

(No Model.)

H. M. LANE.
CABLE RAILWAY.

No. 353,313.

Patented Nov. 30, 1886.

Fig. 1.

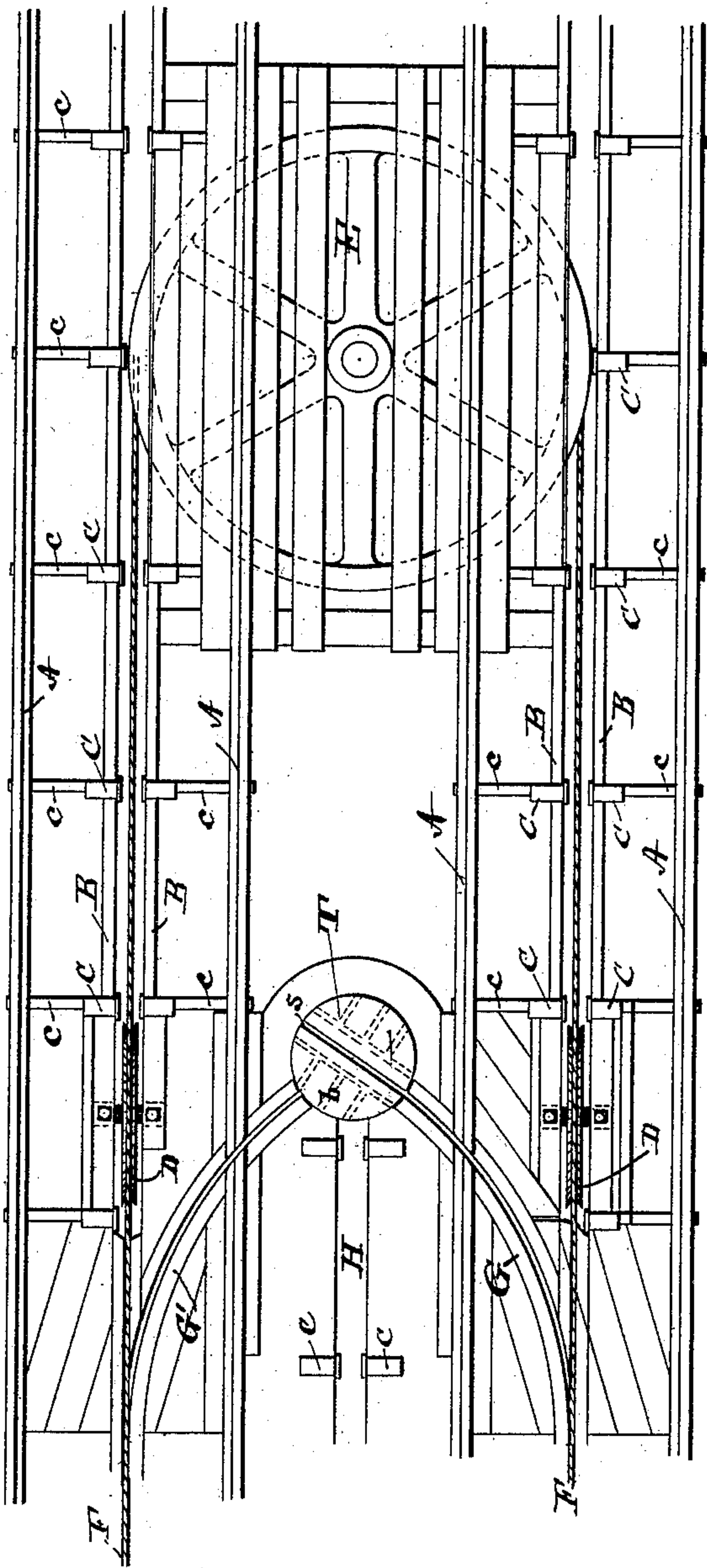


Fig. 2.

