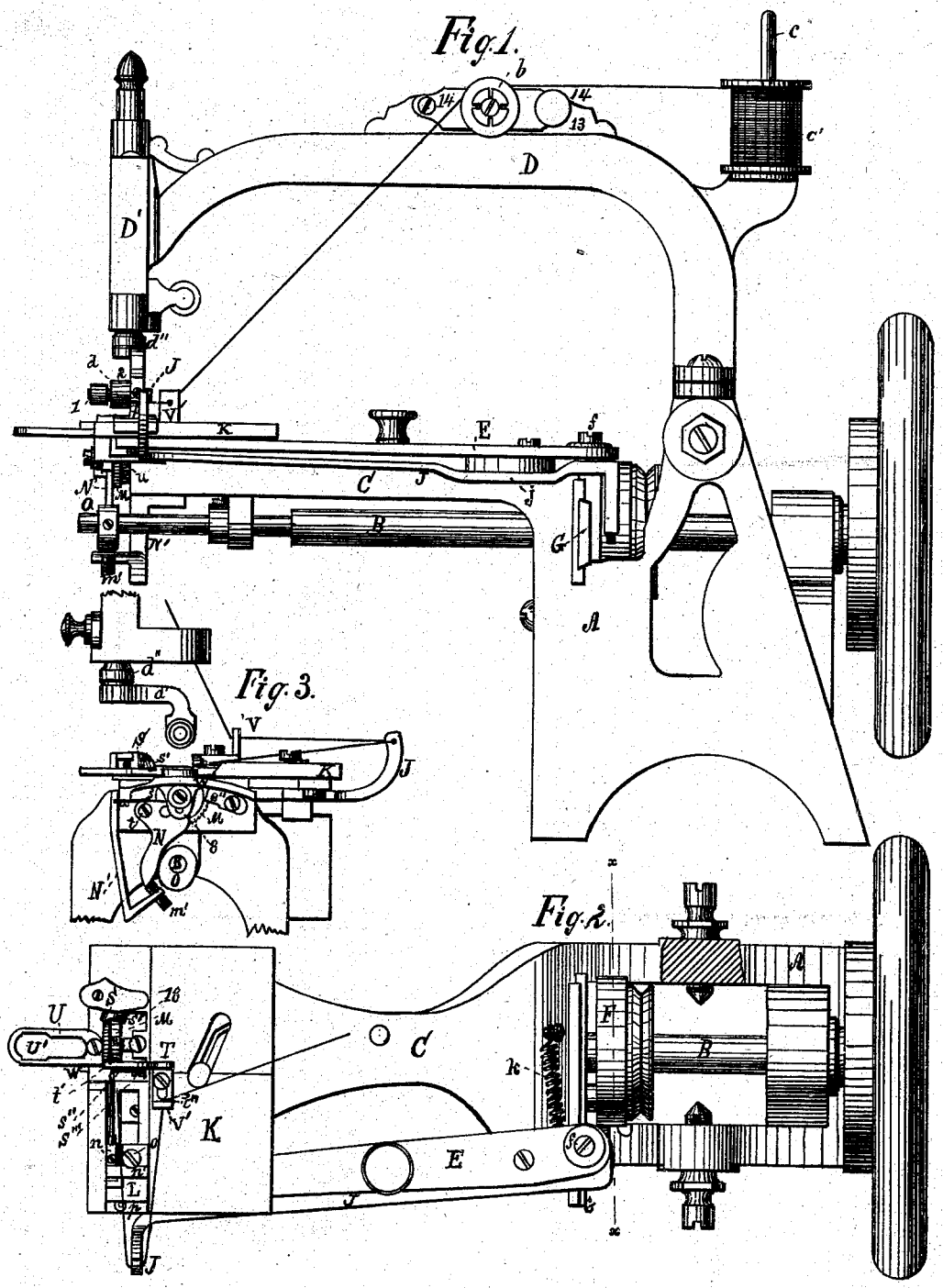
2 Sheets—Sheet 1.

J. O'NEIL.

MACHINE FOR SEWING STRAW BRAID.

No. 186,434. Patented Jan. 23, 1877.

Fig. 1.



Witnesses:

Theodore Foster.

B. B. Clark.

Inventor

John O'Neil

By L. P. Ford

his Atty

J. O'NEIL.

MACHINE FOR SEWING STRAW BRAID.

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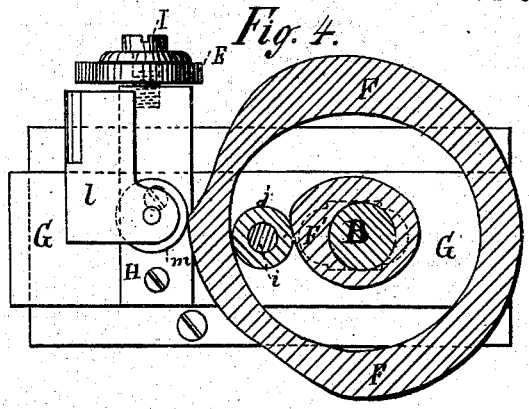
Fig. 4.



