2 Sheets—Sheet 1.

P. J. CLEVER.

Sewing Machine.

No. 96,886. Patented Nov. 16, 1869.

Fig. 2.

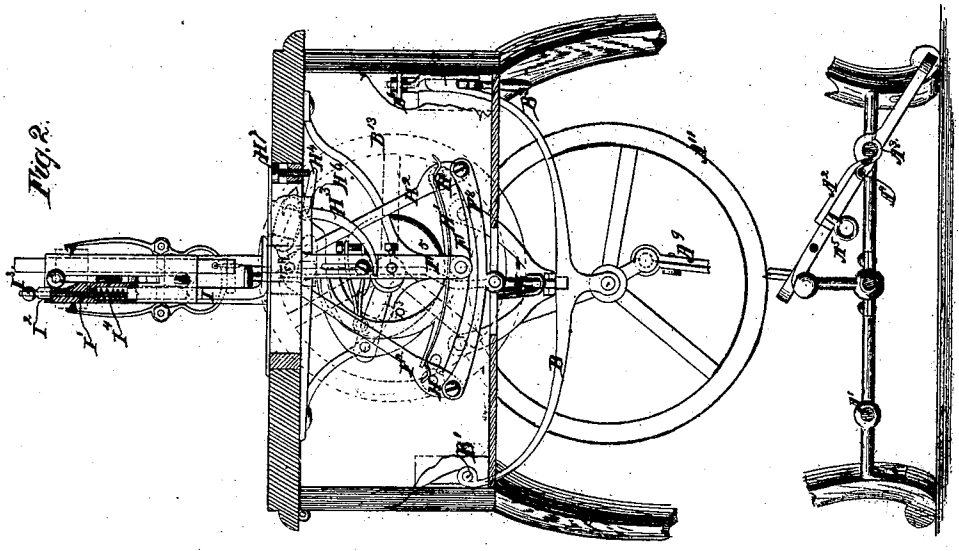
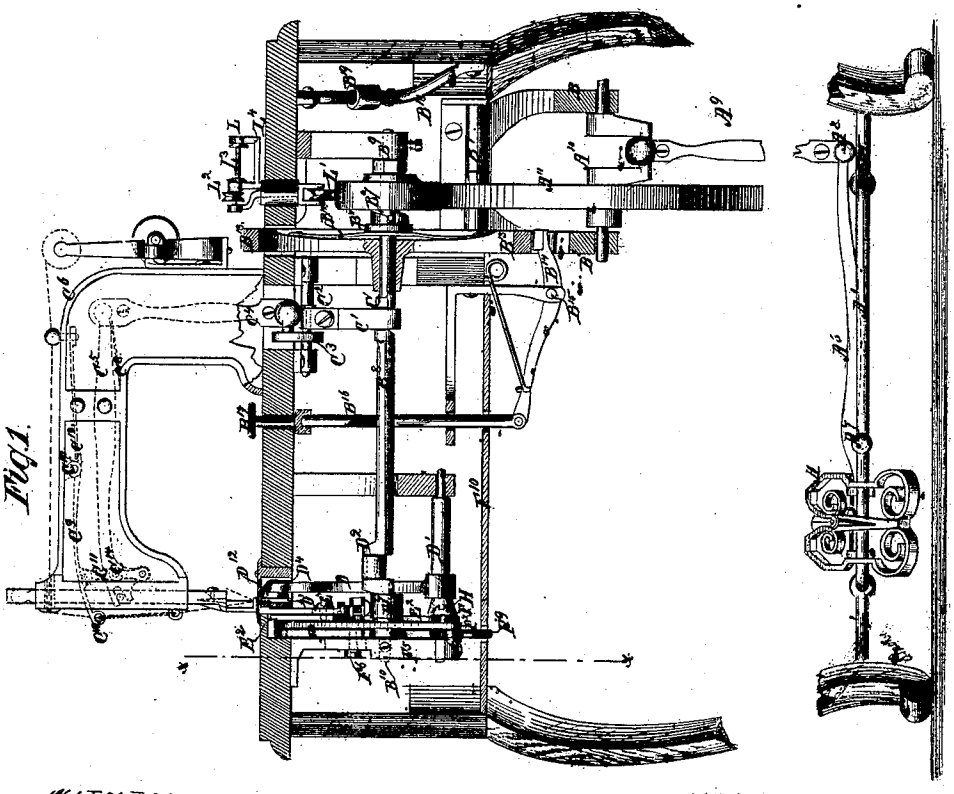


Fig. 1.



