2 Sheets--Sheet 1.

E. SMITH.

Cattle Alarms for Locomotives.

No. 166,943. Patented Aug. 24, 1875.

Fig. 1.

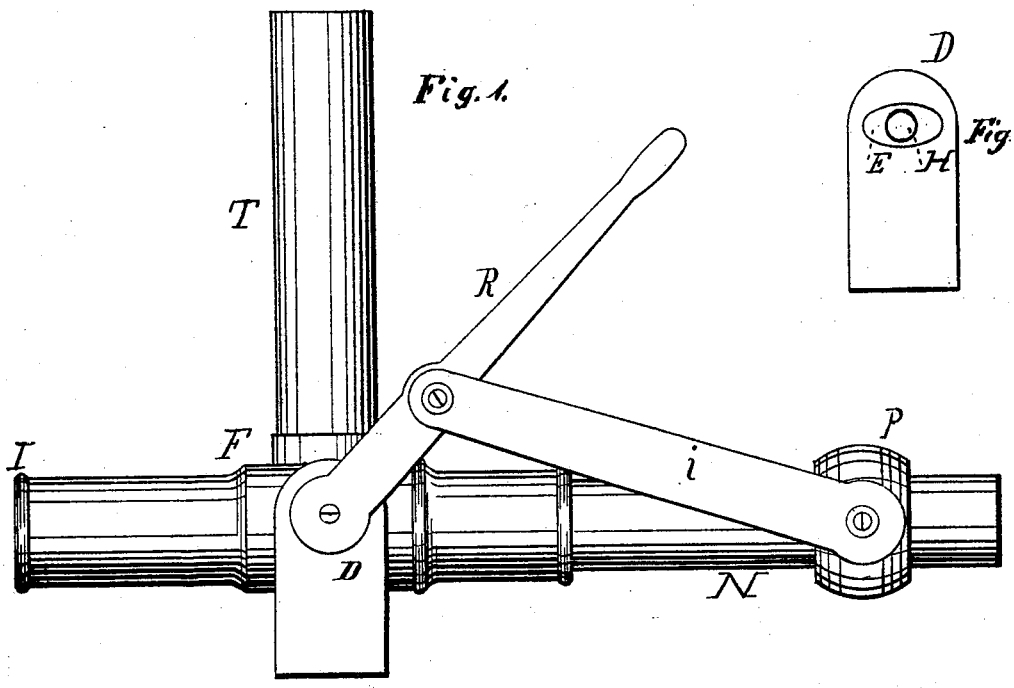


Fig. 2.

Fig. 3.

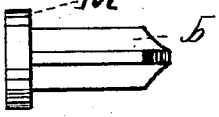
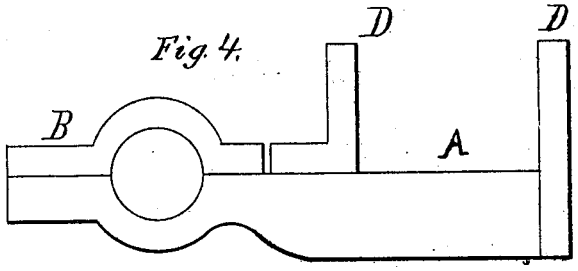


Fig. 4.



Witnesses.
Chas. O. Gill
W. Hendley

Inventor.
Elias Smith
by his Attys.
Cox & Cox

2 Sheets--Sheet 2.

E. SMITH.

Cattle Alarms for Locomotives.

No. 166,943. Patented Aug. 24, 1875.

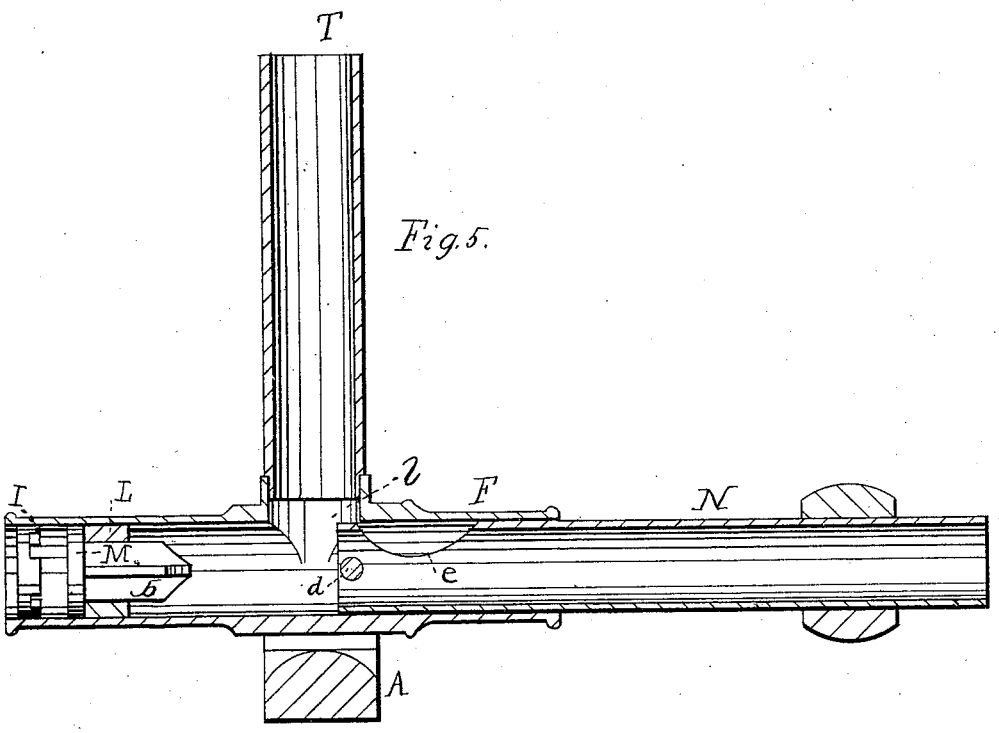
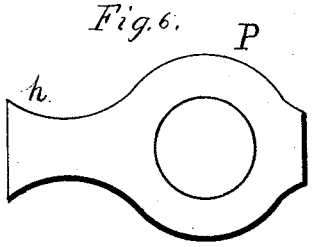


