

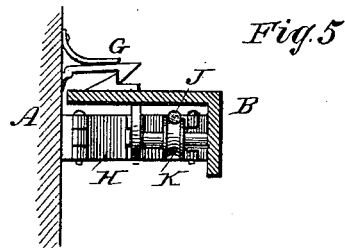
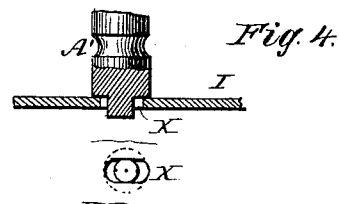
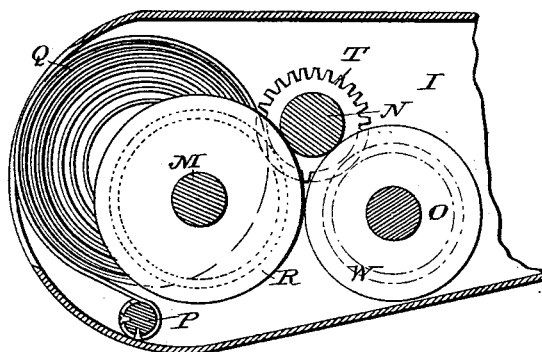
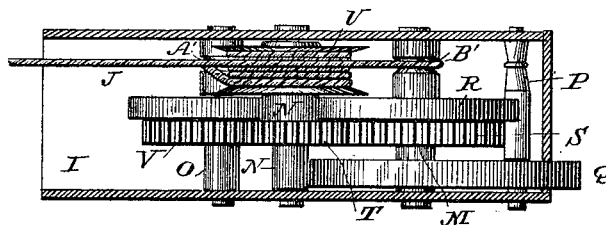
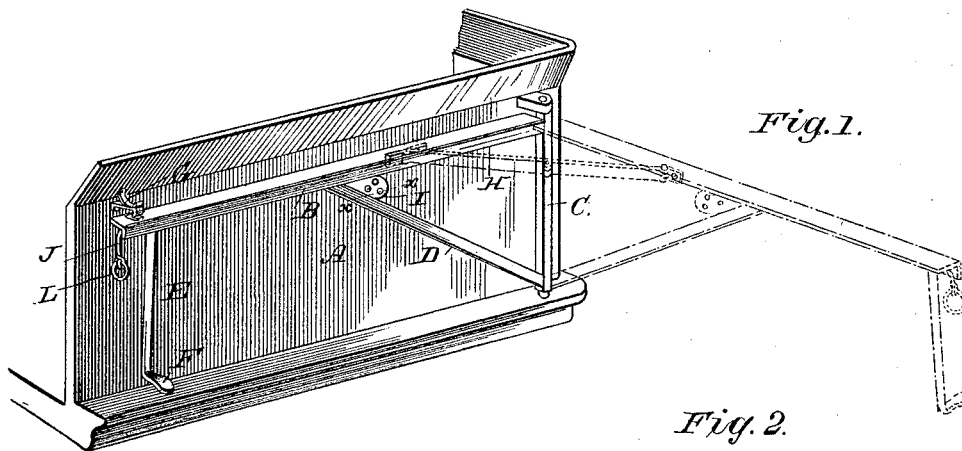
(No Model.)

C. W. DIKEMAN.

SAFETY ATTACHMENT FOR LOCOMOTIVE TENDERS.

No. 348,454.

Patented Aug. 31, 1886.



WITNESSES:
Fred G. Dietrich
John E. Kemon

INVENTOR:
C. W. Dikeman
BY *Munn & Co*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

CHARLES W. DIKEMAN, OF RACINE, WISCONSIN.

SAFETY ATTACHMENT FOR LOCOMOTIVE-TENDERS.

SPECIFICATION forming part of Letters Patent No. 348,452, dated August 31, 1886.

Application filed May 14, 1886. Serial No. 202,212. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. DIKEMAN, of Racine, in the county of Racine and State of Wisconsin, have invented a new and useful
5 Improvement in Safety Attachments for Locomotive-Tenders, of which the following is a specification.

My invention consists in a safety attachment which is adapted to be secured in operative
10 position to the tenders of railway-locomotives, and which will afford a sure, safe, and convenient means of escape for the engineer and fireman in case of a collision or other accident, all as will be hereinafter fully described,
15 and pointed out in the claims.