WITNESSES.

W. T. Clark

Frank J. Hinkley

INVENTOR

P. J. Clever

by Munn & Co.

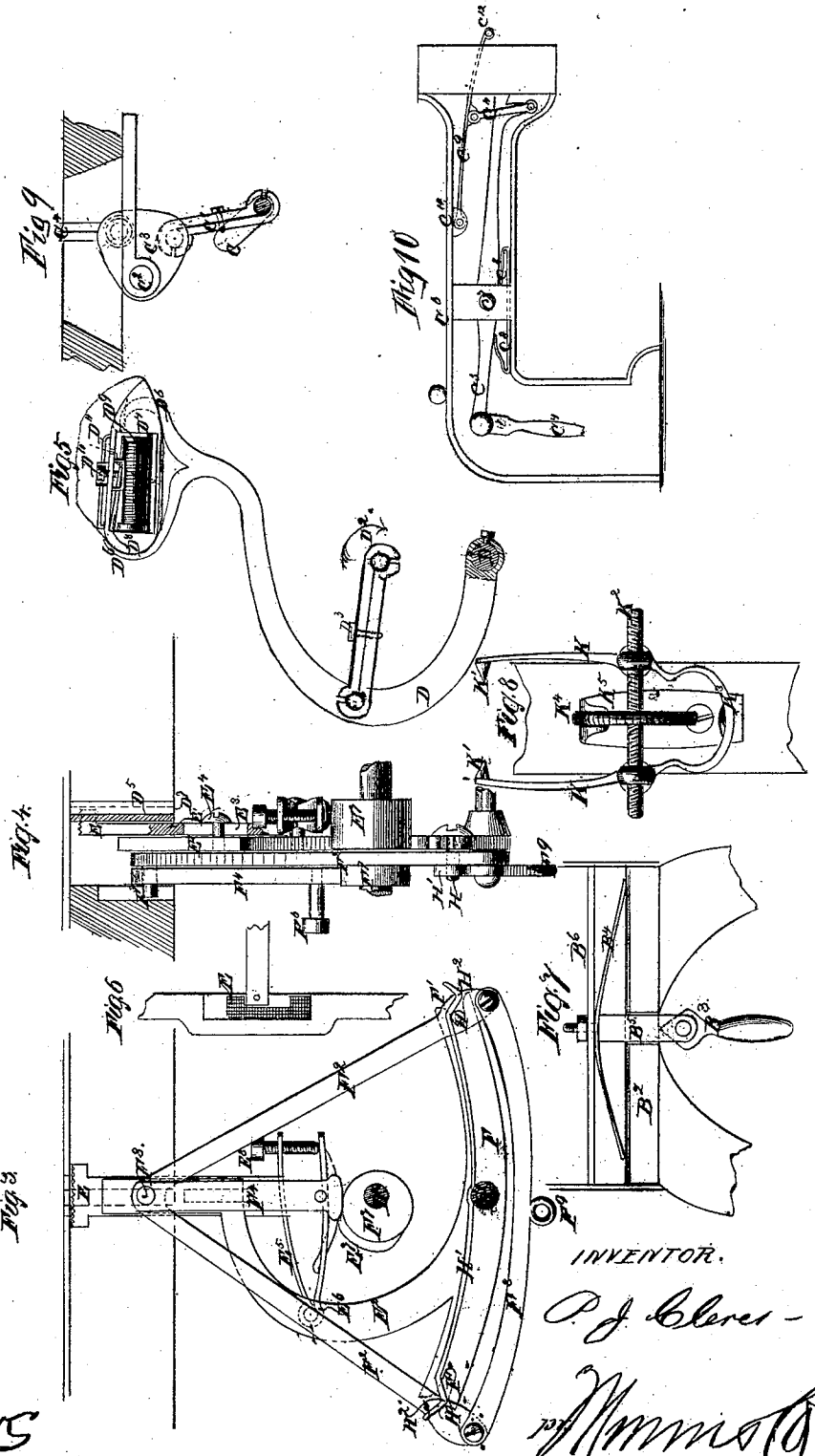
Attorneys.

2 Sheets—Sheet 2.

P. J. CLEVER.

Sewing Machine.

No. 96,886. Patented Nov. 16, 1869.



WITNESSES.

E. F. Clark

Frank B. Stirling

INVENTOR.

P. J. Clever

by Munn & Co

Attorneys.

