2 Sheets—Sheet 1.

A. J. SEDMIHRADSKY.

Machine for Sewing Straw-Braid.

No. 196,486. Patented Oct. 23, 1877.

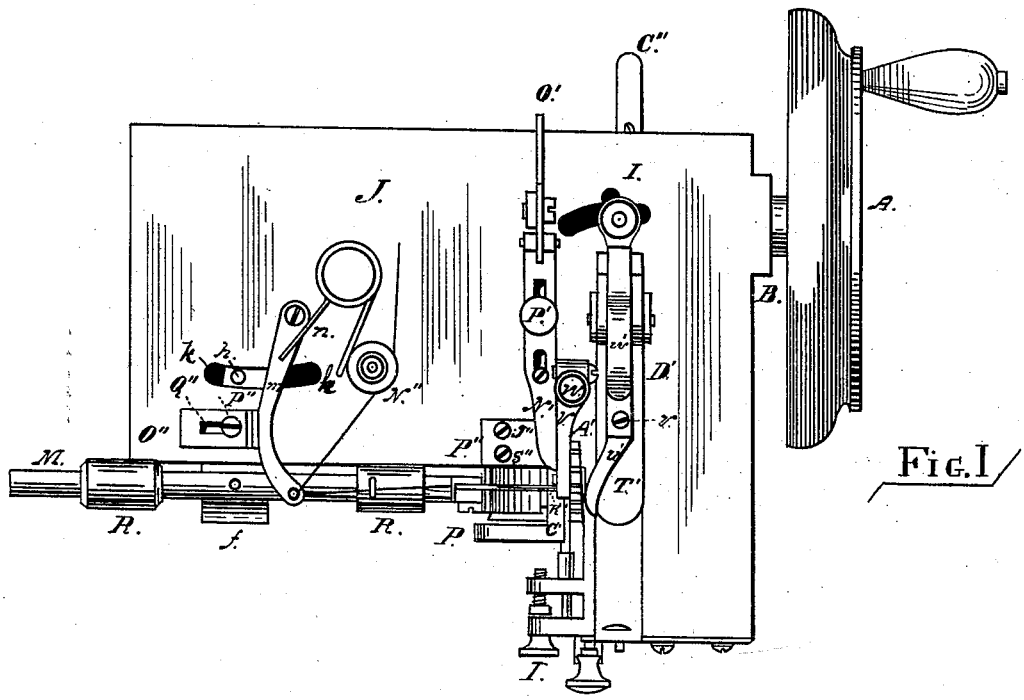

Fig. 1

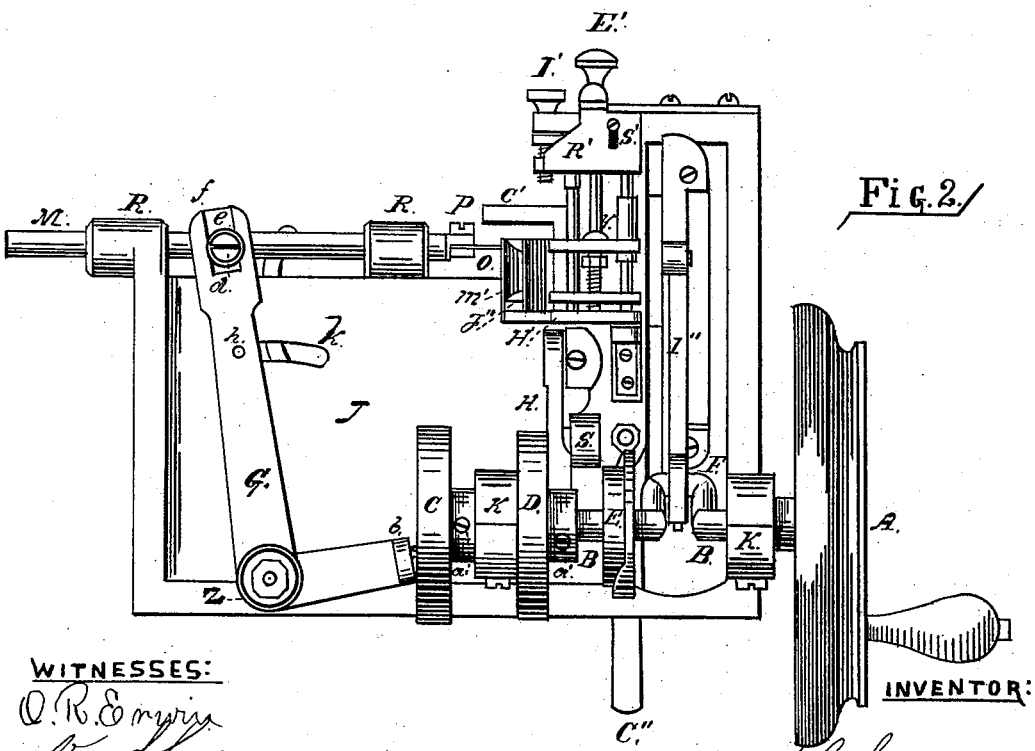

Fig. 2

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2 Sheets—Sheet 2.

A. J. SEDMIHRADSKY.

Machine for Sewing Straw-Braid.

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Fig. 3.

