BEST AVAILABLE COP

No. 771,348. PATENTED OCT. 4, 1904.

E. N. ANDREWS.

TORPEDO PLACER.

APPLICATION FILED FEB. 29, 1904.

NO MODEL. 2 SHEETS—SHEET 1.

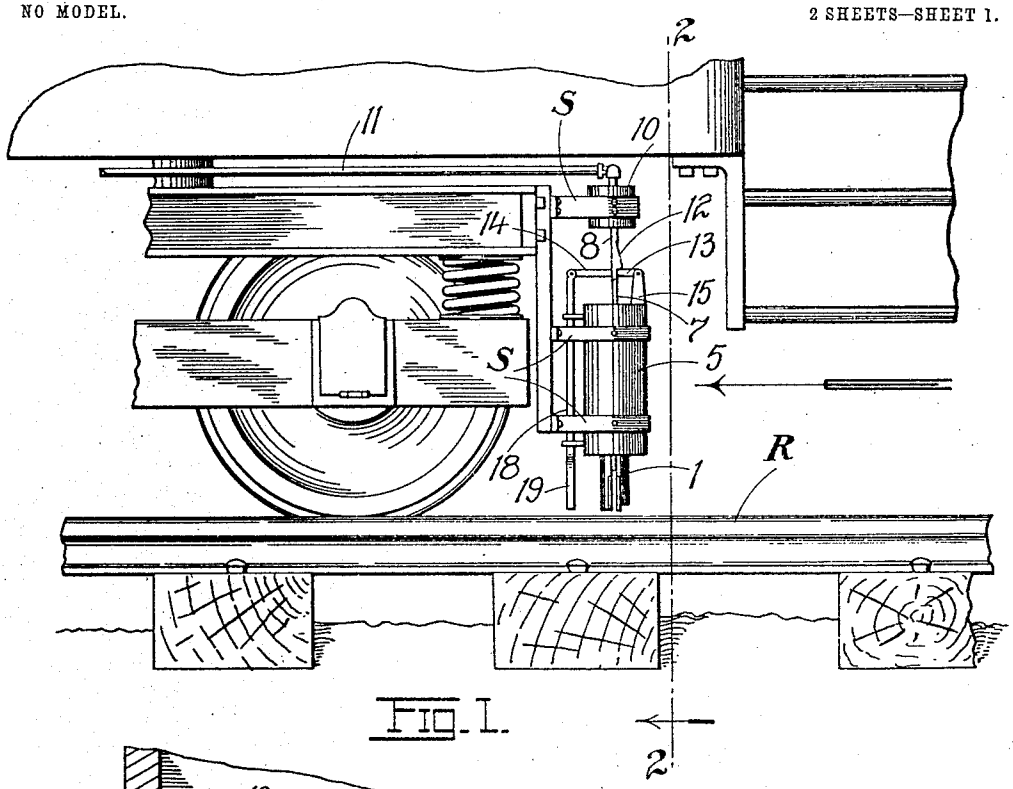


FIG. 1.

