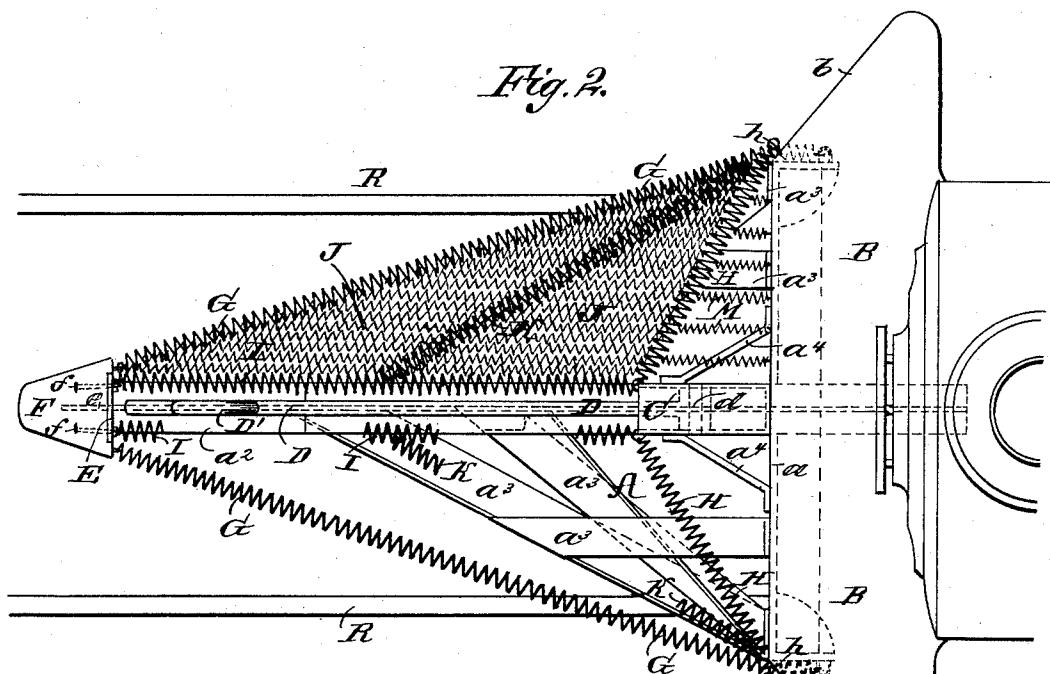
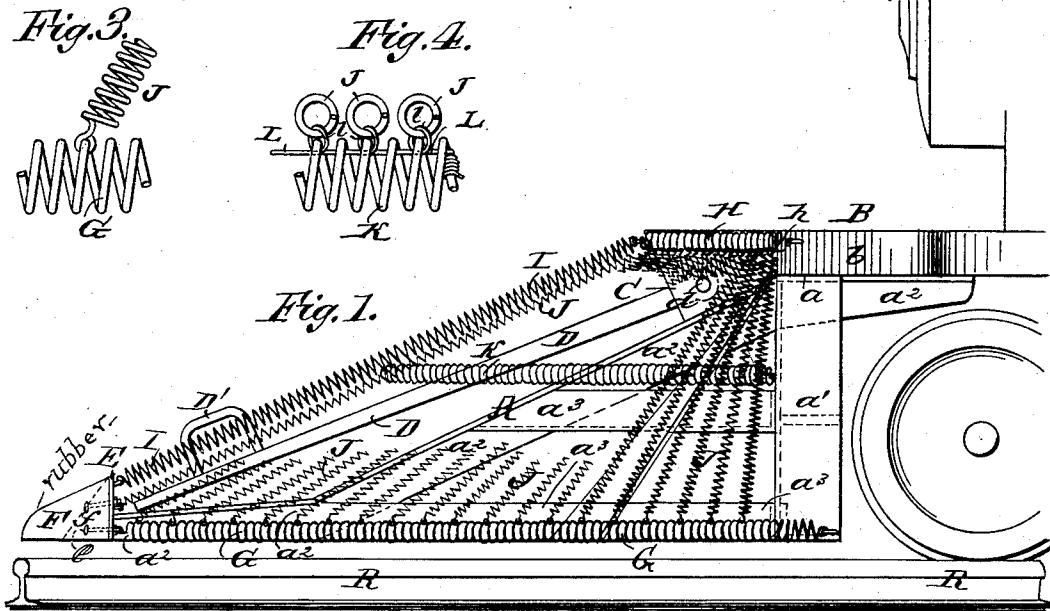


