

J. TAYLOR & E. W. BUCKLEY.  
MECHANICAL WEFT FEELING MECHANISM FOR LOOMS.  
APPLICATION FILED FEB. 25, 1908.

934,372.

Patented Sept. 14, 1909.

4 SHEETS—SHEET 1.

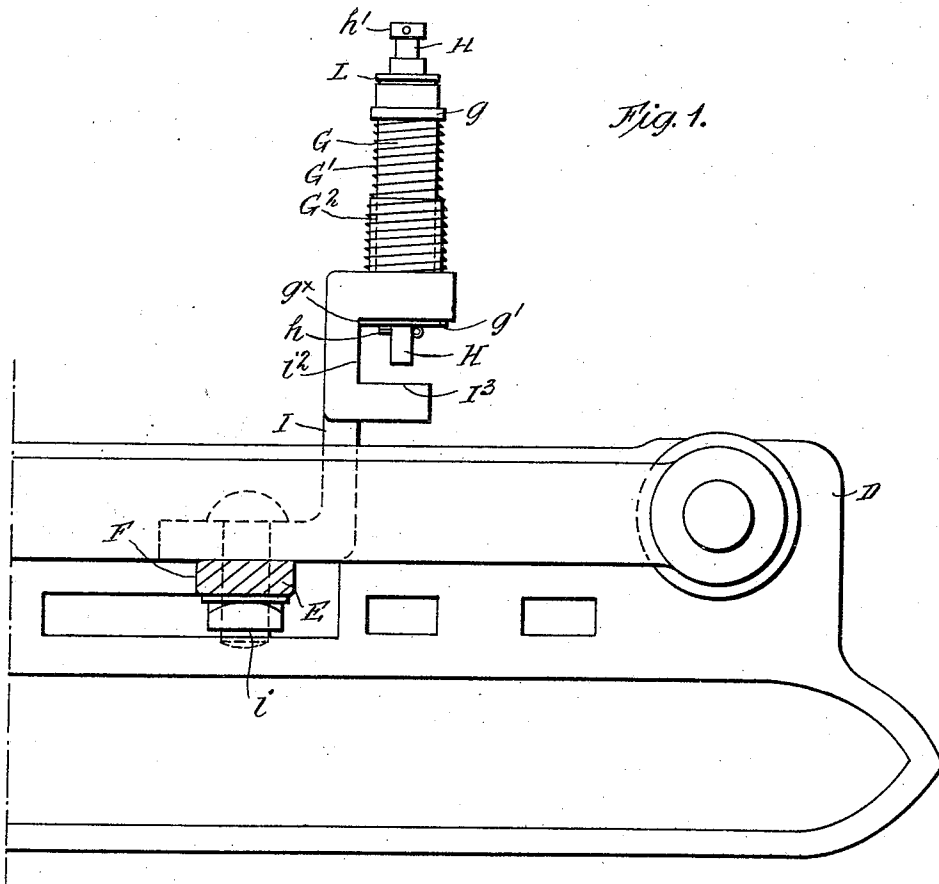
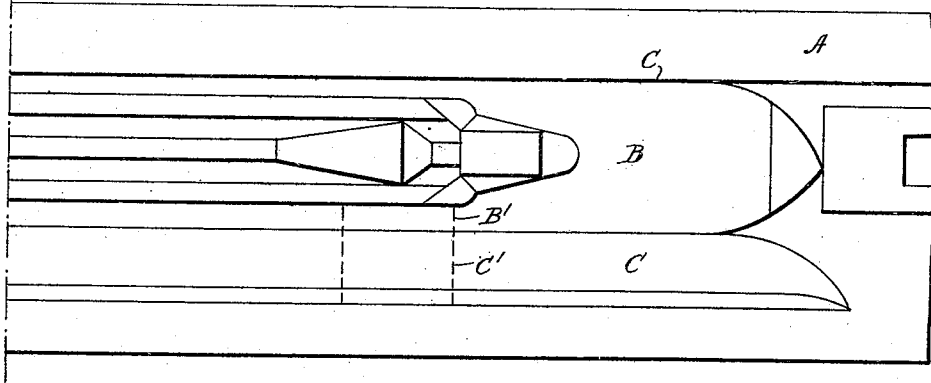


Fig. 1.

