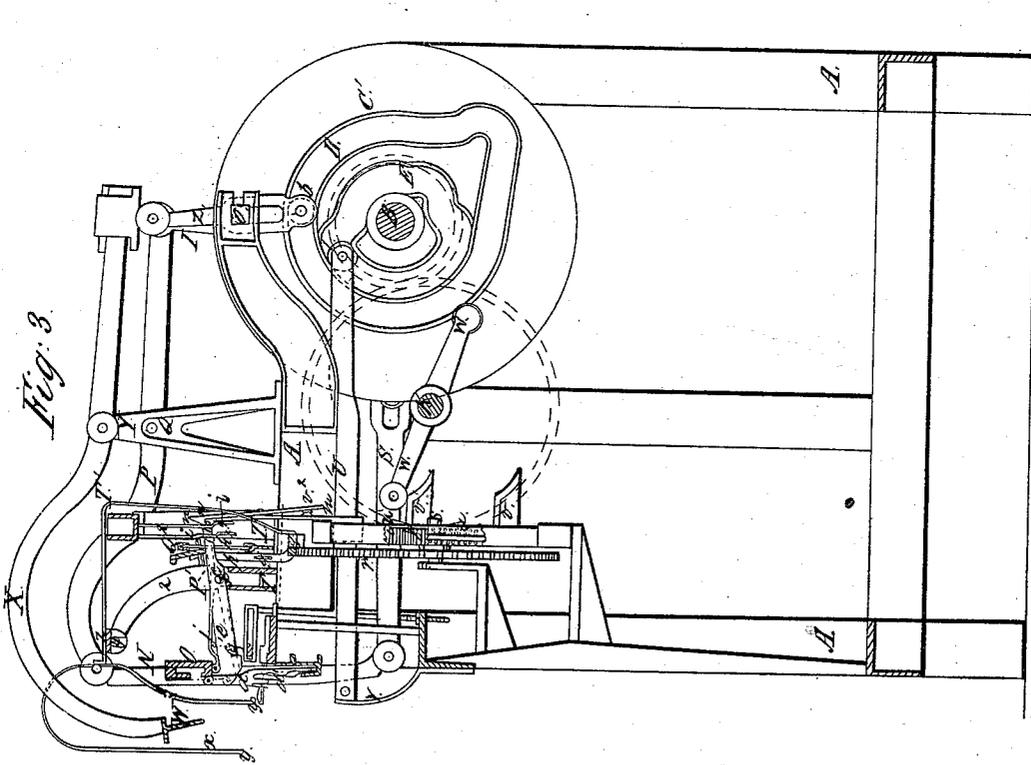


Sheet 3 - 3 Sheets.

*T. Bailey.
Knitting Mach.*

N^o. 8,750.

Patented Feb. 24, 1852.

