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1838

SPECIFACATION

Of

JOHN HAWKSHAW

RAILWAYS AND CARRIAGES

(6 pages)

A.D. 1838 . . . . . N° 7911.

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RAILWAYS AND CARRIAGES.

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HAWKSHAW'S SPECIFICATION.

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, JOHN HAWKSHAW, of Manchester, in the County of Lancaster, Civil Engineer, send greeting.

WHEREAS Her present most Excellent Majesty Queen Victoria, by Her Letters Patent under the Great Seal of Great Britain, bearing date at Westminster, the Seventeenth day of December, in the second year of Her reign, did, for Herself, Her heirs and successors, give and grant unto me, the said John Hawkshaw, Her especial licence, full power, sole privilege and authority, that I, the said John Hawkshaw, my executors, administrators, and assigns, and such others as I, the said John Hawkshaw, my executors, administrators, and assigns, should at any time agree with, and no others, from time to time and at all times during the term of years therein expressed, should and lawfully might make, use, exercise, and vend, within England and Wales and the Town of Berwick-upon-Tweed, my Invention of "CERTAIN IMPROVEMENTS IN MECHANISM OR APPARATUS APPLICABLE TO RAILWAYS, AND ALSO TO CARRIAGES TO BE USED THEREON;" in which said Letters Patent is contained a proviso that I, the said John Hawkshaw, shall cause a particular description of the nature of my said Invention, and in what manner the same is to be performed, to be enrolled in Her Majesty's High Court of Chancery within six calendar months next and immediately after the date of the said in part recited Letters Patent, as in and by the same, reference being thereunto had, will more fully and at large appear.

NOW KNOW YE, that in compliance with the said proviso, I, the said John Hawkshaw, do hereby declare that the nature of the said Invention, and the manner in which the same is to be performed, is particularly described and ascertained in and by the Drawings hereto annexed, and the following explanation thereof, that is to say:—

My Improvements in Mechanism or Apparatus applicable to Railways, and also to Carriages to be Used thereon, consist,—

Firstly, in a novel construction of apparatus to be attached to or applied upon railways upon those parts termed switches, shunts, or moveable rails, which are commonly used for transferring engines, carriages, or trains from one line of rails to another, as occasion may require, and which apparatus I call a "switch or shunt protector." In the generality of such cases there is one position of the switches, shunts, or moveable rails which is necessary for the thorough or principle traffic, and in which direction the trains may have to pass at a maximum velocity, while the change of direction that is given by the other position of the switches or shunts is less frequently required, and is chiefly passed over by the trains at a slow rate. The principle object of this Invention, therefore, is to secure the switches or shunts being held or kept in a proper position at all times for the principle or thorough traffic, and when there is occasion to transfer the trains or engine, &c. to another line then that upon which the chief traffic passes, it has to be done by some person holding the switch protector in a proper position for the purpose, and immediately after such transfer from one line to the other has been effected, he lets go his hold upon the handle of the apparatus, and it will instantly, from its self-acting construction return to its original position, moving also at the same time by its own action the switches, shunts, or double rails to, and retaining them in, the right direction for the principle or thorough traffic, and thus prevent the possibility of the main line of rails being left unconnected.

Secondly, my improvements applicable to railways consist in the application of an extra plate to the moveable rails, which have hitherto been objectionable, in order to render their use perfectly safe, as this plate being furnished with an inclined plane, and being also used in connection with my improved shunt protector, as hereafter particularly described, enables double rails to be employed in some cases with more convenience than switches or shunts, and is thus of considerable advantage.

Thirdly, my improvements are applicable to carriages to be used upon railways, and consist in a contrivance for attaching engines, carriages, or waggons to each other, and for the purpose of bringing them in closer connection with each other. This object is effected by a single movement and by means of a

small eccentric worked between the two ends of the connecting link, but as the excentric is a substitute for a crank, and, consequently, the crank may also be here used as a substitute for the excentric, then this carriage-connecting link may be made to be worked either by an eccentric or by a crank. But in order that my improvements may be more readily explained, I have attached to these presents a Sheet of Drawings illustrative of the following more detailed description thereof, and marked the same with figures and letters of reference, similar letters being placed upon corresponding parts of the mechanism.