WITNESSES

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W. H. Kennedy.

INVENTORS

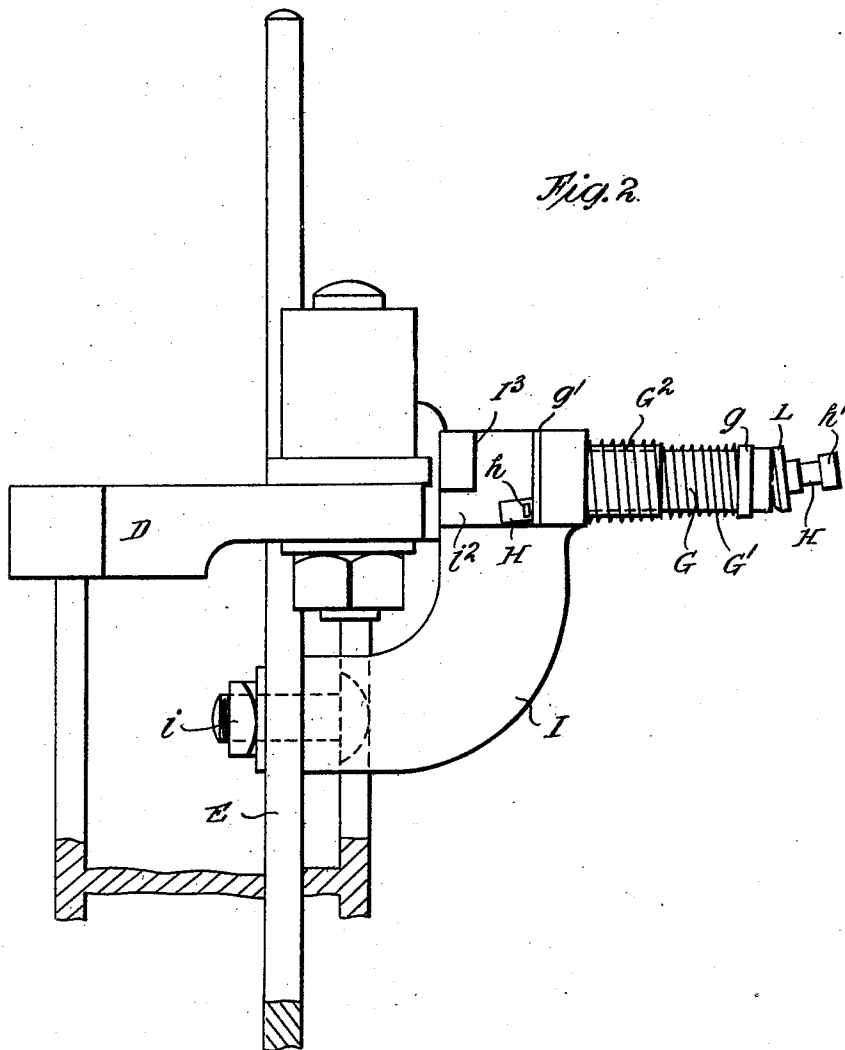
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BY *McWilliam*

