

(No Model.)

2 Sheets—Sheet 1.

Z. S. HOLBROOK.
CARRYING SYSTEM.

No. 282,319.

Patented July 31, 1883.

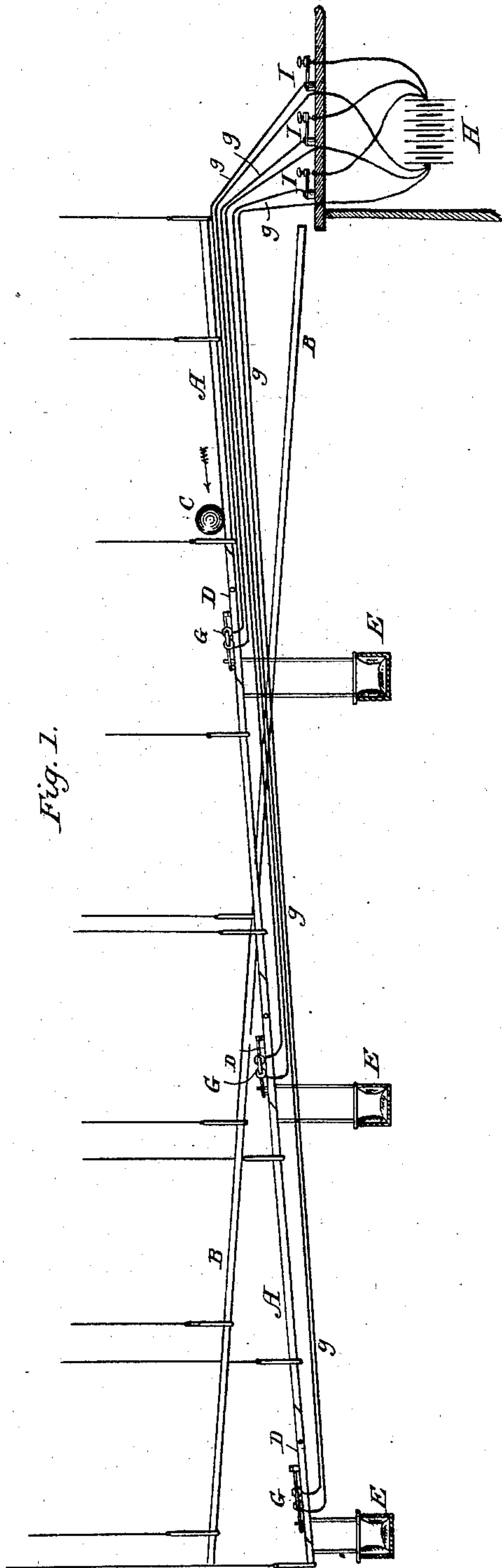


Fig. 1.

