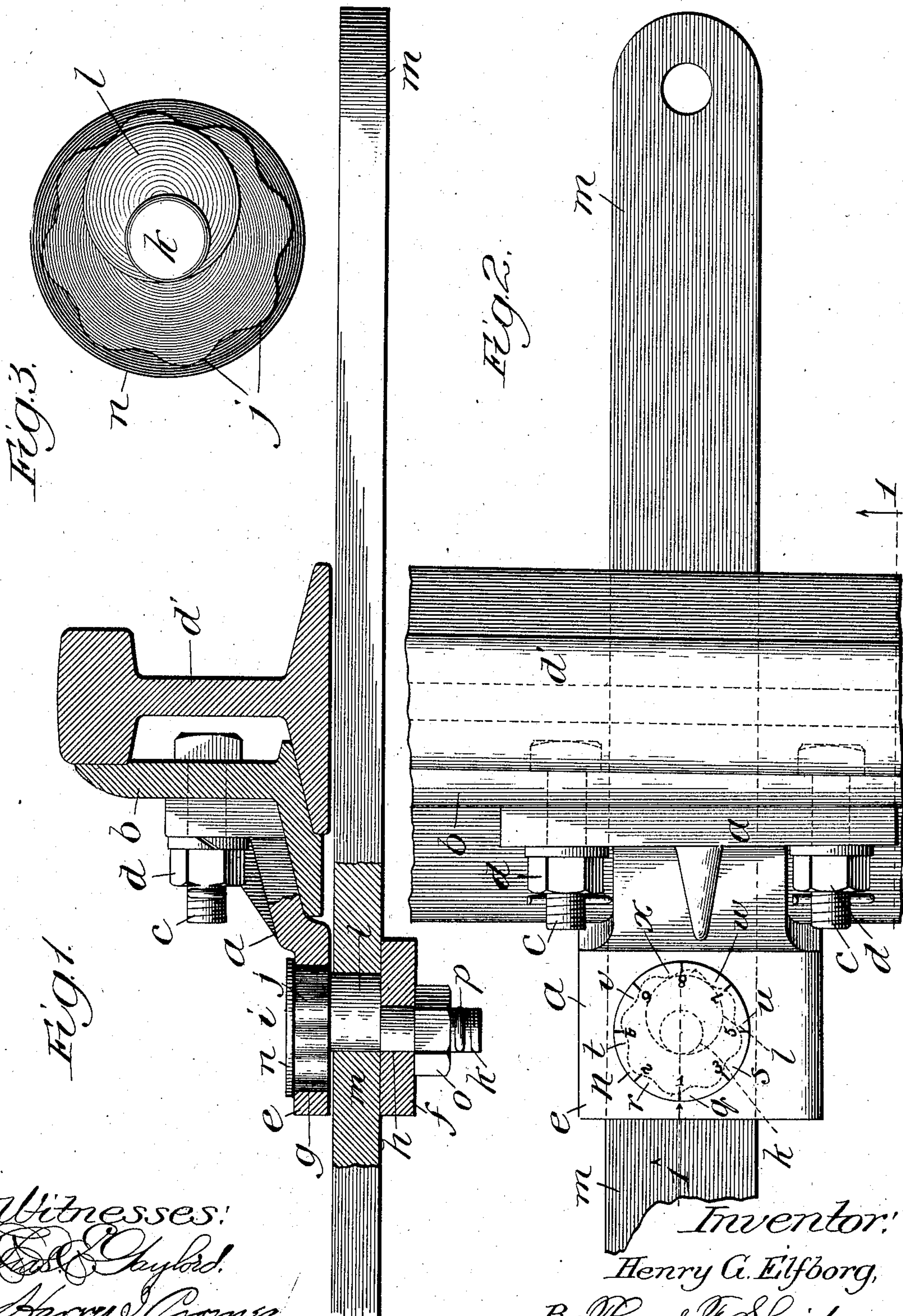


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H. G. ELFBORG.
SWITCH ROD MECHANISM.
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SWITCH-ROD MECHANISM.

