(No Model.) 4 Sheets—Sheet 1.

W. REDETT.

SEWING MACHINE.

No. 262,245. Patented Aug. 8, 1882.

Fig. 1.

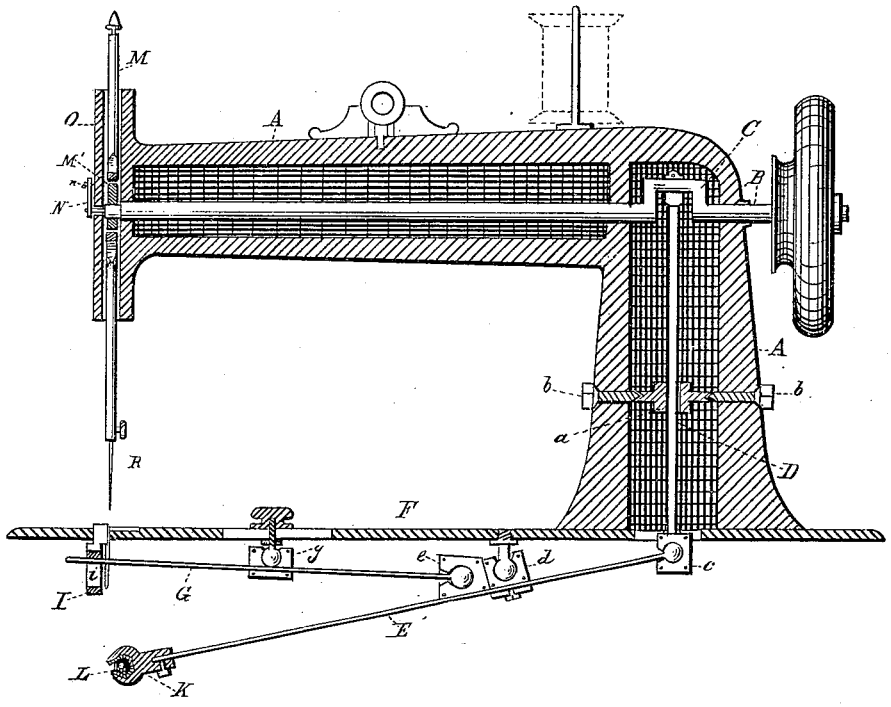
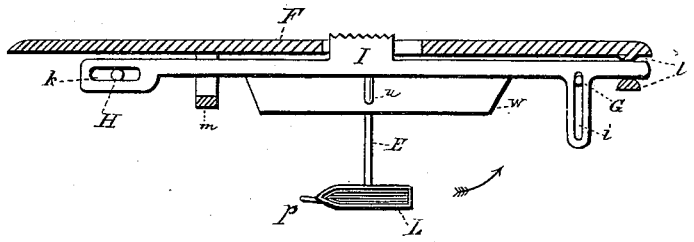


Fig. 3.



WITNESSES

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(No Model.)

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W. REDETT.

SEWING MACHINE.

No. 262,245. Patented Aug. 8, 1882.

Fig. 2.

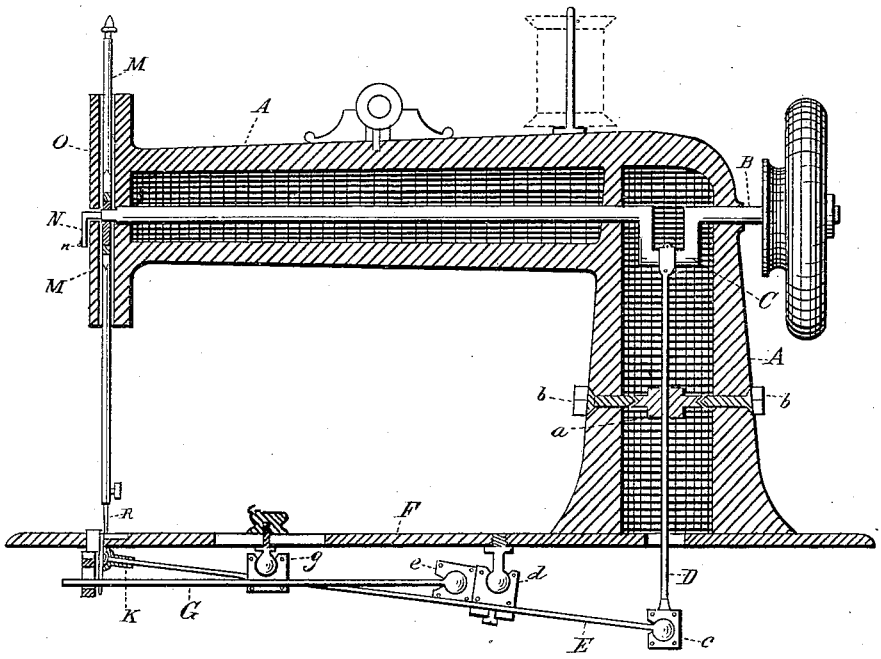
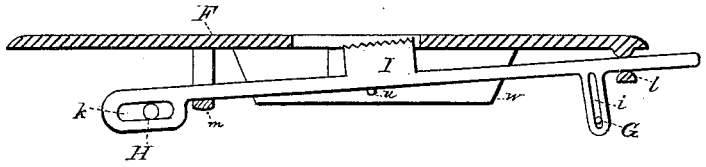