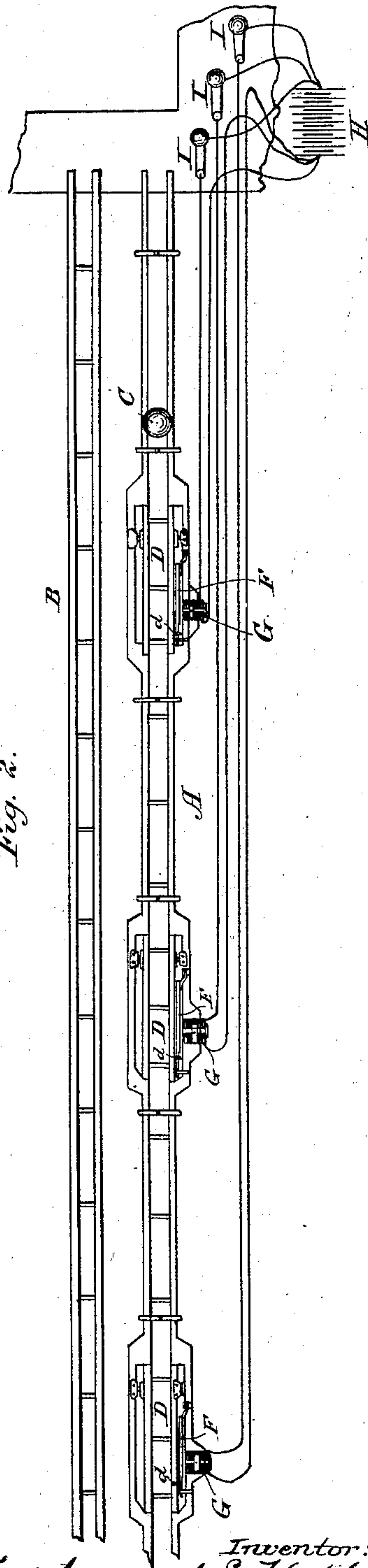


Fig. 2.

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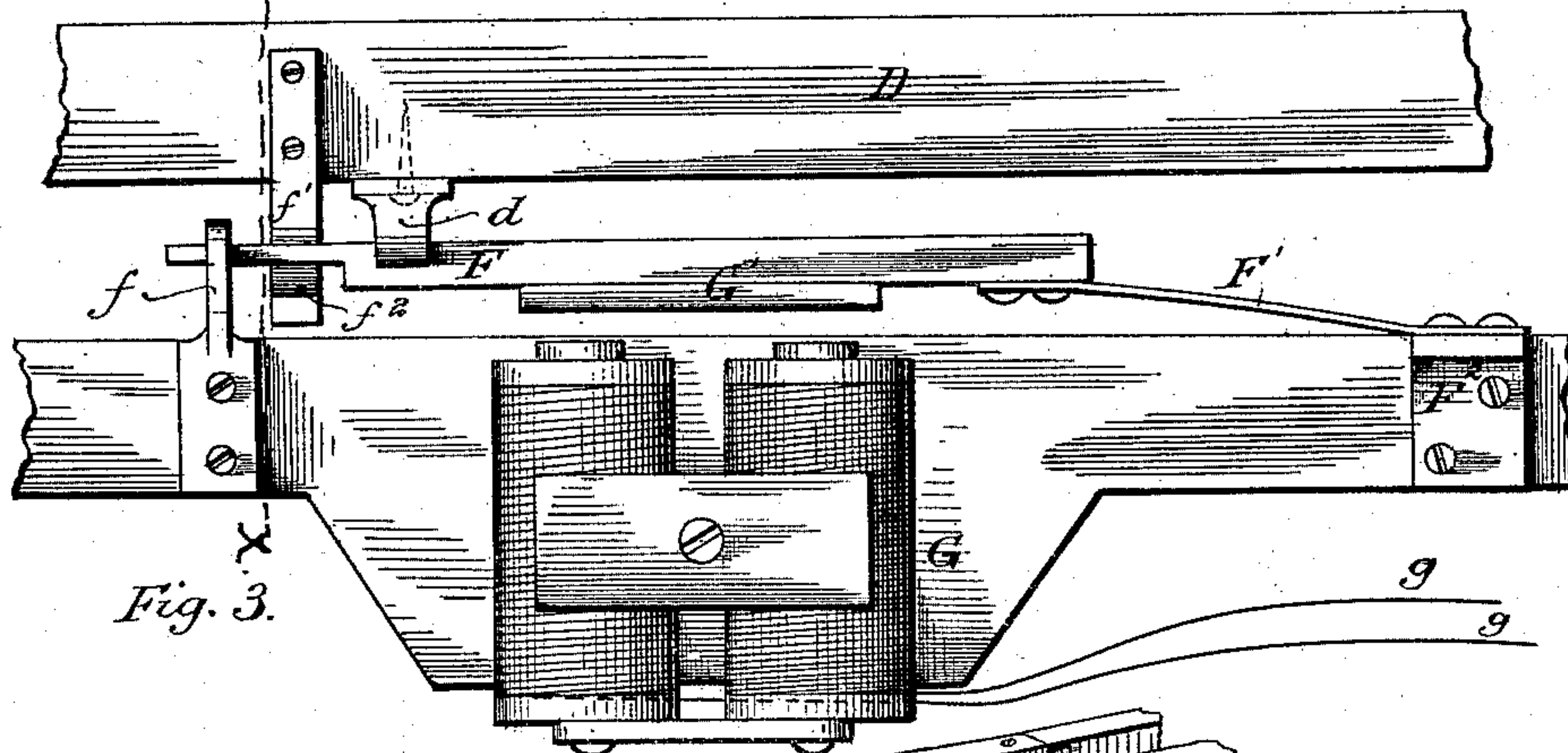


Fig. 3.

