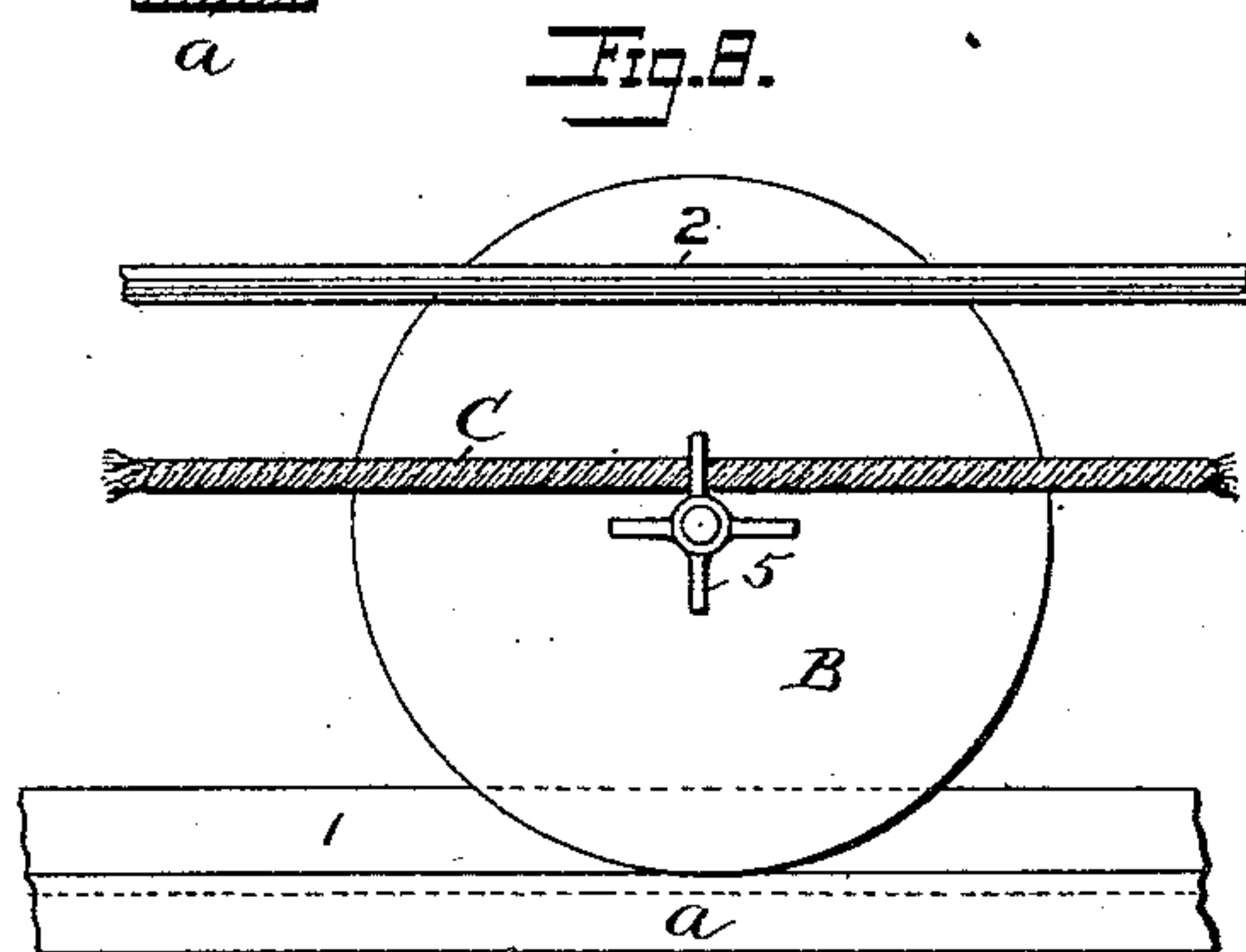