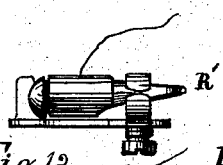


Fig. 12.

Fig. 8.

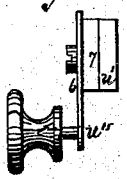


Fig. 8½.

Fig. 7.

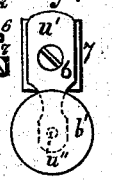
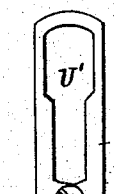


Fig. 7½.



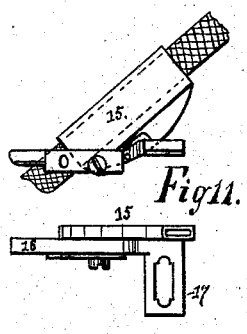


Fig. 11.

Fig. 10.

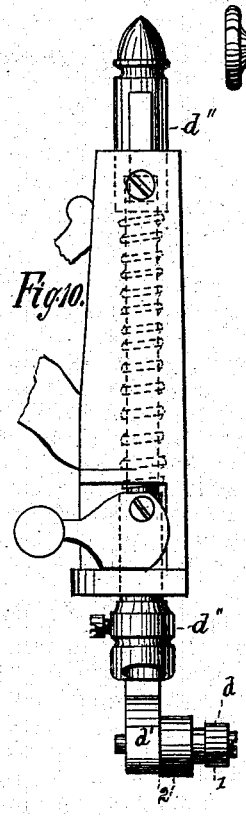


Fig. 5.

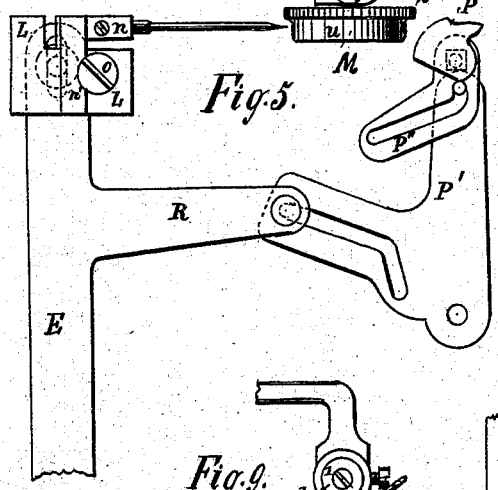


Fig. 6.

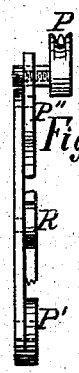


Fig. 9.

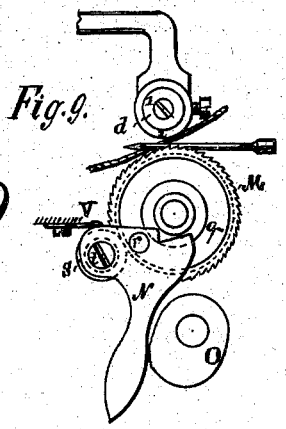


Fig. 9½.

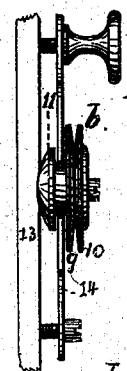
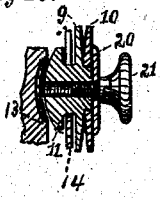


Fig. 13.



Witnesses:

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B. S. Clarke.

Inventor:

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By J. P. Lesick

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UNITED STATES PATENT OFFICE.

JOHN O'NEIL, OF NEW YORK, N. Y.

IMPROVEMENT IN MACHINES FOR SEWING STRAW BRAID.

Specification forming part of Letters Patent No. **186,434**, dated January 23, 1877; application filed April 15, 1876.

To all whom it may concern:

Be it known that I, JOHN O'NEIL, of the city of New York, county and State of New York, am the inventor of a new and useful Improvement in Sewing-Machines for Sewing Straw Braid, of which the following is a specification, reference being had to the accompanying drawings, forming part of the same.

Figure 1 is a side elevation of a sewing-machine containing my invention. Fig. 2 is a plan, and Fig. 3 is a front-end view of same. Fig. 4 is a section on line *x x*, Fig. 2. Fig. 5 is an upper face view of a broken portion of the needle-bar, and of the levers connected therewith, whereby the hook for forming the stitch is vibrated. Fig. 6 is an edge view of the same. Figs. 7 to 13, inclusive, are detailed views of parts of my machine, to be particularly described presently.