(No Model.)

F. B. HOESL.  
LOCOMOTIVE PILOT.

No. 320,657.

Patented June 23, 1885.



**WITNESSES:**

WITNESSES: *O. W. Beyer*  
*C. Sedgwick*

INVENTOR:  
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m  
ATTORNEYS.

# UNITED STATES PATENT OFFICE.

FRANK B. HOESL, OF BUFFALO, NEW YORK.

## LOCOMOTIVE-PILOT.

SPECIFICATION forming part of Letters Patent No. 320,657, dated June 23, 1885.

Application filed January 15, 1885. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK B. HOESL, of Buffalo, in the county of Erie and State of New York, have invented a new and Improved Locomotive-Pilot, of which the following is a full, clear, and exact description.

My invention relates to locomotive-pilots or "cow-catchers," and has for its object to lessen the shocks of collisions with obstructions on the track and to easily remove the obstructions.

The invention consists in particular constructions and combinations of parts of the pilot, all as hereinafter fully described and claimed.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of part of a locomotive-engine with my improved pilot applied, and with the springs of the pilot partly broken away to show the pilot-frame. Fig. 2 is a plan view with the springs mostly removed from one side of the pilot and the buffer-beam partly broken away; and Figs. 3, 4, and 5 are detail views illustrating the connections of the pilot-springs.

I make the locomotive-pilot with a heavy frame, A, of metal plates, consisting of a plate,  $a^1$ , made preferably of angle-iron, and fixed at the back end to the buffer-beam or cross-bar B of the engine, and bent downward at each end to form hangers, as at  $a'$ , at each side of the pilot, a central plate or bar,  $a^2$ , preferably of T form in cross-section, and fixed at one end to the beam B or plate  $a^1$  and inclined downward and forward, and a series of horizontally-ranging plates,  $a^3$ , which are secured at opposite ends to the hangers  $a'$  of plate  $a^1$  and the central plate,  $a^2$ , and to each other, and are duplicated at each side of the pilot, to give, with the plate  $a^2$ , a general form to the pilot, so it tapers sidewise both ways and downward toward the forward end of plate  $a^2$ , which lies low down and about at the center of the track.

At C is shown a suitable box or case, in which the back end of the push-bar D is strongly pivoted at  $d$ . Angle-irons  $a^4$  brace the box C to the buffer-beam B. The push-bar extends forward to rest on the frame-plate  $a^2$  near its outer end, and so that the bar lies some little distance below the general plane of the springs

with which the pilot-frame is covered, as hereinafter described, and the push-bar has a handle, D', preferably in the open or clevis form shown, and by which the bar may be lifted when required for use.

To the forward end of the central frame plate or bar,  $a^2$ , is attached a vertically-ranging plate, E, to which the rubber block or nose-piece F of the pilot is secured by bolts  $f$ , or otherwise, said plate E having a flange-plate,  $e$ , (dotted,) which enters the nose piece to assist the bolts  $f$  in holding the nose-piece in place against lateral thrusts on it.

I provide the pivot-frame with a covering of springs, arranged over the sloping sides and top of the pilot, so as directly to receive the impact of any object struck by the pilot. These springs may be arranged in various ways, so as to be either stretched or compressed by striking an object. A preferred arrangement of the springs is shown in the drawings, and will next be described.

