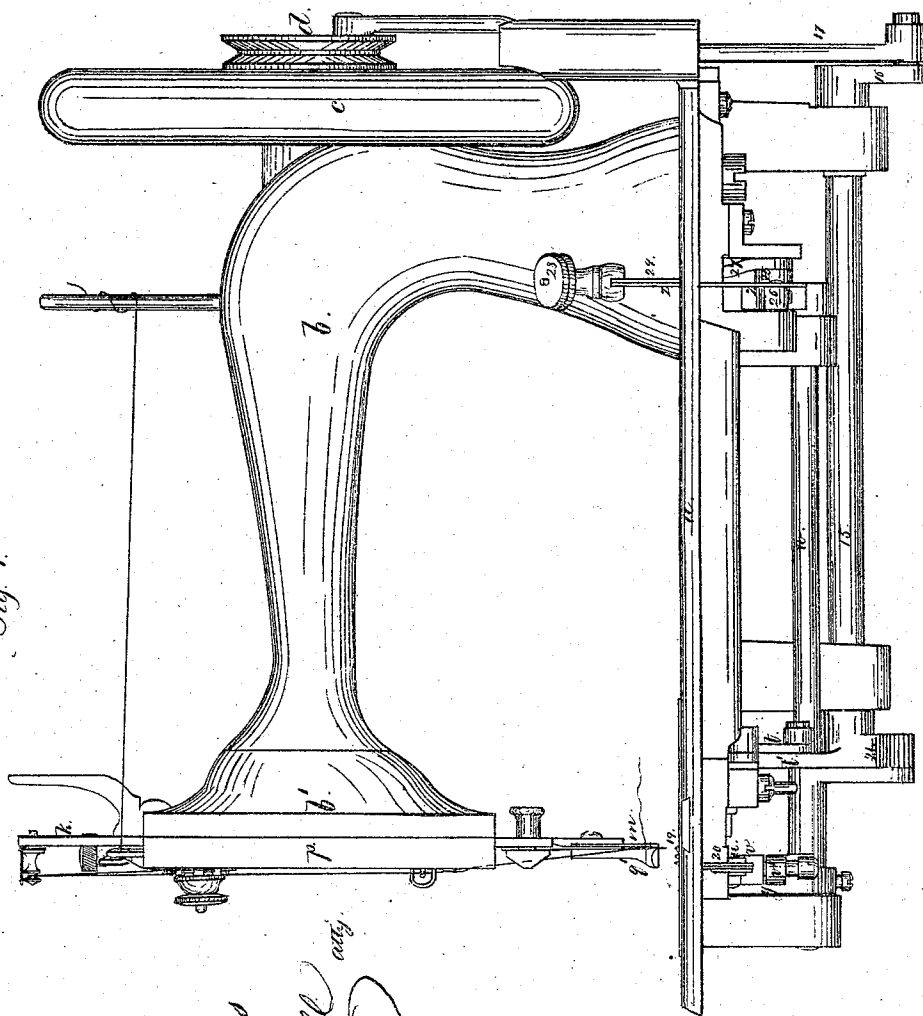


John F. Jones. Improvement in Sewing Machines.

PATENTED AUG 1 1871

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Fig. 1.



John F. Jones
L. W. Lovell *att'y*

Milwaukee,

Chas. H. Smith
Geo. Draper

Jones. Sewing Machine.

Sheet 2.

