

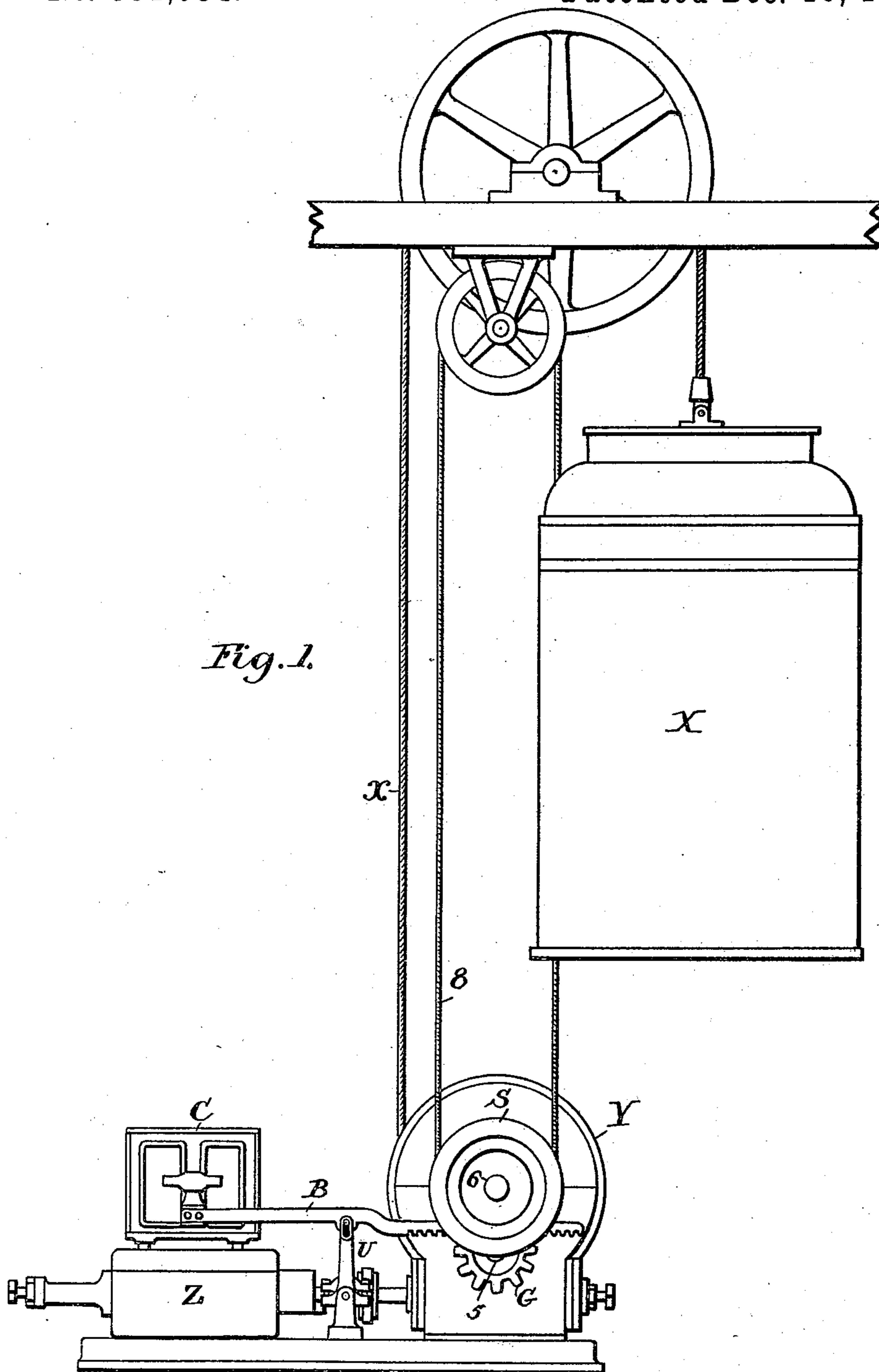
(No Model.)

2 Sheets—Sheet 1.

J. D. IHLDER.
CONTROLLING DEVICE FOR ELEVATORS.

No. 551,034.

Patented Dec. 10, 1895.



Witnesses
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(No Model.)

2 Sheets—Sheet 2.

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Fig. 3.