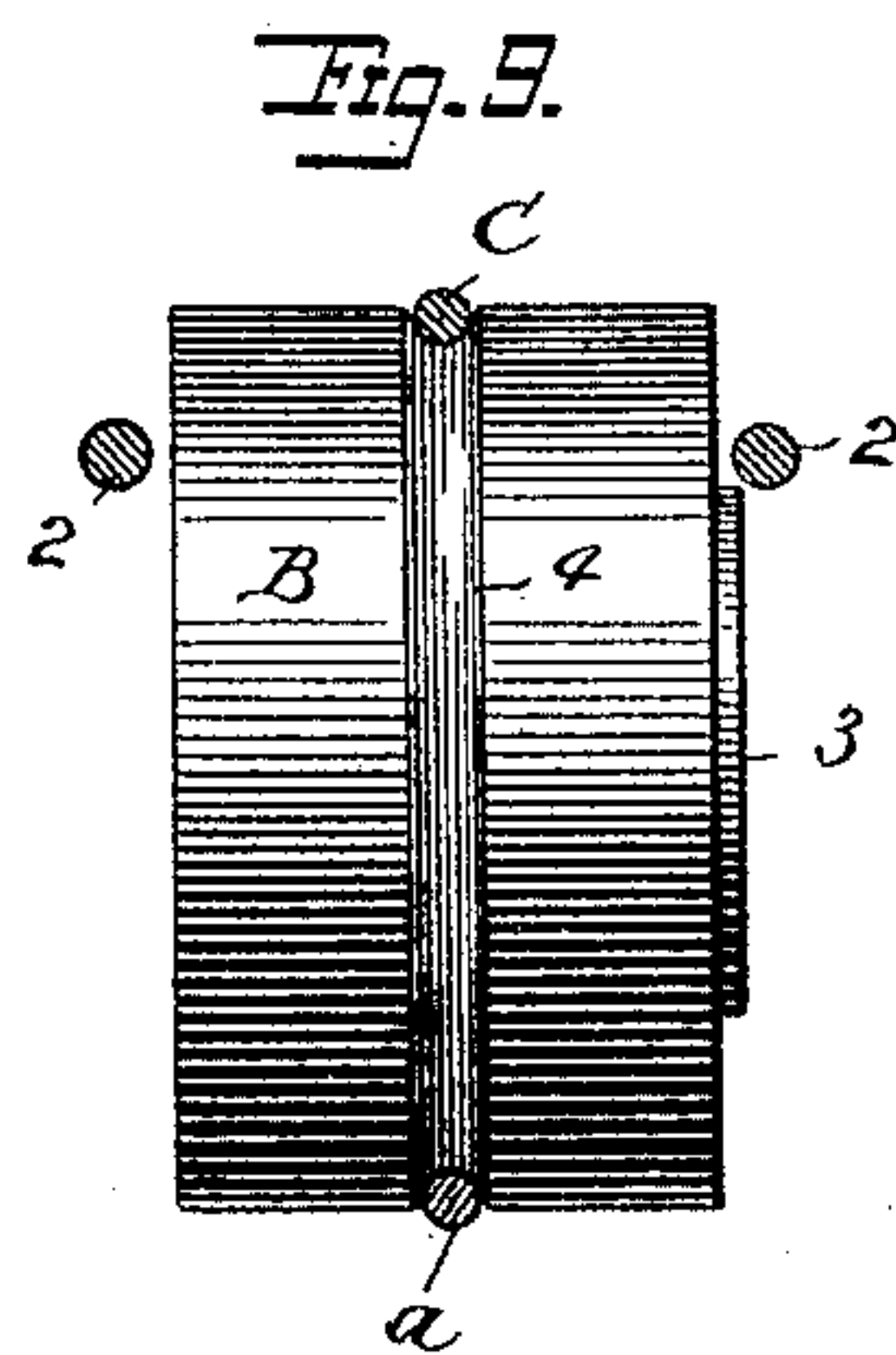