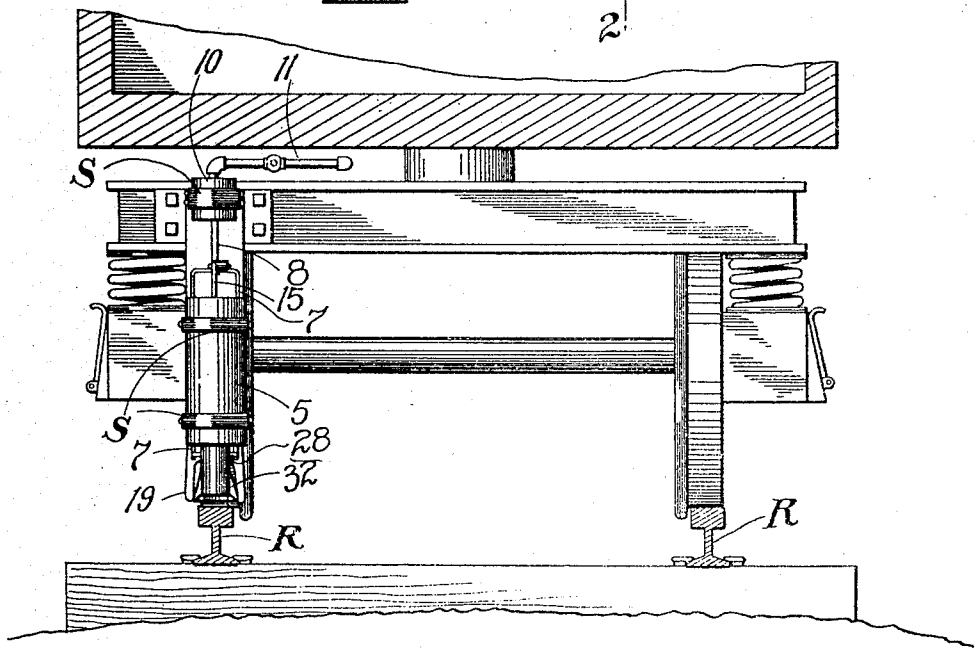


FIG. 2.

WITNESSES:

Thos. J. Shawn

M. D. Whitcomb

INVENTOR.

Edward N. Andrews

BY Ernest Starek

ATTORNEY.

BEST AVAILABLE COPY

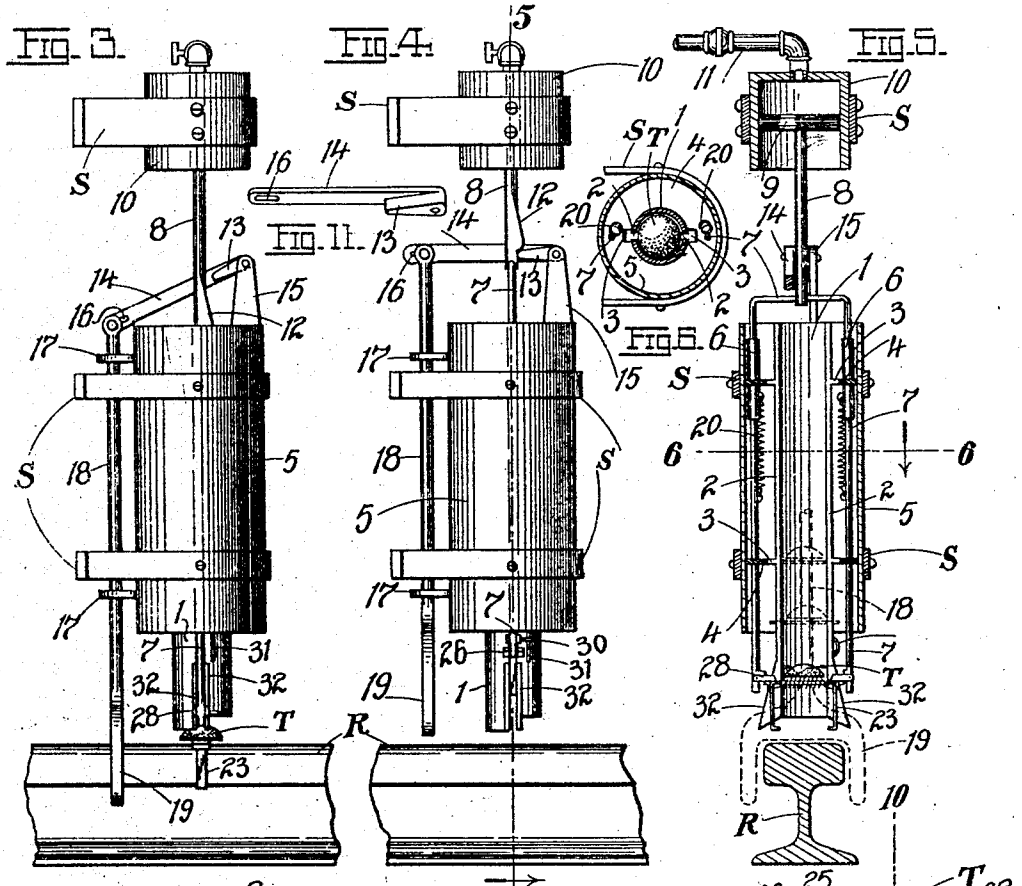
No. 771,348. PATENTED OCT. 4, 1904.

E. N. ANDREWS.

TORPEDO PLACER.

APPLICATION FILED FEB. 29, 1904.

NO MODEL. 2 SHEETS—SHEET 2.



WITNESSES:

M. D. Whitcomb

INVENTOR.

Edward N. Andrews

BY

Emil Starck

ATTORNEY.