Figure 1 is a front elevation of my improved self-acting mechanism to be applied to railways, and has the front plate removed in order to shew the interior of the apparatus; Figure 2 is a plan or horizontal view of the same, with the top removed for the same purpose, and here shewn in connection with a moveable or double rail; Figure 3 shews its connection with an ordinary switch or shunt; and Figure 4 is a vertical section of the apparatus. The main line of railways or that used for the thorough or principal traffic (in the direction of the arrows) is shewn at *a*, *a*, and the diversion of the line at *b*, *b*; the rails or shunts are connected to the apparatus or "shunt protector" by the horizontal rods *c*, *c*, and actuated by the excentric *d* in the usual manner. In order to move the switches or shunts, and to bring the main feature of my improvements into operation, the railway attendant has to depress the lever *e* into the horizontal position, and hold it there while the train is passing from the main line *a*, *a*, upon the diversion at *b*, *b*, which will bring the parts into the position shewn by red lines in the Figure 2. Thus the depression of the lever *e* has, by means of the bevil wheel *f* upon the shaft *g* and the pinion *h* upon the shaft *i*, caused the excentric *d* to perform half a revolution, and, consequently, move the shunts or switches, and at the same time to raise the balance weight *k*, which is keyed to and suspended upon the shaft *g*. Now when the train has passed from the main line to the diversion, the instant the attendant releases his hold on the lever *e*, this combination of mechanism, that is, the connection of the balance weight, the bevil wheels, and the excentric, immediately brings the rails or switches into their former position, and thus always preserves the right direction of the line for the principle or thorough traffic. In order also to ensure a still greater degree of safety, the same movement which actuates the excentric is, by means of the mitre wheels *l*, *m*, made to turn the upright spindle *n* with an outside signal, which shews to the engineman the position of the shunts. Of course this external part of the apparatus may be constructed in a variety of ways. I have hitherto employed a plane or disc *o* painted black and white, and it is so

placed that the plane of the disc is parallel to the direction of the rails when the switches are right for the thorough or principle traffic, and, consequently, in a position not to be seen by the approaching engineman except edgewise. It will thus be evident that the same motion which actuates the switches turns this signal a quarter of a revolution, and brings it into the full view of the engineman. To make the same part of this apparatus equally applicable at night, it only requires to have a common lamp fixed in the centre of the disc *o*, which will, of course, be fully visible or not visible under the same circumstances as those just described. It will be seen by reference to Figure 2 that there is also attached to the moveable rails an extra plate or way *p*, *p*, which is formed with a slight inclined plane *q* upon its surface in order to lift any engine or carriage which may accidentally be passing along the line of rails *b*, *b*, and thus easily pass or guide such carriage upon the main lines *a* instead of allowing it to escape from the ends of the diversion line *b*, *b*, and be thrown off the rails entirely; this improvement will be found to effect a still further security against accidents, and should be used in connection with the apparatus above described, as shewn in Figure 2.

My improved connecting link for attaching engines and carriages, and bringing them in closer connection with other in trains, is exhibited in Figure 5, which is a side elevation, and Figure 6, which is a plan or top view of the same. *a*, *a*, are the eyes of the link to receive the hooks which are upon the ends of the carriages to be connected; upon one of these eyes is formed a circular race or rim *b* in which the excentric wheel *c* works; this excentric is fixed upon a small stud *d*, to which the other eye is attached by the parallel arms *e*, *e*; there is a handle or lever *f* also keyed upon this stud for the purpose of turning the excentric in the grooved rim *b*, and thus it will be evident that by a single movement of the handle, causing a semi-revolution of the excentric, the connecting link may be lengthened or shortened at pleasure, as shewn by red lines in Figure 5. There is a small spring catch *g*, working on a stud in the arm *e*, which enters or catches into a recess in the excentric when half a revolution has been performed, and thus holds or secures the connecting link in its shortened position.

Having now particularly described my improvements, and the manner in which the same may be carried into operation, I desire it to be understood that I claim as my Invention the particular combination of mechanism above described and shewn in the Drawings attached for the purpose of working the shunts, switches, or double rails upon railways, and thus after the transfer of any engine, carriage, or train, keeping the line for the thorough or principle traffic always entire. And also the mode of connecting engines, carriages, or

trains by the improved link shewn in the Drawings by means of a small excentric wheel or crank. But it will not be imperative that the excentric should be placed as shewn in the Drawings, as it may be fixed in the end of the carriage.

In witness whereof, I, the said John Hawkshaw, have hereunto set my hand and seal, the Fourteenth day of June, in the year of our Lord One thousand eight hundred and thirty-nine.

JOHN (L.S.) HAWKSHAW.

AND BE IT REMEMBERED, that on the Fourteenth day of June, in the second year of the reign of Her Majesty Queen Victoria, the said John Hawkshaw came before our said Lady the Queen in Her Chancery, and acknowledged the Instrument aforesaid, and all and every thing therein contained and specified, in form above written. And also the Instrument aforesaid was stamped according to the tenor of the Statute made in the fifty-fifth year of the reign of His late Majesty King George the Third.

Inrolled the Seventeenth day of June, One thousand eight hundred and thirty-nine.

CHARLEWOOD, Extra.

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