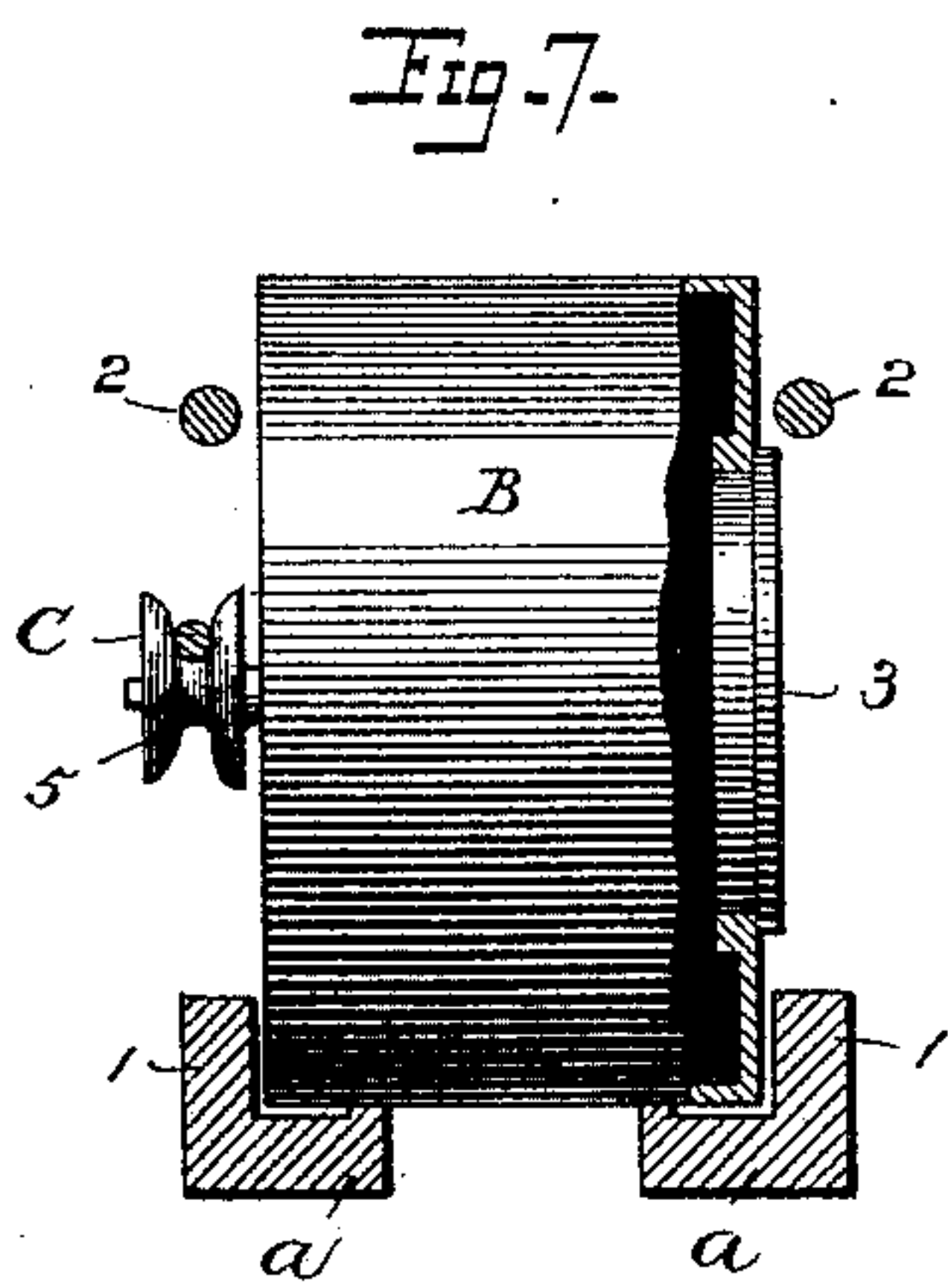