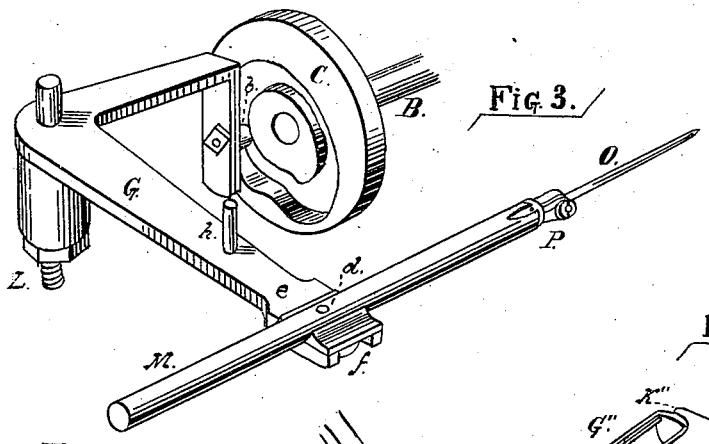


Fig. 6.

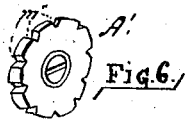


Fig. 5.

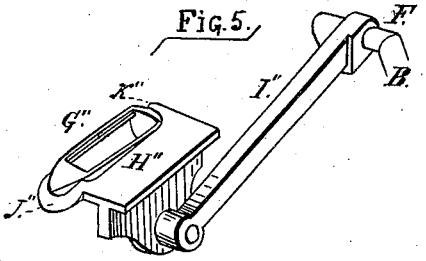
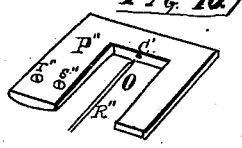


Fig. 10.



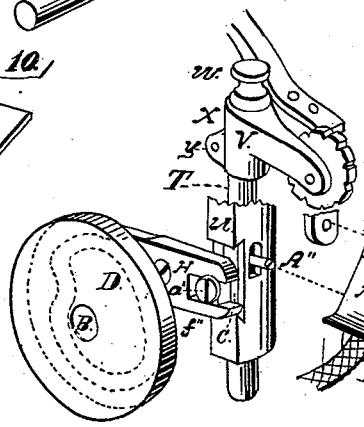


Fig. 4.

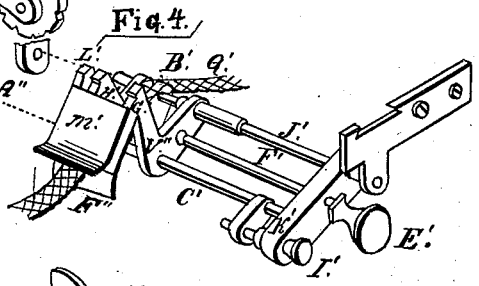


Fig. 9.

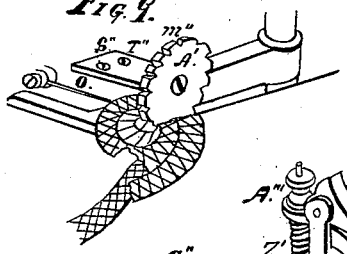


Fig. 8.

