

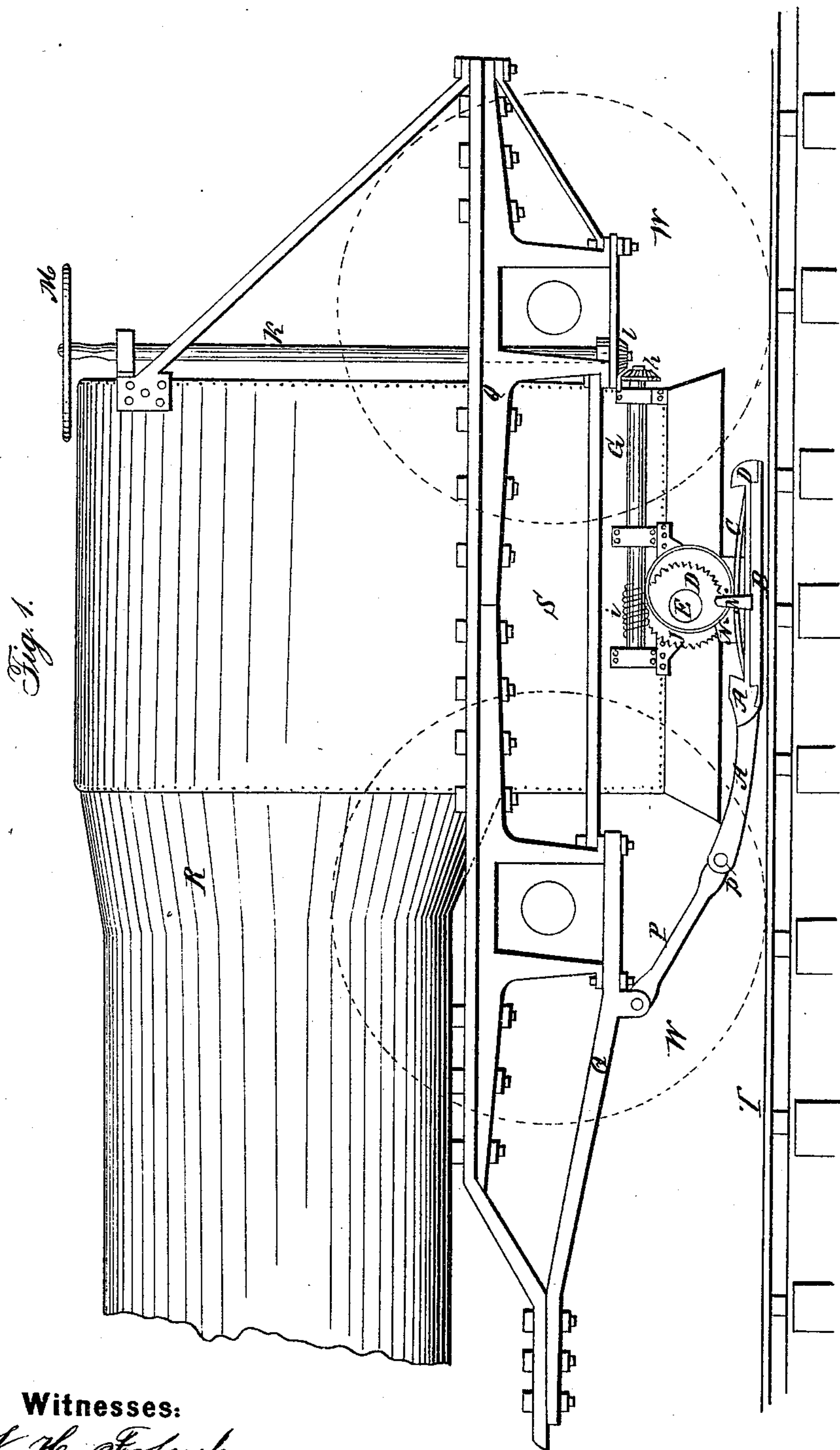
J. H. STEINER.

