2 Sheets—Sheet 1.

H. SCHREINER.

Car-Starter.

No. 199,665. Patented Jan. 29, 1878.

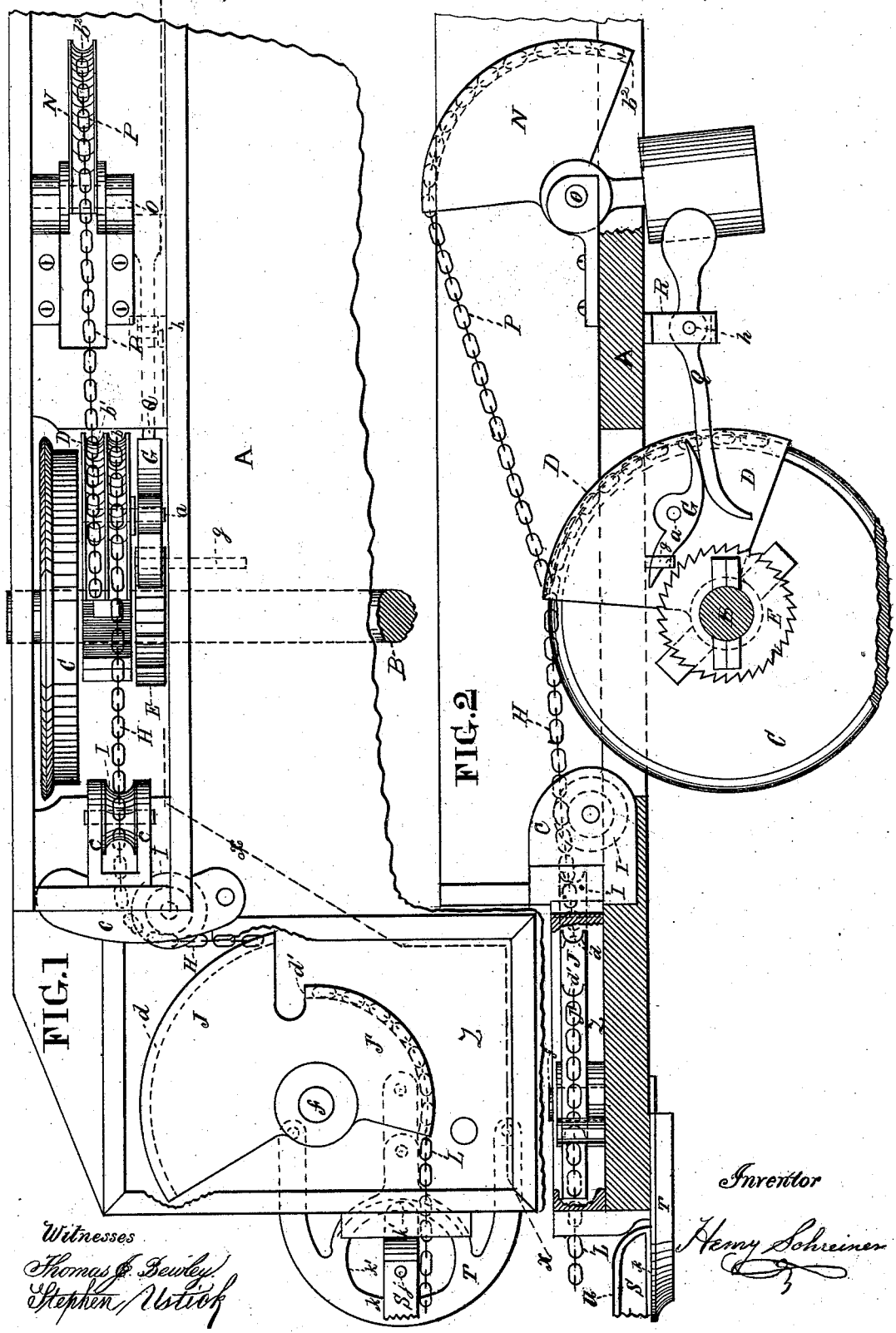

FIG. 1

FIG. 2

Witnesses

Thomas F. Bewley

Stephen Ustick

Inventor

Henry Schreiner

2 Sheets—Sheet 2.

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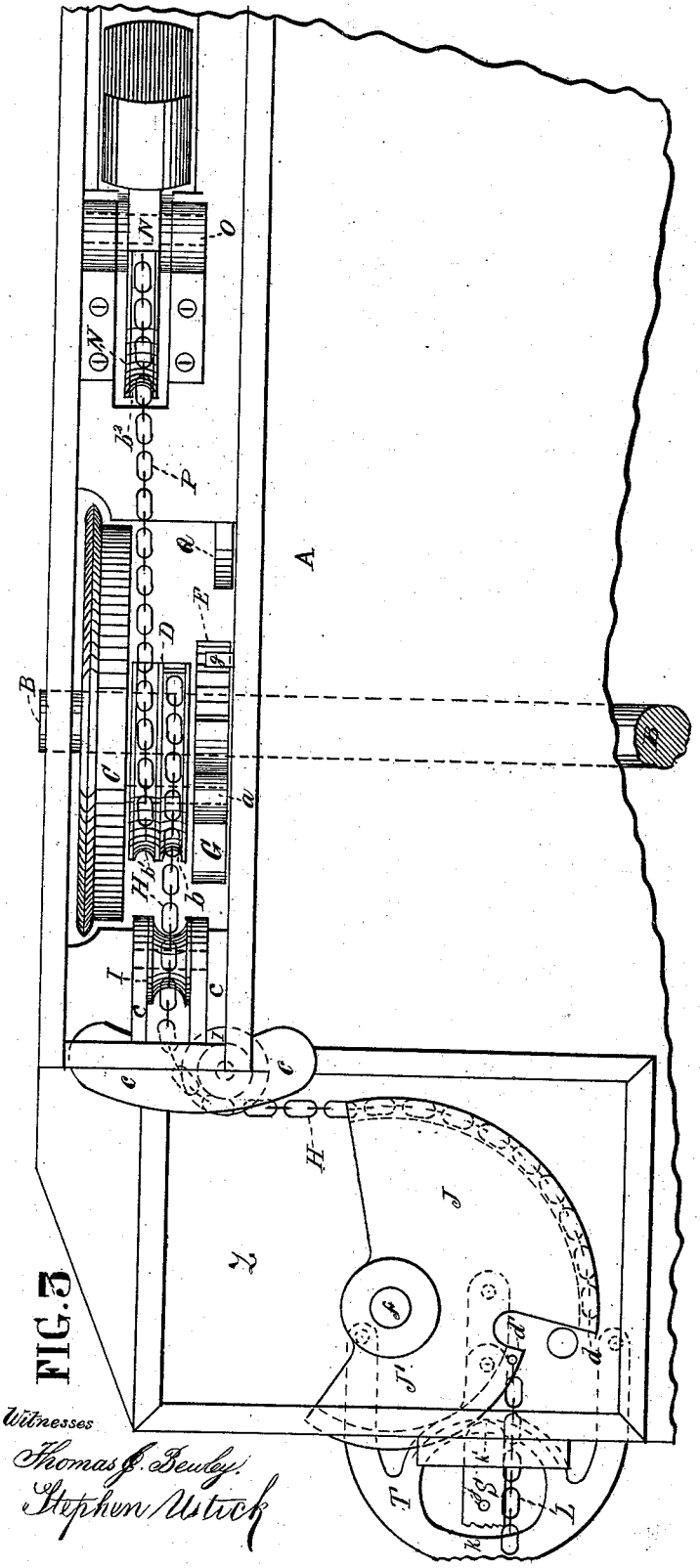

FIG. 3

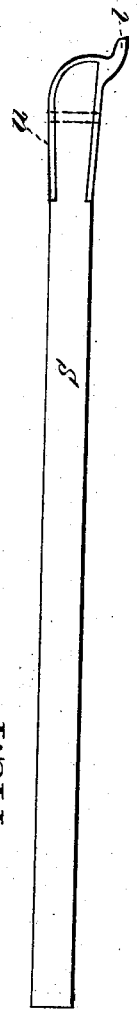

FIG. 4

Witnesses
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UNITED STATES PATENT OFFICE.

HENRY SCHREINER, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN CAR-STARTERS.

Specification forming part of Letters Patent No. **199,665**, dated January 29, 1878; application filed June 14, 1877.