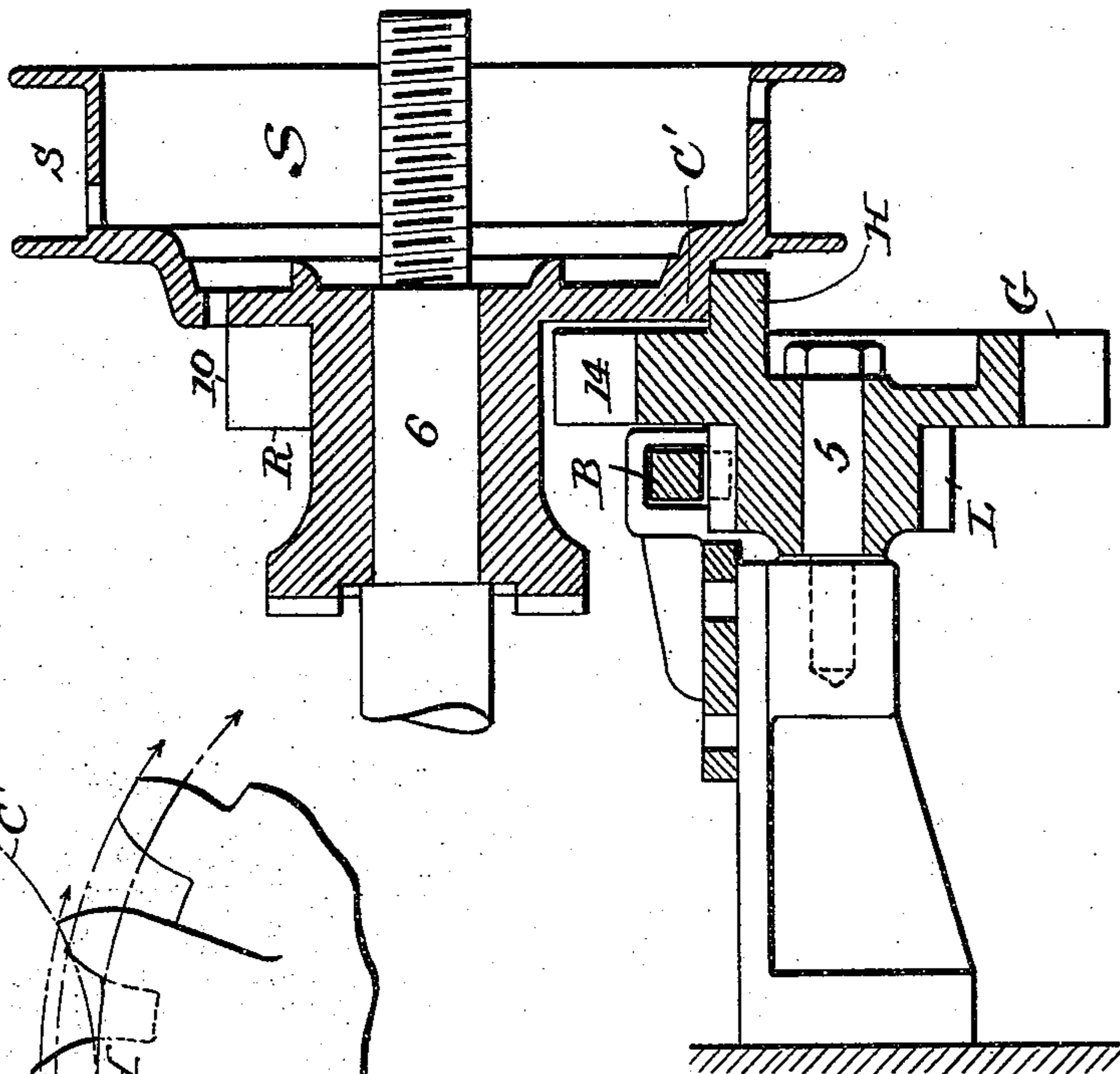


Fig. 4.