14 Sheets

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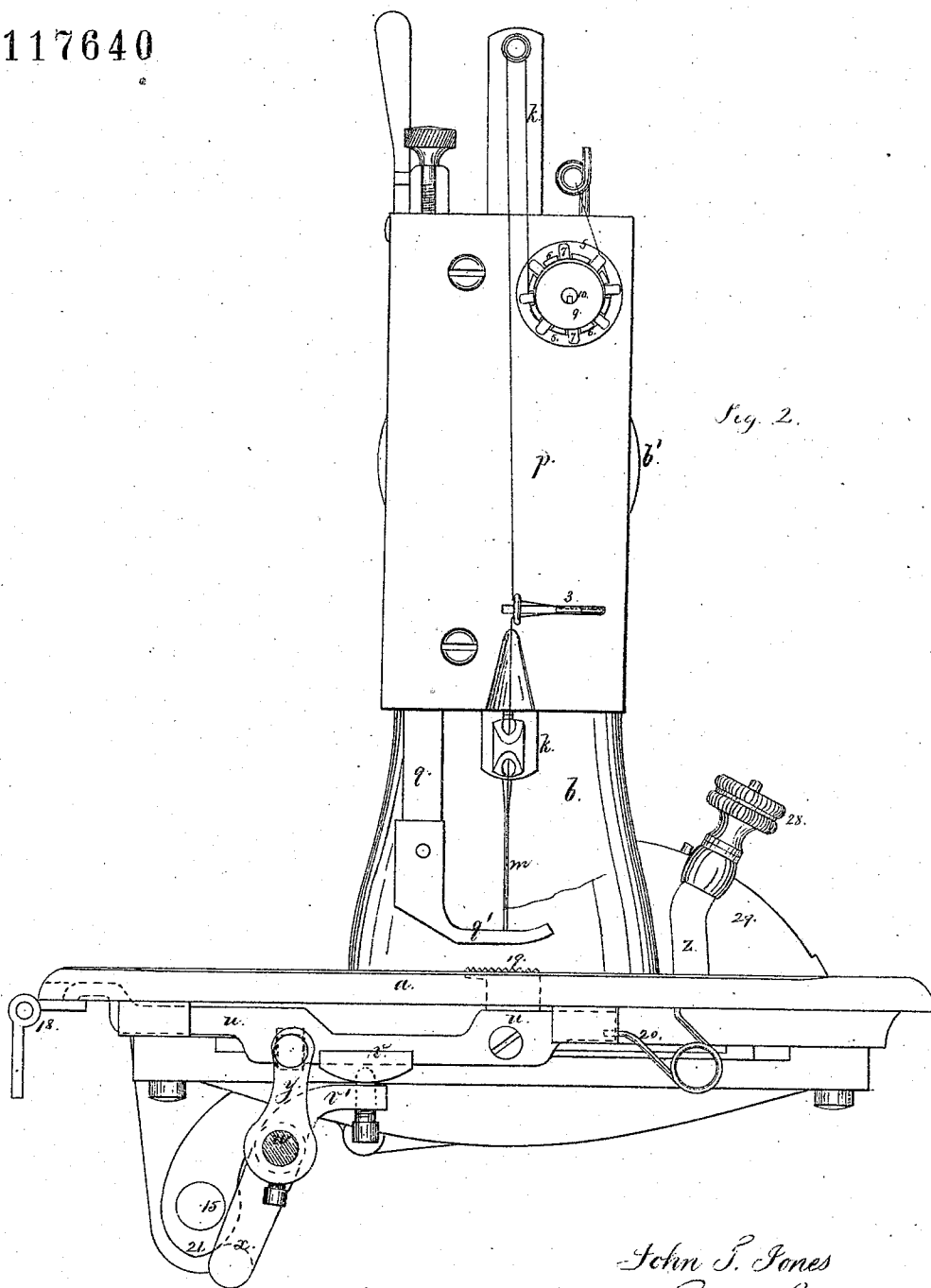


Fig. 2.