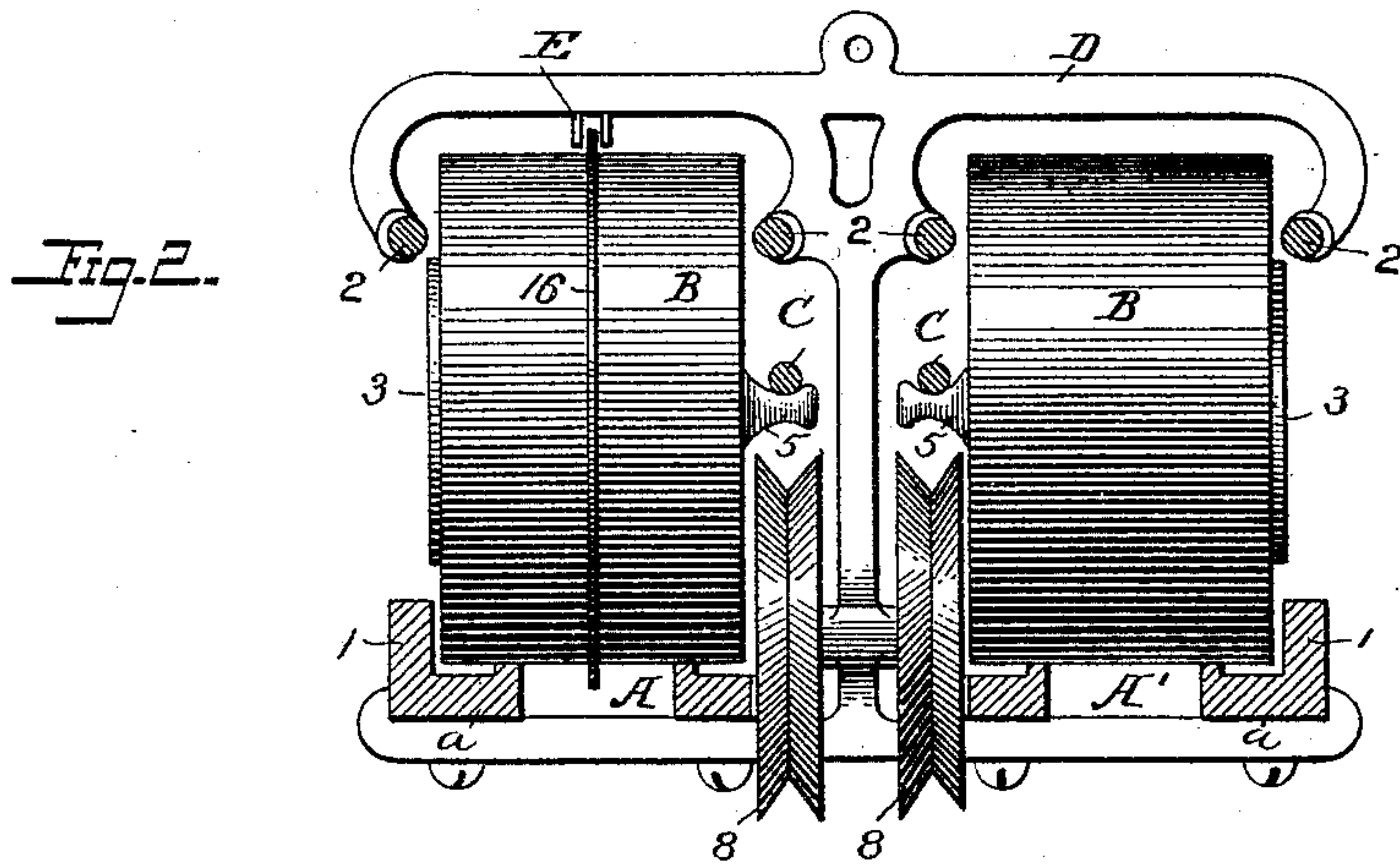
(No Model.)