United States Patent Office.

P. J. CLEVER, OF GOLIAD, TEXAS.

Letters Patent No. 96,886, *dated November* 16, 1869.

IMPROVEMENT IN SEWING-MACHINE.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, P. J. CLEVER, of Goliad, in the county of Goliad, and State of Texas, have invented a new and improved Sewing-Machine; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to improvements in sewing-machines, and has for its object to provide more useful and efficient machines than those now in use.

The invention consists in the combination and arrangement of the operating-devices, as hereinafter described.

Figure 1 represents a longitudinal sectional elevation of my improved machine;

Figure 2 represents a transverse sectional elevation, taken on the line $x\ x$ of fig. 1;

Figure 3 is a detail, showing a side elevation of the devices for operating the feed-device, and arranged to feed in either of two directions;

Figure 4 is an elevation of the same at right angles to the elevation of fig. 3, and partly sectioned;

Figure 5 is a detail, showing the shuttle and shuttle-carrying arm, and the crank and connecting-rod for operating it;

Figure 6 is a plan view of the feed-shoe;

Figure 7 is a detail, showing the arrangement for throwing the friction driving-wheel into gear or out of gear with the friction-wheel on the crank-shaft;

Figure 8 is a front elevation of the tension-device;

Figure 9 is a detail, showing the arrangement of devices introduced between the crank-shaft and the needle-arm for working the latter; and

Figure 10 is a sectional elevation of the needle-arm and cloth-presser support, showing the arrangement of the needle-arm and tension-spring.

Similar letters of reference indicate corresponding parts.

The treadle A is mounted adjustably on a frame, A^1, capable of supporting it in the same relative position to either side of the table, so that it may be changed from side to side, or to one end, as may be required in working the machine for feeding either way. It is connected to the rods of the said frame by a clamp, A^2, having curved recesses in the ends A^3, taking under the rod of the frame A^1, and fitting the curvature thereof. Above this curvature it rests on a fulcrum, A^4, and at the other end it is provided with a turn-button, which, after passing through a slot in the treadle, is turned transversely thereof and locked above the rod. The treadle is also provided with a semicircular recess, fitting and oscillating on it.

The treadle is jointed to a lever, A^6, pivoted at A^7, and connected to the lower end of a connecting-rod, A^9, at A^8.

This rod A^9 is connected to a crank-shaft, A^{10}, whereon is mounted a friction driving-wheel, A^{11}.

The shaft A^{10} is mounted on a frame, B, hinged at B^1 to the side of the frame, and connected at the other end, on the opposite side of the machine, to a bar, B^2, capable of rising and falling, and arranged above a cam-dog, B^3, arranged on an axle, and provided with a handle for turning it, to raise or lower it, and above the frame may be placed a spring, B^4, as seen in detail in fig. 7, Sheet II of drawings, for pressing it down.

The cam-dog is suspended by a hanger, B^5, from a bar, B^6, fixed to the side of the frame, and the spring B^4, when used, is arranged under this bar.

By turning this cam-dog into the position represented in fig. 7, the frame B will be raised, carrying the wheel A^{11} up into contact with the friction-wheel B^7, on the crank-shaft B^8, arranged under the table, parallel with the needle-arm support, and in the bearings B^9 and B^{10}.

This wheel B^7 clutches with a ratchet-clutch, B^{11}, connected to the shaft, so as to impart rotary motion to it, but capable of sliding on it to and from the wheel, and provided with a spring, B^{12}, to keep it up against the clutch on the wheel.

This arrangement is provided, so that if the driving-wheel is turned the wrong way, the clutches will slip, and will not turn the crank-shaft.

B^{13} is a balance-wheel on a crank-shaft, and B^{14} a friction-brake lever, pivoted at B^{15}, and provided with a rod, B^{16}, rising up to the under side of the table, through which a finger-stud, B^{17}, with a socket in the bottom for the reception of the upper end of the rod B^{16}, works, so that the operator may bring the brake into contact with the wheel at any time, by pressing down thereon.

This connection with the rod B^{16} is made to admit of raising the table, which is hinged at one side when required.

A jointed brace, B^{18}, and sleeve, B^{19}, are provided for holding the table when raised up. The ends of the jointed brace lap at the joint, and assume the same line when the table is raised up, so that the sleeve slides on the lapped ends, and holds them from turning back.

The crank c of the shaft B^8 is connected, by a connecting-rod, c^1, with a diamond-shaped plate, c^3, mounted on a rock-shaft, c^2, and a connecting-rod, c^4, connects this plate with the needle-arm c^5.

