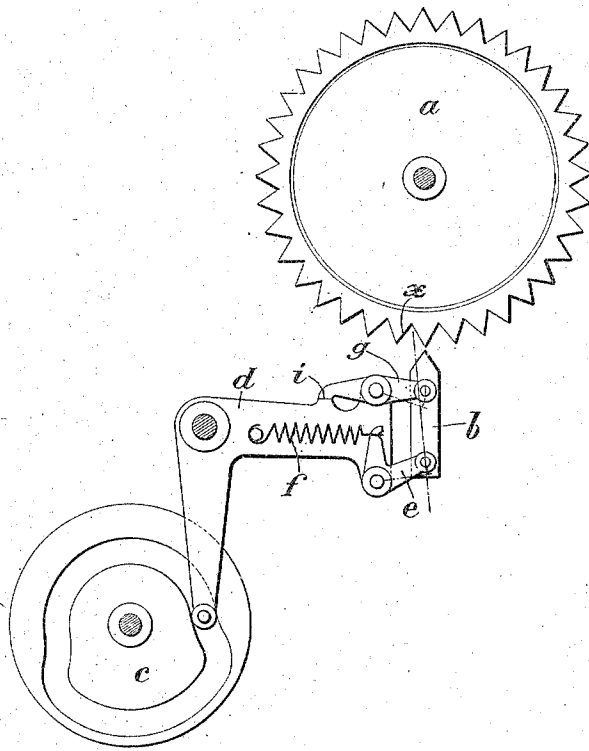


R. ZAHN.
DEVICE FOR CONTROLLING FEED MECHANISMS.,
APPLICATION FILED MAR. 18, 1910.

966,976.

Patented Aug. 9, 1910.



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ROBERT ZAHN, OF PLAUEH, GERMANY.

DEVICE FOR CONTROLLING FEED MECHANISMS.

966,976.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ROBERT ZAHN, a subject of the King of Bavaria, and resident of Plauen, Germany, have invented a new and useful Device for Controlling Feed Mechanisms, of which the following is a full, clear, and exact specification.

Where feed mechanisms are used for certain purposes, as for instance for the controlling of patterns in the punching of the holes in the jacquard card of embroidery machines, it occurs that the member to be fed or controlled has to be moved according to a variable multiple of a unit, and for the purpose of temporarily securing the particular feed of this member, it is common to use a controlling set of edged teeth (on the circumference of a wheel or on a rod), connected with this member and with which, after each feed of the member to be controlled, a so called positioning tooth is brought into engagement. It may occur, however, that the feed of the member to be controlled is such that the positioning tooth in its securing movement strikes just on the edge of one of the edged teeth of the controlling set, so that it is unable to fall into the notch between two teeth and in this particular case, the desired control does not act. This disadvantage is remedied by the protective device for controlling feed mechanisms, which forms the subject matter of the present invention, and which, like the known devices of this kind, shows a controlling set of edged teeth connected with the feed mechanism, as well as a positioning tooth cooperating therewith. In the improved device, however, the positioning tooth is connected with its actuating lever by means of two small intermediate levers carrying on the one hand the positioning tooth, articulated on the other upon said actuating lever and one of which is spring controlled, so that when the positioning tooth happens to impinge on the edge of one of the controlling teeth, it will be rocked to enter the notch between two controlling teeth, while the spring tension thereby being increased tends to shift or restore the positioning tooth with the controlling set of teeth to their normal positions. According to this arrangement the desired protective control for the feed is obtained in any case, that is to say, the positioning tooth is always thrust into the notch corresponding to the particular feed.