3 Sheets—Sheet 2.

J. T. COWLEY.
STORE SERVICE APPARATUS.

No. 452,473.

Patented May 19, 1891.



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(No Model.)

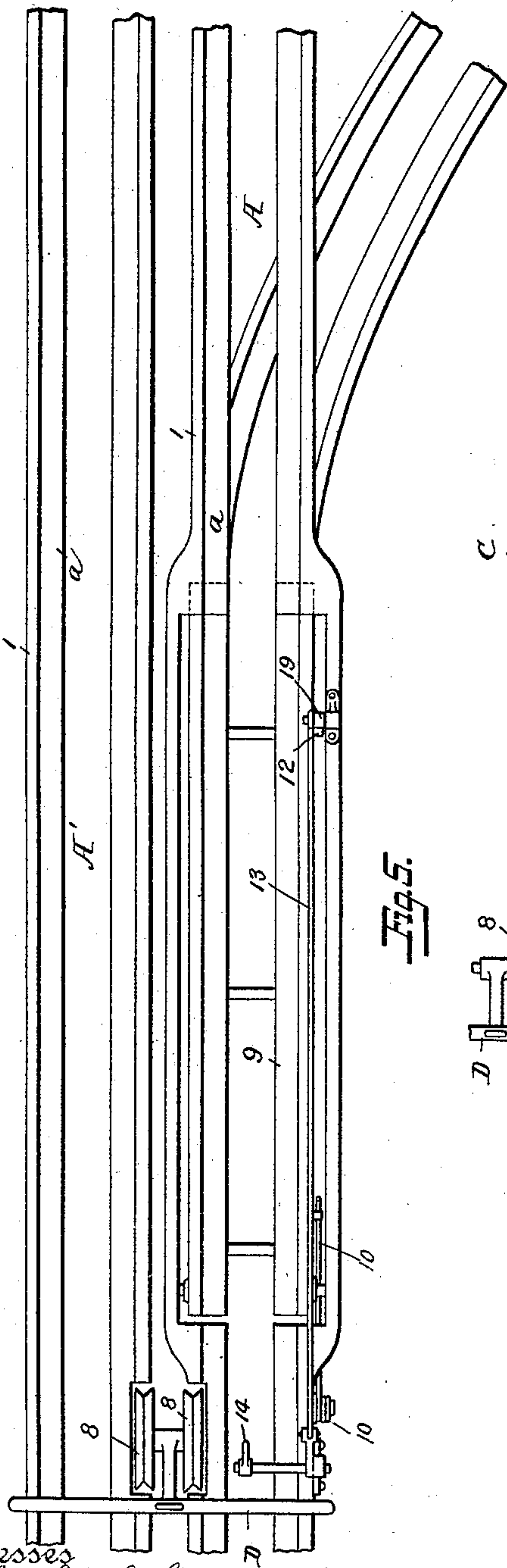
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J. T. COWLEY.
STORE SERVICE APPARATUS.

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Patented May 19, 1891.

Fig. 3.



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Fig. 5.

