(No Model.) 3 Sheets—Sheet 1.

W. WALTON.

FEED MECHANISM FOR CARD SETTING MACHINES.

No. 493,136. Patented Mar. 7, 1893.

Fig. 2.

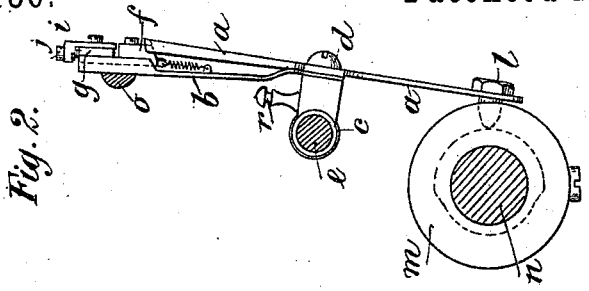
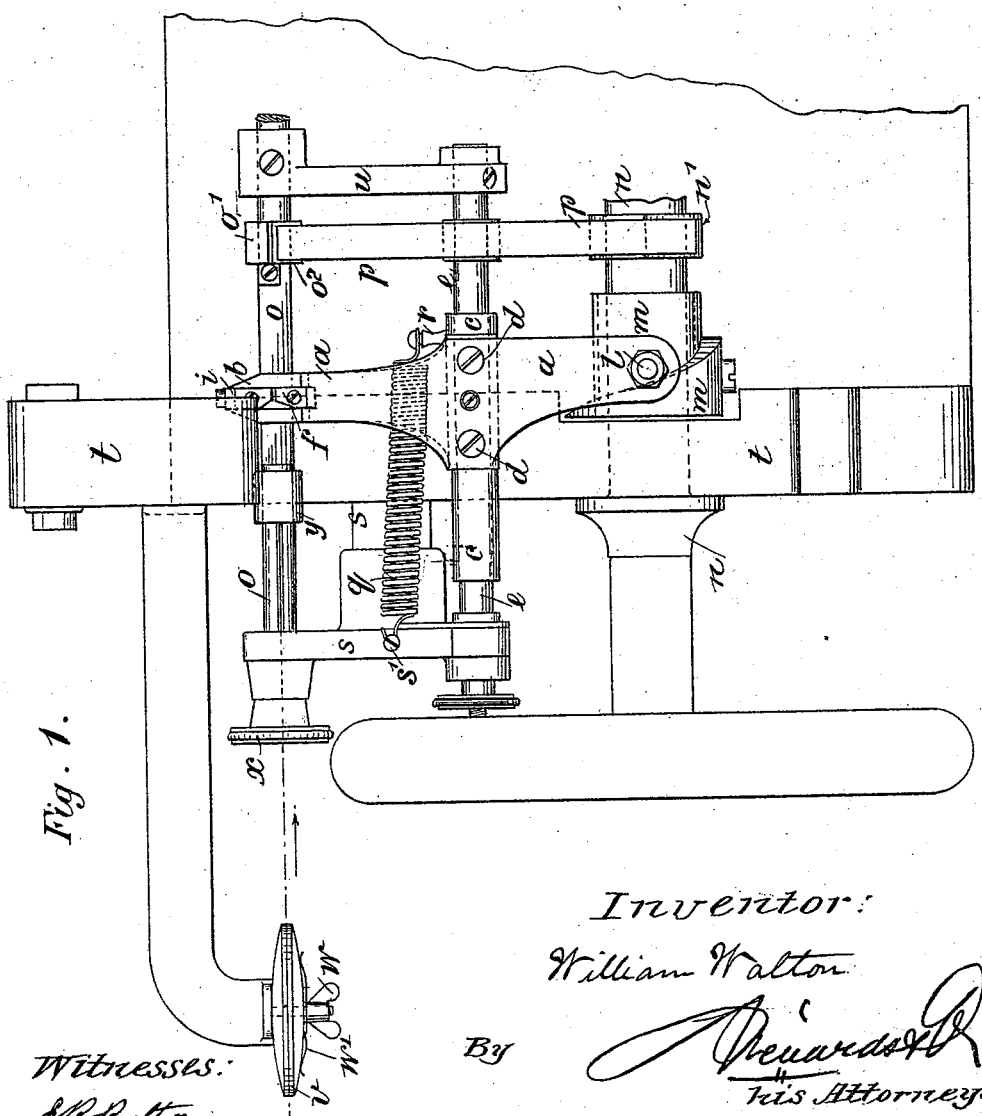


Fig. 1.



