

No. 883,300.

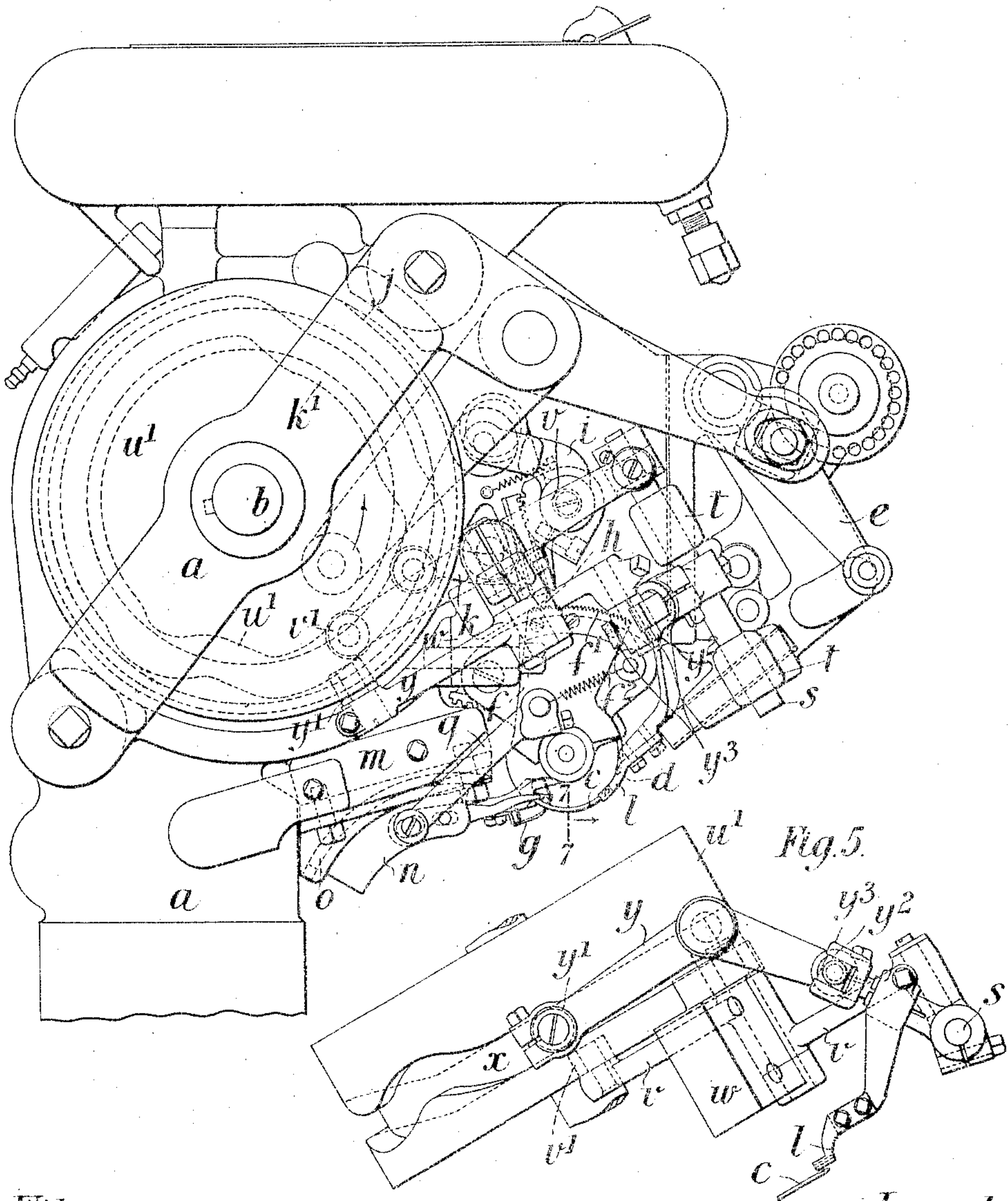
PATENTED MAR. 31, 1908.

