

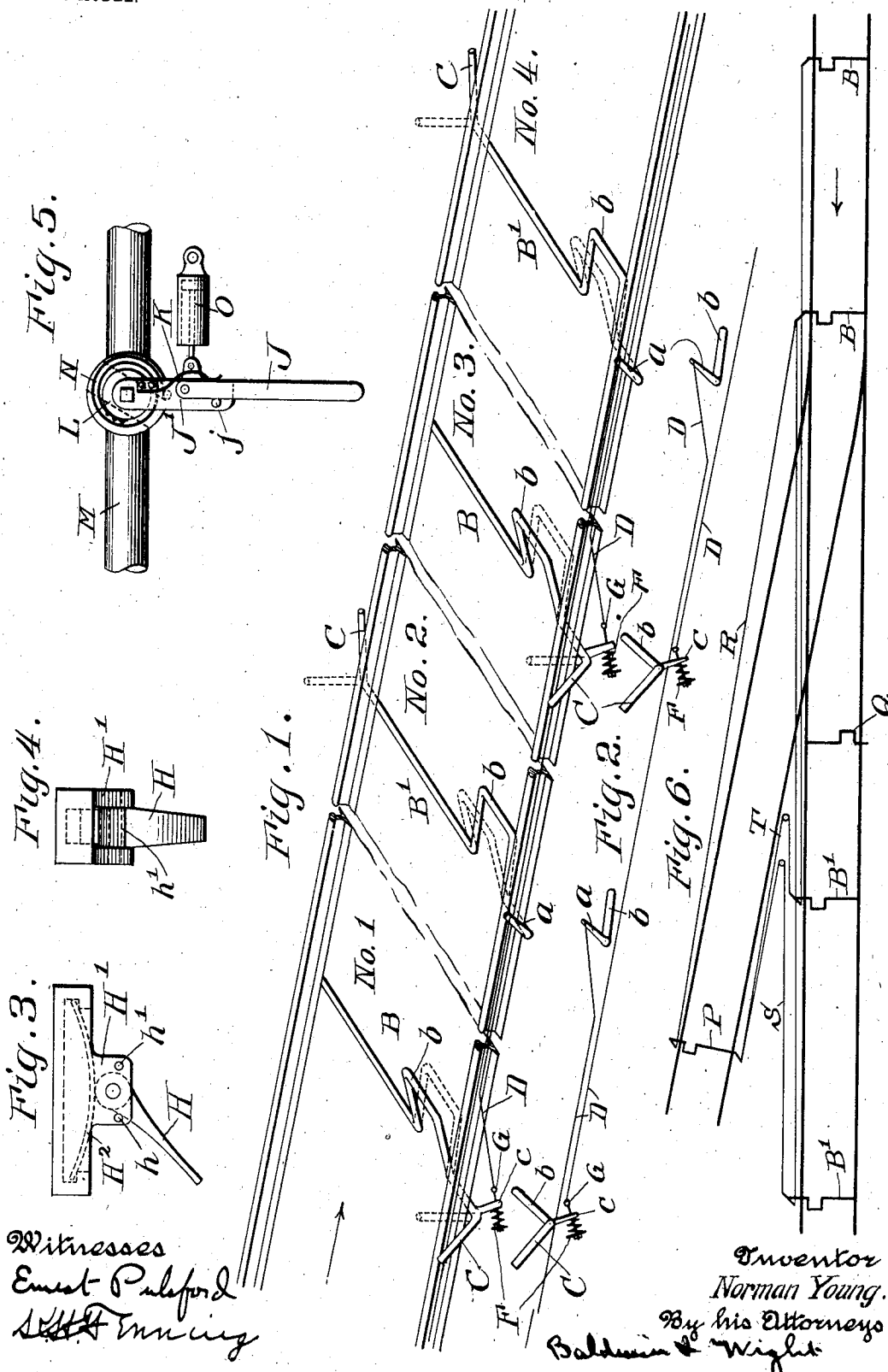
No. 772,489.