The connection of the rod c^4 with the wrist-pin of the plate c^3 is made by means of a double joint, so arranged that the rod may have oscillation in directions perpendicular to each other.

The needle-arm c^5 works in a hollow needle-arm upport, c^6, and is provided at one, or it may be both ides of its point c^7, with springs c^8, which have the ffect to prevent any pounding or jarring in arresting he motion of the needle-arm at the end of each move- nent, which might otherwise be the case, owing to he particular arrangement of the oscillating plate c^3, nd the connections therewith.

c^9 represents the vibrating thread-tension spring, ivoted to the needle-arm support at c^{10}, and connected o the needle-arm by the link c^{11}. The end projects hrough the slot in the end of the needle-arm support, nd is provided with a guide-eye, c^{12}.

c^{13} is a spring, which may or may not be used, but ntended more especially for use when the link c^{11} is ivoted, as shown at c^{14}.

The shuttle-carrier D is a curved arm, forked at the pper end, and fitted at the lower end loosely on the xle D^1. It is worked by a crank, D^2, in the shaft B^8, nd a connecting-rod, D^3. The latter is made in two qual parts or halves, and fastened together by a sin- le screw. This construction allows the same to be uickly attached and removed.

D^4 is the shuttle, which is supported with its open ace, as seen in fig. 5, against the plate D^5, by the forks D^6 of the arm D, so that the thread of the needle asses between the said forks and the back of the huttle.

The face of the plate D^5 is provided with a vertical roove for the needle opening to the face of the shut- le, as shown in fig. 4, at D^7, and in fig. 1, so that the oops from the needle project out of the said recess eyond the point of the shuttle.

The tension for the shuttle-threads is produced by a spring, D^8, bearing on the end D^9 of the bobbin, and djusted by a set-screw, D^{10}, passing through the up- er side of the shuttle, and guarded, so as not to catch he thread, by curved wire guard, D^{11}. This screw may be reached, for adjusting it, by a screw-driver, hrough the slot in the table, covered by a slide, D^{12}.

E is the feed-shoe. It is mounted on a vertical bar, E^1, supported on its carrier, E^2, so as to slide up or own thereon, for adjustment as to height. It is lotted at E^3, and slides on a pin, E^4. It is supported ertically on a two-leaved spring, E^5, pivoted at E^6 to he carrier E^2, and arranged to bear the lower leaf, on a cam, E^7, on the shaft D^8.

The upper leaf, to which the said vertical plate is irectly connected at its lower end, is supported above he lower one by an adjusting-screw, E^8, screwed hrough the upper leaf, and on to the lower one. By urning this screw one way or the other, the feed-dog may be adjusted higher or lower.

The carrier E^2 is curved, from a point a little below he set-screw E^4, to the left, around the cam-shaft, as learly shown in fig. 3, to the shaft D^1, directly below he said cam-shaft. Here it is joined to a curved arm, F, projecting at equal distances from the said shaft, nd provided with notches F^1 in the ends.

In front of this carrier is an inverted **V**-shaped frame, F^2, pivoted at F^3 to a vertically-sliding bar, F^4, working up and down on the bracket F^5, and this bar is confined to the said bracket by a pin, F^6, projecting through a slot in the bracket.

This sliding bar F^4 comes in contact, at its foot, with eccentric cam F^7; also, on the shaft B^8, which throws simultaneously with the cam E^7.

The lower ends of the arms of the frame F^2 are con- nected by a curved bar, F^8, provided with a stud, F^9, projecting through the bottom F^{10} of the case.

The arms F^2 are provided, a short distance above the bar F^8, with stud-pins H, permanently attached, and projecting from each side. On the rear side these pins have heads, standing about the distance of the thickness of the bar F from the arms F^2.

On the front side of these arms F^2 is a spring, H^1, fixed to the shaft D^1, and projecting each way from the shaft a little further than the arm F. Each end is bent into the **V**-form, shown at H^2, and presses upon the front projections of one of the stud-pins H.