M. T. DENNE.
BOOT AND SHOE SEWING MACHINE.

APPLICATION FILED APR. 7, 1906.

3 SHEETS—SHEET 1.

Fig. 1.



Witnesses.
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3 SHEETS—SHEET 2.

Fig. 2.

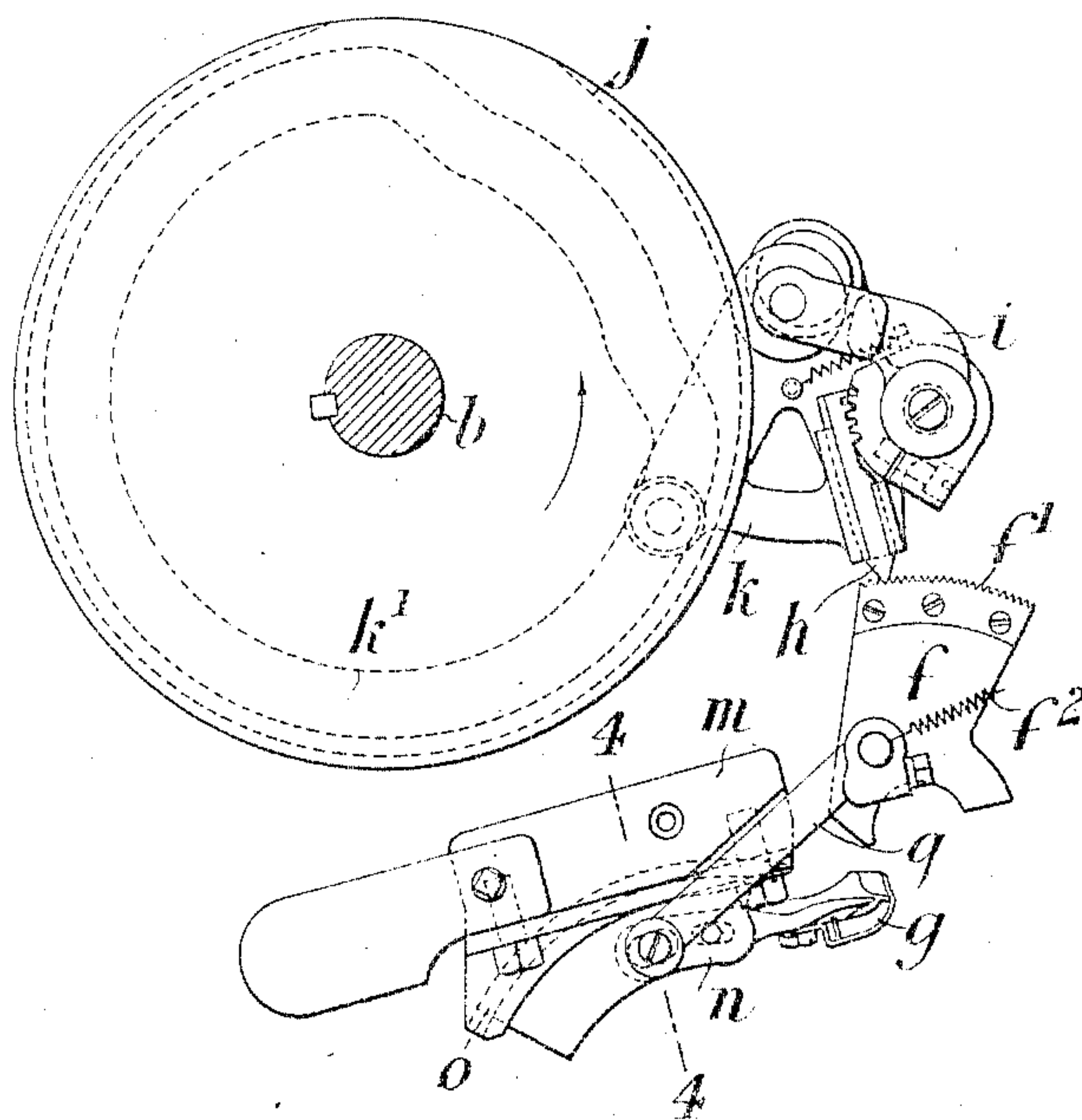


Fig. 3.