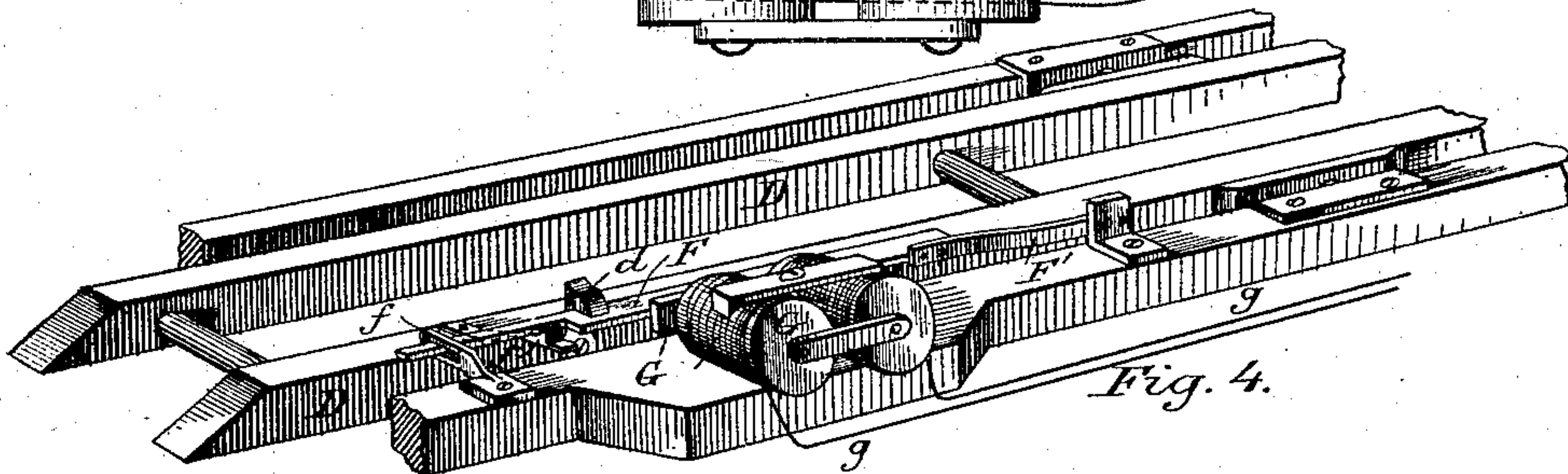


Fig. 4.

