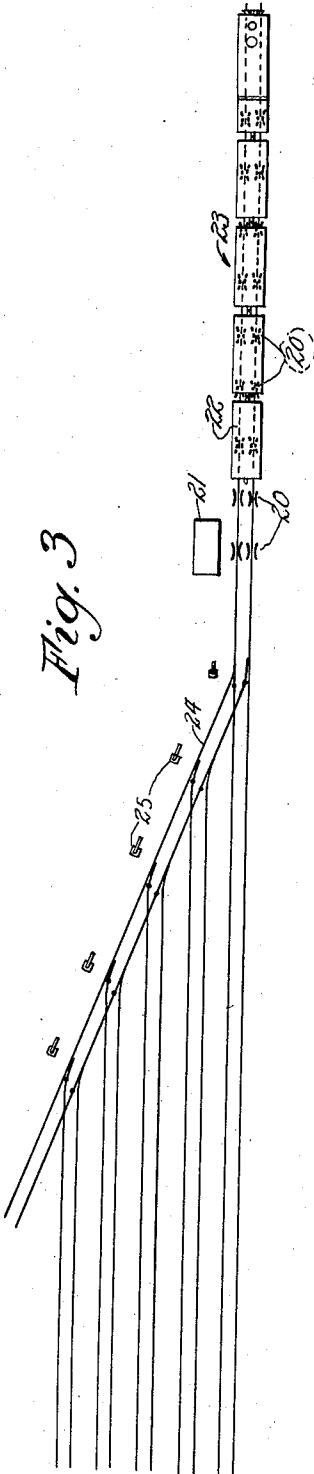
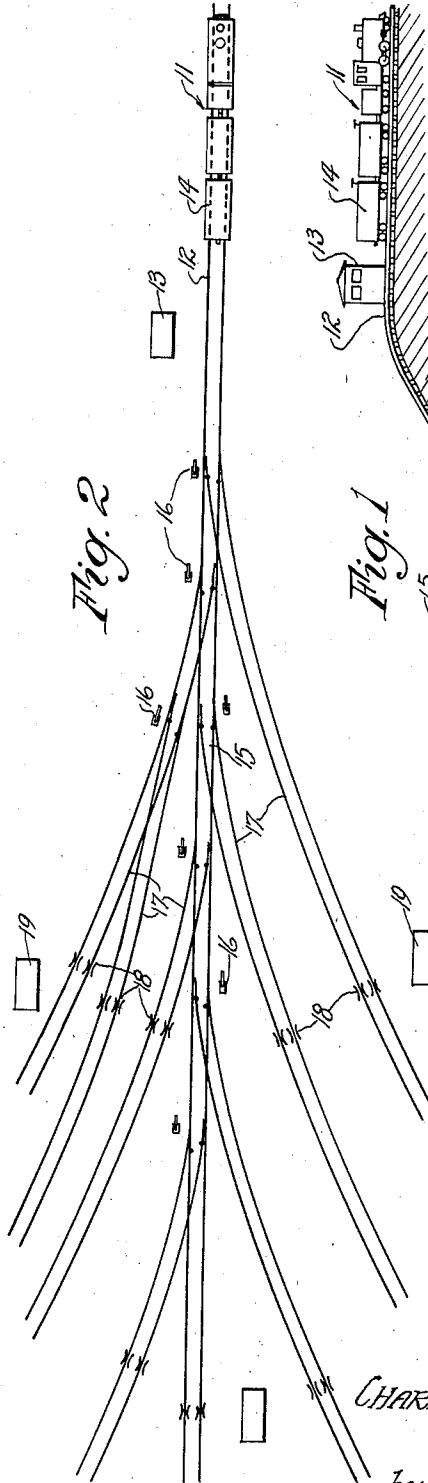


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C. T. KNUDSEN
TRAIN CONTROL SYSTEM

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Inventor
CHARLES T. KNUDSEN
by Henry Beck
Attorney.

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TRAIN CONTROL SYSTEM

Charles T. Knudsen, Chicago, Ill.