SPECIFICATION forming part of Letters Patent No. 791,460, dated June 6, 1905.

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To all whom it may concern:

Be it known that I, HENRY G. ELFBORG, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, am the inventor of certain new and useful Improvements in Switch-Rod Mechanisms, of which the following is a specification.

My invention relates to that class of switch-rod mechanisms having a bracket member secured to one of the switch-rails to be operated and a switch-rod secured to the other of such switch-rails in any ordinary and well-known manner, one of such members being provided with a pair of jaws, between which the other is slidably mounted, and each of such members being provided with perforations through which extends an adjusting-pin or bolt for permitting the rod and bracket to be adjusted to the desired position with relation to each other and for holding them, and thereby the switch-rails, in adjusted position.

The principal object of my invention is to provide a simple, economical, and efficient switch-rod mechanism.

A further object of the invention is to provide a switch-rod mechanism with means whereby the parts may be adjusted and held in operative position with relation to each other without removing the adjusting-pin or the bolt or separating the parts when making the desired adjustments and whereby the different positions to which the adjusting-pin must be moved to obtain any desired adjustment of the rails may be ascertained and the desired adjustment made without experimental preliminary details.

A further object is to provide a switch-rod mechanism comprising a bracket member attached to one of the switch-rails, a switch-rod attached to the other, both of such members being perforated and one corrugated or toothed, and a toothed or corrugated adjusting-pin, with means for making a separate adjustment of such members for each corrugation or both upon either the adjusting-pin or other toothed member.

A further object is to provide a switch-rod mechanism comprising a switch-rod attached to one of the switch-rails and a bracket at-

tached to the other, both of such members being perforated for receiving an adjusting-pin having an eccentric portion with suitable corrugations or teeth so arranged that the eccentric portion of the adjusting-pin, and thereby the switch-rails, may be moved and secured in a separate adjusted position for each corrugation upon either the adjusting-pin or the other toothed or corrugated member, and to provide means for indicating the necessary position of the pin with relation to the other corrugated or toothed member for each adjustment.

Other and further objects of the invention will appear from an examination of the drawings and the following description and claims.

In the accompanying drawings, Figure 1 is a sectional elevation of a switch-rod mechanism constructed in accordance with my improvements; Fig. 2, a plan view thereof, showing the eccentric portion of the adjusting and securing pin in dotted lines; and Fig. 3, an enlarged detailed bottom view of the adjusting-pin.

In constructing a switch-rod mechanism in accordance with my improvements I provide a bracket *a*, which is secured to a switch-rail *b* by means of a bolt *c* and nut *d* extending through suitable perforations in such parts or in any ordinary and well-known manner, such switch-rail being one of a pair mounted in operative position with relation to the main rails *d'* in any ordinary manner familiar to those skilled in the art.

One end of the bracket *a* is provided with an upper jaw portion *e* and a lower integral jaw *f*, forming an open socket therebetween for receiving the switch-rod. The upper jaw of the bracket is provided with a perforation *g*, having corrugated or toothed walls, and the lower jaw is provided with a substantially cylindrical perforation *h* in alignment with the axial center of such corrugated or toothed perforation. An adjusting pin or bolt *i* is provided, having an upper corrugated toothed neck portion *j*, the corrugations or teeth of which preferably correspond in number to and intermesh with the corrugations of the upper jaw in the bracket when such adjusting-pin is in operative position.

The pin is thus prevented from turning, and the parts are held firmly in position. I prefer to have the same number of teeth upon both the pin and the other toothed member rather than to have an unequal number, and it is better to have the toothed portion of the pin and the adjacent toothed portion of the other member in the upper exposed portions rather than upon central or inclosed portions.