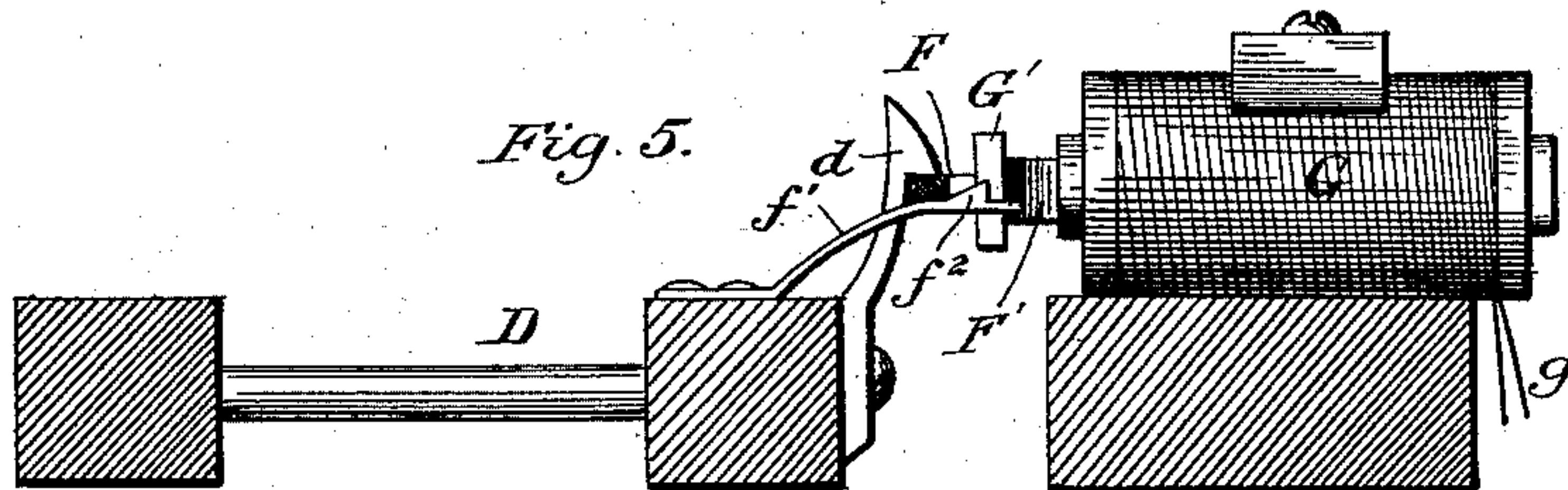


Fig. 5.

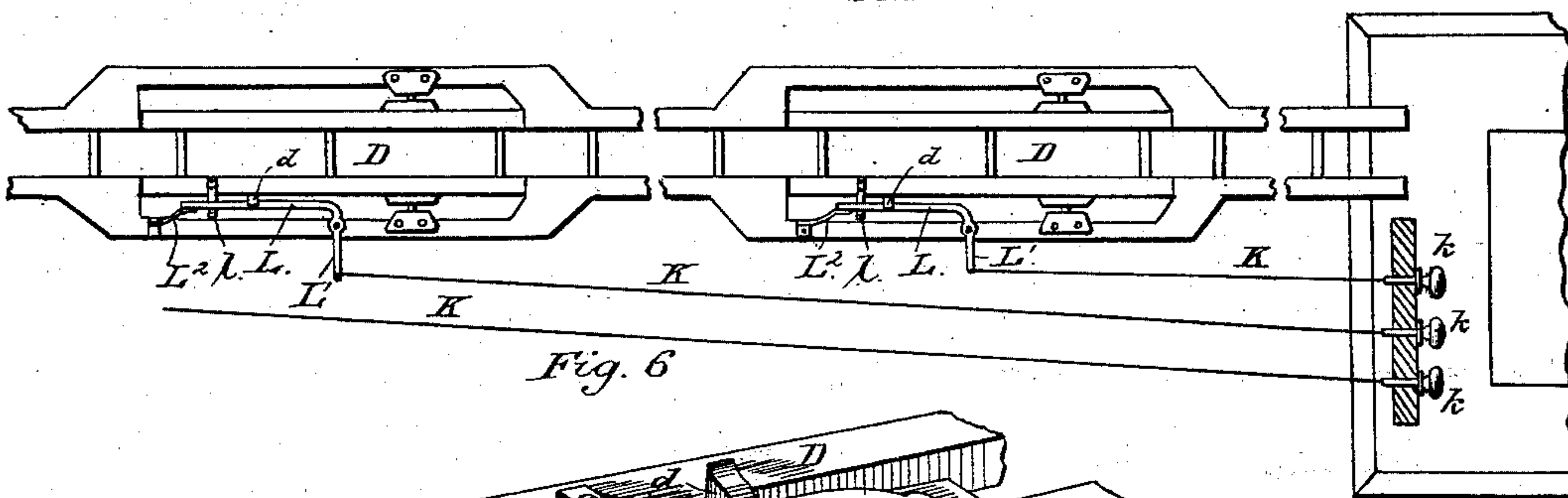


Fig. 6.