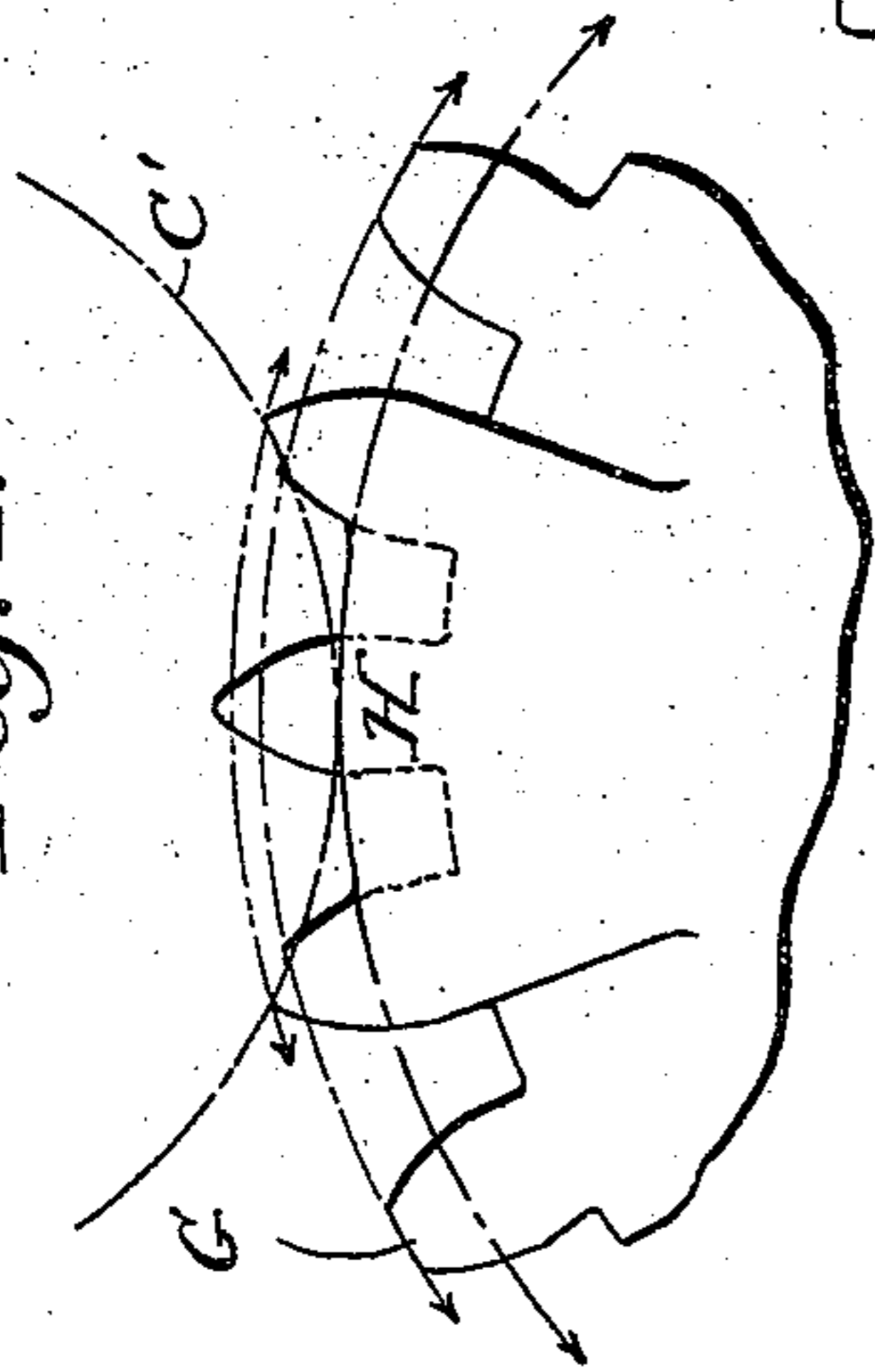
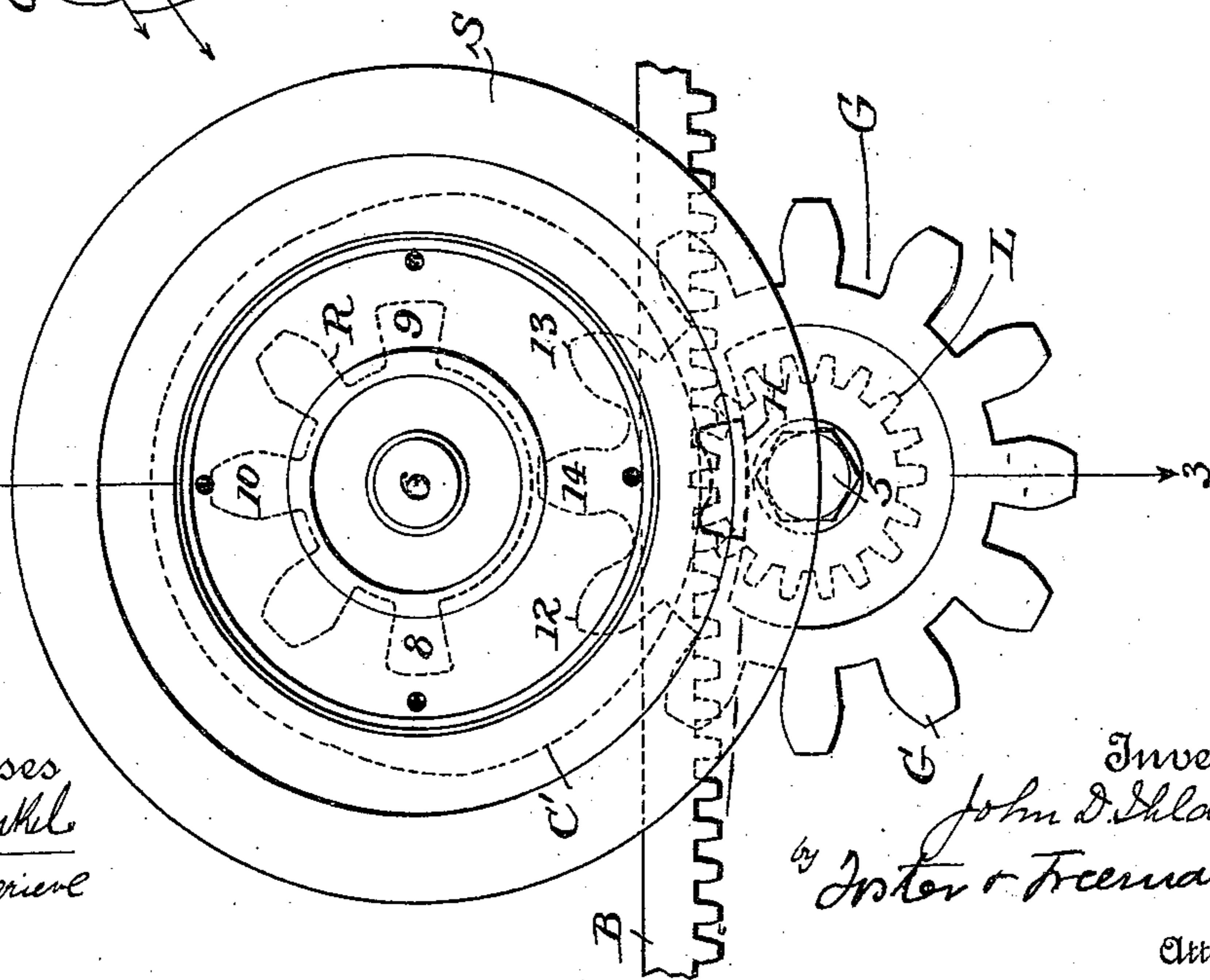