Fig. 5.

Fig. 6.



Witnesses.
Chas. C. Gill
W. Hensley

Inventor
Elias Smith
by his Attys
Fox & Fox

UNITED STATES PATENT OFFICE.

ELIAS SMITH, OF BLOOMINGTON, ILLINOIS.

IMPROVEMENT IN CATTLE-ALARMS FOR LOCOMOTIVES.

Specification forming part of Letters Patent No. **166,943**, dated August 24, 1875; application filed June 1, 1875.

To all whom it may concern:

Be it known that I, ELIAS SMITH, of Bloomington, McLean county, Illinois, have invented new and useful Improvements in Locomotive Cattle-Alarms, of which the following is a specification, reference being had to the accompanying drawings.

The invention relates to a device for projecting percussive or coruscating balls or projectiles ahead of a train, for the purpose of driving cattle from the track, or preventing them coming thereon, and affords a convenient night-signal, as hereinafter set forth.

Figure 1 is a side elevation of a device embodying the elements of the invention. Fig. 2 is a side elevation of one of the upright flanges; Fig. 3, a side elevation of the valve; Fig. 4, a front view of the stand. Fig. 5 is a central vertical section of the device, and Fig. 6 a view of the clamp.

A in the accompanying drawings represents the platform, which is secured by the clamp B, or in any other suitable manner to the hand-rail of the locomotive. The opposite side of the platform is provided with the upright flanges D, having the elongated horizontal slots E, to permit the elevation or depression, or lateral movement, of the tube F on its trunnions H. The tube or barrel is provided at its rear with a flexible hose, (not shown,) connecting with any suitable steam-supply, a cock being provided to shut off or admit steam to the hose. The breech of the tube is provided with the annular shoulder I, the front edge of which is indented, as shown. At a suitable distance in front of this shoulder is placed a second one, L, and between these works the valve M, consisting of a circular head, which is placed toward the shoulder I, and a recessed guide, *b*, placed toward the shoulder L. Thus, when the valve is forced forward upon the shoulder L, the steam is shut off. Upon the interior of the barrel operates the sliding chamber N, which consists of a tube fitting smoothly in the barrel, and provided at its rear with a cross-bar, *d*, to prevent the escape of the projectiles, and also with the aperture *e*, to receive them from the magazine. The front part of the chamber is provided with a clamp, P, having an arm, *h*, which is connected with a draw-rod, *i*, extending rearward and parallel to the tube F, and connected with the lever R, the lower end of which is pivoted to the end of one of the trunnions H, outside of the flange D. The barrel is provided with an aperture, *l*, to receive the base of the upright tube T, which receives the projectiles, and serves as a magazine. The initial condition of the device is with the chamber retracted, and the aperture *e* below the magazine T.

The operation of my invention is as follows: The device being in its initial condition, and secured in position, the barrel directed in line with the smoke-arch of the locomotive, when the engineer discovers the cattle upon the track, he first admits steam to the barrel; this forces the valve M forward, closing the breech. The barrel is now sighted and the lever retracted; this moves the chamber, now charged with a projectile, rearward, closing the aperture *l*, and as it proceeds the cross-bar *d* comes in contact with the head of the guide *b*, forcing it backward, which admits the steam, thus projecting the projectile, which, exploding near the animals, drives them from the track. If a night-signal is to be made, the projectile is ignited before expulsion, and introduced into the chamber without the intervention of a magazine. As soon as the projectile is expelled, the lever is thrown forward, which permits the valve to operate, cutting off the steam-supply.

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

In a cattle-alarm, the combination of a movable tube and a wing-valve, substantially as set forth.

In testimony that I claim the foregoing improvements in locomotive cattle-alarms, as above described, I have hereunto set my hand and seal this 14th day of May, 1875.

ELIAS SMITH. [L. S.]

Witnesses:

DAVID BERKEY,

THOMAS S. UNDERHILL.