ATTY

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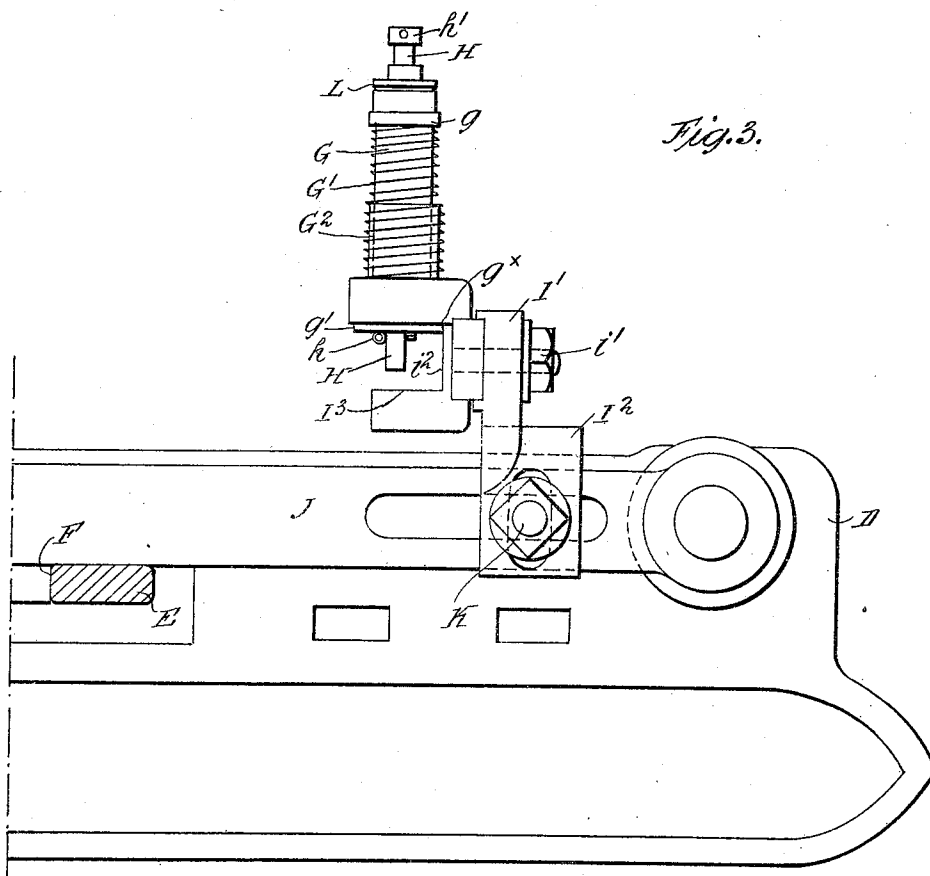
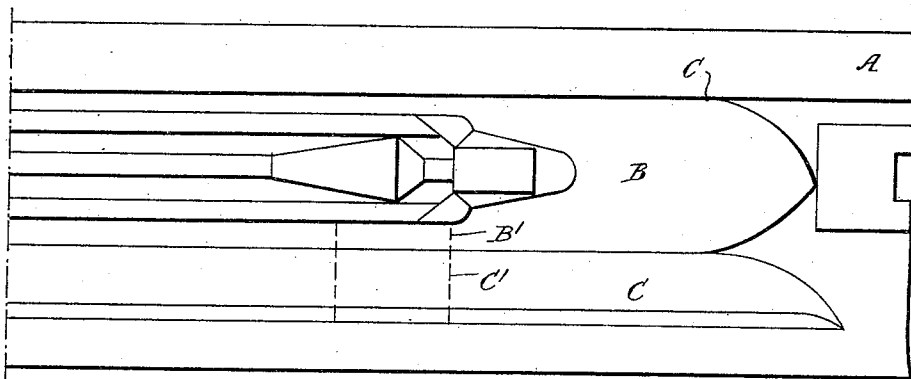
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4 SHEETS—SHEET 3.