Fig. 4.



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4 Sheets—Sheet 3.

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SEWING MACHINE.

No. 262,245. Patented Aug. 8, 1882.

Fig. 5.

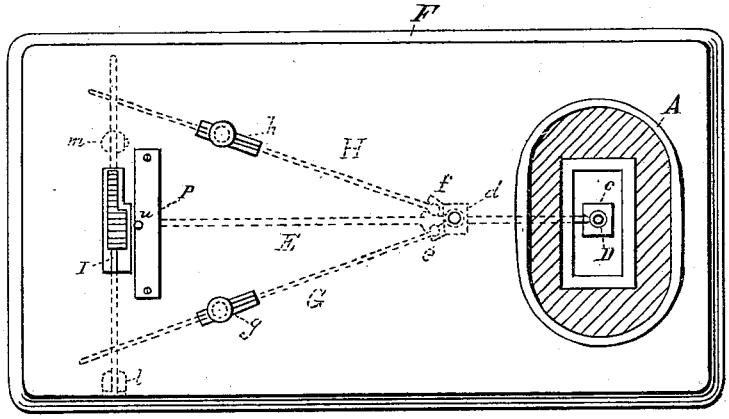


Fig. 6.

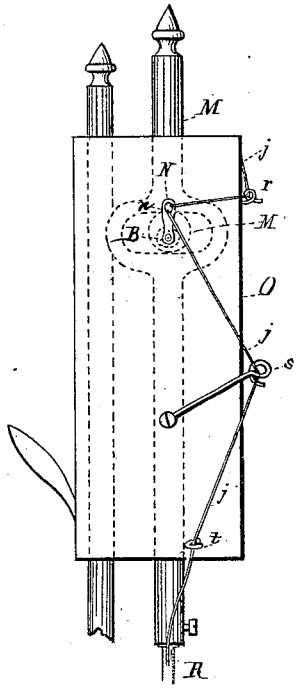
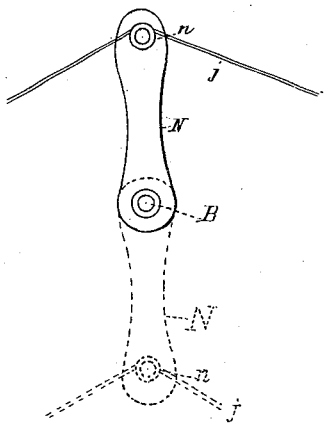


Fig. 7.



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(No Model.) 4 Sheets—Sheet 4.

W. REDETT.

SEWING MACHINE.

No. 262,245. Patented Aug. 8, 1882.

Fig. 8.

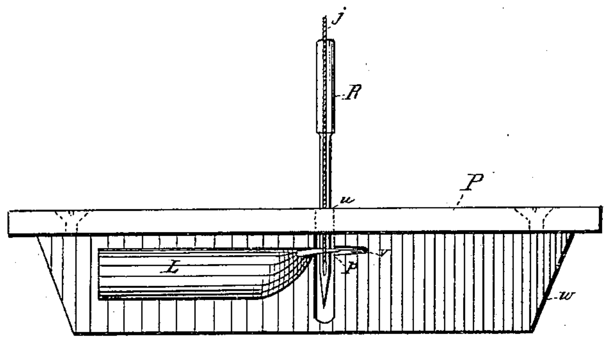


Fig. 9.

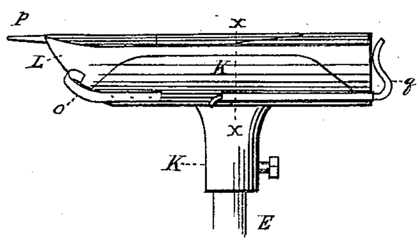


Fig. 10.