My invention relates to that class of sewing-machines designed to sew straw braids; and consists in the devices and their combinations, hereinafter described and claimed.

A is a frame, upon which the working parts of my machine are mounted. B is the main shaft, by which motion is communicated to the several working parts. C is a table, projecting forward from the frame, and upon the outer end of which are mounted the sewing movements. D is an arm, occupying the place of the needle-arm in the ordinary sewing-machine. In mine it carries only the upper feed-rollers *d*, the tension device *b*, and rod or wire *c*, for holding a spool. E is the needle-bar, pivoted on the frame at *f*, and actuated by the cams F F′ on the shaft B through the following intermediate devices—namely, the sliding plate G, to which is secured the bar H, the screw I, passing through a slotted hole near the end of the said needle-bar E into the said bar H, and the stud *i*, on which is a friction-roller, *j*, the said roller just filling the space between the two cams—whereby a reciprocating motion is given to said plate by the revolving of said cams, thereby vibrating the said needle-bar E. J is the take-up or arm for taking up the slack of the thread. It is pivoted on the frame just under the needle-bar E. It is actuated by the peripheral surface of the cam F and the spring *k*, an arm, *l*, extending down from the rear end of the said take-up, carrying the friction-roller *m*, which impinges upon the periphery of said cam, as seen plainly in Fig. 4. This cam gives the take-up a positive motion on its pivot in one direction, and the spring *f* keeping the roller *m* in contact with the cam, and thus vibrating it in the opposite direction. Upon the outer end of the table C is secured a face-plate, K, upon which several of the working parts immediately employed in the operation of sewing are mounted. L is the needle-carrier plate, the needle-carrier *n*, which slides in a groove in L, and is secured by the screw *o*, whereby the needle has a slight lateral adjustment. The plate L is actuated by the needle-arm E, it being connected to said arm by a screw through a slotted hole in the forward end of said arm, and an opening in the plate K. The needle-plate slides in a broad channel or groove, *p*, made in the face of the plate K. M is the feed-wheel, to which motion is communicated by the lever N, actuated by the cam O on the shaft B. The feed-wheel is provided on its outer side face with an annular groove, *q*, into which a stud, *r*, projects from the lever N, and *s* is a roller upon another stud or arm, secured to the said lever N by the screw *t*. The stud *r* impinges against the outer wall of the annular groove *q*, and the roller *s* against the smooth surface *u* of the feed-wheel, thereby carrying said wheel forward when the lever N is swung to the left, Fig. 9, and permitting said lever to swing back again, which it is caused to do by the spring V, Fig. 9. *e″*, Fig. 3, is a spring-brake, which, pressing upon the side of the feed-roller, prevents its backward movement during the reverse movement of the lever N.

d is the pressure feed-roller, made in two parts, one part (1) being of less diameter than the other, (2,) the part 1 being designed to press the braid in the act of feeding upon the rough surface 3 of the feed-wheel, and the part 2 to press it farther down upon the smooth surface *u* of the same. The pressure feed-roller revolves on an axis which is secured to the curved arm *d′* upon the rod *d″*, which has a vertical and rotary movement in the head D′ on the end of the arm D, in

the usual way. P is the hook, which, pivoted in the plate K, is vibrated by means of the levers P′ and P″, the lever P′ being actuated by the arm R on the needle-bar E, as plainly shown in Fig. 5.

S, Fig. 9½, is a guide-plate secured to the face-plate K, immediately over the hook P, and has a short notched or forked arm or projection, *s′*, extending down to near the upper surface of the feed-wheel M. The purpose of this guide-plate will be presently described.

T is a needle-guide. Its long arm *t′* extends across in front of the point of the needle, and has an aperture through which the needle passes. On the side of this arm toward the needle is an adjustable plate, *s″*, secured by a screw, *s‴*. The plate *s″* has a hole in its end, somewhat elongated vertically, through which the needle passes. The screw *s‴* passes through a slotted hole in the plate *s″*, so that said plate may be adjusted on the arm *t′* to the needle. The hole in the short arm *t″* of said needle-guide, through which passes the screw that secures it to the plate K, is slotted, so that the needle-guide T may be adjusted to or from the feed-roller M.