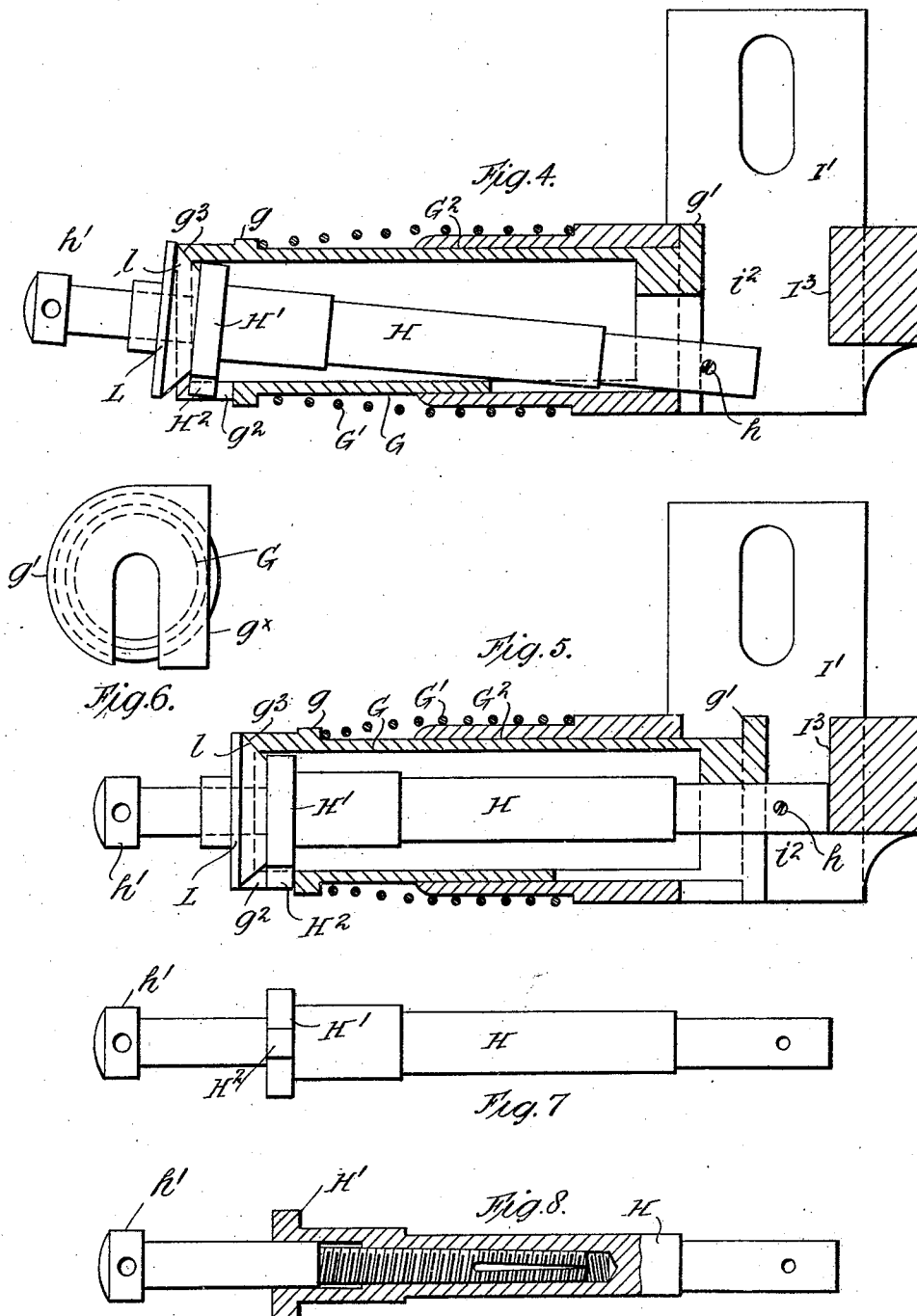


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 4 SHEETS—SHEET 4.



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# UNITED STATES PATENT OFFICE.

JOHN TAYLOR AND EDWIN WILLIAM BUCKLEY, OF MANCHESTER, ENGLAND.

MECHANICAL WEFT-FEELING MECHANISM FOR LOOMS.

934,372.

Specification of Letters Patent. Patented Sept. 14, 1909.

Application filed February 25, 1908. Serial No. 417,652.