The accompanying drawing shows an em-

bodiment of the improved controlling device in side view, partly in section.

a is a wheel provided with edged teeth on its periphery, which is to be considered as connected with the member to be fed or controlled, so as to be movable with it.

b is the positioning tooth, which is moved to and from the wheel *a* by means of an actuating lever *d* controlled by a grooved cam disk *c*. The positioning tooth *b* is carried at its lower end by a bent lever *e*, which is controlled by a spring *f* and which is pivotally attached to the actuating lever *d*. The positioning tooth *b* is connected near its upper end with a compensating lever *g* which is also pivotally attached to the actuating lever *d*. By striking against a nose piece *i* on the actuating lever *d* the compensating lever *g* fixes the normal position of the positioning tooth *b*, and the latter always tends to return to this position owing to the influence of the spring *f*. If the wheel *a* is turned by exactly the amount equivalent to the pitch of the teeth, and the tooth *b* moved up against the wheel *a*, then the tooth *b* will fall into a notch between two teeth of the wheel and hold the latter fast. Should the wheel *a*, however, have been so turned that when the positioning tooth *b* comes into operation, its edge happens to strike against the edge of one of the teeth of the wheel *a*, then by the continued movement of the actuating lever *d* against the wheel *a*, the positioning tooth *b*,—in consequence of its oscillatory connection with the intermediate levers *e*, *g* on the main lever *d*—is forced to slide down from the tooth edge of the wheel *a* into the position marked by a dotted line, and the positioning tooth *b* then slips into the notch *x*, while the tension of the spring *f* is being increased. The spring *f* thereby influences the carrying levers *e*, *g* in such a manner that the rear end of the lever *g* is forced against the nose piece *i* of the main lever *d*, whereby the wheel *a* turns a little to the right and the positioning tooth *b* falls or penetrates exactly into the notch *x* between two teeth. A secure positioning of the toothed wheel and of the feed member connected therewith is therefore insured even in this particular case.

What I claim is:

1. A device for controlling feed mechanisms, comprising a controlling set of edged teeth connected with the feed mechanism, a positioning tooth cooperating therewith, ac-

tuating means for the operation of said positioning tooth, oscillatory connections between the latter and said actuating means and automatic means for restoring the positioning tooth to its normal position relatively to said actuating means, so that when the positioning tooth happens to impinge on the edge of one of the edged teeth of said controlling set, it will be rocked to enter the notch between two teeth thereof and then be restored with the controlling set of teeth to their normal positions.

2. A device for controlling feed mechanisms, comprising a controlling set of edged teeth connected with the feed mechanism, a positioning tooth cooperating therewith, an actuating lever for the operation of said positioning tooth, a lever connection between the latter and said actuating lever and elastic means for restoring the positioning tooth to its normal position relatively to said actuating lever, so that when the positioning tooth happens to impinge on the edge of one of the edged teeth of said controlling set, it will be rocked to enter the notch between two teeth thereof and then be restored with the controlling set of teeth to their normal positions.

3. A device for controlling feed mechanisms, comprising a controlling set of edged teeth connected with the feed mechanism, a positioning tooth cooperating therewith, an actuating lever for the operation of said positioning tooth, two intermediate levers carrying on the one hand the positioning tooth and pivoted on the other hand upon said

actuating lever, and elastic means for restoring the positioning tooth to its normal position relatively to said actuating lever, so that when the positioning tooth happens to impinge on the edge of one of the edged teeth of said controlling set, it will be rocked to enter the notch between two teeth thereof and then be restored with the controlling set of teeth to their normal positions.

4. A device for controlling feed mechanisms, comprising a controlling set of edged teeth connected with the feed mechanism, a positioning tooth cooperating therewith, an actuating lever for the operation of said positioning tooth, two intermediate levers carrying on the one hand the positioning tooth and pivoted on the other hand upon said actuating lever, and a controlling spring acting upon one of said intermediate levers with the result of restoring the positioning tooth to its normal position relatively to said actuating lever, so that when the positioning tooth happens to impinge on the edge of one of the edged teeth of said controlling set, it will be rocked to enter the notch between two teeth thereof, while the spring tension thereby being increased tends to shift the positioning tooth with the controlling set of teeth to their normal positions.

In witness whereof I have hereunto signed my name this 21st day of February 1910, in the presence of two subscribing witnesses.

ROBERT ZAHN.

Witnesses:

ROBERT H. NIER,

RICHARD B. WASHINGTON.