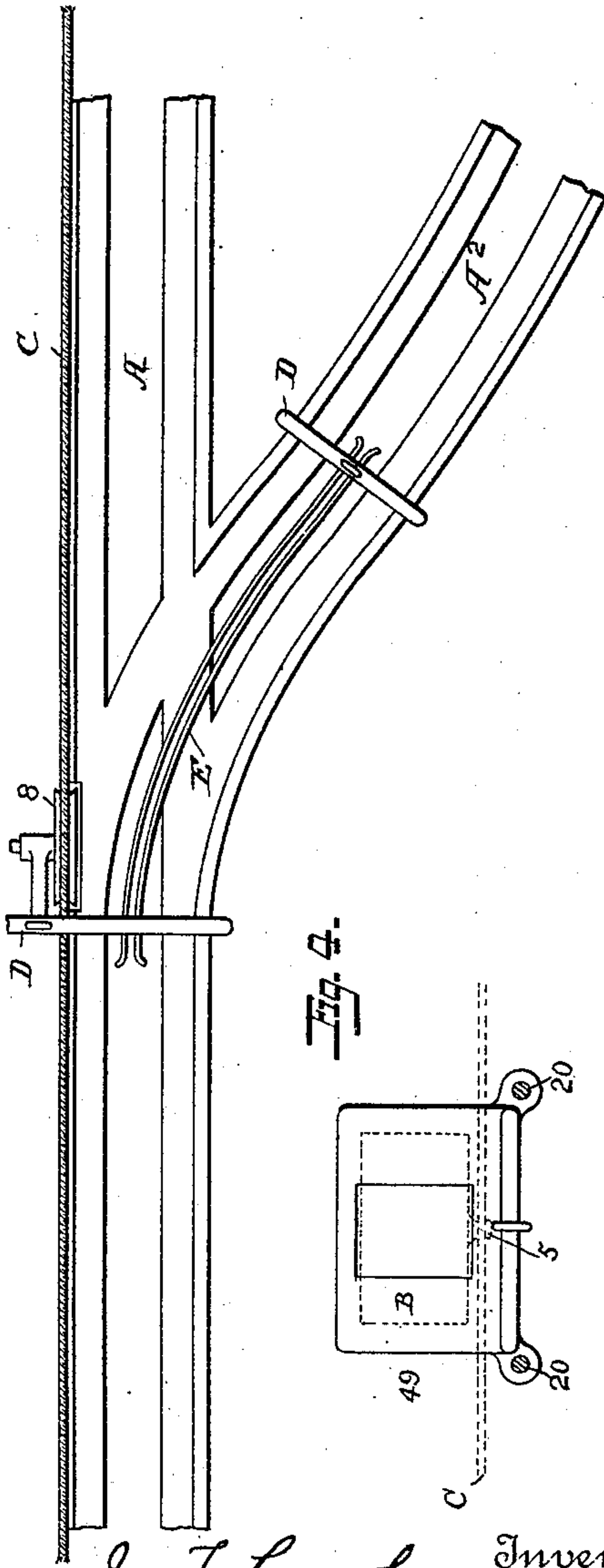
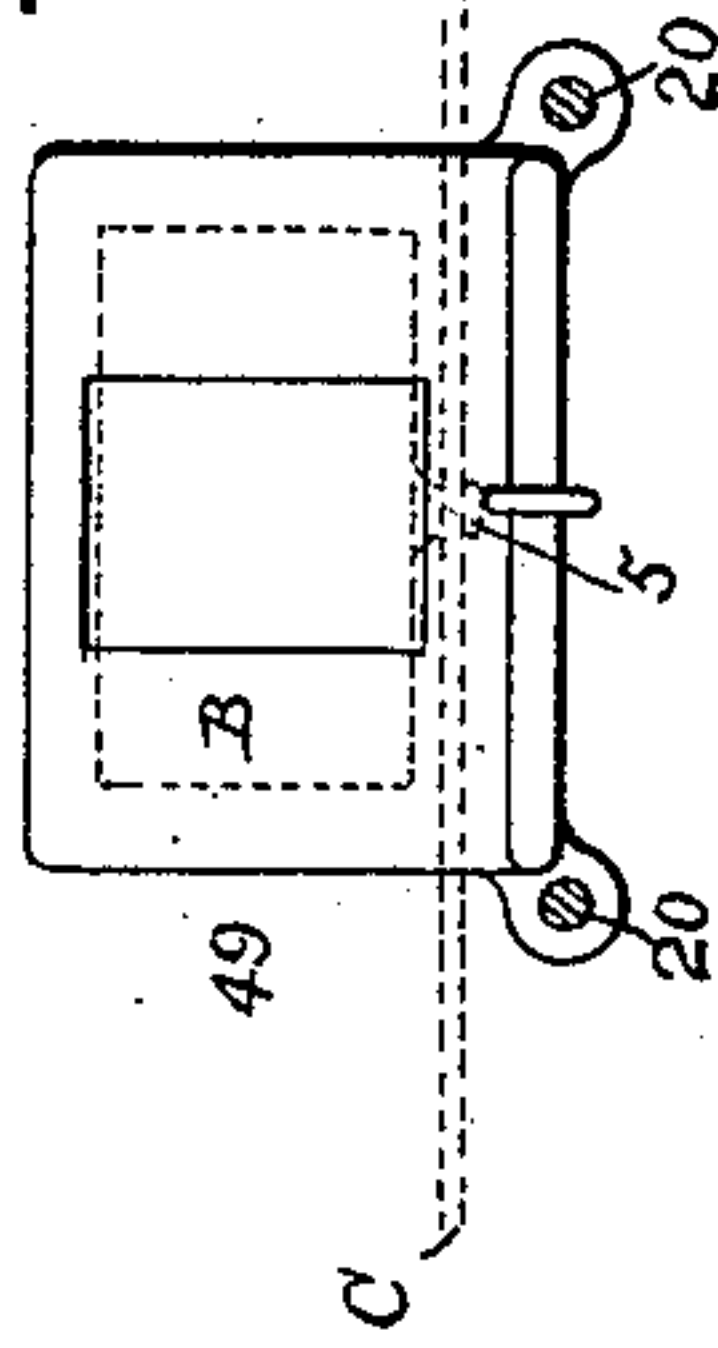


Fig. 4.