PATENTED OCT. 18, 1904.

N. YOUNG.
AUTOMATIC TRAIN ARRESTING DEVICE.

APPLICATION FILED APR. 30, 1904.

NO MODEL.



UNITED STATES PATENT OFFICE.

NORMAN YOUNG, OF GRAND ENCAMPMENT, WYOMING.

AUTOMATIC TRAIN-ARRESTING DEVICE.

SPECIFICATION forming part of Letters Patent No. 772,489, dated October 18, 1904.

Application filed April 30, 1904. Serial No. 205,751. (No model.)

To all whom it may concern:

Be it known that I, NORMAN YOUNG, a citizen of the United States, residing at Grand Encampment, in the county of Carbon and State of Wyoming, have invented certain new and useful Improvements in Automatic Train-Arresting Devices, of which the following is a specification.

The object of my invention is to prevent collisions on railroad-tracks. This is done by causing each train as it advances to set mechanism which will automatically apply brakes to other trains coming dangerously near either in front or behind it.

In carrying out my invention I provide each railroad-track with a series of horizontally-arranged rods each of which has a crank adapted to engage an arm depending from a train by means of which the rod may be turned from its normal to its shifted position, and each rod is provided with another arm which is adapted to engage a lever depending from valve mechanism on a train and which controls the escape of air from the pipes of the air-brake system. The valve-operating arms are arranged alternately on opposite sides of the track, and the rods having arms on one side of the track are connected with rods having valve-operating arms on the opposite side of the track in a novel manner, which is such that when one rod is set by a passing train a valve-operating arm at a suitable distance in advance is set on the opposite side of the track to prevent "head-on" collisions, while the valve-operating arm just set is left in this position to prevent "rear-end" collisions. The arrangement is also such that the crank-rods are automatically returned to their normal positions after the train has passed a suitable distance from them.

In the accompanying drawings, Figure 1 is a diagram showing a railroad-track with my improvements applied. Fig. 2 is a diagram showing the connections between the various crank-rods. Fig. 3 is a detail view of the crank-rod-operating arm carried by the train. Fig. 4 is another view of the same device. Fig. 5 is a detail view of one of the valves in an air-brake pipe and the devices for opening and closing this valve. Fig. 6 is a diagram

showing how my improvements are applied to a railroad-track having a siding or switch.

In Fig. 1 I have shown a railroad-track divided up into a series of sections, each of which may be, say, one-quarter of a mile in length. In each section is arranged a horizontal rod B or B', which is mounted to rock in suitable bearings. Each rod has a crank-arm *b*, and each rod is also provided with a valve-operating arm C, the valve-operating arms being arranged alternately on opposite sides of the track, the arms on the rods B being shown as arranged on the right-hand side of the track, while the arms on the rods B' are arranged on the left-hand side of the track, the arrow in Fig. 1 indicating the direction in which the train is moving.

Each rod B is provided with a lug *c*, which is connected by wire or cable D with an arm *a* on a distant rod B', which carries an arm C on the opposite side of the track. As shown in the drawings, each rod B is connected by a wire D with a rod B', arranged immediately in advance of the next rod B in the series.

In Fig. 1 I have shown four rods and have shown how each set of rods is connected. All the others on the track are connected in a similar way. Preferably a yielding connection F is provided between the wire D and the arm C, and a turnbuckle may be located at G to tighten the wire or cable. Each locomotive is provided with a crank-operating arm H, which is pivoted to a supporting-casting H' and the movement of which in opposite directions is limited by stops *h*. A spring H² is arranged in the casting and bears on the arm. This arm H is adapted to engage with the cranks *b*, and when it does so it depresses the cranks and turns the rods B B'. The arm H is always located on the right-hand side of the engine, and on the same side of the engine a lever J is provided, which is adapted to engage the valve-operating arms C. The lever J is pivoted to a suitable support J', and its movement in one direction is limited by a stop *j*, against which the arm is pressed by a spring K. The support J' is connected with a valve L in a pipe M, forming part of the train-pipe system of the air-brakes.