Referring to the accompanying drawings, Figure 1 is a perspective view showing my invention applied to a locomotive-tender of ordinary construction, the swinging arm being
20 shown in full lines in its normal position against the side of the tender, while in dotted lines it is shown out at right angles to the tender as it appears when in use. Fig. 2 is a top view of the casing, which contains the
25 mechanism which regulates the movements of the escape-rope, the top of the casing being removed. Fig. 3 is a sectional view taken on line *x x*, Fig. 2. Fig. 4 is a sectional view taken on line *y y*, Fig. 1 of the drawings; and
30 Fig. 5 is a cross-sectional view of the swinging arm.

The same letters of reference indicate corresponding parts in all the figures.

Referring to the several parts by letter, A
35 represents the locomotive-tender, to which my invention is shown as applied, the said tender being of the usual construction.

B indicates the swinging arm, which is formed of a bar of angle-iron L-shaped in cross-section, as shown in Fig. 5 of the drawings, this angle-bar being arranged with its
40 widest side on top and its shortest side on the outside, so as to afford protection from the rain, &c., for the escape-rope which runs beneath
45 it, as hereinafter described. This swinging arm is rigidly secured at its rear end to a standard or short shaft, C, which is journaled at its upper and lower ends in suitable bearings on the
50 side of the tender near the rear end thereof, and its rear portion is braced and strengthened by means of an inclined brace, D, extending from the lower portion of the shaft C to a

point near the middle of the swinging arm. The angle-bar forming the swinging arm is of sufficient strength and rigidity to enable it
55 to support the weight of a man at its outer free end without bending but a very little, and the swinging arm is arranged to fold under the projecting upper part of the side of the cab, as shown. The free end of the swinging
60 arm next to the cab is provided with a hanger, E, having formed at its bottom a step, F, on which the person using the swinging arm may stand when swinging himself out from the side of the tender, and the hanger is of such a
65 length that its step is sufficiently above the base or bottom of the tender to admit of the free end of the swinging arm being brought down by the weight of the person using the device to clear the said free end
70 from the catch G, which normally holds the swinging arm folded back against the side of the tender. It will be seen that when the engineer or fireman, seeing that a collision or other accident is about to occur,
75 steps upon the step F of the hanger E, his weight will free the free end of the swinging arm from the catch G, when the momentum of the train will swing the free end of the said arm and the man on it out from the side of the
80 tender, the swinging arm being sixteen or eighteen feet in length, and when the man has been swung out to this distance from the train the swinging arm is prevented from swinging farther around toward the train by the fold-
85 ing brace H, which is secured at one end to the side of the tender and at the other end to about the middle of the swinging arm, and which is hinged in its center so as to fold in
90 between the swinging arm and the side of the tender when the said arm is swung in against the tender into its normal position.

I indicates a metallic casing, substantially rectangular in shape, which is carried by the swinging arm, being secured at the point where
95 the upper end of the inclined brace D meets the swinging arm, and this metallic casing contains the mechanism which regulates the tension of the escape-rope J. This escape-
100 rope passes from the casing I along the under side of the swinging arm, passing through the guide-rings K on the lower side of the wider portion of the angle-iron which forms the said iron, and has at its outer free end a ring, L,

of sufficient size to furnish a firm hold for the hands.

In the metallic casing I are journaled three shafts, M N O, and in the rear end of the casing is secured a transverse rod, P, to which is secured the outer end of a coiled spring, Q, which is coiled around and has its inner end secured to the rear transverse shaft, M, and on this shaft is rigidly secured the central friction-wheel, R, having on one of its sides the toothed pinion S, which meshes with a smaller pinion, T, on the upper central shaft, N, and on this shaft N is mounted a grooved drum, U, around which the inner portion of the escape-rope is coiled, while the small intermediate pinion, T, in turn meshes with a larger toothed pinion, V, secured to the side of a friction-wheel, W, which is centrally secured upon the forward shaft, O, the ends of this forward shaft, O, being journaled in oblong bearing-apertures X X, as clearly shown in Fig. 4 of the drawings, the longest diameter of these apertures extending longitudinally. The inner end of the escape-rope is secured to the grooved drum U, the inner portion of the said rope being coiled around this drum, and the rope then passing down and around the forward shaft, O, fitting in an annular groove, A', around the said shaft, the rope then passing around the rear shaft, M, fitting in an annular groove, B', around the said shaft, the rope then passing up and over the grooved drum again, and then off along the under side of the swinging arm to the forward free end thereof, as previously described.