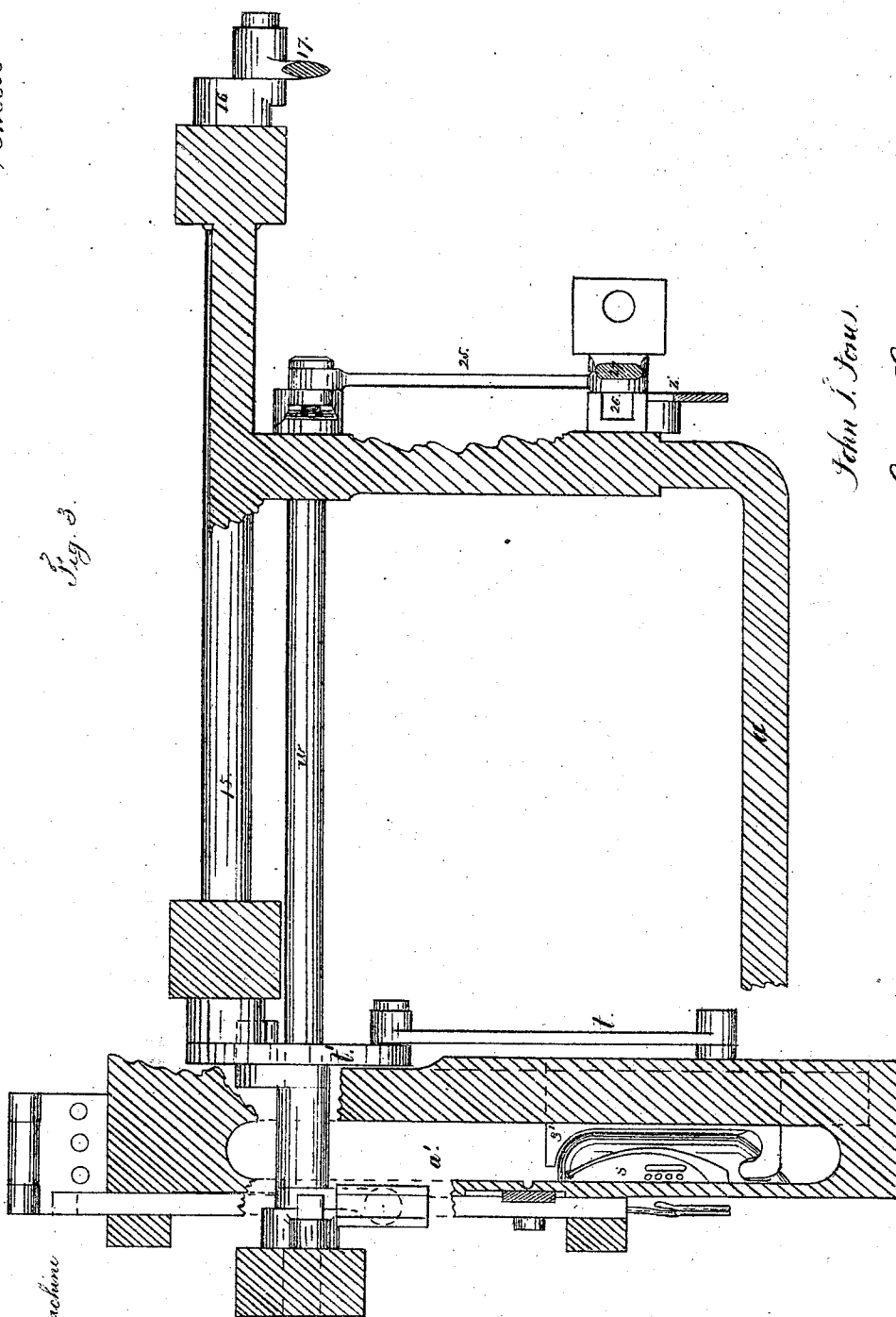
Witnesses,

John S. Jones

L. W. Serrell atty.

Geo. A. Warner

Fig. 3.



Sewing Machine
Sheet 3.

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John J. Jones.

L. M. Lowell

att'y.

Witness,
Chas. H. Smith
Geo. W. Macken

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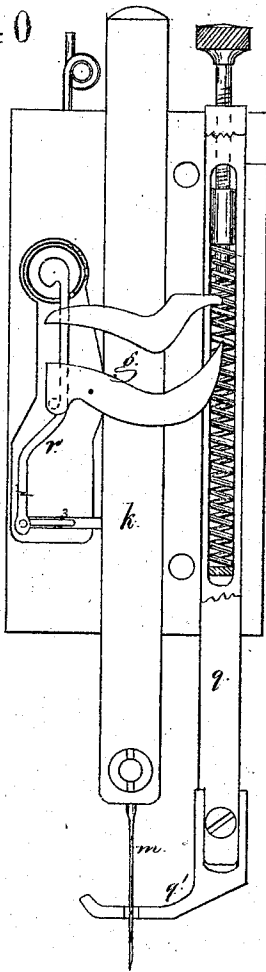


Fig. 6.

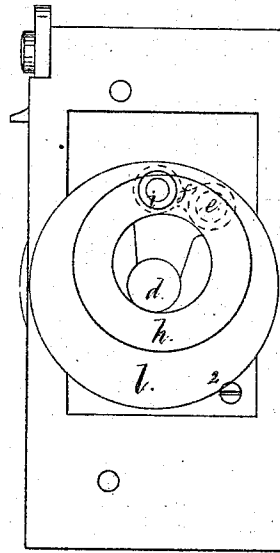


Fig. 5.

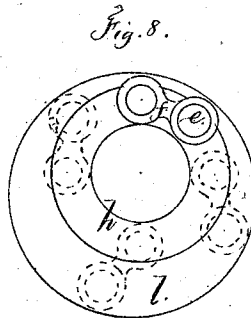


Fig. 8.