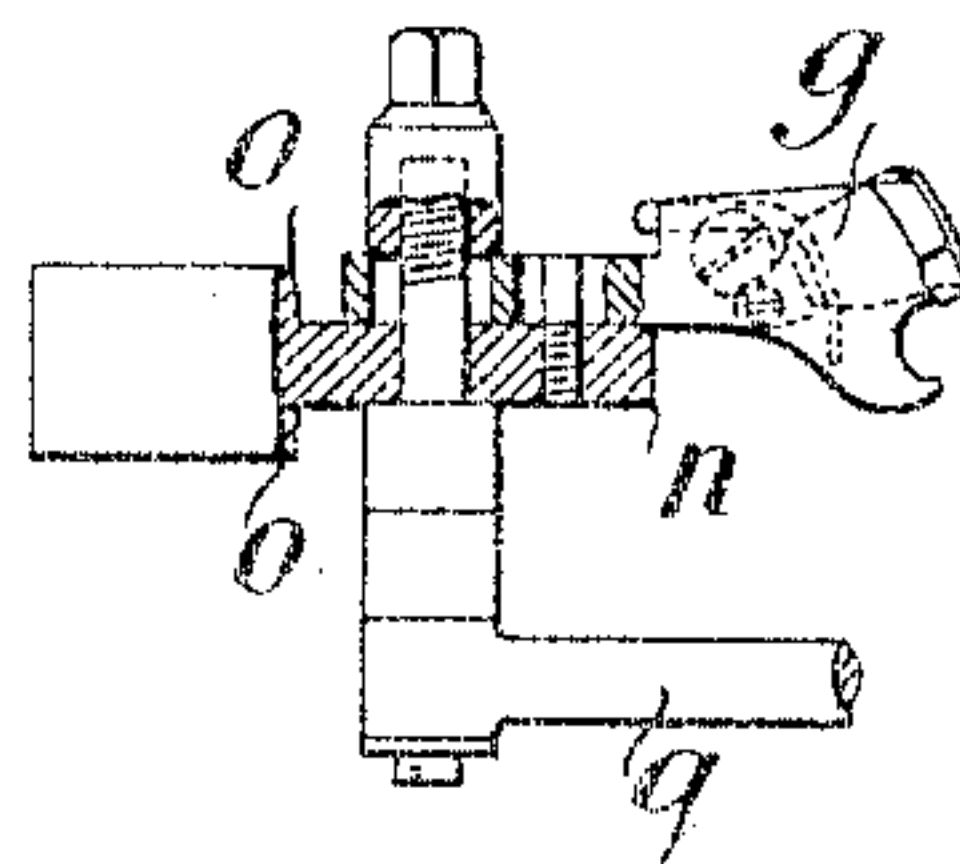
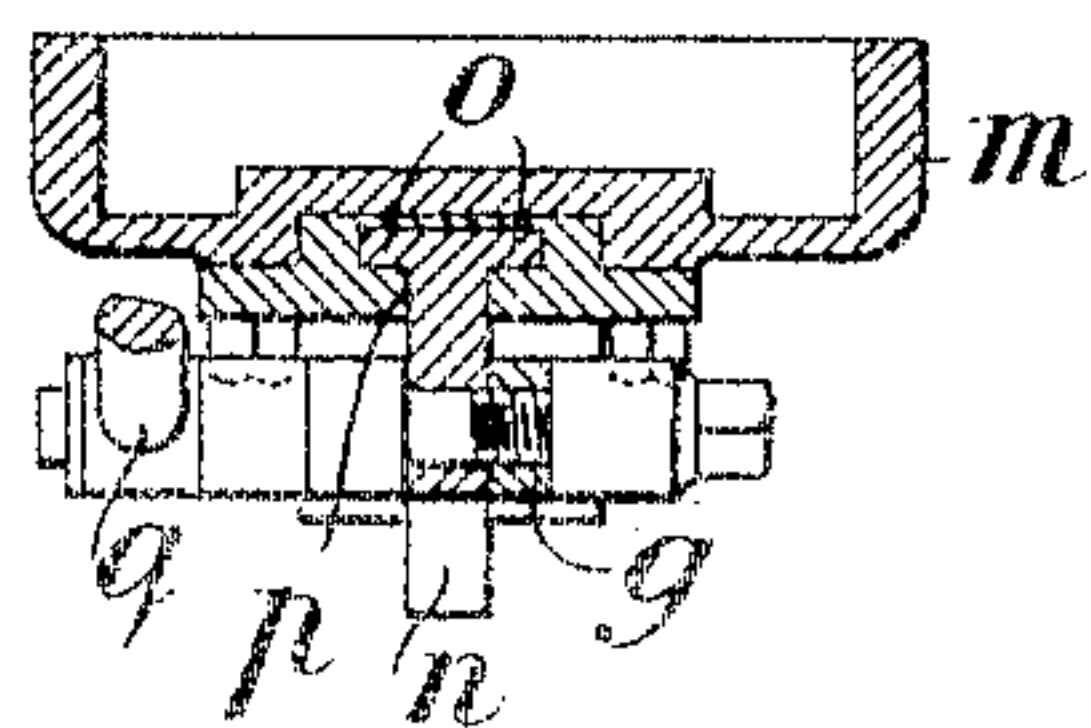