3 Sheets—Sheet 1.

Car Brake.

No. 28,817.

Patented June 19, 1860.



Scale $\frac{3}{4}$ in. 1 foot.

Witnesses:

W H Forbush
E B Forbush

Inventor:

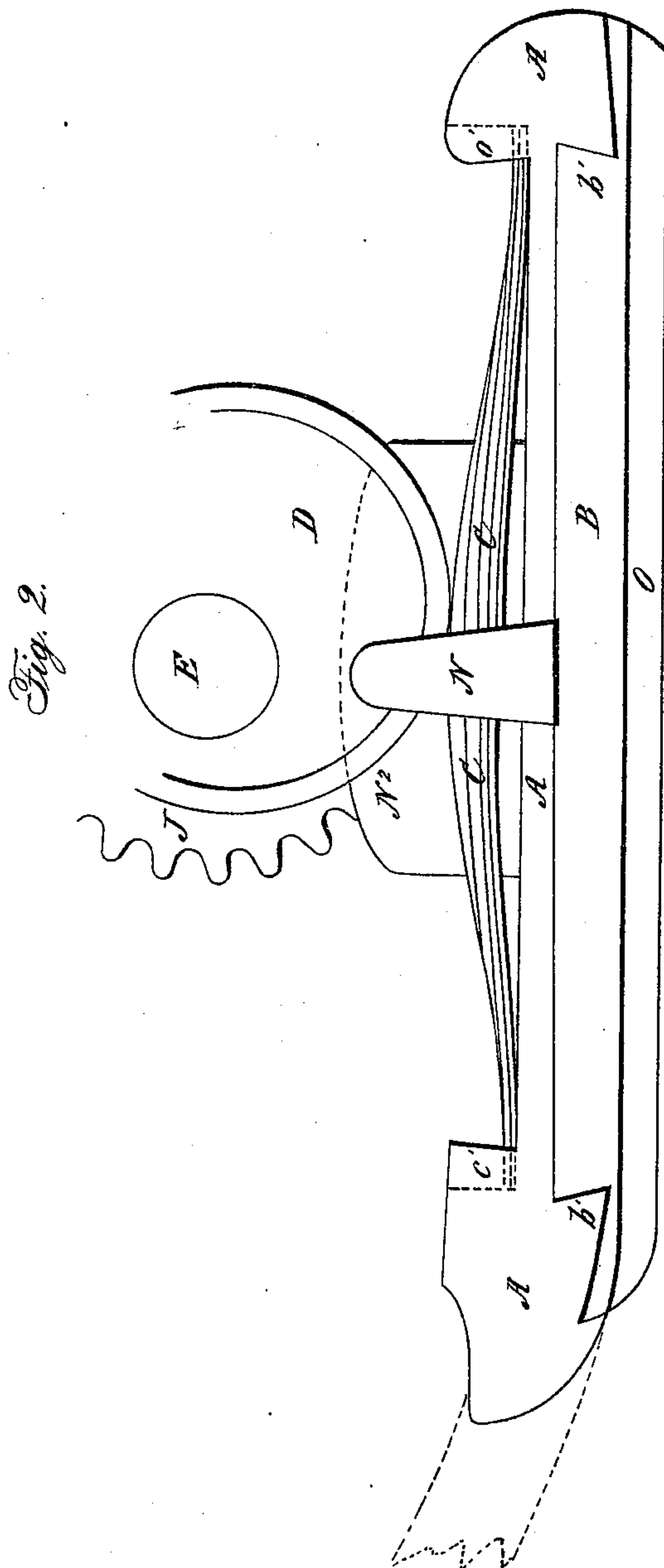
John H Steiner

J. H. STEINER.
Car Brake.

3 Sheets—Sheet 2.

No. 28,817.

Patented June 19, 1860.



Scale 3 in to 1 foot.

