In re Investigation of an accident which occurred on the New York, New Haven & Hartford Railroad at Bank Street Junction, Waterbury, Conn., on January 27, 1917.

February 20, 1917.

On January 27, 1917, there was a side collision between a runaway engine and a passenger train on the New York, New Haven & Hartford Railroad at Bank Street Junction, Waterbury, Conn., resulting in the injury of 49 passengers and 1 employee. After investigation of this accident the Chief of the Division of Safety reports as follows:

That part of the New York, New Haven & Hartford Railroad where this accident occurred is a double-track line, equipped with manual block signals. At Bank Street Junction there is an interlocking tower from which is operated signals and switches controlling train movements over an east and west route through the junction, and also to and from a double track diverging route to the south. The intersection of this diverging route with the east and west line is about 3,600 feet west of Waterbury passenger station and approximately 2,500 feet east of the engine house at Meriden Junction yard, where engines are kept when not in service.

The train involved in this accident was passenger train No. 55, westbound from Boston to New York via Willimantic and Waterbury. It was in charge of Conductor McFarland and Engineman Taylor, and consisted of engine 1005 and 4 cars, all of steel construction. This train arrived at Waterbury passenger station shortly after 7.00 p. m., on the date of the accident, and after discharging and receiving passengers proceeded on its way via the diverging route at Bank Street Junction. Approaching the junction, the switches and signals were lined up from the interlocking tower to permit the train to take the diverging route, and while it was making this movement, at about 7.11 p. m., its rear car was struck about midway by eastbound runaway engine No. 3101.

The car collided with was a smoking car well filled with passengers, and all the persons injured were riding in it. The forces of the collision practically demolished this car, and turned it over on the adjoining track. After the accident engine 3101 continued eastward for a distance of about 100 feet, where it was derailed on account of the route being lined up against it.

Engine 3101 is a large Mikado engine, equipped with power-operated reverse gear of the Ragonnet type. With this gear, the position of the valve motion follows the position of the reverse lever in the cab of the engine only when power enters the operating cylinder of the device. The power ordinarily used is air pressure from the main reservoir of the air brake system, to which the operating cylinder of the reversing device is directly connected. With proper air pressure in the main reservoir, the valve motion follows the motion of the reverse lever in the cab, and the position of the lever indicates the direction in which the engine will move. There is also a steam connection to the cylinder, for use in emergencies when air pressure fails for any reason. Without pressure in the reversing cylinder, the reverse lever may be moved without altering the position of the valve motion. The throttle quadrant has a hole drilled through it behind the throttle lever in its closed position. A pin attached to a short chain is fastened to the quadrant, and when the throttle is closed and the engine is left standing, this pin is supposed to be inserted in the hole to lock the throttle in its closed position and prevent its being accidently opened.

Engine 3101 arrived at the engine house at 1.15 p. m., on the day of the accident, in charge of Engineman Barber, and at about 2.00 p. m., after being hostled by Day Hostler Dura, was placed on a storage track near the engine house, where it remained until moved by Night Hostler Martin just previous to the accident.

Engineman Barber, who brought the engine in at 1.15 p. m., said that the engine was all right in every way when he left it. He stated that there was no leak in the engine throttle, and it was in good working condition; he said he had never had any trouble with the latch on the throttle, and it was in good condition.

Day Hostler Dura, who received the engine from Engineman Barber, said that it took 45 minutes to cleanm the fire, and that he put the engine on the storage track at 2.00 p. m. He said that he left the engine with reverse lever in center, safety pin in throttle quadrant, and three blocks under the driving wheels, one piece of iron and two pieces of wood; cylinder cocks open and air pump shut off. He stated that he was not on the engine thereafter, and went off duty about 6.10 p. m. that night; he was positive that the engine was not moved between the time he left it on the storage track at 2.00 p. m. and when he went off duty at 6.10 p. m.

Engine Inspector Burns stated that he inspected the engine at 2.30 p. m., and found the throttle properly closed and locked and the safety pin in place. He said that he noticed

it particularly because it was his business to inspect these throttle pins and see that they are all right on the engine and in place. He said that he got on the engine again about 4.30 p. m., and found everything all right at that time. He said the engine had not been moved between the time he inspected it at 2.30 and the time he returned to it, and that he again noticed that the throttle was closed, the safety pin in proper position in the throttle quadrant, and the reverse lever in the center.

