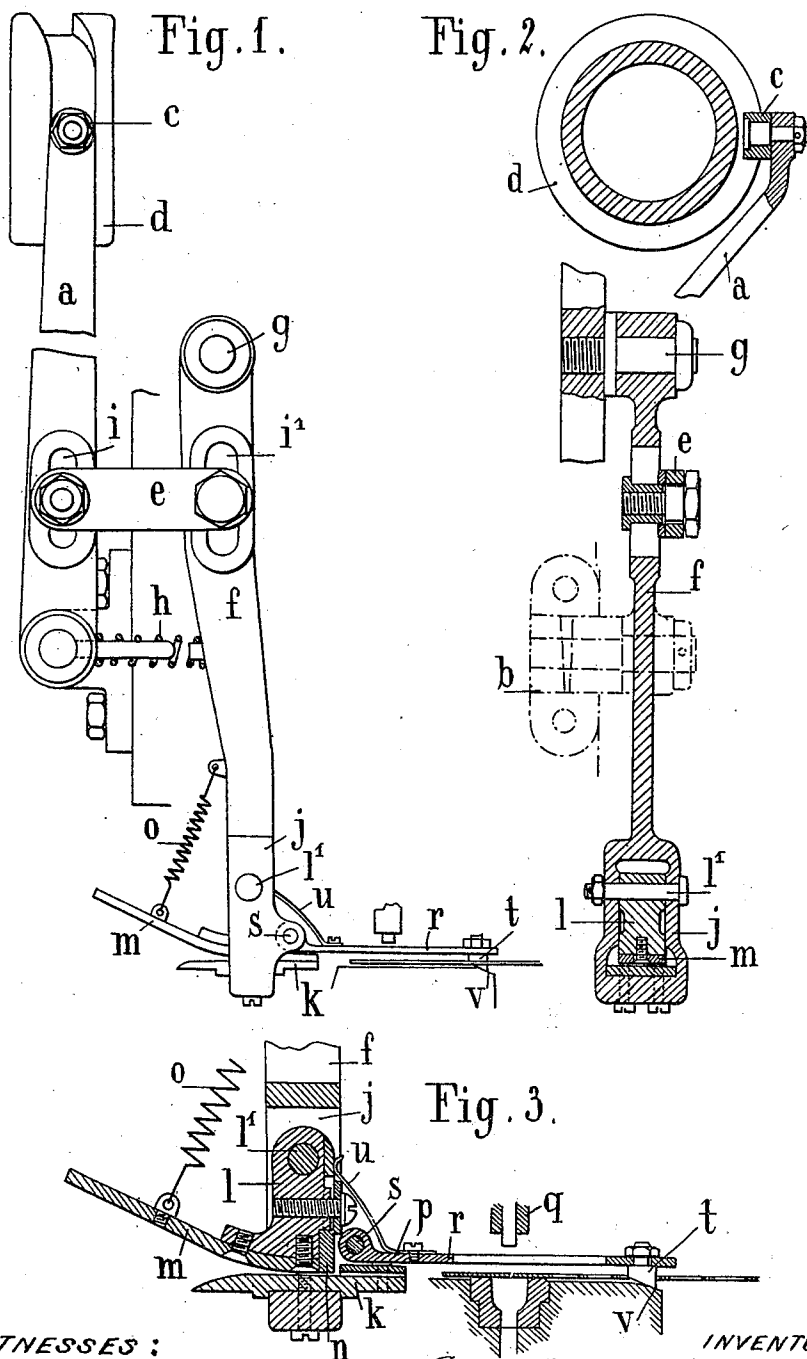


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PATENTED DEC. 11, 1906.

G. H. A. M. LEROY.
FEEDING MECHANISM.
APPLICATION FILED FEB. 8, 1906.



WITNESSES:

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GEORGES HENRY ALFRED MARIE LEROY, OF PARIS, FRANCE.

FEEDING MECHANISM.

No. 838,340.