Witnesses:

W H Forbush
E B Forbush

Inventor:

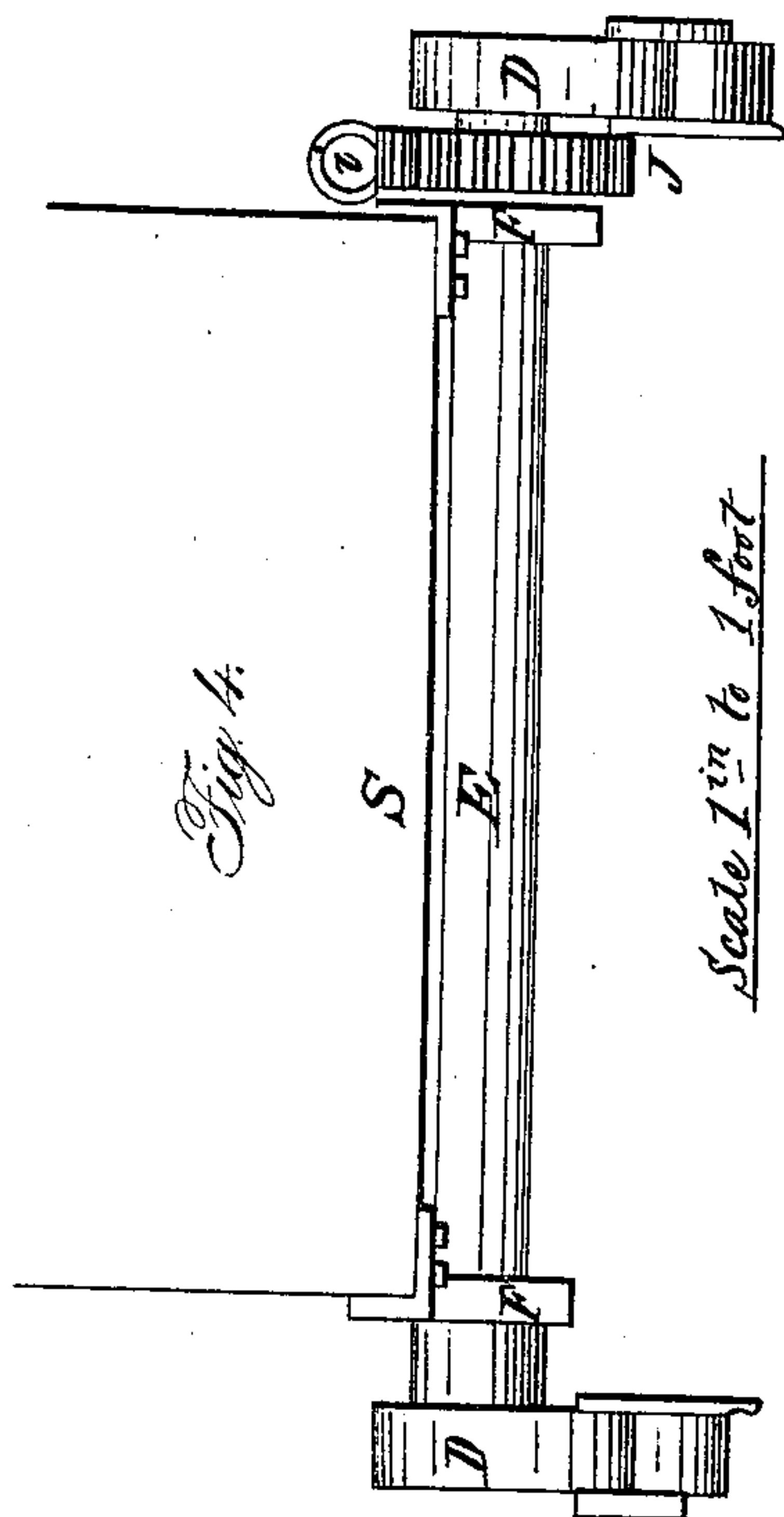