Fig. 4.



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3 SHEETS—SHEET 3.

Fig. 6.

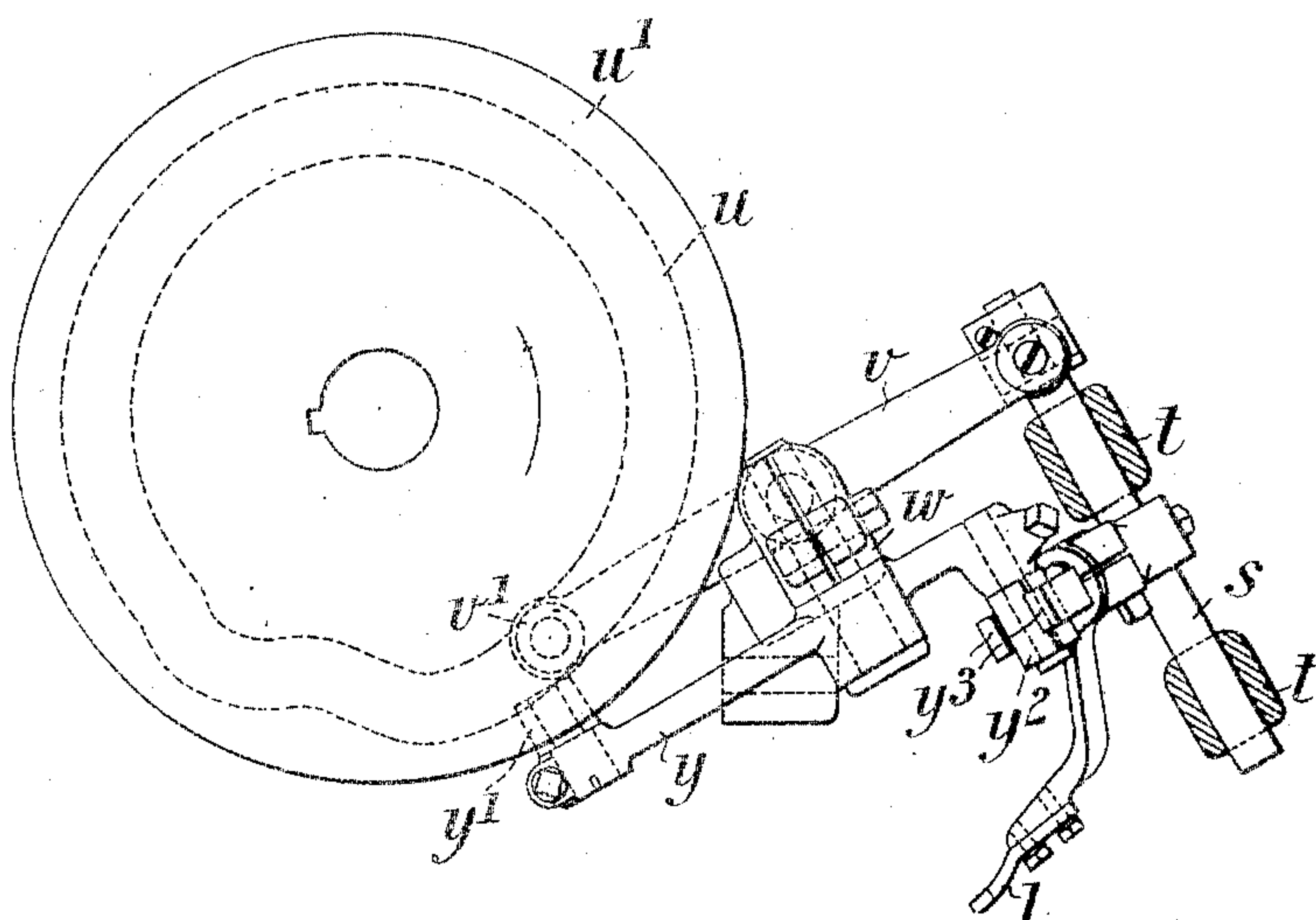