By means of this frame, the slide F^4, cam F^7, and a bent adjusting-arm H^3 H^4, pivoted to the under side of the table at H^5, and provided with an adjusting- screw, H^7, the feed-shoe is operated to feed in either direction, and the amount of feed adjusted as required, in the following way:

The inverted **V**-shaped frame F^2 may be moved on the axis F^3 so as to bring either of the pins H into its respective notch on the end of the plate F, where it is held by the bent **V**-shaped ends of the spring H^1, which springs over the pin, the other pin at the same time escaping from its notch and from the spring, when that side so engaged with the arm F, (which, as shown in the drawings, fig. 3, in the right side,) will, on being raised by the cam F^7, and slide F^4, raise that end of the curved bar F, oscillating it on the axis D^1, throwing the feed-shoe to the left. The said shoe is also raised at the same time, to bring it into contact with the cloth, by its cam E^7 and slide E^1.

If it be required to feed in the opposite direction, the inverted **V**-shaped frame F^2 is moved to the right, to disengage the pin at the right with the bars F^2, and engage the other pin at the other end; then, when the said frame is raised, the shoe will be moved to feed to the right.

The amount of the movement of the feed-shoe is governed by the bent arm H^3 H^4, the part H^3 of which takes under the stud-pin F^6, and arrests it in the downward movement a greater or less distance from the cam F^7, which correspondingly limits the oscilla- tion of the bar F and the throw of the feed-arm E^2.

The height of the feed-shoe, or the vertical move- ment thereof, is not dependent on the movement of the arm F.

The presser I slides in a vertical slot in the head of the needle-arm support, and is provided with a rod, I^1, and passing through a hole above the same to the top, where a square socket, I^2, is formed.

I^3 is a square finger-piece attached to the said rod, and fitting in said socket, and which is capable of turning when raised out of the socket. When so turned, it will rest on the top walls of the socket, and in this way the presser is held out of action, when re- quired, against the action of the spiral spring I^4, in the socket which presses it down.

K is a tension-spring, provided with the vertically- projecting ends, having points K^1, for taking into the hole in the bobbin at each end, and having a right- and-left threaded screw, K^2, for moving the said points to or from each other. The lower part of the springs is connected at K^3 to the needle-arm support, and the screw is provided with a disk, K^4, working in a grooved friction-block, K^5, to prevent it from being turned by the jarring of the machine.

L represents a spooling-device, consisting of a stock projecting through the table, and supporting a grooved pulley, L^1, at the bottom, and another, L^2, at the top. The upper pulley has a spindle, to which the spool L^3 may be connected by one end, so as to be turned by it, the other end being supported in an arm, L^4, of the stock. A cord is fixed on the grooved pulleys, and the lower one is allowed to rest on the friction- wheel B^7, which may be worked in the direction to slip the clutch B^{11} for spooling.

When the spooling-device is not required for use, it may be raised out of contact with the wheels B^7.

Having thus described my invention,

What I claim as new, and desire to secure by Let- ters Patent is—

1. The combination of the treadle A and clamp A^2

with the frame, so that the treadle may be adjusted to either side or one end of the table, according to the direction of the feeding-movement, substantially as specified.

2. The arrangement of the hinged supporting-frame B, the cam-dog B^3, and the spring B^4, substantially as specified.

3. The combination and arrangement of the vertically-adjustable driving friction-wheel A^{11}, loose friction-wheel B^7, ratchet-clutch B^{11}, spring B^{12}, fly-wheel B^{13}, friction-lever B^{14}, rod B^{16}, and finger-presser B^{17}, all substantially as specified.

4. The combination, with the shuttle, of the tension-spring D^8, set-screw D^{10}, and guards D^{11}, when arranged substantially as specified.

5. The combination of the feed-shoe E, vertically-sliding plate E^1, adjusting-spring E^5, set-screw E^3, carrier E^2, and cam E^7, all substantially as specified.

6. The combination, with the feed-carrier E^2 and notched bar F, of the inverted V-shaped frame F^2, stud-pins H, spring H^1, vertical slide F^4, and cam F^7, all substantially as specified.

7. The combination, with the vertical slide F^4 and stud-pin F^6, of the bent arm H^3 H^4, and adjusting-screw H^7, substantially as specified.

8. The combination, with the tension-spring K, provided with the points K^1, arranged connected to the needle-arm support, as described, of the right-and-left threaded screw K^2, disk K^4, and friction-block K^5, substantially as specified.

9. The spooling-device L, consisting of the vertical stock, arm L^4, grooved pulleys L^1 and L^2, and arranged relatively to the table and friction-wheel B^7, all substantially as specified.

The above specification of my invention signed by me, this 17th day of July, 1869.

P. J. CLEVER.

Witnesses:

A. M. WIGGINSON, Sr.,

L. A. HARTZE.