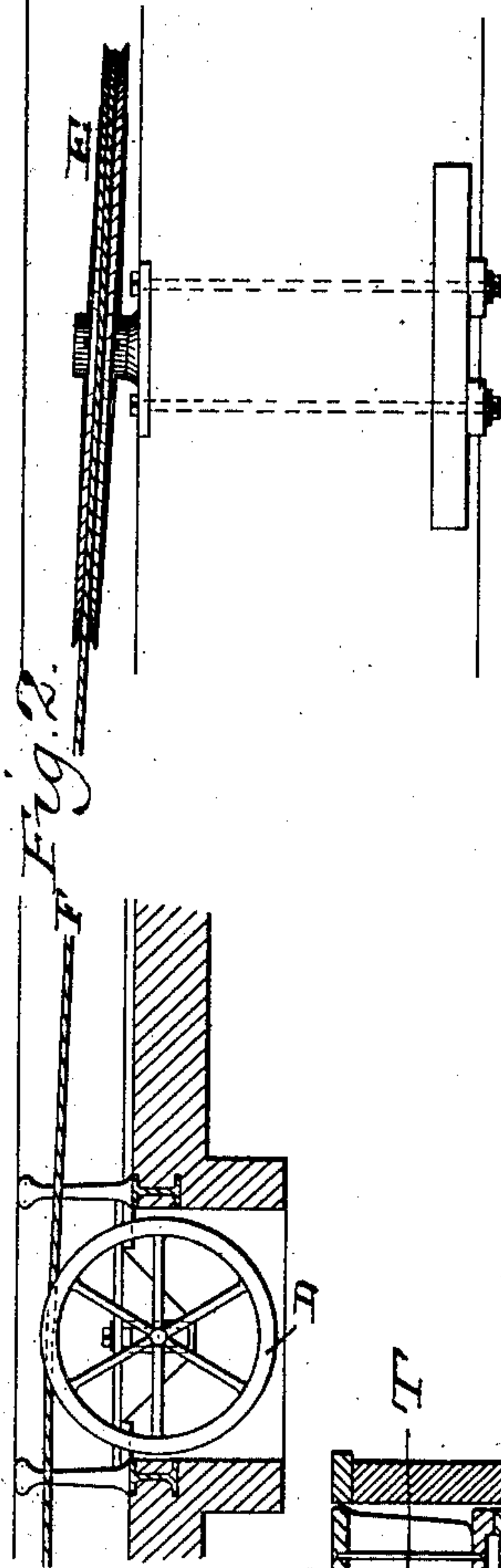
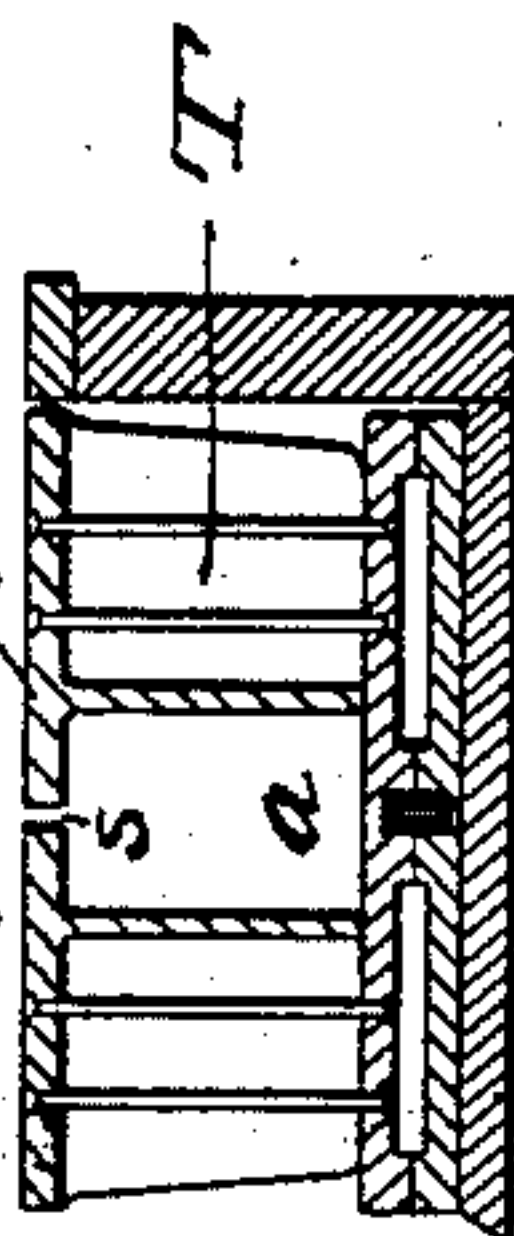


Fig. 3, b



Witnesses:
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by *Robert Horca*
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UNITED STATES PATENT OFFICE.

HENRY M. LANE, OF CINCINNATI, OHIO.

CABLE RAILWAY.

SPECIFICATION forming part of Letters Patent No. 353,313, dated November 30, 1886.

Application filed November 14, 1885. Serial No. 182,810. (No model.)

To all whom it may concern:

Be it known that I, HENRY M. LANE, a citizen of the United States, residing at Cincinnati, Ohio, have invented new and useful Improvements in Cable Railways, of which the following is a specification.

My invention relates to tunnel constructions of cable railways, its object being to provide for the use, transfer, and storage of detachable grip devices, with a view, particularly, of adapting such railways to the employment of ordinary street-cars, or of combining the ordinary street-car line with a cable-railway system, so that the cars may be operated with animal or other power at one part of a line and with the power-driven traction-cable at another part of the line, the two forming parts of one continuous system of transportation.

In another pending application I have described a preferred form of gripping device adapted to be self-sustaining in and upon the cable-tunnel when detached from the car and capable of being moved freely upon its own bearing-wheels riding upon the surface of the tunnel-irons as an independent structure, the grip-shank still remaining in the tunnel-slot, carrying the grip-jaws disengaged from the cable within the tunnel. The construction and arrangement of the device there described is such as to permit the same to remain stationary in and upon the tunnel, and by the passage of a car over it to be engaged with the car for the performance of its normal function of connecting the car with the propelling cable operating in the tunnel, or to be detached from the car and moved away as an independent inert structure ready to be similarly engaged with the same or another car.