BEST AVAILABLE COP

No. 771,348. Patented October 4, 1904.

UNITED STATES PATENT OFFICE.

EDWARD N. ANDREWS, OF ST. LOUIS, MISSOURI, ASSIGNOR OF ONE-HALF TO BENNIGH B. CALDWELL, OF ST. LOUIS, MISSOURI.

TORPEDO-PLACER.

SPECIFICATION forming part of Letters Patent No. 771,348, dated October 4, 1904.

Application filed February 29, 1904. Serial No. 195,827. (No model.)

To all whom it may concern:

Be it known that I, EDWARD N. ANDREWS, a citizen of the United States, residing at St. Louis, State of Missouri, have invented certain new and useful Improvements in Torpedo-Placers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention has relation to improvements in torpedo-placers; and it consists in the novel construction and combination of parts more fully set forth in the specification and pointed out in the claims.

In the drawings, Figure 1 is a side elevation of the rear end of a car-truck having my invention applied thereto. Fig 2 is a vertical transverse section on line 2 2 of Fig. 1. Fig. 3 is a side elevation of the torpedo-placer with operating parts in their depressed position. Fig. 4 is a similar view with operating parts in their normal or raised position. Fig. 5 is a transverse vertical section on line 5 5 of Fig. 4, showing the operating parts, however, partially depressed. Fig. 6 is a horizontal section on line 6 6 of Fig. 5. Fig. 7 is an enlarged side elevation of the lower portion of the torpedo-placer. Fig. 8 is a view at right angles to Fig. 7 with parts broken away. Fig. 9 is a broadside elevation of the torpedo-holder and torpedo mounted thereon. Fig. 10 is a vertical cross-section on line 10 10 of Fig. 9. Fig. 11 is a perspective view of the link coupled to the scraper-plunger, and Fig. 12 is a horizontal section on line 12 12 of Fig. 8.

It is the prevailing practice in railroading to avoid rear-end collisions in the event that the train ahead is on the main track and has been obliged to stop for any purpose to warn the train in the rear of that fact by despatching a flagman or brakeman a suitable distance to the rear, where he deposits a torpedo on the rail, said torpedo being exploded by the rear train as it passes over the same. The explosion serves as a signal or warning to the engineer of the rear train. In order to avoid the delay in depositing the torpedo, (for often the collision occurs before the brakeman can place the explosive on the track,) I have devised the present invention, the placing of the torpedo on the rail being accomplished by the engineer by means of compressed air actuating the depositing mechanism, such air being supplied by the air-pump which furnishes air for the brakes.

Another object of the present invention is to clean the rail in advance of depositing the torpedo to insure that no obstruction is in the way when the torpedo is dropped.

In detail the invention may be described as follows:

Referring to the drawings, 1 represents a longitudinally-split tube or receptacle into which the torpedoes are initially charged, the respective halves of the tube being separated at diametrically opposite points by slits or ways 2 2, with which communicate the recesses 3, formed in the spiders or disks 4, which couple said respective halves to the outer casing 5. The latter, as well as the pump-cylinder, are secured to the car-truck by straps S S. Adapted to reciprocate within the space between the outer casing 5 and the charging-tube 1 and preferably guided within tubular bearings 6, carried by the upper spider or disk, is a U-shaped frame 7, whose upper closed end is coupled to the adjacent end of a piston-rod 8, the piston 9 of which operates in a cylinder 10, (open at the bottom,) whose closed end is in communication through a pipe 11 with any source of compressed-air supply under the control of the engineer of the train.

Formed at a convenient point along the piston-rod 8 is a wedge-shaped projection or tappet 12, the base of which as the piston is descending is adapted to strike the oscillating arm 13, forming a part of a link 14, pivoted to a bracket 15, secured to the casing 5, said arm 13 and link 14 oscillating about a common axis or pivot, as shown. Coupled to the link through the longitudinally-elongated terminal slot 16 thereof, and reciprocating in the bearings 17 17, carried by the casing, is a plunger 18, whose lower end terminates in a fork 19, adapted to loosely straddle the rail R, and thus scrape and clean the rail in advance of the deposit of the torpedo thereon.

BEST AVAILABLE COPY

oupled, respectively, to the arms of the frame and to the bearings 6 are the opposite ends f the contracting springs 20 20.