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5 Claims. (Cl. 104-26)

The invention relates to a train control system and, more particularly, to a novel method of switching train cars.

In switching train cars it is the prevalent method of disengaging the end car from the remainder of the train and permitting the end car, after halting of the train, to continue to roll under its momentum onto the switch lead, whence it is caused to continue on a desired track to be reduced in speed by a retarder.

This method of switching is very undesirable because the cars have considerable slack between one another and upon bringing the train to a standstill, or upon starting, the impact between cars and engine causes wear and tear and damage to content, thereby increasing the cost of operation both of the cars and the engine.

In addition, the jerks accompanying this method of switching, renders the uncoupling of the end car extremely hazardous, frequently resulting in loss of life.

It, therefore, constitutes the principal object of the invention to provide a novel method of switching cars by eliminating impact, thereby rendering the disengagement of the end car or cars less hazardous.

A further object aims at providing manually operated means for controlling the train from a distance thereof.

Another object aims at providing means for stopping a train in such manner that the rough handling of the cars is eliminated and the train cars are in direct contact with one another so that there is no slack.

A still further object aims at providing a novel method of switching cars on an inclined track without the employment of an engine.

Another object aims at providing a new method of switching cars on an inclined track without the employment of an engine and without the jerks and impacts incident to car switching.

With these and other important objects in view, which will become apparent from a perusal of the invention, the latter comprises the various steps of a novel method described in the following specification, particularly pointed out in the claims forming a part thereof, and illustrated in the accompanying drawing, in which

Fig. 1 is a diagrammatic elevational view of a hump yard illustrating the known method of switching cars.

Fig. 2 is a top plan view of the parts shown in Fig. 1.

Fig. 3 is a top plan view of a yard and switch

lead showing the retarders arranged in accordance with my invention, and

Fig. 4 is an elevational view of switch yard having an inclined track to replace the hump yard.

Referring to Figs. 1 and 2 of the drawings, a hump yard 10 is provided where a train generally designated by 11 is on the hump lead 12 and when reaching the position indicated by 13, the end car 14 is disengaged to permit it to continue to move under its momentum onto the switch lead 15 where a number of switches 16 connect the switch lead with tracks 17 equipped with retarders 18 operated from control towers 19.

The method hitherto described is the usual practice in switching cars of a freight train in hump yards.

In accordance with my invention, as shown in Fig. 3, retarders 20 are provided along the yard lead controlled from the tower 21.

In order to switch the end car 22 while the train is in motion towards switch lead 24 of the classification tracks, and proper speed has been attained, retarders 20 are applied throughout the train 23 with the exception of the end car 22, being the foremost car, and which has been uncoupled before the retarding action is set up as applied to the remaining cars of the train.

By applying a retarding force throughout the train, with the exception of the uncoupled car, the halting of the train or checking the speed thereof is carried out gradually as desired, and is preferably done to eliminate jerks or impacts and, in addition, the cars are in close or compact arrangement without slack at the time of separation of the uncoupled car.

Attention is called to the fact that, by using retarders for stopping the train, the control of the train is taken away from the engineer and the train controlled from a point where greater visibility obtains, eliminating the necessity of giving signals to start or stop.

The particular type of retarders used may be of mechanical or magnetic construction, or may be of any kind suitable or preferred for the purpose assigned.

The end car 22 when released upon stopping of the train, or checking the speed thereof, continues to roll onto the switch lead 24, where a plurality of switches 25 enable the car to be switched onto the selected track. The control 21 allows for better judgment of momentum of cars being switched.

In Fig. 4 an incline 26 takes the place of a hump yard. Retarders 27 at the yard lead are

controlled from the tower 28 and serve to hold a train, generally designated by 29. The locomotive may be released for hauling additional cars onto the incline.

5 The switching of cars is effected as follows:

The train cars are moved from a receiving track onto the incline with a locomotive pulling the cars up to the top portion of said incline. When all the cars are on the incline, the train 10 is brought to a stop by the usual locomotive brakes.