The immediate object of my present invention is to provide track and tunnel constructions for the transfer of such or substantially similar structures out of or into the cable-line, for the purpose of shifting from an incoming to an outgoing cable or for storage purposes.

To this end my invention consists in the construction and combination, with the two main tunnels of an incoming and outgoing cablesystem, of connecting or "switch" tunnels and a grip turn-table adapted to permit the grip device as an independent structure to be moved from one main tunnel to the other and

reversed without lifting from the tunnels; also, in the combination, with such main tunnel or tunnels, of a supplemental or storage tunnel connecting with and opening into such main tunnel or tunnels either directly or by means of such switch-tunnels, and adapted to permit the concentration and storage therein of any desired number of such independent grip devices.

Mechanism embodying my invention is illustrated in the accompanying drawings, in which—

Figure 1 is a plan of the terminal structures of a return-cable railway in which the earth covering is removed and part of the tunnel-surface omitted to show more clearly the mechanical structure, and showing two switch-tunnels leading (one from each cable-tunnel) to a turn-table located between. Fig. 2 is a partial sectional elevation showing the arrangement of the cable in respect to the last carrying-pulley and the horizontal return-pulley, and Fig. 3 a cross-sectional elevation of the grip turn-table.

Referring now to the drawings, A A designate the car-tracks, B B the tunnel-irons, C the tunnel-yokes for maintaining the slot-opening intact, and *c c* the cross-ties for supporting the track-rails A; D, one of the cable-carrying pulleys; E, the horizontal return-pulley, and F the cable. These parts are constructed and arranged in the usual manner, and need not be further described here, excepting to note that what is here illustrated is the return terminus of the cable line, at which point in the line the turn-outs and shifting devices, hereinafter described, would naturally be located and arranged.

G designates a curved tunnel connecting with and opening into the side of the ordinary cable-tunnel by a suitable connection with the tunnel-iron B. The cross-sectional form and dimensions of the tunnel G will necessarily depend upon the form and size of the gripping device; but as such tunnel is only required to accommodate the lower portion of the grip device out of action, it may be much smaller in interior dimensions than the cable-tunnel both laterally and vertically. By way of illustration, in the present case it may consist of a rectangular boxing such as indicated at *a*,

Fig. 3, cast or formed in suitable sections, and having a surface-slot, *s*, corresponding with that of the cable-tunnel.

In the present illustration, Fig. 1, I have shown two such tunnels, *G* and *G'*, communicating with the cable-tunnels at either side, and with a turn-table, *T*, used in common; but this arrangement is necessary only in cases where the two cable-tunnels are in too close proximity to allow one continuous curve-tunnel extending from one to the other.

Cable-gripping devices are usually so constructed as to grip the cable always at the same relative side. Consequently the transfer of the gripping device from one tunnel to another having a cable traveling in the opposite direction necessitates the reversal or turning around of the gripping device. Where the separating interval of the two cable-tunnels permits, a single curved tunnel, *G*, may be employed, sweeping in a half-circle and connecting the two; but ordinarily a turn-table will be found more convenient and more economical. The turn-table *T* is preferably a circular box-frame, which may rest and rotate upon carrying-rollers at the bottom or upon sliding contact surfaces in a suitable boxed depression of the street-surface. Its essential features are a central cross-opening, *a*, corresponding with the tunnel *G*, and a cross-slot, *s*, in the surface-plate *b*. It is pivotally mounted upon its bottom plate and arranged to rotate freely, so that its surface-plate may form part of the general street-surface and the cross-slot *s* register with the permanent slots of connecting tunnels.

I have shown at *H* a storage-tunnel arranged between and parallel with the main cable-tunnels and connecting with the turn-table *T*. Its construction is the same as the tunnels *G* or *G'*, and need not be further described in de-

tail. It serves the purpose of collecting and storing the grip devices arriving by one cable, to be used as occasion requires upon the return-cable. It may be of any convenient length and extended in both directions from the turn-table. The general features and convenience of its use are obvious, and need not be further pointed out.

I do not confine myself in the use of the present invention to any particular form of gripping device further than that it must be such as to be detachable from the car, self-sustaining upon the tunnel-surface, and capable of being moved in the turn-outs.

I claim as my invention, and desire to secure by Letters Patent of the United States—

1. In combination with the tunnel mechanism of a cable railway and a branch tunnel connecting with and at the side of the cable tunnel for the shunting of a detached and independently-movable grip device, a turn-table adapted to receive and turn said grip device to any desired position.

2. In a cable railway, in combination with the outgoing and incoming cable-tunnels and a connecting or shunting tunnel, a storage-tunnel adapted to receive and retain the detached and independently-movable devices, substantially as set forth.

3. The combination, in a cable-railway system, of the parallel main tunnels for outgoing and incoming cables, the two switch-tunnels, the turn-table, and the storage-tunnel, arranged for operation substantially as set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

HENRY M. LANE.

Witnesses:

L. M. HOSEA,
C. D. KERR.