Specification of Letters Patent.

Patented Dec. 11, 1906.

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To all whom it may concern:

Be it known that I, GEORGES HENRY ALFRED MARIE LEROY, engineer, of 10 Rue Bertin-Poirée, in the city of Paris, Republic of France, have invented Improvements in Feeding Mechanism, of which the following is a full, clear, and exact description.

The present invention relates to a system of feed in which recourse is had to an automatic wedging for firmly fixing the band in the position which it occupies at the moment of the advance, which allows it to be carried forward for a distance exactly equal to the stroke of the feeding device. The band becomes unwedged in a manner likewise automatic, all as hereinafter described.

Figures 1 and 2 of the drawings hereunto annexed are a longitudinal elevation and a transverse section of a feed device according to this invention. Fig. 3 is a section giving, on a large scale, the detail of the wedging device.

A lever *a*, jointed to the support *b* and carrying on its end a bowl *c*, receives from a groove-cam *d* an oscillatory movement, which it communicates by a small connecting-rod *e* to a lever *f*, movable about a point *g* and carrying at its lower end the wedging mechanism. At *h* is arranged a spring between the lever *a* and the lever *f*. The amplitude of movement of the levers which determine the length of the advance stroke of the band may be regulated in a very precise manner by moving the ends of the small connecting-rod *e* along the said levers, which for this purpose are pierced with elongated eyes *i* and *i'* to receive the bolts which form the axis of articulation. This driving-gear, which may of course be varied according to the machine to which the apparatus is applied, (hand-press, crank, eccentric, cam or friction-press,) presents the advantage of permitting the adjustment of the movement of recoil (which ought to take place during the working of the tools) and of the movement of the feed, (which ought to happen while the punch is disengaged from the matrix.) It suffices for this to alter the keying of the cam *d* upon its shaft.

The lever *f* is terminated at its lower end by a stirrup *j*, carrying at its base a sole *k*, upon which rests the metal band to be worked. On the other hand, also, it carries, articulated at *l*, a tumbler *l*, of which the heel *m* is rounded and rises behind a vertical line passing through the center *l'*. In front

of this vertical line the heel presents a small straight portion which is so designed that in the movement of oscillation about *l'* the forward beak *n* just touches the sole *k*. A light spring *o* tends constantly to raise the rear of the heel, so that the front beak is brought into contact with the band to be operated upon.

To introduce a metal band into the apparatus, the workman bears upon the tail of the heel *m* to separate the beak *n* from the sole *k* and to permit of the passage of the band. This latter is then passed under the bridge *p* and caused to project to the desired amount. After this the tail of the heel is released, and the pull of the spring *o* then causing the tumbler *l* to rock about its axis, this tumbler wedges the band against its beak *n* and the sole *k*. The feeding of the band is then effected in the following manner during the punching operation: When the cam *d* pushes forward the end of the lever *f*, the axis of the tumbler *l* necessarily follows the movement. The tumbler itself, however, owing to its inertia, remains behind, describing a small arc of a circle about its axis, so that its beak *n* just wedges the metal band against the sole *k*, which band thus advances with the lever *f* without any possible slipping, and so a fresh part of the length of the band is presented under the tool *q*. While the band is held in place by the penetration of the tool, the lower extremity of the lever *f* is brought back to the rear (by the cam) and the reverse action is produced to that just now effected. The inertia of the tumbler *l* in preventing it from following entirely the movement of its axis *l'* in the new direction causes it to have a small angular motion, (in opposition to the action of the small spring *o*,) which motion unwedges the tumbler, and it recoils without carrying with it the band. The tumbler then grips afresh upon the sole *k* at the moment when the forward movement commences.