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UNITED STATES PATENT OFFICE.

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STORE-SERVICE APPARATUS.

SPECIFICATION forming part of Letters Patent No. 452,473, dated May 19, 1891.

Application filed December 24, 1889. Serial No. 334,814. (No model.)

To all whom it may concern:

Be it known that I, JAMES T. COWLEY, a citizen of the United States, residing at Lowell, Middlesex county, Massachusetts, 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 rolling carriers are employed; and my invention consists in the means, fully set forth hereinafter, for driving said carriers by the frictional contact of a continuously-driven cable.

The invention further consists in the construction of the parts and in appliances for use in connection with rolling carriers driven by a cable.

In the accompanying drawings, Figure 1 is a part side elevation of sufficient of a store-service apparatus to illustrate my invention. Fig. 2 is an enlarged transverse section on the line 2 2, Fig. 1, looking in the direction of the arrow. Fig. 3 is a plan view of the apparatus at the junction of one of the branch tracks. Fig. 4 is a sectional plan on the line 4 4, Fig. 1. Fig. 5 is a plan showing the arrangement of track, cable, and switch-plate at the junction of one of the branch tracks. Fig. 6 illustrates the relative arrangement of the track and cable at a curve. Figs. 7 and 8 are views illustrating modified forms of bearings for the cable upon the carriers. Fig. 9 is a view illustrating a different form of track and carrier constructed for frictional contact of the cable at the periphery.

The main features of my invention may be employed in connection with systems having different forms of ways and carriers.

As shown in Figs. 1 to 7, the way consists of two parallel rails *aa*, provided with flanges 1, or instead of flanges guard rails or wires 2 may be employed to prevent any lateral movements of the carriers from the way, except at the proper points, when turn-outs or switches are employed.

In my improved apparatus the carriers are rolling carriers, each carrier B, as shown, being in the form of a hollow cylinder containing the receptacle for the money or other matter and provided with a detachable cap or cover 3 in any suitable position. The ways are

horizontal, or are preferably horizontal, and the rolling carriers are driven thereon by means of a traveling cable C, which, instead of being fastened to the carriers by grip or catch devices, as usual, bears frictionally upon a moving surface of the carrier tangentially thereto, so that the effect of the moving cable is twofold: first, to drag the carrier with it in the direction in which the cable moves, and, second, to rotate the carrier, thereby facilitating its travel. The cable C may thus bear directly upon the periphery of the rolling carrier B, as shown in Fig. 9, where the carrier is provided with a circumferential groove 4, in which the cable rests, drawing the carrier with it and at the same time imparting to it positively a rotary motion, which facilitates its travel upon the way. The cable may rest directly upon the periphery of the carrier, or it may bear upon a portion of the carrier less in diameter than the body. Thus in Fig. 2 each carrier is shown as provided with a projection 5 at one side, the periphery of which is concentric with the axis of the carrier, and upon which the cable C bears, and this periphery may have a groove, as shown in Fig. 2, which groove may be V-shaped, as shown in Fig. 7, so as to insure the cable being held frictionally between the sides thereof to prevent slipping. The projection 5, instead of being in the form of a disk, may be provided with a series of radial notched arms, as shown in Fig. 8, the practical effect being the same in both cases.

In the construction shown in Figs. 1 and 2 the continuous cable C passes around terminal pulleys 6 7, one of which is a driving-pulley connected with any suitable motor, and there are supports for the cable at suitable points, of any desirable character. As shown, each support 8 is in the form of a grooved wheel or pulley turning upon a stud of the bracket D, that supports the forwarding-way A and return-way A'. The supports 8 are arranged at such a height that the cable-bearing projections 5 of the carriers will pass above them.