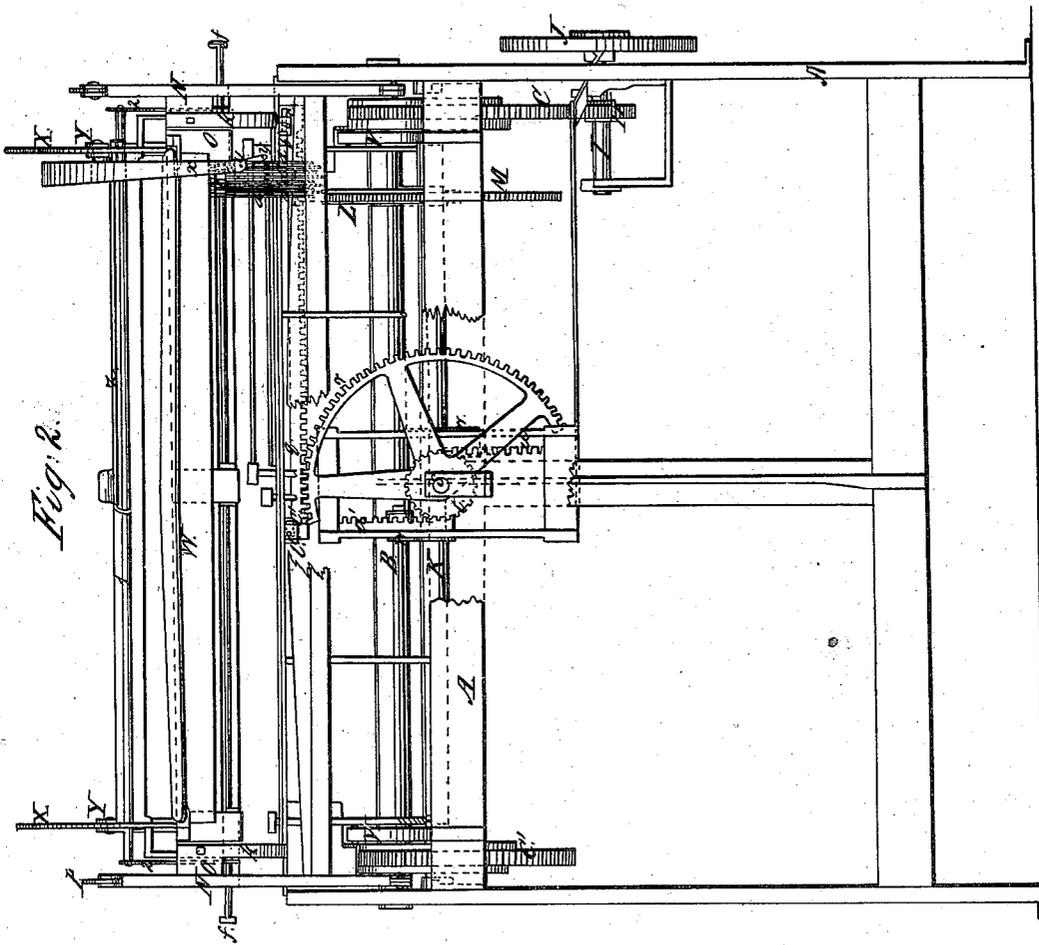


Sheet 2-3 Sheets.

T. Bailey.
Knitting Mach.

N^o 8,750.

Patented Feb. 24, 1852.



Sheet 1 - 3 Sheets.

T. Bailey. Knitting Mach.

N^o 8,750.

Patented Feb. 24, 1852.

Fig. 4.

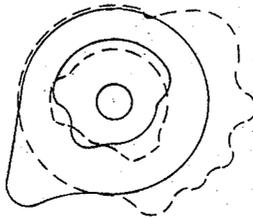
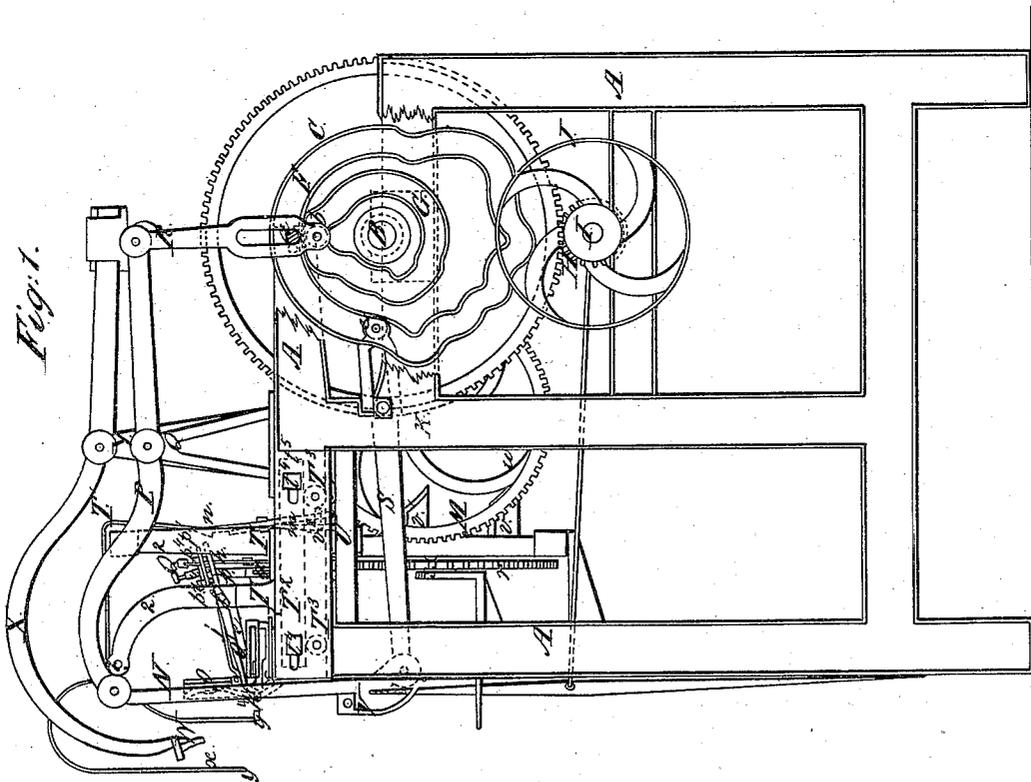