Fig. 7.

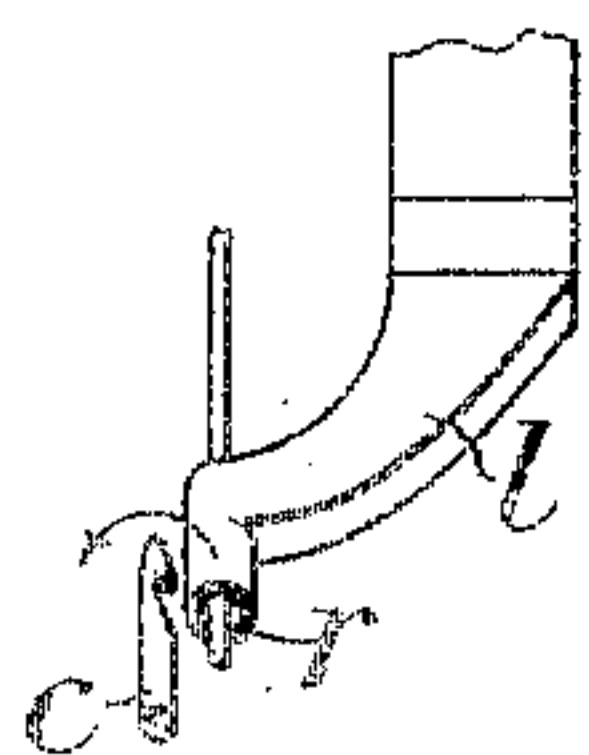
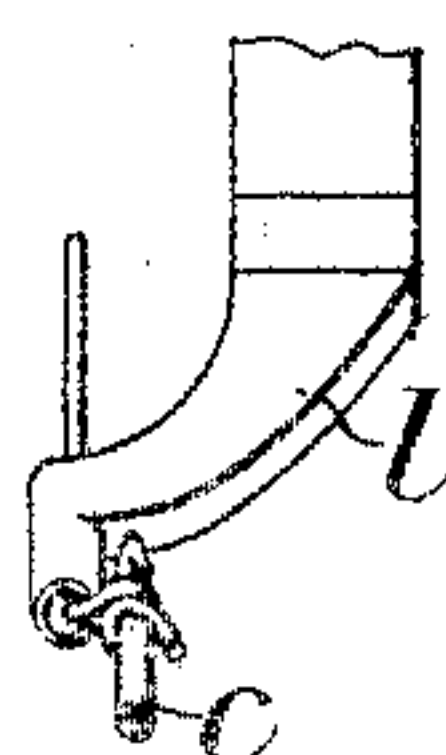


Fig. 8.