In order to arrest each carrier at its proper station, I provide the way with switches of any ordinary or suitable character. For instance, at each station a section of the way

may be pivoted to swing downward, forming a switch-section 9, Fig. 1, of a character similar to that shown in Letters Patent to Hayden, No. 295,248, except that the switch-section is preferably supported by a spring 10, capable of yielding under the superior weight of the carrier and locked by a catch-lever 19, engaging a stud 12, and connected by a rod 13 with a pivoted arm 14, arranged to be struck by the carrier. The carriers are preferably of different sizes, and the arms 14 are so arranged that each will be struck only by the carriers that are to be switched from the track at that point.

When branch tracks at a different level are used, the carriers will be transferred thereto by means of switch-sections 9, as set forth in Letters Patent to W. S. Lamson, No. 292,923. I prefer, however, to extend said branch tracks from the main tracks upon the same level, as shown in Fig. 5, the carriers being deflected to one side in any suitable manner. For instance, switch-plates E are supported above the path of the carriers and extending therefrom toward the side tracks A², Fig. 5, and each carrier is provided with a peripheral flange 16, so arranged as to strike the proper switch-plate E, whereby it is guided laterally away from the main track and from the propelling-cable onto the side track A². When the side track A² is longer than the distance to which the carriers can be carried by momentum after passing by contact with the cable, the said side tracks may be inclined so as to convey the carriers by gravity, or a second cable may be arranged to engage the carriers at the side track in the same manner as on the first.

To elevate the carriers from a station below to the forwarding-track A', an elevator may be used. This elevator may be of any of the usual forms—as, for instance, a platform 49, sliding upon guides 20 and manipulated by a cord 21, and constructed to support the carriers B, and the forwarding-track may have a pivoted section arranged to be lifted by contact with the elevator, as shown in dotted lines, Fig. 1, until the projection 5 of the carrier is brought in contact with the cable, when the carrier will be driven off the platform by the cable and onto the way. When the way is provided with a curve, as shown in Fig. 6, the cable C is deflected by means of guide-pulleys 22 23, so that the carrier will pass around the curve by momentum without contact with the cable, resuming its engagement with the latter as it reaches the straight portion of the track.

I have shown the particular form of elevator adapted for use in connection with the form of track illustrated; but it will be evident that other forms of elevating means may be employed—for instance, a pivoted track section 30, dotted lines, Fig. 1, adapted to be drawn down to receive the carrier and then elevate it, substantially as in the construction illustrated in Hayden's patent, No. 277,276.

In Fig. 9 is illustrated another form of way, in which there is a suitable rail adapted to the groove in the periphery of the carrier, and two guard-rails adapted to receive between them the carrier.

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

1. A store-service apparatus provided with a track, rolling carriers adapted to travel on said track, and a motor-cable in position to bear tangentially upon a portion of each carrier, so as to rotate and propel said carrier along said track, substantially as set forth.

2. A store-service apparatus provided with a track, rolling carriers adapted to travel on said track, and a motor-cable in position to bear tangentially upon a portion of each carrier, so as to rotate and propel said carrier along said track, said carrier being held upon the track by the cable, substantially as set forth.

3. The combination, with the track and motor-cable of a store-service apparatus, of rolling carriers provided with fixed side projections having peripheries engaging the motor-cable, substantially as set forth.

4. The combination of the main and branch tracks, rolling carriers having projections concentric with the carriers grooved to engage a cable by which the carriers are driven, and flanges or ribs 16, and switch-plates or deflectors E above the main track, arranged to engage said flanges so as to deflect the carriers onto the branch tracks, substantially as set forth.

5. The combination of the way of a store-service apparatus, a motor-cable supported upon bearings at one side of the way, and rolling carriers having circular projections at the sides, with grooved peripheries to receive the motor-cable, as set forth.

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

JAMES T. COWLEY.

Witnesses:

SAMUEL B. WYMAN,
WM. H. ANDERSON.