*To all whom it may concern:*

Be it known that we, JOHN TAYLOR and EDWIN WILLIAM BUCKLEY, subjects of the King of Great Britain, residing at Manchester, in the county of Lancaster, England, have invented new and useful Improvements in and Relating to Mechanical Weft-Feeling Mechanism for Looms, of which the following is a specification.

10 This invention relates to mechanical weft feeling mechanism for weaving looms of that type in which a feeler is adapted, on the beat up of the lay, to pass through coincident holes in the sides of the shuttle box and shuttle and to impinge on the weft in the shuttle, the moment for the operation of the loom stopping or weft replenishing mechanism being determined by the exhaustion of the weft to a predetermined extent. Weft  
15 feeling devices of this kind have been known for some time, but have not come into general use owing to irregularities in their working.

25 To enable a feeling device of this kind to prove successful in practice it is essential that the device shall operate with absolute certainty and that its parts shall not be influenced by wear.

30 With a view to attaining the above described objects and generally simplifying the construction of weft feeling devices we construct said feeling devices in or substantially in the hereinafter described manner, the main features of which are that the  
35 feeler rod itself is kept in its normal or inoperative position by the action of gravity and the devices can be readily mounted either on the shipper lever or on a lever bearing directly against said shipper lever. As a result we are enabled to produce a feeling device which, being to all intents and purposes self-contained, occupies but little space and is independent in its operative function of  
40 any other mechanism. The last enumerated advantages are also obtained when our feeling device is used in conjunction with weft replenishing devices.

45 In carrying out our invention we prefer to construct our feeling device in the following manner.

50 We mount the feeling device either on the shipper lever or on a lever directly bearing against same and we provide in the path of the lay a sliding casing. The sliding casing in its simplest form will consist of a tube which terminates in shoulders, is adapted

to freely move in a bearing forming part of a casting secured to the shipper lever or to a lever directly bearing against same, and is provided around the exterior of its front portion with a light spring, the sliding casing  
60 being pressed back during each alternate forward beat of the lay and being returned by said spring to its normal position when the lay beats back.

65 Mounted inside the sliding casing and projecting beyond the ends thereof is a feeler rod the forward end of which is preferably made adjustable in relation to the rest of the feeler rod. Said feeler rod is provided  
70 intermediate between its ends and nearer to one end, preferably the front, with an enlarged portion or collar of nearly the same diameter as the interior of the casing, the effect of this arrangement being to make the  
75 normal position of the feeler rod out of the horizontal. Said feeler rod is prevented from moving lengthwise in the casing by means of a stop or lug, which may be on  
80 said enlarged portion or collar, engaging with a recess or slot in the casing, or by other equivalent means, but said feeler rod, if  
acted on by mechanical means, rocks within the casing to such an extent as to move into  
85 a pre-arranged operative position, which in the case of the construction of the device now being described would be a horizontal position, its normal position due to gravity  
being preferably inclined. This stop, lug or equivalent device besides serving to hold the  
90 feeler rod from moving lengthwise in the casing is so arranged that the feeler rod is normally locked when in contact with the weft. A ferrule is loosely mounted on the  
forward portion of the feeler rod and is  
95 provided with a conical face which, when the ferrule is moved by contact with the side of the shuttle along the feeler rod, enters the mouth of the sliding casing and tilts the  
feeler rod into its operative position. The  
100 casting is provided beyond the rear end of the feeler rod with a projection or abutment which is so located as to be out of the path of the feeler rod while the latter remains in its normal or inoperative position.

105 In order that our invention may be thoroughly understood we will now refer to the accompanying drawings illustrating the hereinbefore described construction of feeling device as used for the purpose of stopping a loom.

110 In these drawings, Figures 1 and 2 are a

plan and side view of portions of a loom showing our feeling device secured to the shipper lever. Fig. 3 is a plan corresponding to Fig. 1, but illustrating said feeling device mounted on a lever bearing directly against the shipper lever. Figs. 4 and 5 are sections, on an enlarged scale, of the feeling device itself, Fig. 4 showing the feeler rod in its inoperative position and Fig. 5 said rod in its operative position. Fig. 6 is an elevation of the sliding casing viewed from its rear end. Fig. 7 is a plan of the feeler rod viewed from its lower side, and Fig. 8 is a partial section thereof.