To all whom it may concern:

Be it known that I, HENRY SCHREINER, of the city and county of Philadelphia, in the State of Pennsylvania, have invented a new and useful Improvement in Car-Starters, which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a plan view of that portion of a car to which my improvements are attached, showing the position of the moving parts before the car is started, the cover of the box Z being removed to show the arrangement of the devices within the box. Fig. 2 is a vertical longitudinal section at the line *x x* of Fig. 1. Fig. 3 is a plan view like Fig. 1, with the exception of having the movable parts shown in the position they assume when the draft-chain L is drawn forward. Fig. 4 is a side view of the tongue S.

Like letters of reference in all the figures indicate the same parts.

My invention relates to the following particulars: A balance-pawl, which is hung to a sector-lever on one of the axles, is so constructed and arranged as to be automatically thrown out of connection therewith when the draft-chain is drawn forward far enough to start the car, and in the backward movement of the chain in stopping the car it is held up at its front end by means of a stop confined to the bottom of the car, upon which it rests. The rear end is sustained by the front end of a weighted lever, which turns the pawl far enough, when the car is started, to throw it into connection with a ratchet-wheel on one of the axles, and keep it in that position until it arrives at the disengaging-point, when it is again released automatically, as before stated. The rear end of the pawl and the connecting end of the weighted lever are curved, as shown, to admit of a free and regular movement of the same.

In the drawings I have represented so much of the front end of a car as is necessary to show my improvements. A is the front end of the bottom of a street-car; B, one of the axles, and C C its wheels. D is a sector-lever, which fits loosely on one end of the axle, between the contiguous wheel C and the ratchet-wheel E. G is a balance-pawl hung on the pin *a*, which projects from the side of the sector-lever D. The lever has grooves *b* and b^1 in its segmental periphery, to receive chains, or ropes, or belts, or wires. The groove *b* receives the chain H, one end of which is fastened to the rear edge of the segment. The chain is passed from the lever around the pulleys I I in the casting *c*, and connects with the long end of the double sector J J′, which is provided with the groove *d* to receive it, the lever working on the fulcrum-pin *f*, the lower end of the pin being fastened in the bottom A. The draft-chain L is held in the groove *d*′ in the periphery of the short sector J′.

N is a weighted sector on the shaft O, and P a chain, one end of which is fastened to the front edge of the sector-lever D, so as to come into the groove *b* in the forward movement of the lever. The other end of the chain lies in the groove b^2 of the sector.

The parts thus specified, with the exception of the above-named balance-pawl G, are essentially the same as shown in my car-starter patented June 12, 1877, and therefore a more particular description thereof is deemed unnecessary.

The rear and front ends of the balance-pawl G are of equal weight, so that when the draft-chain is drawn out to its full extent, and the pawl is thereby disconnected from the tooth of the ratchet-wheel, it comes into its balanced position. When the car is stopped, the weighted sector N automatically regains its backward position, and, by its connection above described with the sector-lever D, returns the latter into the like position, whereby the front end of the pawl G is drawn onto the stop *g* connected with the lower side of the bottom A, the rear and curved end of the pawl resting on the front and curved end of the weighted lever Q hung on the pin *h*, which passes through the yoke R fastened to the bottom A; and when the car is started, by the drawing out of the draft-chain L, the double sector, acting through the chain H, gives a forward movement to the sector-lever D, and thereby the pawl G is moved forward, and the front end of the weighted lever Q bears the rear end of the pawl upward, so as to connect its front end with the ratchet-wheel E, for starting the car.

S is the tongue, (shown clearly in Fig. 4,) and T is a casting, with which it is connected by means of the joint-pin *j*, the casting being confined, by means of screws, or bolts, or otherwise, to the under side of the platform of the car. The tongue is provided with a casting, *u*, through which the joint-pin *j* passes into the casting T, as shown in Figs. 1 and 3, with the said casting *u* resting on the concentric part *k*, and the lip *l* bearing against the lower side of the concentric part *k'*, and thereby admitting of the tongue turning freely on the joint-pin as the horses assume an angular position with the car in turning curves.

I claim as my invention—

The automatic balance-pawl G, in combination with the sector-lever D, stop *g*, and weighted lever Q, substantially in the manner and for the purpose set forth.

HENRY SCHREINER.

Witnesses:
THOMAS J. BEWLEY,
STEPHEN USTICK.