Fig. 1.



UNITED STATES PATENT OFFICE.

T. BAILEY, OF BALLSTON SPA, NEW YORK.

KNITTING-MACHINE.

Specification of Letters Patent No. 8,750, dated February 24, 1852.

To all whom it may concern:

Be it known that I, TIMOTHY BAILEY, of Ballston Spa, in the county of Saratoga and State of New York, have invented certain new and useful Improvements in Machines Used in the Manufacture of Knit Fabrics, and Ordinarily Termed "Stocking-Frames"; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is an end elevation of the frame. Fig. 2 is a front elevation of the same. Fig. 3 is a transverse vertical section, and Fig. 4, a diagram showing the positions which the grooves in the cams, which actuate the sinker-frame and presser-bar, occupy in relation to each other.

Similar letters of reference indicate corresponding parts in each of the several figures.

The form and arrangement of the parts of the machine which form the stitches and produce the fabric are for the most part the same as those of the machine known as the "English frame," the several parts of which have always previous to my invention of the improvements herein specified been moved by the hands and feet of an operative, my said improvements consisting mainly in the employment of devices substantially such as herein described, for communicating motion to the several parts from a revolving shaft driven by the constant application of any suitable power.

To enable others skilled in the art to make and use my invention I will proceed to describe fully its construction and operation.

A, A, is the framing which carries all the parts.

B, is the main shaft, which is hung parallel to the front of the frame in bearings in the ends. It carries two cams C, C', one near each end, each of which cams consists of a circular disk having two irregularly formed grooves or channels in each side viz: one D, on the inside for actuating the presser-bar, and another E, which assists in controlling the locks which will be hereinafter described, one F, and another G, on the outside for actuating the sinker-frame, the grooves on the outside and those on the inside of each cam being of different forms and occupying the same position on the shaft as the corresponding ones at the other

one. D and E, are shown in Fig. 3, where the inside of the cam C', is seen, and F, and G, are shown in Fig. 1, where the outside of the cam C, is seen, the frame being broken away to show them. The positions which D, and E, occupy in relation to F, and G, are shown in Fig. 4, where the black lines represent the form of the grooves D, and E, and the red lines of the grooves F, and G. The cam C, is toothed on its periphery, which forms a toothed wheel gearing with a pinion H, on an intermediate shaft I, on which there is a pulley J, intended to receive motion from the driving power shaft, the said pulley having a clutch attached to admit of the stopping and starting of the machine.

N, N, are the hanging cheeks to which the sinker bar O, carrying the lead-sinkers is attached. They are hung at their upper ends on the ends of the top arms P, which are supported upon standards Q. The back ends of the top arms have upright links R, connected to them carrying studs and friction rollers *b*, which run in the grooves G, of the cams C, and C'. These links have slots in them which work on friction rollers *a*, see Fig. 1, hung on stationary pivots secured in the frame, and serving as guides to keep the friction rollers *b*, in their proper places in the grooves G. At their lower ends the hanging cheeks are connected to horizontal rods S, carrying studs at their ends on which are friction rollers *c*, running in the grooves F, of the cams. The rods S, have slots in them which work on guide pins within the frame to keep them in proper position.

d, are the lead-sinkers which are suspended from the sinker-bar O.