The torpedo-holder is composed of an outer tubular sleeve or casing 21, within which are adapted to loosely operate from opposite ends the slide members 22 of the gripping-arms 23, the arms being drawn together by the spring 24, coiled about the sleeve and having its opposite ends respectively secured to the upper ends of the arms. Clamped about the sleeve is the torpedo T, of any prevailing construction, the clamping being effected by the arms 25, forming extensions of the base-plate of the torpedo. The upper ends of the arms 23 are provided with lips or lugs 26, which when the torpedo and its holder are inserted into the charging-tube 1 project beyond the slits or ways 2, the recesses 3 accommodating them in their free descent or passage down the tube. Pivoted adjacent to the free ends of the arms of the frame 7 and limited in their upward swing by the lugs 27 are the pawls 28, normally held against the lugs 27 by the flexed springs 29. Projecting laterally from each pawl is a pin 30, which rides over an outwardly bent or bowed spring or plate 31, secured at its upper end to the wall of the charging-tube 1, its lower end being free to allow such spring to flatten out under circumstances presently to be referred to. Disposed on on either side of the ways 2 at the bottom of the charging-tube 1 are the wedges 32, along which the lips 26, which, by the way, straddle the slots or ways 2, are adapted to ride when the holder, with its torpedo, is forced downward (as presently to be seen) to separate the arms 23 preparatory to their gripping the rail R. The rear lower edge of the tube 1 of course is slightly raised above the advancing edge in order that it may pass over the head of the torpedo when once deposited on the rail.

The operation of the device is as follows: First, the charging-tube 1 is filled with torpedoes mounted on their respective holders, the latter being inserted into the tube by slipping the arms 23 into the ways 2 until the torpedoes and their holders fill the tube. Assuming that the tube 1 is filled and that the parts are in their highest position or that corresponding to the parts as shown in Fig. 4, the engineer now admits compressed air above the piston 9, this action forcing the piston-rod 8 downward, causing the tappet 12 to trip the arm 13 downwardly and oscillate the link 14 downwardly, said link in turn forcing the plunger 18 downward until the fork 19 embraces the rail, whereby, as the car travels along, the said fork will clean the rail of dirt, snow, and the like, Fig. 3. All the time that the piston is descending, however, the frame 7 is being forced downward, Fig. 5, the pawls 28 being forced against the lips 26 of the bottom torpedo-holder, forcing the latter downward; but as the lips 26 straddle the wedges 32 the inclined edges of the latter will cause the said lips to be drawn horizontally outward, thus pulling the members 22 of the arms 23 out of their sleeve 21, and hence permitting the said arms 23 to straddle the tread of the rail. The moment the lips 26 slip off the wedges 32 the torpedo, with its holder, will of course drop off; but the spring 24, which has become stretched under the separating action of the wedges 32, will now suddenly contract, forcing the members 22 into the sleeve 21 and causing the arms 23 to snugly grip the rail. The frame 7 in thus descending to effect a deposit of course stretches the springs 20, which, upon removal of the air-pressure above the piston 9, restore the parts to their normal position. In resuming its normal or elevated position the frame 7 strikes the depressed link 14, thus pulling the plunger 18 after it. Again, in restoring the parts to their normal position the pins 30 are forced to ride over the spring 31, which, by the way, are stiffer than the springs 29, causing the pawls 28 to tilt outwardly a sufficient distance to pass by the lips 26 of the next succeeding torpedo, which has now taken the place of the one ejected, Fig. 8, the pawls resuming their horizontal position under the actions of the springs 29 after they have passed beyond the influence of the springs 31 and fully above the lips 26 of such torpedo-holder. The latter is now in position to be ejected, as was the one before it, and so on. In the ejection of the torpedo of course the springs 31 are forced to straighten out under the action of the pins 30, the pawls 28 being rigid for the downward movement of the frame 7, being that they are locked against the lugs 27. In filling the tube 1 originally the engineer preferably forces the frame 7 downward until the pawls 28 are some distance below the springs 31, so as to allow the bottom torpedo-holder to properly seat itself within the tube, after which by slightly elevating the frame the pawls 28 will automatically close or lock over the lips 26, Fig. 8, in the manner indicated. In Fig. 5 I have shown several dotted torpedoes and holders to illustrate the position the same would occupy in the charging-tube. The car running in the direction shown by the arrow in Fig. 1, it is apparent that the rail will first be cleaned and scraped by the advancing scraper or fork 19, by which time the torpedo-holder and torpedo will be fully ejected from the tube 1 and gripped about the rail.