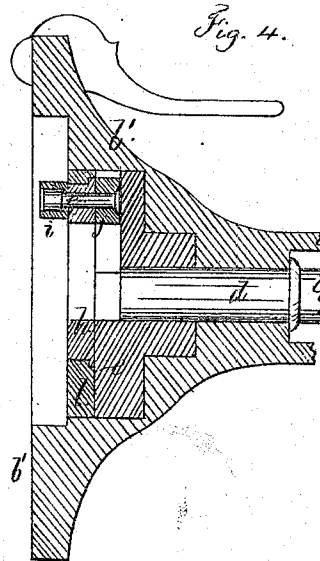


Fig. 4.

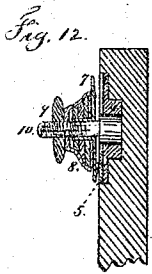


Fig. 12.

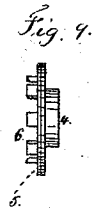


Fig. 9.

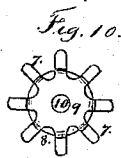


Fig. 10.

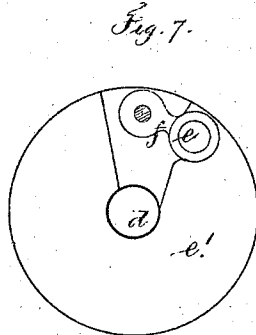


Fig. 7.



Fig. 11.

Witnessed,

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L. M. Serrell
Geo. H. Smith
Geo. A. Warner

UNITED STATES PATENT OFFICE.

JOHN T. JONES, OF ILION, NEW YORK.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 117,640, dated August 1, 1871.

To all whom it may concern:

Be it known that I, JOHN T. JONES, of Ilion, in the county of Herkimer and State of New York, have invented an Improvement in Sewing-Machines; and the following is declared to be a correct description of the same.

I make use of an eccentric intermediate between the revolving shaft and needle-bar or arm, said eccentric intermediate receiving its motion from said shaft and being differential in consequence of the eccentricity, and hence moving faster during part of its revolution and slower during another part of its revolution than the motor-shaft, and this intermediate acts upon a cam upon the needle-bar or arm, so that the movement of the needle is accelerated in its upward and downward movement and pauses while in the cloth to allow the proper movement of the shuttle. The feeding mechanism consists of a rocking shaft that communicates the reciprocation horizontally to the feeding-bar, and this bar slides in a shoe connected by a screw to an arm upon a sleeve around the rock-shaft, and this arm receives motion from a cam upon the rock-shaft that drives the shuttle so as to strike the feeding-points up into the cloth at the proper time. The thread-tension is made with a clamp of peculiar character, which does not confine the two or more coils upon each other, thereby there is not any change in the tension in consequence of the last coil of the thread being partially beneath one of the other coils, as the thread is liberated from the pressure of the clamp previous to passing off toward the needle.

In the drawing, Figure 1 is a side elevation of the machine. Fig. 2 is an elevation at the end of the arm and bed. Fig. 3 is a plan, with the table portion of the bed removed and the other portion in section. Fig. 4 is a section of the end of the standing arm and intermediate. Fig. 5 is a face view, with the cap at the end of the arm removed. Fig. 6 is an elevation of the back of said cap with the needle-bar and presser-foot. Fig. 7 is the disk at the end of the shaft; Fig. 8, the intermediate, and Figs. 9, 10, 11, and 12 are detailed views of the revolving thread-tension clamp.

The bed *a* of the machine and the arm *b* are of any suitable character, and adapted to the other parts of the machine. *c* is the fly-wheel upon the motor-shaft *d*, mounted in any usual manner, and carrying at the end near the needle-bar a

crank-pin, *e*. I have represented this crank-pin as upon a disk, *e'*, with a link, *f*, to the eccentrically-placed intermediate *h* that transmits motion through the roller or stud *i*, acting in the cam *g* upon the needle-bar or arm *k*. The movable ring *l*, introduced in the head *b'* of the arm *b*, forms a bearing for the intermediate *h* to revolve within, and allows of access to the disk *e'*; but when this ring is inserted and properly positioned it is to be held firmly in place, which may be effected by the screw 2. It is now to be understood that the intermediate *h* does not revolve at a uniform speed with the shaft *d*, but is accelerated and retarded by the eccentricity of *h* to *d*, as illustrated in Fig. 8, the swinging of the link *f* causing a retardation of the intermediate, and afterward a proportionate acceleration, as the circles described by the respective connections approach each other. The same character of movement would be given to the intermediate *h* if it were provided with a radial slot for the crank-pin *e*. The differential movement aforesaid is communicated to the needle *m* through the bar or arm *k* and the cams *g*, and the shape of these cams is to be such as to give the proper pause or dwell to the needle while in the cloth after rising to form the loop of needle-thread for the shuttle to pass through, and as the needle-thread is drawn up the shuttle-thread is also drawn up by the movement of the parts so as to cause the threads to tighten equally and properly; the feeding of the fabric, as hereafter described, takes place at the same time. The cap or face-plate *p* for the end or head *b'* of the arm *b* is made to receive the needle-bar *k* and also the bar *q* and spring of the presser-foot *q'*, and said cap is also recessed for the reception of the spring-lever *r*, the hook 3 of which projects through a slot in said face-plate to take up the slack-thread. In this manner the lever of the take-up hook is concealed under the face-plate and out of the way of injury. Upon the outside of the face-plate *p* is the revolving thread-tension clamp, made of the short cylinder 4 having a cloth or yielding face, 5, and a notched barrel, 6, around which the thread is wound. The clamping fingers 7 project from a wheel behind the conical body 8, and pass into the slots or notches of the barrel 6 so as to press the thread to the face 5, and the force with which the pressure is maintained is the screw-nut 9, cone 8, and washer, of cloth or similar material, within said cone 8. If