d' are the jack-sinkers, which are suspended on the jacks *e*. The jacks are all hung on a common center rod or pin *f*, which together with the slur-bar *g*, the jack-guides *h*, and the jack-spring *i*, are all supported on a frame T, termed the camel, which has a cross end T², fastened to it, shown by dotted lines, resting and traveling upon the top of two rollers T³ T³, which roll on the flange of the frame, and are held in their proper positions by two pins fastened in the plate *t*⁵, upon which they turn. The plate *t*⁵ has two slots in it which permit it to traverse upon the pins *t*⁴ *t*⁴ secured into the cross end T². The sinker bar O, is connected to the center rod or pin *f*, by links

5 *j*, termed half-jacks, which causes all the
 sinkers and other moving parts connected
 with the camel constituting the sinker-frame
 to be drawn back and forth together by the
 10 movements of the hanging cheeks *N*, *N'*, pro-
 duced by the grooves *F* in the cams *C*, and
C'. Another appendage to the frame of
 sinkers is the locker-bar *P'*, which is for the
 purpose of raising the jack-sinkers at the
 15 proper moment, the only motion communi-
 cated to them by their attachment to the
 sinker-bar *O*, being a movement back and
 forth. The locker bar *P'*, is supported on
 the back ends of two levers *Q'*, termed
 20 lockers, which are hung on the center rod *f*.
 The locker bar *P'* is fastened to the lever
Q' by the screw *Q*² and is adjusted to the
 desired height by the set screws *p*⁴ *p*⁴. At-
 tached to the front of the sinker-bar there
 25 are two hanging plates *h*, seen in Fig. 2, and
 in dotted lines in Fig. 1, which perform the
 same office performed by the thumb plates
 used in the frame when operated by man-
 ual labor, and on the back of each of these
 30 there is a lip *4* which by the up and down
 movement of the sinker-bar *O*, is made to
 operate on the front ends of the lockers,
 being released from them when necessary by
 their lower ends coming in contact with in-
 35 clined projections *5*, in front of the frame.
 Below the sinker-frame there are two levers
U, which hang on pins in standards *V*, sup-
 ported on the front part of the framing *A*,
A. The ends of these levers carry studs and
 40 friction rollers *l*, which run in the grooves
E, of the cams *C*, and *C'*. Upright bars *m*,
 are secured to the levers *U*, and to them are
 secured catches *n*, (operated by the spring
*V*²) which are intended to act on the back
 end of the lockers.

45 *W*, is the presser bar for closing the barbs
 of the needles at the time when it is re-
 quired to draw off the loops. The presser-
 bows *X*, to which it is attached are hung
 on pins in standards *Y*, on the top of the
 framing. The continuation of the bows
 backward forms levers, at the ends of which
 are suspended links *Z*, at the lower ends of
 50 which are pins carrying friction rollers
 which run in the grooves *D*, the links being
 guided by slots in them, which work on
 friction rollers on pins *o*, secured in arms at
 the back of the frame.

55 *K*, is the shaft hung in bearings in the
 ends of the frame, parallel with *B'*, and re-
 ceiving motion from it by means of a pinion
L, on its axis, gearing into a wheel *M*, on its
 own axis. The pinion *L*, having only half
 the number of teeth of the wheel *M*, gives
 60 half a revolution to the shaft *K*, for every
 one of the shaft *P*. The object of the shaft
K, is to transmit motion from the main
 shaft to the slurs and thread leader.