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A. M. Linton

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By Howard & Howard
his Attorneys.

(No Model.) 3 Sheets—Sheet 2.

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FEED MECHANISM FOR CARD SETTING MACHINES.

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Fig. 3.

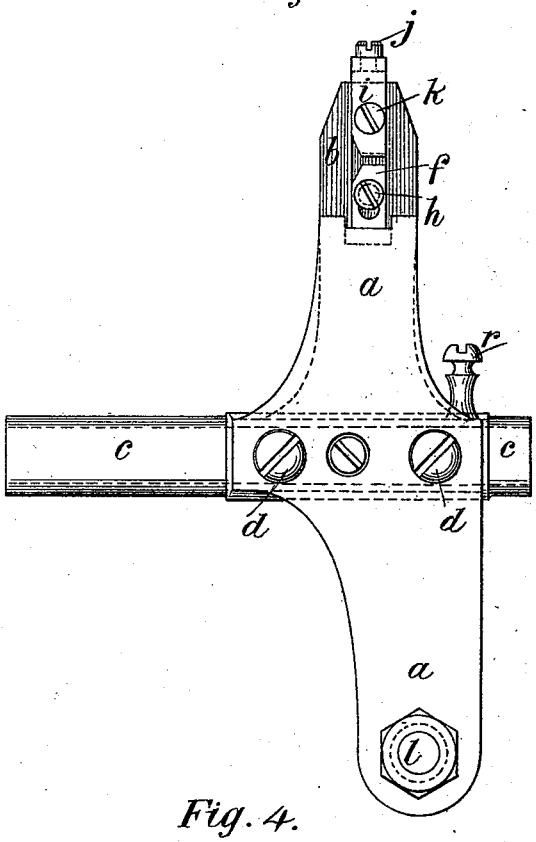


Fig. 5.

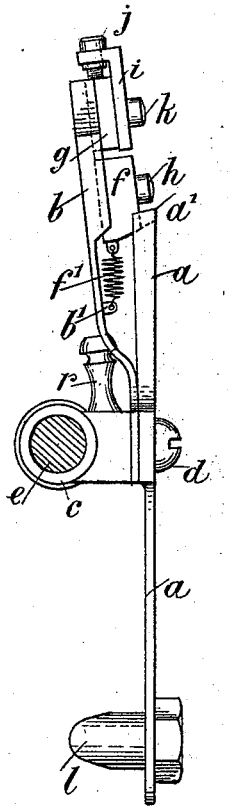
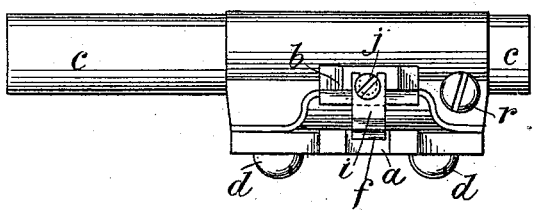


Fig. 4.



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(No Model.) 3 Sheets—Sheet 3.

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FEED MECHANISM FOR CARD SETTING MACHINES.

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Fig. 6.

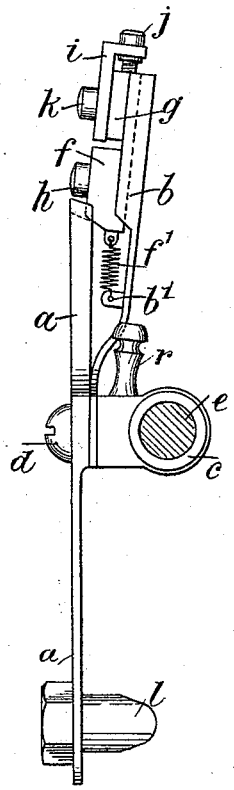
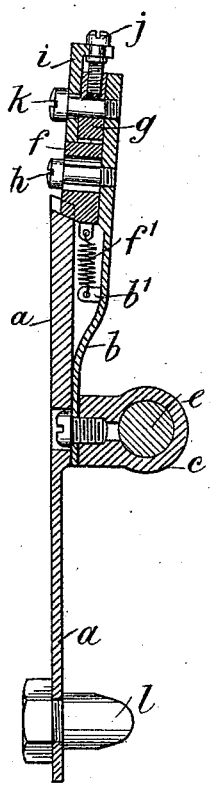


Fig. 7.