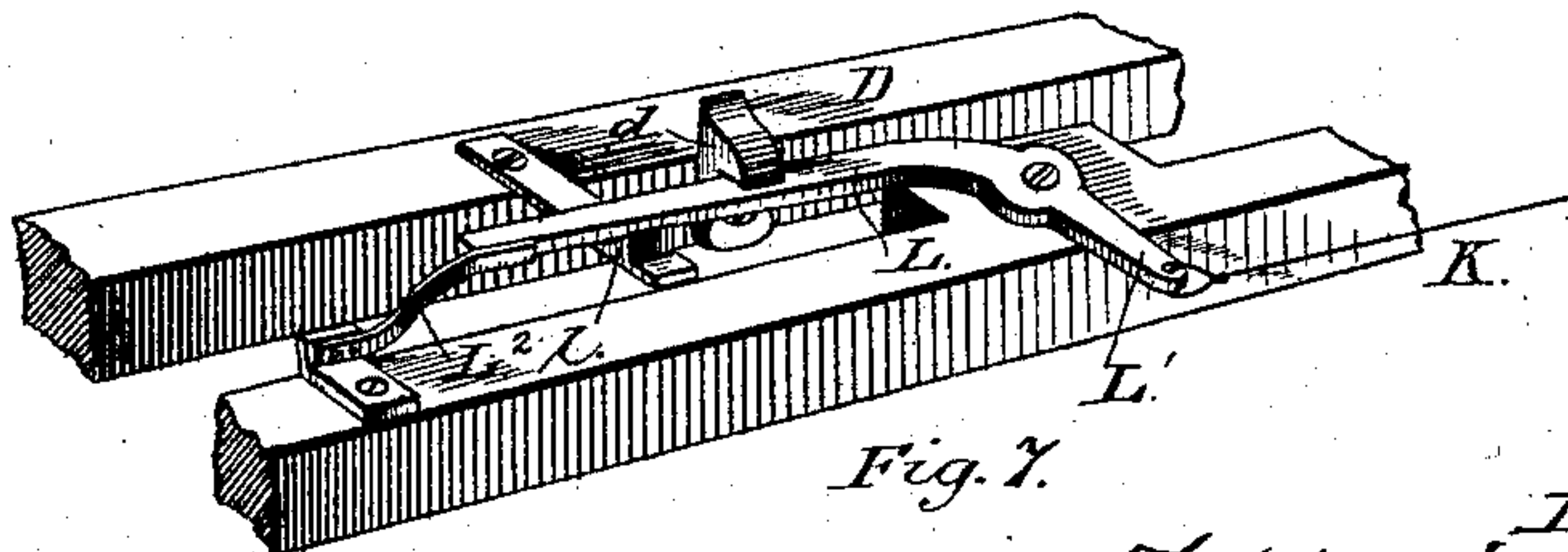


Fig. 7.

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UNITED STATES PATENT OFFICE.

ZEPHANIAH S. HOLBROOK, OF CHICAGO, ILLINOIS.

CARRYING SYSTEM.

SPECIFICATION forming part of Letters Patent No. 282,319, dated July 31, 1883.

Application filed January 3, 1883. (No model.)

To all whom it may concern:

Be it known that I, ZEPHANIAH S. HOLBROOK, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Carrying Systems; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to carrying systems having ways extending between several subordinate stations and a main station or cashier's desk and carriers adapted to move on said ways, in which the cash or article to be conveyed is placed. Its object is to provide a means for discharging the carriers from the way at any station desired, which means may be operated or controlled either from a main station or any or either of the subordinate stations on the way; and it consists in matters hereinafter set forth, and pointed out in the claims.