The operation of the above-described mechanism is as follows: When the engineer or fireman sees that a collision or other accident is about to occur, he steps upon the step of the hanger E, and his weight freeing the free end of the swinging arm from the catch G, the momentum of the train will swing the end of the arm and the man thereon out at right angles to the train, where the arm is held by the folding brace H, as previously described. The man is thus swung out to a point sixteen or eighteen feet from the side of the train, and as the arm swings back it counteracts the motion of the train, and he is for a moment free from the motion of the train, and in this moment he grasps hold of the ring at the forward free end of the escape-rope and lowers himself to the ground, so that when he reaches the ground he is ready to run from the danger, the escape-rope being especially useful when the train is on a bridge or a high embankment at the time when the engineer or firemen desires to escape therefrom. The tension of the heavy coiled spring Q prevents the escape-rope from running out too freely, and also serves to recoil the rope when the weight is removed from its end, so that when the train is standing on the side track the men can practice and perfect themselves in the use of the device, so as to be expert in its use in case of necessity. When the rope is tightened by the weight of the man on its outer end, it will,

as will be readily seen, draw the forward shaft O rearwardly in its oblong bearings, so as to bring its friction-wheel W into still firmer contact with the periphery of the corresponding friction-wheel R on the rear shaft, M, and at the same time pressing its toothed pinion V into closer contact with the intermediate toothed pinion T, and it will be seen that by this arrangement that the heavier the weight on the outer free end of the escape-rope the greater will be the friction between the peripheries of the friction-disks, and accordingly a heavy man will not cause the escape-rope to unwind any faster than it will under the weight of a lighter person, the tension-adjustment therefore being automatic.

From the foregoing description, taken in connection with the accompanying drawings, the construction and operation of my invention will be readily understood. It will be seen that it is very simple in its construction, being therefore cheap to manufacture and not liable to get out of order, while at the same time it is very efficient in its operation. It will take no more time for the engineer or fireman to escape by this method than it would require to jump from the train, while my invention insures a sure and safe means of escape from danger and death through collisions, &c., on the rail.

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

1. The combination, with a locomotive-tender, of an arm journaled at one end to the side of the tender, and thus adapted to swing horizontally, and a device attached to the free end of said arm and adapted to serve as a support to enable persons to pass from the tender to the ground, substantially as described.

2. The combination, with a tender, of a swinging arm journaled to the side thereof, and the hanging step E F, attached to the free end of said arm, substantially as set forth.

3. The combination, with a locomotive-tender, of a swinging arm journaled to the side thereof, the hanging step E F, attached to the free end of said arm, and an escape-rope supported by said arm and pendent therefrom, substantially as described.

4. The combination of the shaft journaled to the side of the tender near one end thereof, the swinging arm secured at one end to the said shaft, the inclined brace connecting the arm and the shaft, the folding brace arranged as described, the hanger secured to the free end of the swinging arm and having the step at its lower end, and the catch secured to the side of the tender, substantially as set forth.

5. The combination, with a swinging arm hinged at one end to the side of a tender and adapted to be swung outward when in use by the momentum of the train, of an escape-rope supported by the said arm, and mechanism, substantially as described, for regulating automatically the speed with which the said rope unwinds.

6. The combination, with the swinging arm arranged as described, of the casing supported on the said arm and containing the rear shaft having the friction wheel and pinion, the coiled
5 tension-spring secured at its inner end to the said rear shaft, and secured at its outer end to a transverse rod, the upper shaft having the intermediate tension-wheel and the grooved drum, and the forward shaft having the ten-
10 sion and gear wheels and having its ends turning in the oblong bearing-apertures, the escape-rope having its inner end secured to the said drum and its inner portion coiled around
the same, and thence passing around the grooved portions of the other shafts over the
15 drum, as described, and through guide-rings to the free end of the swinging arm, and having the large ring secured to its outer free end, all constructed and arranged to operate in the
20 manner and for the purpose herein shown and described.

CHARLES W. DIKEMAN.

Witnesses:

W. D. SLAUSON,

F. M. SLAUSON.