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UNITED STATES PATENT OFFICE.

WILLIAM WALTON, OF DENTON, ENGLAND.

FEED MECHANISM FOR CARD-SETTING MACHINES.

SPECIFICATION forming part of Letters Patent No. 493,136, dated March 7, 1893.

Application filed November 21, 1892. Serial No. 452,699. (No model.) Patented in England July 15, 1889, No. 11,312; in Belgium April 26, 1890, No. 90,326; in France April 26, 1890, No. 205,307, and in Germany May 2, 1890, No. 54,174.

To all whom it may concern:

Be it known that I, WILLIAM WALTON, a subject of the Queen of Great Britain, residing at Haughton Dale, Denton, in the county of Lancaster, England, have invented certain new and useful Improvements in Feed Mechanism for Feeding Bisectional Wire into Card-Setting Machines, (for which I have obtained Letters Patent in Great Britain, No. 11,312, dated July 15, 1889; in Belgium, No. 90,326, dated April 26, 1890; in France, No. 205,307, dated April 26, 1890, and in Germany No. 54,174, dated May 2, 1890,) of which the following is a specification.

My invention, broadly stated, consists in adapting the feed mechanism of card setting machines to feed card wire made in two sections say for example alternately round or of other section for the base or lower portion of each tooth and oval elliptical flat or of other section for the point or carding portion of the tooth. Such card wire may either be formed in two sections by rolling as described in the specification to United States Patent No. 457,038, dated August 4, 1891, granted to me or may be formed of two sections by other methods of production.

In applying my invention to the feed mechanism of a card setting machine I dispense with the ordinary nipping jaws of the traveling feeding clip now employed to tightly grip and feed forward card wire of one uniform section and I employ a pair of jaws or equivalents which embrace loosely or approach nearly, without gripping, one section of the said bi-sectional card wire. The front edges of these jaws when the clip mechanism is moved forward, bear against the projecting shoulder of the next section, and so the wire is fed forward by the pressure of the jaws against said shoulder in contradistinction to the ordinary mode of feeding forward wire of any uniform section by tightly gripping it in the traveling clip. While sufficient wire to form a tooth is being cut off the jaws of the feeding clip open slightly and pass back over the next section and then re-close ready to repeat the feeding operation as above described.

In order that my invention may be fully understood and readily carried into effect I will describe the accompanying three sheets of drawings reference being had to the letters marked thereon.

Figure 1 is a plan of part of a card setting machine fitted with my improved feed mechanism. Fig. 2 is a sectional elevation of part of Fig. 1. Figs. 3 to 7 are detail views on a larger scale, Fig. 3 being a plan, Fig. 4 a front end view, Figs. 5 and 6 opposite side views and Fig. 7 a longitudinal section of the feed mechanism.

In these views,—*a* designates the feed lever and *b* a spring plate which are secured together and to a sleeve *c* by screws *d*, the sleeve *c* being mounted loosely to slide upon the feed spindle *e* of an ordinary card setting machine. The spring plate *b* is formed with slideways in which are fitted two jaws *f* and *g* respectively for feeding the bi-sectional card wire; the jaw *f* is movable being slotted and held by a screw *h* and connected by a light spring *f'* to a projection *b'* on the spring plate *b;* while the jaw *g* is fixed in position by a screw *k*, and on the jaw *g* is fitted an adjustable stop piece *i* also held in position by the screw *k* and slotted at the point where the latter passes through it, the piece *i* being adjustable by means of a screw *j* which screws through it and into the fixed jaw *g*.