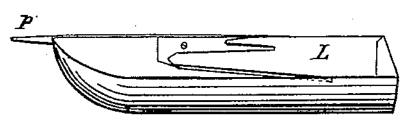


Fig. 12

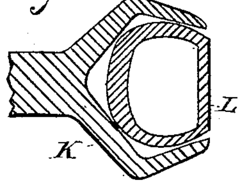
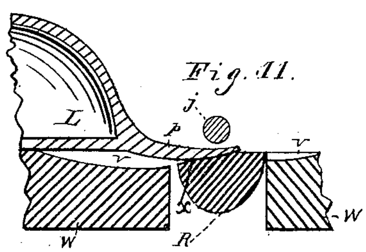


Fig. 11.



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UNITED STATES PATENT OFFICE.

WILLIAM REDETT, OF FREDERICKSBURG, OHIO.

SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 262,245, dated August 8, 1882.

Application filed January 31, 1882. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM REDETT, of Fredericksburg, in the county of Wayne and State of Ohio, have invented certain new and useful Improvements in Sewing-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to sewing-machines; and it consists in the peculiar construction of the same, as will be hereinafter fully set forth and claimed.

In the drawings, Figures 1 and 2 are longitudinal vertical sections, showing the arrangement of the operating mechanism in different positions. Figs. 3 and 4 are detached views of the feed and feed-bar, showing them in different positions. Fig. 5 is a plan view of the bed-plate of my machine. Fig. 6 is a front elevation of the face-plate, showing the manner of operating the needle-bar and take-up device. Fig. 7 is an enlarged view of my take-up. Fig. 8 is an enlarged view of the needle-plate and shuttle, showing the manner in which the shuttle operates. Figs. 9 and 12 are views showing my shuttle-carrier, Fig. 12 being a section taken through Fig. 9 on the line *x x*. Fig. 10 is an isometric view of the shuttle. Fig. 11 is an enlarged sectional view of the needle, its thread, and the needle-plate on the line of the slot *v*, the point of the shuttle being also shown.

A is a sewing-machine head.

B is a shaft, which runs from one end to the other of the horizontal arm of said head. This shaft is provided at its rear end with a crank, C, to which is attached a pitman-lever, D. The pitman D slides through a pivoted fulcrum, *a*, which is secured in the upright of the head A by means of set-screws *b*.

To the lower end of the pitman D is secured by means of a ball-and-socket joint, *c*, the shuttle-operating lever E. This lever E is fulcrumed by means of a ball-and-socket joint, *d*, to the bed-plate F.

G H are two shorter levers, which are attached by means of ball-and-socket joints *e* and *f* near and a little forward of the fulcrum *d*. These levers G and H are fulcrumed by means of the adjustable ball-and-socket joints *g* and *h*.

I is a feed-bar. This feed-bar I is provided at one end with a vertical slot, *i*, and at the other end with a longitudinal slot, *k*, with which the free ends of the levers G and H engage and serve to operate the feed, the lever G operating to move the feed-bar I in a horizontal direction and the lever H to move the said feed-bar vertically.

l is a supporting-lug, which supports one end of the feed-bar I, but allows it to move horizontally.

m is a guiding-lug, which is attached to the bed-plate F, and is constructed in such a manner that it prevents the feed-bar from moving sidewise, but allows it to move horizontally and vertically.

K is a shuttle-holding device, which is attached to the end of the lever E in any suitable manner.

L is the shuttle. The manner of retaining the shuttle in the shuttle-holder K is shown more clearly in Fig. 9. The shuttle-holder K is made of such form that it embraces the shuttle and prevents said shuttle from revolving within it, thus carrying and operating the shuttle free and independent of any bearing plate, face, or race. One end of the shuttle-holder K is provided with a spring-retainer, *o*, which prevents the shuttle from sliding out from that end. The other end of the shuttle-holder K is provided with a locking-catch, *q*, which is pivotally attached, and may be thrown back. This locking-catch *q* prevents the shuttle from falling out at this end, and thus the said shuttle is securely held in place, as shown. The shuttle L is provided with a spring-point, *p*. O is the face-plate of my machine. (See Fig. 6.) M is the needle-bar, which is driven by an eccentric, M′, on the forward end of the shaft B; but it is obvious that the needle-bar may be driven by any suitable means.

N is the take-up, which is attached at one end to the shaft B outside of the face-plate O, and revolves with said shaft. At the other end of the take-up is a disk, *n*, (see Fig. 7,) which is attached to the said take-up in such a manner that when the said take-up revolves

the thread *j*, which passes over the arm of the take-up, will be prevented from slipping off.

r s t are loops fastened to the face-plate O, through which the thread *j* passes.