The adjusting pin or bolt is provided with a lower depending cylindrical body portion *k* in alinement with the axial center of the upper corrugated or toothed portion of such bolt and forming a concentric peripheral surface portion which extends through the perforation in the lower jaw of the bracket. A central cylindrical eccentric portion *l*, integral with such upper and lower portions of the bolt, is mounted in engagement with a perforation in the switch-rod *m*, into which the eccentric portion of the bolt fits with only sufficient play to permit the bolt to be readily turned in making the necessary adjustments.

The length of the circular depending portion of the bolt exceeds the width of the upper jaw of the bracket and upper corrugated portion of the bolt. It will thus be seen that the bolt may be raised so that its corrugated portion is out of engagement with the bracket and the lower depending portion will still be in engagement with the lower jaw of the bracket and the circular eccentric portion in engagement with the switch-rod. The parts may thus be adjusted without entirely removing the pin and without separating such parts for each adjustment. The corrugated upper portion, cylindrical lower portion, and eccentric portions of the bolt or pin being integral, such pin may of course be removed entirely when desired and the adjustments made between the parts, the pin being afterward replaced. The upper end of the pin is provided with an annular head *n*, and the depending portion is provided with a nut *o* in threaded engagement therewith and a cotter *p* for holding such nut in position.

It is very desirable in the art to which this invention relates to provide means whereby the extent to which the switch-rails are moved with relation to each other by each adjustment may be ascertained without experiment and whereby the operator may determine in what direction and to what position the adjusting-pin should be turned in order to accomplish the necessary adjustment, thus enabling any desired adjustment to be made with certainty. It is also desirable that means be provided whereby a separate adjustment may be made for each corrugation or tooth upon the corrugated switch member or for each tooth upon the adjusting-pin. In order to provide means for accomplishing these objects, corrugations, shoulders, or teeth *q*, *r*, *s*, *t*, *u*, *v*, *w*, and *x* are arranged upon preferably

the bracket member. They form the walls of the perforation in the member which receives and engages the toothed or corrugated portion of the adjusting-pin, and similar teeth 1, 2, 3, 4, 5, 6, 7, and 8 are provided upon the adjusting-pin, so arranged that each tooth upon either of such members is adapted to engage each and every tooth upon the other member. The teeth upon the perforated member are so arranged with relation to those upon the pin member and the teeth upon the pin member are so arranged with relation to the eccentric portion of the pin that the switch-rod and bracket, and thereby the switch-rails, may be adjusted to as many positions as there are teeth upon either of such members, and the eccentric portion of the pin is adjusted and secured in as many different positions and at as many different distances from its extreme backward and forward limit of motion as there are teeth or projections upon either of such members. To accomplish this, the teeth of the perforated member are so arranged that the apex of each tooth is on one side or the other of a line extending longitudinally of the switch-rod through the center of the pin-containing perforation, and the apex of each tooth is at a different distance from the extreme forward and extreme rearward edge of the perforation. The perforated member is also provided with an indicator *y*, which may be in the form of an arrow and is made in relief above the surface of such member and should be at the point where the tooth No. 1 of the pin stops when the eccentric is in its extreme adjusted position in either one direction or the other—that is to say, when the eccentric is in position either to hold the switch-rails in their narrowest position or as far apart as they are adapted to be adjusted.

In Fig. 2 the parts are shown in position to hold the switch-rails in their narrowest position or as closely together as they are adapted to be adjusted. The movement of the pin to the point where the tooth of corrugation marked 2 will be adjacent to the indicator *y* will bring the eccentric portion of the pin to the next adjacent adjusted position, or second position, and the switch-rails will be moved apart correspondingly. The movement of the pin in the opposite direction until the tooth marked 3 is adjacent to the indicator will bring the pin and rails to the third adjusted position and one step farther apart, and so on until the eighth position is reached. The numerals indicating the adjustments are arranged in alternate order on opposite sides of an imaginary straight line drawn through the center of the pin-containing perforation from one side of the apex of the tooth bearing the lowest number to the opposite side of the apex of the tooth bearing the highest number. The indicator should be adjacent to the lowest-numbered tooth when the parts are in initial