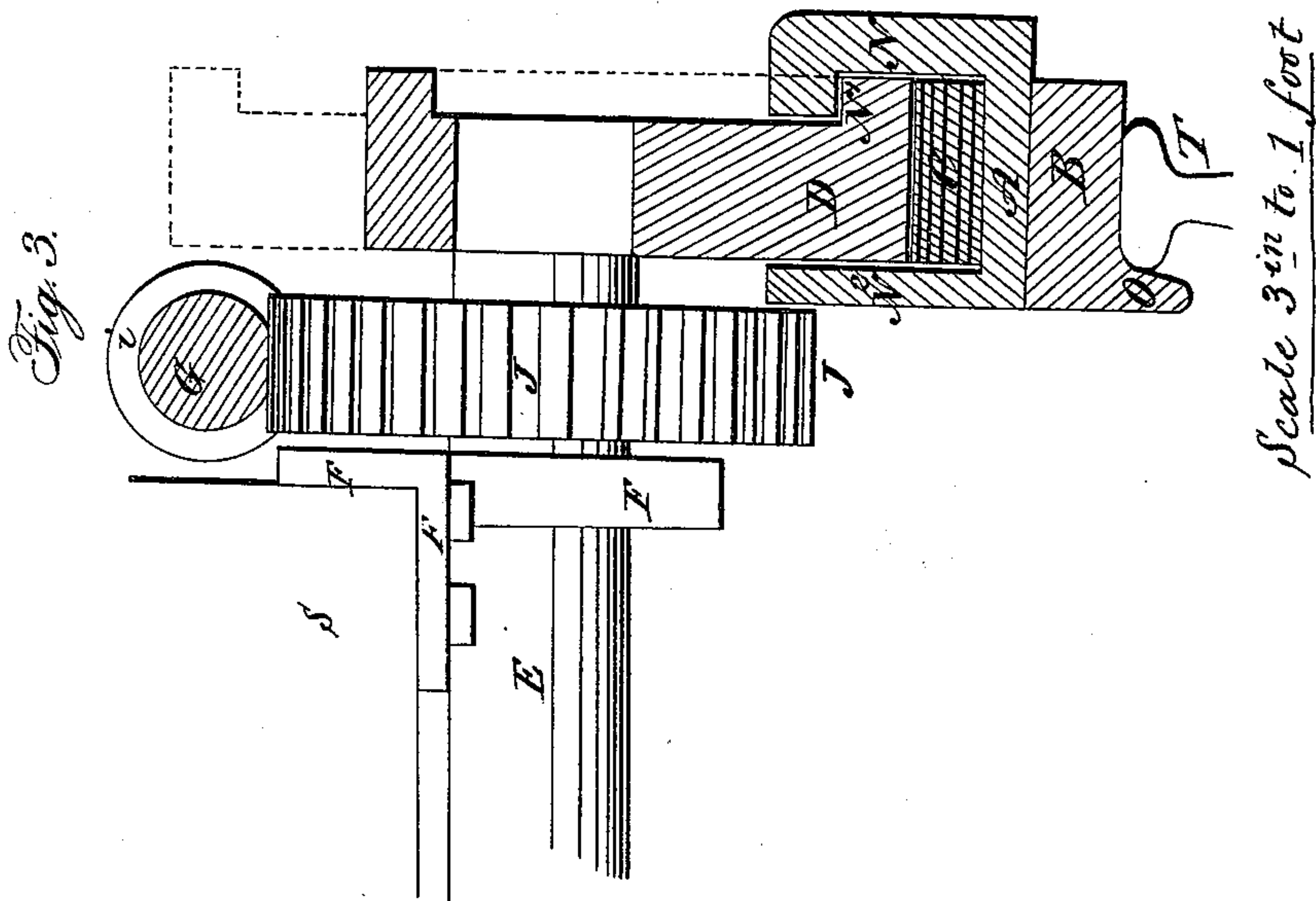
John H. Steiner