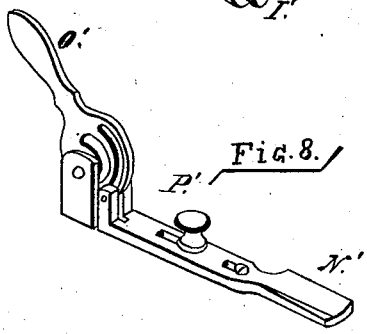
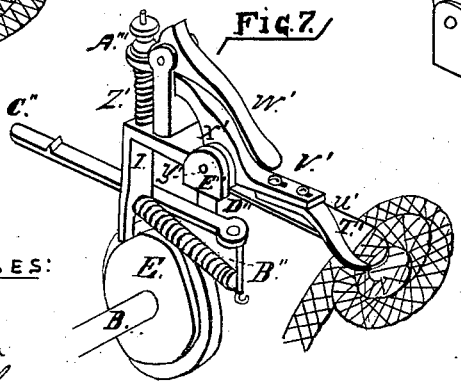


Fig. 7.



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UNITED STATES PATENT OFFICE.

ADOLPH J. SEDMIHRADSKY, OF MILWAUKEE, WISCONSIN, ASSIGNOR OF A PART OF HIS RIGHT TO EDWARD E. ROGERS AND JOSEPH C. ROGERS, OF SAME PLACE.

IMPROVEMENT IN MACHINES FOR SEWING STRAW BRAID.

Specification forming part of Letters Patent No. **196,486**, dated October 23, 1877; application filed May 21, 1877.

To all whom it may concern:

Be it known that I, ADOLPH J. SEDMIHRADSKY, of the city of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Sewing-Machines for Sewing Braid in the Manufacture of Hats; 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 which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Figure 1 of the accompanying drawings represents a top view of a sewing-machine embodying my invention. Fig. 2 represents a bottom view of the same.

My invention is shown in detail upon Sheet No. 2, in which Fig. 3 represents a perspective view of the elbow-crank and its connections with the cam C and needle-bar. Fig. 4 represents a perspective view of the device for crimping the braid preparatory to the needle passing through it, and its connections with the cam which operates it and the single-braid gage. Fig. 5 represents a perspective view of the shuttle, shuttle-driver, arm, and crank. Fig. 6 represents a perspective view of the crimping-gage. Fig. 7 represents a perspective view of the feeding device. Fig. 8 represents the upper gage for regulating the lap of the braid. Fig. 9 represents the braid as wrinkled or crimped preparatory to the needle passing through it. Fig. 10 represents an adjustable plate for guiding the needle.

The object of my invention is to furnish a device for sewing braids of straw and other material together in the manufacture of hats, in such a manner that the stitches will show only upon the under side.

In the drawings, A is the drive and balance wheel. It is secured upon and communicates motion to the shaft B, upon which are cam-wheels C D E and crank F. Cam C drives the elbow-crank G, cam D drives the lever H, cam E drives the feed-bar I, and crank F drives the shuttle-bar I″. The cam-wheels C, D, and E are each secured to the shaft B by set-screws *a*, which pass through their shoulders and against the shaft B. The shaft B is secured to the table J by journals K, in which it operates. The elbow-crank G is secured to the table J by a bolt and nut, Z. There is a friction-roller, *b*, attached to the crank G, which operates in the groove in cam C. The crank G communicates a horizontal reciprocating motion to the needle-bar M. The needle-bar is attached to the crank G by a screw, *d*, and sliding bar *e*, which operates in the slot *f*, the sliding bar being allowed to play backward and forward in the slot with each vibration of the bar, by which arrangement a direct reciprocating motion is transmitted to the needle-bar from the circular motion of the crank. There is a pin, *h*, attached to the crank G, which extends upward through the table, operating backward and forward through the opening *k* against the take-up arm *m*, driving it forward, and it is thrown back, when released, by the spring *n*. The needle O is attached to the bar by a set-screw, P, in the ordinary manner. R R are journals for the needle-bar.

The lever H is attached at its center to a lug, S, by a screw, which acts as its fulcrum. There is a friction-roller attached to the lever H, which operates in the groove in the cam D, thus communicating to the lever a rocking motion. The lever H is attached to the standard T by a screw, *a′*, and sliding bar, which operates in a slot, whereby a vertical reciprocating motion is communicated to the standard T. The standard T operates below the table through the lug *u*.