P is a needle-plate, which is made as shown in Fig. 8, and is provided with a piece, *w*, which extends downward at a right angle to the said plate P.

u is a hole or needle-run, which is drilled at or near the edge of the plate P and down into the piece *w* in such a manner that the needle, when it passes through the hole *u*, will be flush with the inner surface of the piece *w*.

v is a depression made in the face *w*. There are two of these depressions *v*, one on each side of the hole *u*.

R is the needle, which is preferably made with a slight incline, *x*, as shown in cross-section, Fig. 11.

The operation of my machine is as follows: Rotary motion being given to the shaft B, the crank C drives the pitman D, which, sliding through the pivoted fulcrum *a*, imparts circular motion to the rear end of the lever E, said end of the lever E describing a circle in its movement, but not revolving around its own axis. The lever E being fulcrumed somewhat in the rear of its center, the forward end of said lever, which holds the shuttle, also describes a circle in its movement, the said circle being larger than that described by the rear end. Thus it will be seen that the shuttle is carried around in a circle; but it does not revolve itself, its point being always in the same direction. By thus operating the shuttle the shuttle-thread does not twist or untwist, the said twisting or untwisting of the thread being an objectionable feature of shuttles which revolve. One end of levers G and H being attached by means of universal joints *c* and *f* to the lever E, a little forward of its fulcrum *d*, the said ends are also driven in a circle, and, the said levers being fulcrumed by means of the joints *g* and *h*, the forward ends of these levers G and H are also made to describe a circle in substantially the manner that the lever E operates. The circle described by the forward ends of the levers G and H may be made larger or smaller, as desired, by moving the fulcrums *g* and *h* nearer to or farther from the fulcrum *d*. These forward ends of the levers G and H are adapted to engage with the slots *i* and *k* of the feed-bar I, and operate the same. The lever G, operating in the vertical slot *i*, gives the said feed-bar I a horizontal reciprocating motion. This motion may be made longer or shorter by adjusting the fulcrum *g*, as before described. The lever H, operating in the horizontal slot *k*, gives the feed-bar I a vertical reciprocating motion, which may also be lengthened or shortened by adjusting the fulcrum *h* on the bed-plate F.

The needle-bar M is driven by the eccentric M′, said eccentric M′ being so attached to the forward end of the shaft B that when the crank C is at its lowest point the eccentric M′ and needle-bar M are also at their lowest point, as shown in Fig. 2 of the drawings, and vice versa, as shown in Fig. 1. Now, it will be seen that when the needle-bar is down and the needle has passed through the hole *u* (see Fig. 8) as far as the eccentric M′ will drive it the shuttle-driving lever E has carried the shuttle L to the position shown in Figs. 2, 8, and 11. As shown in Figs. 8 and 11, the point *p* of the shuttle L is now guided to the needle R by the depression *v* in the piece *w*, and passes between the said needle R and the thread *j*, and the shuttle L follows, and the loop or stitch is made.

My take-up is shown more clearly in Figs. 6 and 7. The thread *j* is passed through the loop *r*, and from thence passes around the disk *n* on the take-up N, and then through the spring-loop *s* and loop *t*, and from thence to the needle. Now, as the take-up N is revolved by the shaft B, the thread is alternately loosened and tightened. The object in view in using the spring-loop *s* is to allow the thread to give when the strain is too sudden or too great.

Instead of using a ball-and-socket joint in the several parts of my machine, it is obvious that any suitable universal joint may be used.

What I claim is—

1. In a sewing-machine, the combination of a crank, a pivoted pitman, shuttle-driving lever connected at one end to said pitman by a universal joint, and having the shuttle-carrier secured to its opposite end, and feed-driving levers connected by universal joints to said shuttle-lever and connected to the feed-bar, substantially as set forth.

2. In a sewing-machine, the combination of the levers G and H, said levers having a circular motion, substantially as described, with the feed-bar I, said feed-bar being provided with a longitudinal slot, *k*, and vertical slot *i*, by means of which the ends of the levers G and H are adapted to operate said feed-bar, substantially as set forth.

3. In a sewing-machine, the combination, with the slotted feed-bar, of the levers G and H and adjustable fulcrums *g* and *h*, said levers being connected to and operated by the shuttle-lever, substantially as set forth.

4. In a sewing-machine, the combination of the needle-plate P with the piece *w*, hole *u*, and recess *v*, with a shuttle provided with a spring-point, *p*, substantially as set forth.

5. In a sewing-machine, a shuttle-carrier adapted to embrace the shuttle and carry it free and clear of any bearing or supporting surface, and provided at one end with a spring-retainer and at its opposite end with a locking-catch, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM REDETT.

Witnesses:
J. B. LYTLE,
H. W. IMLEN.