A certain distance necessarily separates the feeding mechanism from the punching mechanism. The result is that a certain length of the band would not be fed if there were not provided a device which takes hold of the lag end of the band, so as to cause it to advance when it has escaped from the said mechanism. This waste which is almost insignificant if bands of great length be employed is no longer negligible in the case of short bands. It is convenient therefore to complete the feed above described by a de-

vice effecting the object in view. For this purpose the small mechanism shown in the drawings may be employed with advantage. It consists of an arm *r*, articulated at *s* to the lever *f*, and following, consequently, this latter in its movement. This arm carries at its free end a spur *t*, intended to enter under the action of a spring *u* one of the holes already pierced by the punch and to push the band forward by acting against the front edge of this hole. (The drawings show it in its extreme forward position.) When the lever returns to the rear, it carries with it the arm *r*, which rises, owing to the rise of the spur, (which is chamfered off) up the corresponding inclined plane *v*, formed upon the matrix-carrier, afterward mounting upon the band itself. At the moment when the lever *f* has recoiled to its extreme position the point of the spur *t* is plumb with the front edge of the hole next to that which it has just quitted. It falls therefore into this new hole under the effort of the spring *u*, and it can then advance the band with it as soon as the lever causes it to advance afresh.

I claim—

1. A device for automatically feeding a band in punching, embossing or stamping machines, comprising a part to which a to-and-fro motion is imparted, a stirrup arranged on the said part and carrying a sole upon which rests the metal band to be worked, a wedging-tumbler oscillating about a center of articulation carried by the part receiving a to-and-fro motion and which is arranged so as to wedge the band against the sole of the stirrup owing to its inertia when the part is moved in a direction and to release the same when the movement takes place in the reverse direction.

2. A device for automatically feeding a band in punching, embossing or stamping machines, comprising a part to which a to-and-fro motion is imparted, a stirrup arranged on the said part and carrying a sole upon which rests the metal band to be worked, a wedging-tumbler oscillating about a center of articulation carried by the part receiving a to-and-fro motion and which is arranged so as to wedge the band against the sole of the stirrup owing to its inertia when the part is moved in a direction and to release the same when the movement takes place in the reverse direction, a device for advancing the band when the latter is no more long enough to be acted upon by the wedging-band.

3. A device for automatically feeding a band in punching, embossing or stamping

machines, comprising a part to which a to-and-fro motion is imparted, a stirrup arranged on the said part and carrying a sole upon which rests the metal band to be worked, a wedging-tumbler oscillating about a center of articulation carried by the part receiving a to-and-fro motion and which is arranged so as to wedge the band against the sole of the stirrup owing to its inertia when the part is moved in a direction and to release the same when the movement takes place in the reverse direction, an arm pivoted to the part receiving a to-and-fro motion subject to the action of a recoiling power and arranged above the matrix-carrier, a spur which is chamfered off and mounted at the end of this lever.

4. A device for automatically feeding a band in punching, embossing or stamping machines, comprising a part to which a to-and-fro motion is imparted, an operating-lever to which an oscillating motion is imparted from a cam, a rod connecting the said part with the operating-lever, a stirrup arranged at the end of the part to which a to-and-fro motion is imparted, a sole carried by the said stirrup and upon which rests the band to be worked, a wedging-tumbler oscillating about a center of articulation carried by this stirrup and which is arranged so as to wedge the band against the sole owing to its inertia when the movement takes place in one direction and to release the band in the reverse direction, an arm pivoted to the part receiving a to-and-fro motion subject to the action of a recoiling power and arranged above the matrix-carrier, a spur which is chamfered off and mounted at the end of this lever.

5. A device for automatically feeding a band in punching, embossing or stamping machines, comprising a reciprocating member, a support for the band on said reciprocating member, an oscillatable wedging-tumbler connected with the reciprocating member and coöperating with the support, said tumbler acting to wedge the band against the support when the reciprocating member is moved in one direction and to release the same when said member is moved in the opposite direction.

The foregoing specification of my improvements in feed devices for punching, embossing, or stamping machines signed by me this 26th day of January, 1906.

GEORGES HENRY ALFRED MARIE LEROY.

Witnesses:

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