the fingers 7 pressed upon the thread while around 6 with equal force at all points, and one coil of thread lies upon another, it will be obstructed in drawing off; hence the tension will be unequal at different times. I prevent this difficulty by inclining the axis 10 of the finger-wheel 7 so as only to press upon the thread at one side of such wheel 7, and the inclination is such that the thread is not pressed upon as it commences to coil around the barrel 6, nor as it leaves the same; hence the coils are not held in a position lapping each other, but are free to draw off; hence the tension is maintained uniformly. The shuttle *s* is fitted in any usual manner to be moved by the driver *s'* in the race-way *a'* of the bed *a*. The link *t*, crank-arm *t'*, shaft 15, crank 16, and link 17 to a crank-pin upon the fly-wheel form a convenient means for moving the shuttle. The feed-bar *u* slides at one end between the hinge 18 and bed *a*, and at the other end the roughened surface or feeding-points 19 are formed, and 20 is a spring tending to keep the bar down into the shoe *v* that is at the end of an arm, *v'*, and to which arm said shoe is connected by a screw so that the parts may be adjusted to project the feeding-points more or less through the bed *a*. The arm *v'* is upon a sleeve around the shaft *w*, and upon said sleeve is a crank and roller, *x*, to a cam, 21, upon the shaft 15, (or preferably said cam is upon the hub of the crank *t'*), so that, at the proper time, the crank *x* causes the shoe *v* to press the feed-bar up to the cloth and afterward allows the spring 20 to throw the feed down. The reciprocation of the feed-bar *u* is effected by the arm *y* upon the shaft *w*, and to this shaft *w* a rocking movement is given by the link 25 and block 26 sliding in a groove in the lever *z*, and operated by a link, 27, to a cam or eccentric upon the shaft *d*. The lever *z* can be turned and held by a clamp-screw, 28,

upon the segment 29, so as to place the groove for the block 26 at a greater or lesser inclination to the arc described by the end of the link 25; hence the sliding of said block in the groove will give greater or lesser endwise motion to the link 25 and a longer or shorter feed-motion and stitch. The crank-pin *e* may be placed nearer to the shaft *d* so as to describe a smaller circle than the intermediate *h*, and hence the movable eccentric ring *l* may be dispensed with, the bearing for the eccentrically-placed intermediate *h* being made directly in the end *b'* of the arm *b*.

I claim as my invention—

1. The eccentrically-placed intermediate, between the motor-shaft and the cam, in combination with said cam, roller, and needle-bar or arm, substantially as specified, to communicate a differential movement to the needle, as specified.

2. The thread-tension clamp, made of two parts revolving together but at an inclination to each other, and provided with the notched barrel and fingers, as and for the purposes set forth.

3. The adjustable shoe *v*, in which the feed-bar *u* slides, in combination with the arm *v'*, sleeve, and crank *x* acted upon by the cam 21, as and for the purposes set forth.

4. The shaft *w* and arm *y* to the feeding-bar *u*, in combination with the arm *v'* and crank swinging upon said shaft *w* to press the feed-bar up to the cloth, substantially as set forth.

5. The rocking-shaft *w*, links 25 and 27, block 26, and lever *z*, with a slide for the said block 26 and the clamping-screw 28, the parts being constructed and arranged as and for the purposes specified.

Signed by me this 8th day of May, A. D. 1871.

Witnesses:

JOHN T. JONES.

WM. P. BOWLES,
ED BARRENLOUGH.