In these drawings, A is the lay, B the shuttle, C the shuttle box, B' and C' the holes in the sides of the shuttle and shuttle box, D the breast beam, E the shipper lever, and F the retaining notch for same, all of which parts being of ordinary or well-known construction require no further description.

Referring now to the parts of our feeling device:—G is the sliding casing, which supports the feeler rod H and is provided on its exterior with a light retractile spring G'. The sliding casing G consists of a tube which terminates in shoulders  $g$ ,  $g'$  and slides in a bearing G<sup>2</sup> provided in a suitable support or casting. When the feeling device is mounted on the shipper lever E, as shown in Figs. 1 and 2, said support consists of a bracket I of L-shape which is secured directly to said lever E by means of a bolt and nut  $i$ . When the feeling device is mounted on a lever J pivoted to the breast beam D and bearing directly against the shipper lever E said support may consist of a two-part bracket I', I<sup>2</sup>. The lower part I' of the bracket I', I<sup>2</sup>, is adapted to be vertically adjusted in relation to the other or upper part I<sup>2</sup> and to be secured thereto in its adjusted position by means of a bolt and nut  $i'$ . The upper part I<sup>2</sup> of the bracket I', I<sup>2</sup> is arranged so as to be capable of adjustment both in the direction of the lay and at right angles thereto, and for this purpose said part I<sup>2</sup> and the lever J are slotted to receive a suitable clamping bolt K. The bracket I and the lower part I' of the bracket I', I<sup>2</sup> are provided with an abutment I<sup>3</sup> against which the rear end of the feeler rod H comes when it is raised into its operative position and also with a surface  $i^2$  which serves as a bearing for a flattened portion  $g$  on the shoulder  $g'$  of the sliding casing G. The feeler rod H is provided intermediate between its ends and nearer to its front end with an enlargement or collar H' on the lower surface of which is a lug or stop H<sup>2</sup> which practically acts as a pivot for said feeler rod. The lug H<sup>2</sup> engages with a slot  $g^2$  in the sliding casing and is retained within said slot by means of a split pin  $h$  which passes through the feeler rod immediately behind the flange  $g'$  of the sliding casing G.

L is a ferrule which is loosely mounted on the forward portion of the feeler rod H behind an enlarged nose or head  $h'$  and in front of the sliding casing G. The rear end of the ferrule L is provided with a coned surface  $l$  which is adapted in the operation of the feeling device to be brought against a corresponding surface  $g^3$  on the front of the sliding casing G and cause the feeler rod H to be tilted from its inclined or inoperative position into a horizontal position, as will be readily understood from an inspection of Figs. 4 and 5.

The feeler rod H is preferably constructed in the manner shown in Fig. 8, so that the position of its nose may be varied if desired.

Although we have described our feeling device more particularly with reference to loom stopping it is equally serviceable when connected through suitable mechanism to weft replenishing devices such as are used in what are known as automatic looms.

The action of the above described feeling device is as follows:—During each alternate forward beat of the lay the feeler rod impinges on the weft and is pressed back carrying with it the sliding casing, the rear end of the feeler rod while it remains in its normal position passing the projection or abutment carried by its support or casting. When the weft has become exhausted to the predetermined extent the ferrule comes into contact with the side of the shuttle and enters the mouth of the casing so tilting the feeler rod from its normal or inclined and inoperative position into its operative position. The rear end of the feeler rod then comes in contact with the projection or abutment carried by the casting, thus limiting the independent sliding of the casing and transferring this movement to the casting in which it is mounted, so pushing the shipper lever from its notch and stopping the loom, or alternatively operating the weft replenishing mechanism.