Fig. 2.



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UNITED STATES PATENT OFFICE.

JOHN D. IHLDER, OF YONKERS, NEW YORK.

CONTROLLING DEVICE FOR ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 551,034, dated December 10, 1895.

Application filed April 6, 1895. Serial No. 544,772. (No model.)

To all whom it may concern:

Be it known that I, JOHN D. IHLDER, a citizen of the United States, residing at Yonkers, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Controlling Devices for Elevators, of which the following is a specification.

Where the control devices of elevators are operated by the usual hand-rope, the car will generally be caused to ascend by pulling the hand-rope from a central position downward, to descend by pulling the hand-rope from a central position upward, and it is brought to a stop by moving the rope in one direction or the other to a central position. It has proved to be difficult where the cars are run at a high speed, and also when the valves are large and difficult to shift, to carry the rope while the car is running exactly to the point required to cause the car to stop its movement. In order to overcome this difficulty, I so construct the gear or devices operated by the hand-rope to shift the control device as to lock the control device in its central position and while so locked permit a limited movement of the hand-rope, so that after the attendant has moved the hand-rope to carry the control device to its central position a further movement of the said hand-rope will have no further effect upon the position of the control device. The intermediate gear for effecting this result may be constructed in different ways, a preferable construction being illustrated in the accompanying drawings, in which—

Figure 1 is sufficient of an elevator apparatus to illustrate my improvements. Fig. 2 is an enlarged view showing the gear between the hand-rope and the shifting-bar. Fig. 3 is a section on the line 3 3, Fig. 2. Fig. 4 shows a modification.