N′ is an arm, in the lower bent end of which is a set-screw, *m′*, which serves to limit the movement of the lever N, and thereby regulate the feed. U is a guide-plate, secured to the curved plate W, immediately in front of the feed-roller. It has a wide slot or opening, U′, the same being widest at the outer end, as shown in the drawings, Figs. 2 and 7½. Into this opening is fitted a sliding block, *w′*, Figs. 7, 8, and 8½, provided at its inner end with a slight pointed stud, *w″*. This block is so constructed that it may be inserted in, and will slide back and forth in, the opening U′. The block is introduced into the said opening by inserting the upper plate 6 up through the wide part of the opening U′, and then pushing the block into the narrow part of the said opening, there being a groove on the sides of the block, between the upper plate 6 and lower plate 7, with which the edge of the narrow part of the opening U′ takes. The purpose of this block and roller will be presently stated in the description of the operation of the machine. W is a curved bed-plate, secured to the end of the table C, underneath the plate K, depending from which is a short arm, 8, in which is one of the bearings of the feed-wheel M, and said feed-wheel projects upward through an opening in said curved plate. *b* is the tension apparatus. It is shown on an enlarged scale in Fig. 13. It consists of the two disks, 9 and 10, commonly used. But 9, instead of being a plain disk, has connected with it a broad convex-faced head, 11, with a neck between the head and disk. It is mounted on the arm D by means of a spring-plate, 14, secured to the said arm, and having a notch in its upper edge, into which fits the neck of the disk 9. The curved head 11 fits into a concave seat in the projection 13 on the arm D, and between the head and seat may be placed a friction-pad, of felt, rubber, or other suitable material which will give a smooth, even friction. 21 is a thumb-screw, and 20 a spring-washer, which serve to regulate the pressure together of the two disks. 14 is the leaf-spring plate, secured at each end to the projection or plate 13, and having a notch in the center, into which fits the neck of the disk 9, whereby an adjustable pressure is given to the head 11 against its padded seat. The thread is to pass between the disks, whereby the movement of the thread will revolve the disks when the friction between the head 11 and its seat will make the requisite tension.

Fig. 12 represents a shuttle, designed to take the place of the hook P when it is desired to sew with a shuttle-stitch. It is formed with a hook, R′, on one end, by which the loop of the upper thread is picked up, the same as by the hook P.

The operation of this machine is as follows: The end of the braid to be sewed is first coiled around upon itself, in the usual way, and the coil is then laid upon the feed-roller, so that the upper layer of the coil will rest upon the rough surface 3 of said roller, while the lower layer rests upon the lower smooth surface *u*, Fig. 7½. The said lower layer, or the braid as it comes into the machine, will, at the right of the feed-roller, rest on the needle-guide T, while the larger part 2 of the pressure-roller *d* will press the braid to the left of said needle-guide, down below the track of the needle, so that the needle will pass through the said braid, and also into or through the upper coil or layer of the braid, which is resting on the rough surface 3 of the feed-wheel, immediately upon the lower layer. In commencing to sew the braid for a hat at the center of the crown, after the first coil has been made, it may, for convenience, be placed upon the pointed stud *w″* in the guide *w′*. The said guide, being placed in the opening in the plate U, will slide outward in said opening as the sewing proceeds and the coil enlarges. The plate U may be made of any desired length, so that the coil of braid, if preferred, remains revolving on said stud *w″* during the entire sewing of the crown of the hat. When the guide *w′* reaches the outer end of U it will drop out of the enlargement of the opening U′, as shown in Figs. 2 and 7½. The needle-thread delivered from the spool *c′* passes over the tension device *b*, through their apertures in the post V′ and the tension-lever J, and thence to the needle, the said lever J being so actuated by the cam F and spring *k* that the slack of the needle-thread is properly taken up, and has given to it the requisite tension.

The general construction and movements of this machine, as shown in the drawings, be-

yond those above described, being analogous to those in machines in use, it is not necessary to particularly describe them.

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

1. The combination, in a sewing-machine, of the feed-wheel M, one part, *u*, of which has a smooth peripheral surface, and is of less diameter than the other (rough-surfaced) part, 3, and the pressure-roller *d*, formed in two parts, 1 and 2, the part 1 being of less diameter than the part 2, the whole constructed to operate as and for the purpose described.

2. The combination, in a sewing-machine, of the feed-wheel M, provided with two faces, 3 and *u*, and pressure-roller *d*, formed of the two parts 1 and 2, with the guide T, guide-plate S, and face-plate K, all constructed to operate as and for the purpose described.

3. The tension device composed of the disk 10 and disk 9, the latter being provided with a broad convex-surfaced head, 11, fitting into a concave depression in the plate 13, the spring-plate 14, and adjusting-screw 21, all combined and arranged to operate substantially as described.

4. The combination, in a sewing-machine, of the hook P, the levers P′ and P″, the needle-bar E, provided with the arm R, the cams F and F′, the stud *i*, roller *j*, sliding plate G, and bar H, all constructed to operate as and for the purpose described.

In witness I have hereto set my hand this 23d day of March, 1876.

JOHN O'NEIL.

Witnesses:

A. S. FITCH,

THEODORE HOSTER.