J. H. STEINER.

Car Brake.

No. 28,817.

Patented June 19, 1860.



Witnesses:

W. H. Torbush
E. B. Torbush

Inventor:

John H. Steiner

UNITED STATES PATENT OFFICE.

JOHN H. STEINER, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO HIMSELF, AND
JAS. E. THOMSON, OF BUFFALO, NEW YORK.

RAILROAD-BRAKE.

Specification of Letters Patent No. 28,817, dated June 19, 1860.

To all whom it may concern:

Be it known that I, JOHN H. STEINER, of the city of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Railroad-Locomotive Brakes; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing and the letters of reference marked thereon.

To enable others skilled in the art to make and use my invention I will proceed to describe its construction and operation.

Figure I is a side elevation of a locomotive engine with my improved brake or spring shoe as applied and connected therewith. Fig. II is a side elevation of the brake or spring-shoe and a portion of the cam and gear. Fig. III is a cross section of same. Fig. IV is a cross section showing the connection of the cam shaft to the fire box.

Like letters refer to like parts in each of the figures.

A, represents the shoe part which is made of wrought iron; and (B) shows a liner or friction plate, which is made of cast iron ("chilled,") or steel, and connected with the shoe, which comes in contact with the rail when the brake is applied. This friction plate is connected with the shoe as shown at (b') (Fig. II) by means of a dovetail, so that it can be put in and removed at pleasure. A gib or key may be used in order to fasten it tightly to the shoe. When these plates become too much worn, they are removed and replaced by new ones.

(C) represents an elliptic spring, supported upon the upper side of the shoe the ends thereof working in pockets in the shoe as shown at (C') which pockets will allow of all the necessary movement of the spring. This spring must be made sufficiently strong to sustain all the force which is applied upon the brake.

(D) represents a cam, upon each end of the cam shaft to bear upon the spring upon each shoe. They are supported upon the cam shaft (E) and the cam shaft is connected to the fire box by means of the hang-

ers F and having journal bearings therein as shown in (Figs. III and IV.)

G, represents a shaft placed horizontally and running in journal boxes upon the side of the fire box having a bevel pinion (h) at one end and a worm (i) at the other. The worm (i) works in a worm wheel J, which is placed on the cam shaft near the cam.

At (K) is represented a vertical shaft which has a hand wheel (M) at the top and a bevel pinion (l) on lower end which meshes with pinion (h) on the end of shaft (G).

(N) represents a hook projecting upward from the top of the shoe, which catches into the rim of the cam as shown at (N') (Fig. III,) and is for the purpose of lifting the shoe from the rail as the cam is turned in the proper direction therefor.

N² shows a flange rising from the shoe. The cam works between this flange and the hook and the shoe is thereby prevented from a lateral movement. (O) represents a flange upon the friction plate.

P, shows a jointed bar which connects the shoe or brake to the locomotive frame; the brake or shoe already described has its duplicate upon the other side of the locomotive and (p') shows the end of a bar or rod which reaches across from the one to the other; (Q) locomotive frame; (R) boiler; (S) fire box; T rail; U driving wheels.

Operation: When it is required to apply the brake the wheel (M) under the control of the engineer is turned in the direction to move the gear so as to lower the shoe to the rail. More or less power may be applied to the wheel (M) and hence to the brake as circumstances may require. The spring (C) will relieve the brake from a too sudden action upon the rail and will compensate for any unevenness in the rail and prevent any sudden jar or wrenching of the locomotive. The brake or friction plate having a long bearing upon the rail will have a great adhesive power and it may be applied with sufficient force to lift the rear drivers from the track and arrest the movement of the locomotive in a compara-

tively very short distance. Reversing the movement of the gear will raise the brake from the track.

What I claim as my invention and desire
5 to secure by Letters Patent is—

1. The spring C, in combination with the shoe A, and cam D, substantially as set forth.

2. The combination and arrangement of the hook N, N' and flange N² with the cam 10 D, cam shaft E spring C and shoe A, for the purposes and substantially as described.

JOHN H. STEINER.

Witnesses:

E. B. FORBUSH,
W. H. FORBUSH.