Night Hostler Martin came on duty about 6.20 on the night of accident. Shortly after that time he learned that it would be necessary to move engine 3101 in order to release engine 3100 which stood on the storage track behind it, as engine 3100 was marked to go out in charge of Engineman Boynton. He procured his helper and walked over to the storage track. Just previous to reaching there he saw Engineman Boynton get up on engine 3101 and hold a lighted torch out of the cab window, after which he immediately got down off the engine. Hostler Martin met Engineman Boynton at the gangway of the engine and remarked to him that his engine was in back of the 3101, and said that he would put the 3101 over on another track and let Boynton out with his engine.

Engineman Boynton stated that upon going over to the storage track he did not know just where the engine assigned to him was located. He accordingly got up in the cab of engine 3101, and after lighting his torch at the firebox door, he held the torch out of the cab window so as to enable him to observe the engine number painted just below the window. He said that when he saw he was on the wrong engine he immediately left, without noticing anything inside the cab. He stated that Hostler Martin came up to the engine and spoke to him just as he put his torch out of the cab window, and that after leaving the 3101 he immediately went to his own engine; and as he had some work to do to get the engine ready he was busy about it and paid no attention to the 3101.

Hostler Martin stated that upon arrival at engine 3101 he spoke to Engineman Boynton and told him his engine was in back of the 3101, and that he would clear the track and let him out. He stated that he then told his helper, Fireman Smith, to remove the blocks from the driving wheels, after which he went up into the engine cab, and after noting that the gauge showed a steam pressure of about 180 pounds, he transferred the lighted torch to his right hand and held it out the cab window and reached for the air pump throttle valve with his left hand. He said that just at that instant, before he had time to open the pump valve, the engine gave a great lurch ahead, ran over the blocks which were in front of the wheels and moved ahead toward Bank Street.

After moving ahead a short distance the front cylinder head on the left hand side of the engine blew out.

Hostler Martin stated that when he felt the engine start ahead he placed the reverse lever in back motion and reached for the throttle and found it partly open; he said he then pulled it out farther. There was a train moving on an adjoining track at this time, and as he feared the engine would collide with this train he jumped from the engine, after it had moved a distance of between two and three hundred feet, without closing the throttle or making any attempt to bring the engine to a stop. The collision feared by Hostler Martin did not take place, and the engine moved on until it collided with train No. 55 at Bank Street Junction, as previously stated.

Engineman Green, who was operating a switch engine in the vicinity of the accident at the time it occurred, stated that he got on engine 3101 immediately after the accident and found the throttle about half way open. He said he shut that off and tried the water; and looked at the fire and saw there was not much of it. He was not positive about the the position of the reverse lever, but said he thought it was about on the center. He stated that the air pump was not working.

Hostler's Helper Smith stated that he was helping Hostler Martin move engine 3101, and that when he and Martin reached the engine he found a piece of iron blocking one of the drivers, and tried to get it out with his hands, but could not; he then kicked it with his foot in an effort to loosen it, and just then the engine started ahead and ran over the block. He said he grabbed his light and signaled for the engine to stop, but it kept right on. He stated that after Hostler Martin jumped from the engine he said to him that the throttle did not have any pin in it and was half open, and that he reversed and gave her steam, but it did not do any good. He also stated that Hostler Martin was excited and pretty well shaken up.

The statements of Hostler Martin concerning his movements on the engine indicate that he became excited and was unable to act properly in the emergency which confronted him. He stated that when he first got on the engine the reverse lever was in forward motion, and that after it started ahead he reversed, and, finding the throttle half open, opened it wider, as he forgot for the moment that the lever was operated by air pressure. In answer to a question he stated that with the amount of steam he found on the engine, and the throttle half open, he did not believe any block would hold it, yet he could give no reason why the engine failed to move until just the moment he got in the cab. He admitted that if he had remained on the engine and done the proper things he would have

stopped it before it got down far enough to do any damage. He said he knew there was no way to reverse the engine without air pressure, but did not think of it at the time, and just put the lever in back motion and gave her steam. He explained his failure to start the air pump by saying that the engine started before he could open the pump throttle, and that if he had not "got rattled" he would have opened it.

This accident was caused by Hostler Martin opening the throttle of engine 3101 and attempting to move the engine without first starting the air pump and accumulating air pressure sufficient to operate the power brake and reversing gear, so as to render the engine controllable by means of brake and reverse lever. After the engine started to move, Hostler Martin became excited, and fearing collision with a moving train on a nearby track he jumped from the engine without closing the throttle or taking any measures to bring it to a stop.

Hostler Martin was regularly employed as a locomotive fireman by the New Haven Railroad, and had been so employed for about 15 months previous to the accident and had a clear service record. He had had several years' experience as a locomotive fireman previous to entering the service of the New Haven Railroad, and on the night of the accident was acting in place of the regular hostler, and had frequently so acted on previous occasions.