As will be seen from an inspection of the drawings the feeler rod when not in contact with the weft is kept in its normal or inoperative position by the action of gravity and when the feeler rod comes into contact with the weft the resulting pressure on the front end of the feeler rod assists the action of gravity. It will however be obvious that the feeler rod could be pivotally supported within its casing, so as to be capable of rocking therein to the desired extent, otherwise than in the manner shown by the drawings. For instance the lug on the feeler rod could be dispensed with. Again the lug and its slot could be in the reverse position to that shown in the drawings. In the latter case, as will be readily understood from an inspection of Fig. 4, when turned upside down, the normal position of the feeler rod when out of contact with the weft

would, by reason of the greater weight of that part of it lying beyond the lug, be horizontal, and it would be moved into an inclined position so as to miss the abutment during contact with the weft, but when the ferrule came into contact with the side of the shuttle, owing to exhaustion of the weft to the predetermined extent, it would be kept in a horizontal position and thereby stop the loom or operate weft replenishing mechanism.

By means of the above described feeling devices we are able to dispense with the levers or other equivalent parts formed separate from the feeler rod and device used in existing feeling devices, which have to be actuated before the loom can be stopped or the weft replenishing mechanism brought into action. By dispensing with said levers, their pivots and bearings, and other parts additional to the feeler rod and device the number of operative parts in a feeling mechanism is reduced to a minimum and the wear to a negligible quantity, and owing to the manner in which the parts of the device are formed and arranged any slight amount of wear which might possibly obtain in no way affects the correct operation of the device. Moreover a feeling device constructed according to our invention will obviate all necessity for adjustment due to wear which has frequently to be effected with other constructions of feeling devices, this feature being in itself sufficient to render our device of great practical advantage.

What we claim and desire to secure by Letters Patent of the United States is:—

1. A mechanical weft feeling device for looms consisting of a support or casting, a spring-retracted sliding casing mounted in said support, a rocking feeler rod mounted in the casing and kept in its normal position by gravity, and mechanical means carried by the feeler rod, adapted to come into contact with the wall of the shuttle and to move the feeler rod into an operative position, substantially as described herein.

2. A mechanical weft feeling device for looms consisting of a support or casting, a spring-retracted sliding casing mounted in said support, a rocking feeler rod mounted in the casing and kept in a normal inclined

position by gravity, and mechanical means carried by the feeler rod, adapted to come in contact with the wall of the shuttle and to move the feeler rod into a horizontal operative position, substantially as described herein.

3. A mechanical weft feeling device for looms consisting of a support or casting, a spring-retracted sliding casing mounted in said support, a rocking feeler rod mounted in the casing and projecting beyond the ends thereof, an abutment in rear of the casing, and a ferrule loosely mounted on the feeler rod in front of the casing and adapted on contact with the side of the shuttle to move the feeler rod into an operative position so as to impinge on the abutment, substantially as described herein.

4. A mechanical weft feeling device for looms consisting of a support or casting, a spring-retracted sliding casing mounted in said support, a rocking feeler rod mounted in the casing, projecting beyond the ends of said casing and adapted to normally assume a position inclined to the axis of the casing, an abutment in rear of the casing, and a ferrule loosely mounted on the feeler rod in front of the casing and adapted on contact with the side of the shuttle to move the feeler rod into a horizontal position and cause the feeler rod to impinge on the abutment, substantially as described herein.

5. A mechanical weft feeling device for looms consisting of a support or casting, a spring-retracted sliding casing mounted in said support, a rocking feeler rod mounted in and projecting beyond the ends of the casing, a collar on the feeler rod provided with a lug, a slot in the front of the casing adapted to receive the lug, a coned surface in the front of the casing, a ferrule loosely mounted on the feeler rod in front of the casing, and a coned surface on the rear of the ferrule, substantially as described herein.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

JOHN TAYLOR.

EDWIN WILLIAM BUCKLEY.

Witnesses:

NORMAN HENRY SHEARD,

JAS. STEWART BROADFOOT.