I do not wish to be limited to the details here shown, as they may in a measure be departed from without in any wise affecting the nature or spirit of my invention.

Having described my invention, what I claim is—

1. In a torpedo-placer a suitable charging tube or receptacle, a torpedo-holder adapted

to be ejected from said tube, said holder comprising a pair of reciprocating rail-gripping arms, a spring for normally holding the arms in a contracted position, and means for separating the arms against the tension of the spring at the moment of ejection of the holder from the charging-tube, substantially as set forth.

2. In a torpedo-placer, a suitable charging-tube, means for ejecting the torpedo from the same, devices coupled to the torpedo for gripping the rail upon ejection thereof from the tube, and means for cleaning or scraping the rail in advance of the ejection aforesaid, substantially as set forth.

3. In a torpedo-placer, a suitable charging-tube, means for ejecting the torpedo from the same, devices coupled to the torpedo for gripping the rail upon ejection thereof from the tube, and means coöperatively connected to the ejecting devices for cleaning the rail in advance of the ejection aforesaid, substantially as set forth.

4. In a torpedo-placer, a suitable charging-tube, a reciprocating ejecting-frame operating in conjunction therewith, a fluid-operated reciprocating piston coupled to said frame, a plunger, a terminal fork at the lower end thereof for loosely embracing the rail, intermediate connections between the piston and plunger for actuating the latter in one direction upon the depression of the ejecting-frame, means for restoring the frame to its normal position, and intermediate connections between the frame and plunger for restoring the latter to its normal position with the return of the frame to a corresponding position, substantially as set forth.

5. In a torpedo-placer, a longitudinally-slit charging-tube, terminal wedges on either side of the slit at the base of the tube, a torpedo-holder adapted to be guided by the walls of the slit of the tube, and comprising an inclosing sleeve or casing, sliding members within the same, rail-gripping arms depending from said members, a contracting-spring connecting the arms together, a suitable reciprocating frame for forcing the holder along the wedges and simultaneously forcing the arms outwardly sufficiently to straddle the rail, the spring automatically drawing the arms together and insuring the gripping of the rail by the latter, upon the passing of the holder off the wedges, substantially as set forth.

6. In a torpedo-placer, a suitable longitudinally-split tube or receptacle for the torpedo, a reciprocating frame adapted to eject the torpedo out of the tube, a piston-rod and piston coupled to the frame, a tappet on said piston-rod, a swinging arm pivoted in the path of said tappet and adapted to be struck thereby in the downward movement of the piston, a link connected to the arm and oscillating about the same axis therewith, a suitably-guided plunger mounted adjacent to the charging-tube, a terminal fork at the lower end of the plunger adapted to straddle the rail, and springs for returning the frame to its normal position, the link aforesaid being adapted to be struck in such movement and the plunger restored to its normal position, substantially as set forth.

7. In a torpedo-placer, a longitudinally-slit charging-tube, wedges at the lower end thereof on each side of the respective slits, a reciprocating U-shaped frame having arms operating in the plane of the slits or ways, terminal spring-controlled pawls held against rotation during the descent of the frame, a curved or bowed spring for tilting the pawls outwardly to enable the same to resume their normal position after they have passed beyond the influence of said bowed springs, a torpedo-holder being guided in the slits of the tube and having movable arms adapted to be separated during their travel over the wedges aforesaid, and lips on said arms straddling the slits and wedges adapted to be engaged from above upon the resumption by the pawls of their normal position, substantially as set forth.

8. In a torpedo-placer, a holder for the torpedo comprising a suitable sleeve or casing, sliding members operating in the sleeve, depending arms secured to said sliding members, a spring coiled about the sleeve and having its opposite ends connected to the arms, lips at the upper ends of the arms, a charging-tube for the holder, wedges at the base of the tube, the lips on the holder being adapted to straddle said wedges, and ejecting device for forcing the holder toward the wedges, the lips engaging and straddling the wedges under the circumstances and spreading the sliding members and forcing the arms apart, the spring suddenly drawing the parts together upon final ejection from the tube, and causing the arms to grip the rail, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

EDWARD N. ANDREWS.

Witnesses:

EMIL STAREK,

MARY D. WHITCOMB.