The cage X is connected by flexible suspensories α with the winding-drum Y, driven by a suitable motor Z, an electric motor being shown provided with a control-switch C, with which is connected a shifting-bar B. The usual hand-rope is suspended within the well and passes around the pulley S and through the cage, as usual. The shifter-bar B is made in the form of a rack gearing with a pinion L,

and between the pinion L and the pulley S are interposed mutilated gear of such a character as to rotate the pinion upon the movement of the pulley S to shift the bar B to its central position and after the latter is brought to this position to lock it in place while permitting the further movement of the pulley S.

The character of the gear may be varied so as to secure this result; but as shown the pinion L is connected with a larger gear or pinion G, having at one side a projection H with a curved face adapted to engage the periphery of a projection C', connected with or forming part of a gear R, arranged to engage the teeth of the gear G, and connected with or arranged to turn with the pulley S. As shown, the gear R and pulley S turn upon a shaft 6 and the gears L G turn upon a stud 5.

The gear R is shown as provided with five teeth, the central tooth 10 being the longest and the terminal teeth 8 9 being the shortest, and two of the teeth 12 13 on opposite sides of a central tooth 14 of the gear G have pointed ends, which insures the proper engagement of the teeth of the gear R with those of the gear G.

When the control device and the pulley S are in their central or stopped positions, the projection H will be directly below the shaft 6 and the projection C' will occupy a central position, the machine being at rest, the current to the motor broken, and the brake U exerting its full power to arrest the motion of the engine.

When the hand-rope is pulled to turn the pulley S the control switch or device is carried to one side, the motor fluid acts in one direction or the other, the brake is raised, and the cage is put in motion.

When it is desired to stop, the hand-rope is operated to carry the pulley S toward its central position. The first movement is to turn the gear R. The engaging-gear G and the shifting-bar B are moved until the gear G reaches the central position shown in Fig. 2. In this position the mutilated gear R will leave the gear G and the projection C' will be brought into engagement with the curved face of the projection H, and the further movement of the control device will be arrested and the said device will be locked in its place.

This, however, will not interfere with the further movement of the hand-rope and the pulley S in the same direction. It therefore follows that the operator is not called upon to exercise any special care or nice manipulation in order to arrest the movement of the hand-rope at a particular point, and that provided he moves it sufficiently to bring the control device to a central position a further movement in either direction is unrecorded.

When, in order to start, the operator moves the pulley S, the control device will be locked in position until the projection C' begins to pass from the projection H, when the tooth 8 or 9 will be brought in contact with the tooth 14, and the gear G will begin to turn to shift the control device. It will be seen that the operation is the same moving the hand-rope in either direction, except that the control device is moved in one case to the right and in the other to the left.

When the usual automatic stop motion is connected with the pulley S in the ordinary manner, the car can travel for a considerable distance against the full effect of the brake before the shipper-bar is shifted in a reverse direction to release the brake.

Where a more direct connection is required, the shipper-bar B may be dispensed with, the gears L G, being secured to the stud 5, constituting part of the rock-shaft of the control device.

In order to avoid the necessity of providing the gears R G with teeth of different shapes, the face of the projection C' may coincide with the pitch-line of the teeth of the gear R and the face of the projection H may coincide with the pitch-line of the teeth of the gear G, as shown in Fig. 4.

Without limiting myself to the precise con-

struction and arrangement of parts shown and described, I claim as my invention—

1. The combination in an elevator apparatus of the hand rope, the control device and intermediate gear including mutilated gear arranged to permit a movement of the hand rope independent of the control device after the latter has been brought to a central position, substantially as set forth.

2. The combination of the hand rope and pulley S, the control device, and intermediate gear including a mutilated gear R, having a projection C' and a gear G having a projection H adapted to the projection C', substantially as set forth.

3. The combination of a pulley S, to which the hand apparatus of an elevator is connected and a mutilated gear R connected with said pulley, of a projection C' also connected with said pulley, and a gear G connected with the control device arranged to engage the gear R and provided with a projection H for engaging the projection C', substantially as set forth.

4. The combination, with the shifting pulley S and shifting bar B of an elevator apparatus, of intermediate gear, for shifting and holding the bar and mutilated to permit the pulley to move before and after shifting the bar, and with a part to lock the bar in place during the movement of the pulley, substantially as described.

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

JOHN D. IHLDER.

Witnesses:

JAMES S. FITCH,
O. B. WARING.