Upon the upper end of the standard T is an adjustable arm, V, provided with a socket, which sets over the end of the standard, and a set-screw, *w*, which passes through the socket into the top of the standard T, by means of which the arm V is adjusted. There is a vertical slot through the back side of the arm, upon each side of which is a lug, *x*, which are drawn together and separated with the screw *y*, thus forming a clamp around the standard, by means of which the arm is firmly secured

where adjusted to the standard. A′ is a wedge-shaped crimping-gage. It is secured to the arm V by a screw. The office of the crimping-gage A′ is to press the braid of straw downward between the plate and the edge of the table, thus forming a wrinkle in the braid immediately in front of the needle-point, so that the needle may pass through the convex portion of the braid thus wrinkled without passing through the upper side of the braid. The arm V is caused to rise and fall simultaneously with each vibration of the needle, the crimping-gage A′ depressing the braid to form a wrinkle, as described, a little in advance of the needle.

The coil of sewed braid lies upon the table, as represented in Fig. 9, when the crimping-gage presses downward upon the edge of the coil, bending it, as described, so that the needle passes through its lower side, while the single braid is drawn from beneath the table, through the adjustable gage B′, upward through the opening between the crimping-gage and the edge of the table, when the needle passes first through the under side of wrinkle, as described, and then directly through the single braid, when the thread is caught upon the back side of the braid by a shuttle, which forms a lock-stitch, in the ordinary manner.

At each vibration of the needle backward from the braid, and simultaneously with the upward movement of the crimping-gage A′, both the coil and single braid are fed forward, as follows: The single braid is fed forward from below by the gage B′, which is acted upon by the pin A″, which is connected with the standard T, having an upward and downward movement, the projecting end of which operates in a slot in the bracket L′, and by which arrangement the gage is carried upward and forward with each vibration of the standard T, while at the same time the feeder D′, above the table, carries forward the coil of sewed braid, both feeders acting simultaneously. The feeder D′ receives its motion from the cam E. The gage B′ is adjusted to different widths of braid by turning the rod F′, to which is attached a knob, E′.

The rods C′ and J′ are permanently attached to the bar K′ and bracket L′, and their relative position always remains the same, while the brackets G′ and H′ may be slid backward and forward upon the rods C′ and J′ by drawing out and returning the rod F′, to which they are attached. The brackets G′ and H′ are adjusted at different distances apart, to accommodate the different widths of braid, by turning the rod F′ toward the right or left, there being a screw in the bracket H′, in which the rod operates. Thus the bracket H′ is caused to move to and from the bracket G′, the bracket G′ being prevented from moving upon the rod F′ by shoulders V″. The plate *m′* is attached to the bracket L′, and the plate F″ is attached to the bracket G′.

When desirous to insert the braid, the brackets G′ and H′ and the lower plate F″ are drawn out from beneath the plate *m′* by drawing upon the knob E′. When the braid is inserted, the brackets and braid are pressed back again, when they are secured in their place by the spring-plate R′, (shown in Fig. 2,) which bears against the knob E′.

The lap of the braids one upon another is regulated as follows: The coil of sewed braid is guided upon the upper side of the table by the gage N′, (shown in Fig. 8,) which is adjusted by the eccentric-lever O′, and when adjusted is secured by the thumb-screw P′, while the single braid is guided and the lap regulated beneath the table by the gage B′ as follows, to wit: By drawing out the rod F′ the braid is drawn forward, with the brackets G′ and H′ toward the coil of sewed braid, and thus the lap of the braid is increased, while an inverse movement of the rod decreases the width of the lap. When the lap of the braid is regulated as desired, the gage being properly set, it is secured in that position by the spring-plate R′, as described, at the point adjusted, the spring-plate R′ being set backward or forward by turning the set-screw I to accommodate itself to the position of the knob. The coil of sewed braid is fed forward with each successive stitch by the feed-bar D′, which has a reciprocating motion, the braid passing between the plate T′ and arm *w′*. The arm *w′* rises from the plate T′, thus releasing the braid with each backward movement as the needle is passing through the braid. When the needle is withdrawn, the lever *w′* presses firmly upon the plate T′ or the braid between them, and at the same time moves forward, carrying the braid with it preparatory to the succeeding stitch.

There are sharp projections upon the under side of the arm *w′*, which assist in holding the braid as it is being fed forward. The arm *w′* is adjusted upon the lever X′ by screws *v*.

When desirous to release the braid from the feeder D′, the eccentric-lever W′ is thrown back, when it presses downward upon the lever X′, which, acting over the pin *y′*, raises the arm *w′* from the braid. The lever X′ is held in position by the spiral spring Z′ from beneath, and from above by the adjusting-screw A‴.