Coiled springs G G are secured one at each side of the pilot to the front plate, E, or to the forward end of plate  $a^2$  of the pilot-frame, and to the lower ends of the hanger bars or plates  $a'$  of the frame, and about level and so as to stand a few inches from the railway-tracks R, and coiled springs H H are connected at opposite ends to the box C and to opposite parts of the buffer-beam B at the points  $h$ , and coiled springs I I are connected at opposite ends to the box C and plate E, and at proper distance apart to give space between them for the rise and fall of the push-bar D.

I prefer to make the springs G H I in close coils of suitable spring metal and about three inches in diameter, and to attach them to the pilot-frame when stretched or opened slightly, as shown.

A series of smaller closely-coiled springs, J—say about one and a half inch in diameter—are attached at opposite ends, and, when slightly stretched, to the springs G H at each side of the pilot-frame, so as to form a quite close or continuous elastic or spring surface between the springs G H I.

To prevent any great sagging of the springs J by their weight or by collision, I place heavy springs K K, about the same size and style as the springs G H I, over the springs J, which springs K K are connected at their forward

ends to the springs I I at about their centers, and at their opposite ends to the plates  $a'$  of the pilot-frame, and so the springs K K range about over the centers of the springs J J, to which they are connected or tied by a flexible wire, L, looped at l, so as to inclose adjacent coils of the spring-wires, as clearly shown in Fig. 4.

I secure a series of springs, M, at opposite ends, to the opposite springs, H H, and the buffer-beam B, and as said springs M range about horizontally they will not receive heavy shocks, and may be placed farther apart than the springs J, as shown clearly in Fig. 2. I cut the ends of the buffer-beam B, as at b, to give them a backward slant from the points h h, where the springs G H connect with the beam, so that the projecting ends of the beam will offer little or no resistance to the throwing of obstructions from the track by the pilot.

I make the frame of the pilot heavier than usual, and also longer, so it presents a more acute angle to obstacles on the track, and so that obstacles when struck will be lifted and easily thrown aside without excessive cross or transverse strains on the springs, which are stretched lengthwise (more or less) by the shock of collision.

When the pilot strikes a comparatively light object—a sheep, for instance—the springs will flex or bend more or less to cushion the blow, and will bear the whole strain or impact; but in striking heavier objects—cattle, for instance—the springs may bend inward, as they stretch until re-enforced by the pilot-frame, which then receives the shock and protects the springs, as will readily be understood.

The rubber or elastic point or nose-piece F is not essential to the successful working of

my invention, and may be used or not, as desired.

I am aware that a triangular frame for application to a cow-catcher of a locomotive has had mattresses stuffed with a soft substance applied to the front and sides thereof, and I do not claim such as of my invention.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A locomotive-pilot constructed with a frame sloping downward to each side and tapering forward, and an elastic covering supported over the frame, and consisting of coiled springs arranged to receive the shock of collision lengthwise, so as to be stretched thereby, substantially as herein set forth. 55

2. The combination, in a locomotive-pilot, of the frame A, consisting of plates or bars attached to the buffer-beam B and to each other, a forward plate, E, and springs G H I J K M, and the push-bar D, all constructed and arranged substantially as herein set forth. 60

3. The combination, in a locomotive-pilot, of the frame A, consisting of plates or bars attached to the buffer-beam B and to each other, the forward plate, E, elastic nose-piece or buffer F, and springs G H I J K M, and the push-bar D, substantially as herein set forth. 65

4. A locomotive-pilot constructed with a sloping and tapering spring-covering, which directly receives the shock of collision, and is connected to a buffer-beam, B, having its ends cut away at b, to incline backward from the adjacent spring-surface of the pilot, substantially as herein set forth. 70 75

FRANK B. HOESL.

Witnesses:

ADOLPH G. THUM,  
EMILE R. SHNABLE.