By reason of the fact that only the locomotive is braked and the cars continue to move (to the right in Fig. 3) under their momentum, the cars 15 are in bunched relation without any slack therebetween when the locomotive comes to a dead stop. At this time, the retarders 20 are applied to all of the cars to maintain the bunched relation of the cars and to prevent the accumulation of slack in the couplings.

Thereupon the train is caused to descend (to the left in Fig. 3), in the same bunched relation, without slack between the cars, and when the train attains proper speed, the end car or cars 25 are uncoupled while the train is in motion, and when the uncoupled car or cars have passed beyond the controlled retarders, the operator quickly applies the retarders to all of the rest of the cars of the train or at least to the rear end portion of the train, halting the train or 30 checking the speed thereof, and yet without the accumulation of slack between the cars, to permit the uncoupled car or cars to proceed to the selected classification track.

Thereafter, the retarders of the train may be released to permit further descent of the train on the incline for the successive uncoupling of additional cars, the elimination of slack between individual cars and the bunched relation thereof 40 continuing, since the retarders, when applied to stop the train or reduce the speed thereof, continue to maintain the compact arrangement of the cars and to maintain the elimination of slack therebetween; and the multiple braking effect, exercised by the retarders, hastens the 45 halting or slowing up of the train. The successively uncoupled cars having passed beyond the influence of the retarders, continue by their momentum to a selected branch track.

50 While the preferred sequence of steps of a novel method for switching cars and controlling trains has been described, the method may be varied.

It is not my intention to be limited to the exact sequence of steps of the method, but wish 55 to include all changes, variations and modifications falling within the purview of my invention, and, therefore, wish to claim my invention as broadly as the state of the art permits.

60 I claim:

1. A system of switching cars in a car yard having a plurality of branch tracks connected to an inclined main track, including the steps of moving a train consisting of a plurality of

coupled cars onto said main track, stopping and thereafter reversing the movement of the train by a force applied to the uppermost car of the train, uncoupling the lower end car or cars to be switched, and immediately thereafter 5 applying from a central point near the main track and extraneous to the cars a retarding action on the balance of train cars with at least the greatest braking effect on the lower end car to cause stopping of the train and thereby main- 10 taining the compact arrangement between individual train cars, said uncoupled end car or cars proceeding under momentum to selected branch tracks.

2. A system of switching cars as set forth in claim 1, including the steps of successively uncoupling additional end cars to be switched and releasing the retarding effect on the said additional uncoupled cars to permit their movement 20 onto a selected branch track.

3. A system of switching cars in a car yard having a plurality of branch tracks connected to an inclined main track, including the steps of moving a train consisting of a plurality of 25 coupled cars onto said main track, stopping and thereafter reversing the movement of the train by a force applied to the uppermost car of the train, uncoupling the lower end car or cars to be switched, and immediately thereafter applying from a central point near the main track and extraneous to the cars a retarding action 30 on the balance of train cars with at least the greatest braking effect on the lower end car to cause slowing up of the train and thereby maintaining the compact arrangement between individual train cars, said uncoupled end car or cars proceeding under momentum to selected 35 branch tracks.

4. A system of switching cars in a car yard having a plurality of branch tracks connected to a main track, including the steps of moving 40 forward a train consisting of a plurality of coupled cars onto said main track, stopping said train and thereafter reversing the movement of the train by a force applied to the forward car 45 of the train, uncoupling the end car or cars to be switched, and thereafter immediately applying from a central point near the main track and extraneous to the cars a retarding action on the balance of train cars with at least the greatest 50 braking effect on the rearward end car to cause slowing up of the train and thereby maintaining the compact arrangement between individual train cars, said uncoupled end car or cars proceeding under momentum to selected branch 55 tracks.

5. A system of switching cars as set forth in claim 4, including the steps of successively uncoupling additional end cars to be switched and releasing the retarding effect on said additional 60 uncoupled cars to permit their movement onto a selected branch track.

CHARLES T. KNUDSEN.