I preferably use for the purpose stated electrical connections between the main station and the several discharging devices at the subordinate stations; but the same result may be accomplished by longitudinally-movable wires, connecting the several discharging devices at the subordinate stations with the main station, or by pneumatic tubes or other mechanical means. The main station mentioned may be a cashier's desk at one end of the way, as in a store-service system, or it may be one of the intermediate stations on the way; or the discharging devices at each station may be connected in the manner stated to all of the other stations, so that a person at any station may control the discharge of carriers sent from such station at all of the other stations on the way. As a means of operating the discharging devices at the several subordinate stations, as described, I have provided at each of said stations an electro-magnet, which is connected by suitable conductors with an electric battery, and a key for closing the circuit, placed at the main station. The said electro-magnet is arranged so that upon the passage of an electric current it will operate upon an armature attached to a detent-lever which holds a switch or other discharging device normally in position for the passage of the carriers to stations beyond, but which, when

drawn back by said electro-magnet, releases the switch and allows the discharge of the carrier.

I have found it convenient to illustrate my invention as applied to a carrying system for store service, having oppositely-inclined ways extending from the cashier's desk past the several salesmen's stations, spherical rolling carriers adapted to move by gravity on such ways, and vertically-moving switches or traps for discharging the said carriers from the ways at the several salesmen's stations.

In the accompanying drawings, Figure 1 is a side elevation of two oppositely-inclined ways, showing a cashier's station, three intermediate stations on the ways, and a diagram of the electrical connections for operating the discharging devices from the cashier's desk. Fig. 2 is a plan view of the same, the electrical connections being shown separate from the ways, in the manner of a diagram, in order to illustrate the operation of such devices more clearly. Fig. 3 is a plan view of one of the switches on the return-way, showing the discharging devices in detail. Fig. 4 is a perspective view of the discharging devices. Fig. 5 is a transverse section on line *xx* of Fig. 3. Fig. 6 is a plan view of a portion of the way, declining from the cashier's desk to the salesmen's stations, showing means for discharging the carriers from said way by mechanical connections. Fig. 7 is a detail view of the devices at one of the switches shown in Fig. 6.

As illustrated in the drawings, A is the way leading from the cashier's desk or central station to the salesmen's stations, which is inclined, so that the carriers will move thereon by gravity; and B is a similar track declining from the salesmen's stations to the central station. These ways are constructed in a well-known manner, and are composed of two rails or tracks, which are adapted to support hollow spherical carriers C.

The carriers may be placed on the way B, at any of the salesmen's stations, for transmission to the cashier's desk either by the hand, or, if the track is elevated, by any of the well-known means for raising the carrier to said track. The carriers are returned to the salesmen by being placed upon the way A, upon which, at each station, are placed vertically-swinging switches D, adapted to open by the

weight of a carrier, and allow it to fall into a receptacle, E, placed beneath it, and in position convenient to the salesman.

The switches D are held by a locking device composed of a catch, *d*, and a spring detent-lever, F, in a closed position, so as to make the track continuous, and allow carriers moving on the way to pass unobstructedly over such switch to stations beyond. The said
10 detent-lever is attached at one end to the end of a leaf-spring, F', which is secured at its opposite extremity to a bracket or standard, F², upon the track structure. The opposite end of the lever F slides in a groove in a guide-
15 piece, *f*, also attached to the track structure.

In order to discharge a carrier returning from the cashier's desk at the proper station from which it was sent, I have provided an electro-magnet, G, at each switch, having its
20 poles placed opposite an armature, G', attached to the detent-lever F. The said electro-magnet is connected by means of wires *g* with a suitable battery, H, and a key, I, upon the cashier's desk, by which key an electric circuit may be completed and a current passed
25 through the electro-magnet, thereby drawing the detent-arm F back and releasing the switch. In order to hold the detent-lever F back, so as to keep the switch unlocked until a carrier ap-
30 proaching from the cashier's desk may reach it, and to render it unnecessary to keep the key I pressed down, so as to make the current through the electro-magnet continuous for this purpose, I have provided a spring-detent, *f'*,
35 which is attached to the top of the switch, as shown. Said detent *f'* is adapted by means of an inclined projection, *f*², on its upper surface, near its free end, to engage the lever F when said lever is drawn back, and hold it
40 out of engagement with the catch *d* until the carrier reaches the switch and is discharged from the track. When the switch opens, the detent *f'* descends with it, and the lever F will be released and return to its normal position,
45 in readiness to engage the catch *d* and lock the switch when it closes.