Witnesses.

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UNITED STATES PATENT OFFICE.

MARK THOMAS DENNE, OF RUSHDEN, ENGLAND, ASSIGNOR TO JOHN CAVE AND SONS, LIMITED, OF RUSHDEN, ENGLAND.

BOOT AND SHOE SEWING MACHINE.

No. 883,300..

Specification of Letters Patent. Patented March 31, 1908.

Application filed April 7, 1905. Serial No. 254,306.

To all whom it may concern:

Be it known that I, MARK THOMAS DENNE, a subject of the King of Great Britain, of Rushden, Northamptonshire, England, have
5 invented new and useful Improvements in Boot and Shoe Sewing Machines, of which the following is a specification.

In chain-stitch machines it is important that the welt-guide during its travel should
10 preserve the angle of the setting of its front face with the horizontal, which cannot be varied without introducing errors in its adjustment with respect to the work, while it is also important that the point on the welt
15 held by it which is to be pierced by the needle should be kept in a constant position with respect to the needle point whatever the position of the guide. It is therefore necessary to perfect working to combine these two essential points which as far as I am aware
20 has not previously been attempted.

It will be obvious that a circular motion round the needle center as in the lock stitch machine will not effect the object in view as
25 that end of the welt-guide farthest from the center would describe a larger arc of a circle than a nearer point, so altering the angle with respect to the horizontal.

According to the said invention I remove the shuttle race and shuttle of the lock-stitch mechanism and apply in its place
30 a bracket on which a welt-guide carrier moving in a curved path, is mounted, the said carrier being so arranged that the welt-guide, the position of which corresponds with the position of the welt-guide in the lock-stitch machine, moves in the path of the
35 needle to a certain extent, the said carrier being connected by a link to the existing welt-guide locking mechanism and receiving its motion therefrom.

In carrying out my invention I make use of a carrier working in a slot in a bracket, the said slot being so curved as to give the required movement. The stroke of the main
40 take-up is reduced to the required extent to pull up the loop of the chain-stitch.

In order to provide means whereby the needle thread will be looped over the barb of
45 the needle by means of a single device instead of by the combination of devices as has hitherto been usual, I arrange a looper in the form of an eye for the needle thread carried by an arm which is caused to describe a
55 circular motion about the needle. In practice,

this motion is one which, beginning on one side of the needle at a point in line with it, passes completely round the needle and finishes at a point on the opposite side to the starting point. The position of the looper is
60 maintained until the needle is withdrawn into the work when the looper is returned directly across its path. The arm carrying the eye for the needle thread is mounted upon a shaft capable of receiving a rocking motion
65 and a longitudinal motion in the frame, and these motions are imparted to the shaft from suitable cams on the main shaft of the machine, the longitudinal motion being obtained from a face cam and the rocking motion from a groove in a barrel cam.

To enable the invention to be fully understood it will now be described with reference to the accompanying drawings, in which:—

Figure 1 is a side elevation of a weltting
75 machine provided with the improvements according to this invention. Fig. 2 is a side elevation of the welt-guide mechanism detached. Fig. 3 is a sectional plan of a part of such mechanism, and Fig. 4 is a section on the line 4—4, Fig. 2. Fig. 5 is an underside
80 view of the looper mechanism, and Fig. 6 is a side elevation of the said mechanism detached. Fig. 7 is a section on the line 7, 7, Fig. 1, looking in the direction of the arrow
85 but drawn to a larger scale. Fig. 8 is a similar view showing the parts in another position.