65 The slurs *p*, for raising the tails of the
 jacks and depressing the jack-sinkers one

after the other in succession to form the
 loops between the needle, slide on the slur-
 bar *g*, in the usual manner and have a
 toothed rack bar *g*, attached below them
 which gears into the teeth of a toothed sec- 70
 tor *r*, which is secured upon a horizontal
 shaft *s*, placed at right angles to the shafts
B, and *K*. This is best seen in Fig. 2,
 where the frame is broken away. On the
 same shaft *s*, there is a toothed pinion *t*, on 75
 each side of which there is an upright
 toothed rack. These toothed racks *u* and *u'*
 slide in guides in a small stationary frame
 secured to the main stationary framing and
 80 have lugs *v* and *v'* attached to them which
 are struck and forced down alternately by
 friction rollers on arms *w*; secured in posi-
 tions diametrically opposite each other on
 the shaft *K*, one being opposite each lug.
 The racks being independent of each other, 85
 when one is forced down it gives part of a
 revolution to the pinion *t*, raising the other
 rack ready to be operated upon at a suitable
 time by the other arm. The shaft *s*, and
 the sector *r*, receive motion with the pinion 90
t, the sector giving motion in either direc-
 tion to the rack bar *g*, and the slurs. The
 rack bar near each end is widened for a
 short space, so that when the frame of sink-
 95 ers is moving back and forth it will not get
 out of gear with the sector.

x, is the thread leader for laying the
 thread over the needles preparatory to its
 having the loops formed in it. It consists
 of an arched piece perforated at *y*, *y*, to 100
 allow the thread to pass through, and is at-
 tached to a slide *z*, which travels along a
 bar *1*, extending all across the frame, above
 which it is supported by standards *2*, se-
 cured on the camel. The slide *z*, is attached 105
 to the rack bars *g*, by the crashed bows
T' *T'* and is moved back and forth across
 the frame at the same time with it. The
 slur carriage is connected to the rack by
 the pieces *b'* *b'* (projecting from the car- 110
 riage) with pins passing through them and
 through the slots *c'* *c'* in the rack *g*. These
 slots allow the rack to move and carry the
 thread carrier *x* a proper distance in ad-
 115 vance of the slur cock, which elevates the
 back ends of the jacks and depresses the
 sinkers to form the loops between the
 needles.

The operation of the parts which form the
 loops or stitches being precisely the same as 120
 in the hand frame, it will require no de-
 scription here further than the manner in
 which the motions are communicated to
 them. All the motions necessary to the lead-
 125 sinkers are given by the grooves *E*, and *G*,
 of the cams operating on the arms *P*, and *S*,
 the grooves *G*, being of such form as to cause
 the top arm to give the necessary amount of
 motion up and down to the hanging cheeks
 130 *N* and the grooves *F*, being of such form

as to give the necessary motion back and forth. The jack sinkers receive the requisite motion back and forth by the same means, being connected by the links or half jacks *j* to the hanging cheeks N. These motions are those usually given by the hand bar. The up and down motion of the jack-sinkers is given by the united action of the locker-bar and slurs, the lockers being operated by the lips 4, of the plates *k*, or by the catches *n*, attached to the uprights *m*, on the bars V, which are operated on by the grooves E, of the cams, and the slurs being moved once across by every revolution of the cams in consequence of the movement communicated to them by the sector *r*, and received by it through the pinion *t*, racks *u*, *u'*, arms *w*, *w*, from the shaft K. The presser-bar receives its only motion, viz: that down upon the barbs of the needles, where it remains for a suitable time, being returned afterward ready for the next operation, through the grooves D, on the cams acting upon the lever ends of the bows X. The thread guides receive the requisite motion for laying the thread for each row of loops or stitches through the same means as the slurs, being connected as before described to the rack bar *q*, by which they are operated.

The several devices and parts of the machine by which the motion of the parts

performing the work are produced being all properly arranged and adjusted in relation to each other, it is only necessary to supply the thread from a bobbin in front of the frame and start the first row of stitches, when the work will be continued, and the machine will require no further attention than supplying with new threads or stopping in case of breakage of the thread or other derangement in the operation.

What I claim as my invention and desire to secure by Letters Patent is—

1. Releasing the hanging plates *k* from the lever Q' by the inclined projections 5 as they are drawn up, so as to let the uprights *m* and lever U raise the locking bar.

2. The combination of the catch *n* (fastened to the upright *m*) spring V², lever U operated by the groove E in the cam to raise the locking bar so as to allow the slur to operate and depress the sinkers to divide the loops and form the stitches, and to raise the lever Q' so as to be caught by the lip 4 upon the plate *k* to lock down the locking bar.

In testimony whereof I have hereunto signed my name before two subscribing witnesses.

TIMOTHY BAILEY.

Witnesses:

J. DENNIS, Jr.,

W. H. GODDARD.