The feeder is adjusted to braids of different thicknesses by turning the adjusting-screw A‴, turning it downward for thick braid and inversely for thin braid. With the exception of the feed-plate T′, which has simply a reciprocating motion, the other parts of the feeder have a rocking motion upward and downward simultaneously with each reciprocating motion, which is communicated to it by the cam E, operating against the arm I both vertically and laterally.

The arm I is held in its position against the cam E by the spiral spring B″. The length of the stitch is regulated by the lever C″, upon which is a catch, which operates in a ratchet upon the under side of the table. When the lever C″ is moved toward the arm I it short-

ens the stitch by preventing the arm from moving laterally the whole breadth of the cam, and thus the distance the braid is fed forward is lessened and the stitch shortened. When the lever C″ is released from the ratchet, the arm I is allowed to move the whole breadth of the cam, and thus the braid is fed forward farther and the stitch lengthened. The feeder D′ is attached to the head of the bolt D″ by the center-pin *y′* between two lugs, E″. The bolt D″ turns in its socket with the feeding device, to which it is attached, with each vibration. The shuttle G″ is constructed in the ordinary manner.

H″ is the shuttle-driver. I″ is the shuttle-bar, which connects the driver with the crank F. The shuttle-driver runs in a separate groove from the shuttle, while the hook J″ and the arm K″ of the driver extend through a slot to the shuttle, the hook J″ supporting the front end of the shuttle and the arm K″ the back end, and thus driving the shuttle in the ordinary manner.

The crimping-gage A′ is made thicker upon one edge than upon the other, in a wedge shape, so that there is a uniform gradation upon its periphery, from its thinnest to its thickest edge, the object of which is, that it may be accommodated to the different thicknesses of braid. When a thick braid is being sewed, the thin part of the crimping-gage is adjusted to crimp the braid. When a thin braid is used, the thicker part of the gage is brought in contact with it.

The gage may be adjusted to half as many different thicknesses of braid as there are grooves *m″* upon its periphery. The object of the grooves *m″* is to guide and steady the needle, which passes through one of them, and bears against the gage.

N″ is a common device for regulating the tension, consisting of two washers, between which the thread is placed, and a spiral spring, which compresses the washers together, above which is a thumb-screw, by which the tension is increased or diminished.

The take-up arm *m* is regulated to correspond with the length of the stitch with the gage O″, which is adjusted by the set-screw P″ in the slot Q″, the stroke of the arm being increased by setting the gage O″ farther from it, and is diminished by setting the gage nearer to it.

The arm C′ is raised and lowered, and thus the guide-bearings R″ of the needle adjusted, by means of the screws S″ and T″, which pass through the plate P″ into the table J. The lower side of the plate P″ is made convex. When desirous to lower the arm C′, the screw T″ is loosened and the screw S″ is tightened. The arm C′ is raised by loosening the screw S″ and tightening the screw T″.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In machines for sewing braids together in the manufacture of hats, the device for crimping the braid immediately in advance of the needle-point, so that the needle will pass through the convex side of the wrinkle, in such a manner that the stitches show only upon the under side of the braid, consisting of the adjustable crimping-gage A, the periphery of which is graduated to accommodate itself to the different thicknesses of braid, having grooves *m″* at uniform distances apart upon its periphery, combined with arm V, screw *w*, clamps *x*, standard T, and set-screw *y*, substantially as and for the purpose specified.

2. In combination with the crimping device, the lever H and cam-wheel D, substantially as and for the purpose specified.

3. In combination with the crimping device, the single-braid gage and feeding device B′, consisting of rods C′, F′, and J′, brackets L′, H′, and G′, plates M′ F″, adjusting-screw I′, and knob E′, all substantially as and for the purpose specified.

4. In machines for sewing braid in the manufacture of hats, the feeding device consisting of arms T′ and *w′*, levers I and X′, eccentric-lever W′, adjusting-screws A‴, spring Z′ and B″, bolt D″, lugs E″, pin *y′*, all combined substantially as and for the purpose specified.

5. In combination with the table J, the adjustable plate P″, for guiding the needle, having a convex surface, and set-screw S″ and T″, by which the bearings R″ of the needle may be adjusted, substantially as and for the purpose specified.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

ADOLPH J. SEDMIHRADSKY.

Witnesses:

JOSEPH C. ROGERS,

EDWARD E. ROGERS.