I will first describe such known parts of the machine as will enable me to make my
90 invention clear.

a is the main frame of the machine; *b* is the main or driving shaft; *c* is the curved needle; *d* is the awl; *e* is the main take-up lever; *f* is the plate pivoted axially with the needle
95 which formerly carried the welt-guide *g* but is now connected thereto in the manner hereinafter described and which is provided with the segment of teeth *f*¹ and is connected by the spring *f*² to the frame of the machine; *h*
100 is the pawl designed to engage with the said teeth and lock the welt-guide when the needle *c* is passing through the work and to be free of the teeth when placing work in the machine; *i* is the lever and *j* the cam on the
105 shaft *b* for operating the pawl *h*. *k* is the lever carrying the said pawl *h* and lever *i* and operated by the cam groove *k*¹ to relieve the pressure of the welt-guide upon the work while being fed by the awl *d*, the said cam
110

groove is, however, of the form hereinafter described. *l* is the looper for engaging the thread with the barb of the needle.

I will now describe the improvements.

5 *m* is the fitting or bracket which I arrange in the place of the shuttle race and shuttle of the machine and *n* is the carrier for the welt-guide *g*, which carrier is designed to move in a curved path in the said fitting, the said carrier for this purpose being advantageously formed with curved flanges *o*, *o* working in corresponding grooves in a slot *p* in the fitting *m* (Fig. 4).

15 *q* is the link connecting the carrier *n* to the plate *f* of the welt-guide locking mechanism so as to enable the said welt-guide to be locked and released as hereinbefore described. As the movements of the welt-guide result, by reason of its connection to the plate *f*, in imparting movements to the said plate in opposite directions to those of the corresponding plate in machines in which the welt-guide is carried by the said plate, the cam-groove *k*¹ is made with the part that operates the lever *k* (for relieving the pressure of the said welt-guide upon the work while being fed by the awl *d*) nearer to the center of the shaft *b* than the concentric part of the said groove as clearly shown in Fig. 2.

30 By the described construction it will be seen that the welt-guide during its travel will approximately preserve the angle of the setting of its front face with the horizontal and at the same time maintain the point at which the welt is pierced by the needle in the constant position with respect to the needle point, whatever the position of the said guide.

40 The stroke of the main take-up lever *e* is reduced to the required extent by suitably altering the shape of its operating cam.

r is the eye in the looper *l* through which eye the thread passes from the take-up lever *e* to the work.

45 *s* is the shaft carrying the looper arm, the said shaft being arranged in bearings *t*, *t* on the frame *a* in which it can be both rocked and moved longitudinally.

50 *u* is the cam-groove in the face of the disk *w*¹ on the shaft *b* for imparting longitudinal movement to the shaft *s*, the said movement

being effected through the medium of a lever *v* pivoted to a bracket *w* attached to the frame *a*, one end of the said lever carrying a cam-roll *v*¹ engaging the groove *u* while the other end of the lever is jointed to the shaft *s*. The rocking movement of the shaft *s* is imparted to it from the cam-groove *x* in the periphery of the disk *w*¹ through the medium of a lever *y* also pivoted to the bracket *w* one end of which lever carries a cam-roll *y*¹ while the other end of the said lever is provided with a pivoted block *y*² engaging a fork *y*³ on the looper arm.

By this construction, assuming the looper to be in its normal position at one side of the needle as shown in Figs. 1, 5 and 7, the cam grooves *u* and *x* will, when the shaft *b* is rotated in the direction of the arrow, move the looper around the needle in the direction of the arrow Fig. 7 one and a half times, the looper at the end of this movement being in the position shown in Fig. 8. By this movement of the looper the thread carried thereby is looped one and a half times round the needle as indicated in the said figure. After the needle has withdrawn the loop of thread through the work the cam groove *x* will return the looper to its normal position.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

In a chain stitch machine for sewing welts to boots and shoes, the combination with the needle of the looper provided with an eye for receiving the thread, said looper being mounted on an arm provided with a fork at its outer end and secured to a shaft mounted to rock and slide in its bearings, a lever connected to said shaft and a lever engaging the said forked end of the said arm and mechanism to actuate said levers, the relation of the needle and the looper eye being such that the movements given the shaft carry the thread entirely around the needle, substantially as described.

MARK THOMAS DENNE.

Witnesses:

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