position—that is, when the rails are in either their widest or narrowest adjusted position. By this arrangement it will be readily seen that the rails are capable of being adjusted to as many different positions as there are teeth or corrugations in either the perforated member or the pin member, and no matter what position the pin is adjusted to so long as the teeth mesh the rails will be adjusted correspondingly with relation to each other. The position to which the pin must be adjusted in order to obtain any desired adjustment of the rails is thus indicated by numerals upon one of such members—either the pin or the perforated member. It is only necessary to know the distance the rails are capable of being moved toward or from each other by the movement of the adjusting-pin from 1 to 8 in order to ascertain substantially the distance they will be moved by each adjustment of the pin, according to the number of the tooth to which such adjustment is made. Any desired adjustment may thus be readily made without experimental trials such as are necessary in known devices.

I claim—

1. In a switch-rod mechanism, the combination of an adjusting-pin, a switch-rod member secured to one of the switch-rails, a bracket member secured to the other switch-rail, both perforated, and one of such members being provided with tooth mechanism in engagement with the adjusting-pin for securing the switch-rails in any one of as many different positions with relation to each other as there are teeth upon such perforated member.

2. In a switch-rod mechanism, the combination of an adjusting-pin provided with tooth mechanism thereon, a switch-rod member secured to one of the switch-rails, and a bracket member secured to the other switch-rail, one of such members being provided with tooth mechanism adapted to engage the tooth mechanism upon the pin and secure such pin and thereby the switch-rails in any one of as many different positions as there are teeth upon either of such toothed members.

3. In a switch-rod mechanism, the combination of an adjusting-pin provided with an eccentric portion in fixed relation thereto, a switch-rod member and a bracket member, one of such members being in engagement with the eccentric portion of the pin and movable thereby with relation to the other member to any desired adjusted position, and one of such members being provided with tooth mechanism adapted to secure the pin against rotation, and the switch-rails in as many different adjusted positions as there are teeth upon such member.

4. In a switch-rod mechanism, the combination of an adjusting-pin, a switch-rod member secured to one of the switch-rails to be operated upon, a bracket member secured to the other switch-rail, both perforated for receiving an adjusting-pin, and one of such members being provided with tooth mechanism and an adjusting-pin provided with tooth mechanism adapted to secure such perforated members in any one of as many different relative positions as there are teeth upon such pin.

5. In a switch-rod mechanism, the combination of an adjusting-pin provided with tooth mechanism thereon and having a surface portion containing a series of characters for indicating the different adjustments, and switch-rod and bracket members having perforations for receiving such adjusting-pin, one of such members being provided with teeth for securing the adjusting-pin and thereby the switch-rails in adjusted position.

6. In a switch-rod mechanism, the combination of an adjusting-pin provided with a multiplicity of teeth thereon, and having an exposed surface portion containing a series of characters for indicating the different adjustments, and switch-rod and bracket members having perforations for receiving such adjusting-pin, one of such members being provided with teeth for securing the adjusting-pin and thereby the switch-rails in adjusted position.

7. In a switch-rod mechanism, the combination of an adjusting-pin provided with a multiplicity of teeth thereon, one for each adjustment, and having a surface portion containing a series of characters for indicating the different adjustments, switch-rod and bracket members having perforations for receiving such adjusting-pin, one of such members being provided with teeth for securing the adjusting-pin and thereby the switch-rails in adjusted position and an indicator upon one of such members adapted to register with the characters upon the adjusting-pin member.

8. In a switch-rod mechanism, the combination of a switch-rod member and a bracket member both perforated for receiving an adjusting-pin, one of such members being provided with tooth mechanism for securing the adjusting-pin and thereby the switch-rails in adjusted position, an adjusting-pin mounted in such perforations and having an eccentric portion in engagement with one of such members and a constantly-exposed surface portion containing a series of characters for indicating the different adjusted positions of the parts.

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