It will be seen that by the use of the spring-detent *f'* it is only necessary to pass an instantaneous current through the electro-magnets
50 to draw the detent-lever F back, and it will then be held by the said detent until the carrier is discharged. The said switch is so balanced on its pivot that it will instantly return to its normal position, and lock itself automatically after the discharge of the carrier,
55 and will be in position for the passage of another carrier over it, or for being opened by another carrier sent to the same station.

In Figs. 6 and 7, I have shown another means
60 of unlocking the switches from the cashier's desk, which may be used instead of the devices operated by electricity described. Such means consist of wires K, extending from each station to the cashier's desk, which wires are
65 attached at one end to the arm L' of a spring-detent, F, which is kept normally in engagement with a catch, *d*, on the switch D by

means of a spring, L². The said wires are suitably supported, so as to allow a longitudinal movement thereof, and at the cashier's desk
70 are attached to separate knobs *k*. The cashier, by moving the proper knob, may open any desired switch and discharge the carrier in the manner before described. A spring-detent, *l*,
75 is also used in the device last described, whereby the detent-lever F will be held back and the switch remain unlocked until the carriers are delivered from the way, when the switch will swing back and lock itself automatically. Other mechanical means connecting the cash-
80 ier's desk with the several stations can manifestly be used to attain the same results, such as pneumatic tubes, as before stated.

The electro-magnets G, or the mechanical devices described, may be used to operate a hori-
85 zontally-acting switch, or any other device for discharging the carriers from the way. The said devices may also be used for the purpose of operating a switch for directing carriers from a main to a branch way, so that carriers
90 moving from a central station may be caused by a person at such central station to pass from the main way to a branch way, or to any one of a number of branch ways, as desired.

The electrical or other connections described,
95 instead of extending from the several stations on the way to a cashier's desk or station at one end thereof, may extend to any of the intermediate stations on the line, and such station will thus correspond with the cashier's
100 desk or central station referred to in the above description.

By having each station on the way in the carrying system described connected with all the other stations, either by suitable mechan-
105 ical devices or electrical conductors for operating the delivering devices, a person at any station may control the delivery of carriers at all the stations on the way, and each station will thus become a central station—such as has
110 been previously described—for the purpose of transferring carriers to or receiving them from the other stations.

I claim—

1. In a carrying system, the combination,
115 with the carrier-way, of mechanism for delivering the moving carriers from said way, and means communicating with a remote point, whereby such delivering mechanism may be operated from such remote point, substan-
120 tially as described.

2. In a carrying system embracing main and subordinate stations, the combination, with a way, of mechanism for delivering the moving
125 carriers from said way at their appropriate subordinate stations, and means communicating with the main station, whereby the several delivering mechanisms may be operated from the said main station, substantially as de-
130 scribed.

3. In a carrying system, the combination, with a carrier-way, of means operated by elec-
135 tricity for delivering the carriers from said way, substantially as described.

4. In a carrying system, the combination, with a carrier-way, of means located at several stations for delivering the carriers, and suitable electric devices for operating said delivering mechanisms, so connected that the delivering devices at the several stations may be operated from a single station.

5. In a carrying system, the combination, with a carrier-way and with a device located on such way for delivering the carriers and adapted to be operated by an electro-magnet, of a suitable electro-magnet and conductors connected therewith, whereby the delivering mechanism may be controlled from a chosen point or points, substantially as described.

6. In a carrying system, the combination, with a way, of a pivoted switch, a catch, *d*, a detent-lever, *F*, and an electro-magnet, *G*, the

latter arranged in a circuit with a suitable battery, and a key at the cashier's desk, whereby the switch may be unlocked, substantially as and for the purpose set forth.

7. In a carrier system, the combination, with a switch provided with a catch, *d*, of a detent-lever, *F*, means for withdrawing the said lever *F* from engagement with the catch *d*, and a spring-detent, *f'*, substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my invention I affix my signature in presence of two witnesses.

ZEPHANIAH S. HOLBROOK.

Witnesses:

C. CLARENCE POOLE,
JESSE COX, Jr.