In Fig. 5 the valve is supposed to be closed;

but if the lever J is swung to the left the opening in the valve will be brought in line with the pipe, so that air may escape from the air-pipe system, and thus the brakes will be applied. The valve is provided with a spring N, which automatically returns it to its closed position; but in order that it may return slowly I provide a dash-pot O of well-known construction, which retards the closing of the valve, allowing it to remain open sufficiently long to apply the brakes. The spring K allows the lever J to move in one direction without moving the valve.

In the operation of the system it may be assumed that a train is approaching in the direction indicated by the arrow in Fig. 1. At this time the crank-rod B in section No. 1 will be in a raised position, and the arm H on the locomotive engaging the crank in section No. 1 will turn the rod in such manner as to elevate the valve-operating arm C to the position shown by dotted lines. As the rod in section No. 1 turns it correspondingly turns a rod B' in section No. 4 in advance of it, this rod being the next in the series in advance of the next rod B, which is located at section No. 3. If the rod B' in section No. 2 is raised or has the arm C in the elevated position shown in Fig. 1, the arm H will depress the arm C. As soon as the locomotive arrives at section No. 3 it will turn the rod B, so as to elevate the valve-operating arm C. At this time the valve-operating arm C in section No. 1 is still elevated, and when the arm C in section No. 3 is elevated it will elevate an arm C on the opposite side of the track a suitable distance in advance of section No. 3—namely, in what would be section No. 6. When the train arrives at section No. 4, the crank b being in an elevated position will be engaged by the arm H and will be depressed to the position shown by full lines, throwing the valve-operating arm C in section No. 4 out of operation and at the same time throwing the valve-operating arm C in section No. 1 out of operation, the train at this time being protected at sections Nos. 2 and 3 in the rear and at other sections in advance.

It will be observed that the crank-rods are so disposed that when the cranks in the rods B are depressed the cranks in the rods B' are elevated, and vice versa.

In Fig. 6 I have shown how the main line may be cleared when a train passes into a siding or switch. Of course when the train leaves the track it will be desirable to clear

the line so that the brakes need not be applied on passing trains. To accomplish this, I provide a crank-rod P on the switch or siding and connect it by wires R S T with the rods B B' on the main track, the arrangement being such that as the train passes over the rod P it turns it and causes the wires R S T to be pulled in such manner as to turn the rods B B' on the main track to their normal position, so that the train may pass without having the brakes applied.

If it be desired to protect trains running in either direction, the system of rods B B' and their appliances and connections may be duplicated, in which case the cranks would be arranged in opposite direction, as indicated at Q in Fig. 6.

I have merely indicated one of the oppositely-disposed crank-rods, as it is obvious that the system would merely be duplicated, the connections all being the same and operating entirely independently of the other series of crank-rods.

I claim as my invention—

1. The combination with a railroad-track, of a series of rods having cranks and provided with valve-operating arms arranged alternately on opposite sides of the track, each crank-rod having a valve-operating arm on one side of the track being connected with a crank-rod having a valve-operating arm on the opposite side of the track arranged immediately beyond the next crank-rod having an arm on the same side as that first mentioned.

2. The combination with a railroad-track, of a series of crank-rods having cranks and valve-operating arms arranged on opposite sides of the track, connections between crank-rods having valve-operating arms on one side of the track and crank-rods having valve-operating arms on the opposite side of the track, a spring-controlled arm depending from a locomotive adapted to engage the cranks and a valve-operating lever depending from the air-brake pipes of a train and adapted to engage the valve-operating arms of the crank-rods, a spring for closing the valve in the air-pipe and a dash-pot for retarding the closing of the valve.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

NORMAN YOUNG.

Witnesses:

C. J. SMITH,
ACE THRAPP.