To the feed lever *a* is secured a stud *l* which is actuated in the usual manner by the feed tappet *m* which is fixed on the driving shaft *n* of the machine. The shaft *n* is driven by pulleys, not shown, or equivalent means, and the feed tappet *m* as it revolves raises the contiguous end of the feed lever *a* and causes the other end which is beveled at *a'* to press against the correspondingly beveled end of the movable jaw *f* and so forces the other end of said jaw against the adjustable stop piece *i*. The spring plate *b* during this movement of the feed lever *a* rests upon and is supported by a rail *o*, and the feed tappet *m* in addition to tilting the feed lever *a* as described also traverses the feed lever in one direction along the spindle *e*, while the return movement is effected by a spring *q*, which is connected at one end to a stud *r* on the feed lever *a* and at the other to a stud *s'* on a bracket *s* secured to the machine frame *t* which supports the driving shaft *n* and the rail *o* and

feed spindle *e* are carried by the aforesaid bracket *s* and a second bracket *u*.

On the rail *o* is a fixed gripping jaw *o'* and the other jaw o^2 is movable and is actuated by the beveled end of a lever *p* which is fulcrumed on the feed spindle *e* and actuated by a tappet *n'* on the driving shaft *n;* these jaws *o'* and o^2 form the usual arrangement for holding the wire while it is being cut off and while the feed lever *a* is returning along its spindle *e* after having fed a certain length of wire forward.

The adjustable stop piece *i* is set so as to leave a certain space between the closed jaws *f* and *g* according to the size of the wire to be fed. In Fig. 7 the jaw *f* and stop piece *i* are shown in contact, the bi-sectional card wire to be fed forward lying below the piece *i* and between the closed jaws *f* and *g*, the parts being so adjusted that the flattened portion of the bi sectional card wire lies between the jaws without being gripped by them. A ring of the bi-sectional card wire is placed on a swift, not shown, in the usual way and led into the machine between a pair of leather faced or other suitably prepared disks *v* which are held together by a screwed stud and wing nut *w* and spring *w'* to form a tension device. From the tension disks *v* the wire is passed through guides *x* and *y* carried by the rail *o* and between the jaws *f* and *g* to the cutting off mechanism of the card setting machine; this cutting off mechanism is not shown, as it is arranged and operates in the usual way and forms no part of my present invention.

When the machine is started the revolving feed tappet *m* acts upon the stud *l* to depress the front or beveled end *a'* of the feed lever *a*, and close the jaw *f* against the adjustable stop piece *i;* the continued rotation of the feed tappet *m* then traverses the sleeve *c* and feed lever *a* along the spindle *e*, the closed jaws *f* and *g* slide over the flattened portion of the wire until they meet the shoulder of the round or other section against which they bear and so feed forward the wire until the traverse of the feed lever ceases. The length of wire to form a card tooth is then cut off by the usual cutting off mechanism and the feed tappet *m* allowing the stud *l* to descend, the spring *f'* instantly withdraws the jaw *f* so that as the feed lever *a* is drawn back along the spindle *e* by the spring *q* the open jaws *f* and *g* pass over the round section of the wire without moving it, the wire being held at this time by the gripping jaws *o' o²* until the jaws *f* and *g* are again closed upon the flattened portion by the action of the feed tappet *m*, and the feed motion is continued as before described.

Having thus stated the nature of my invention, I declare that what I claim, and desire to secure by Letters Patent of the United States, is—

1. A traveling feeding clip arranged to slide upon the feed spindle of a card-setting machine and having the following essential features in combination; a feed lever with a spring plate secured thereto and carrying a fixed adjustable jaw, a stop piece fixed adjustably upon said jaw, and a movable jaw actuated by the tilting movement of the feed lever whereby said jaws close over and embrace loosely one section of the bi-sectional card wire and feed the wire forward by pressure against the shoulder of the next section, substantially as herein set forth.

2. In combination, the feed lever with a plate secured thereto and carrying a fixed jaw *g*, the movable jaw *f*, the adjustable stop for varying the relation between the jaws, the feed spindle *e* upon which the feed lever is mounted, the driving shaft, and the tappet *m* on the said shaft for operating the feed lever, substantially as described.

3. In combination, the spindle *e*, the feed lever mounted thereon to have tilting and sliding movement, the gripping jaws at the end of the lever arranged to be opened and closed by the tilting movement of the lever, and the means for tilting the lever on the spindle and for sliding the same lengthwise of said spindle, substantially as described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

WILLIAM WALTON.

Witnesses:
H. B. BARLOW,
HERBERT R. ABBEY.