F. D. PALMER.

MACHINE FOR SEWING STRAW BRAID.

No. 181,590. Patented Aug. 29, 1876.

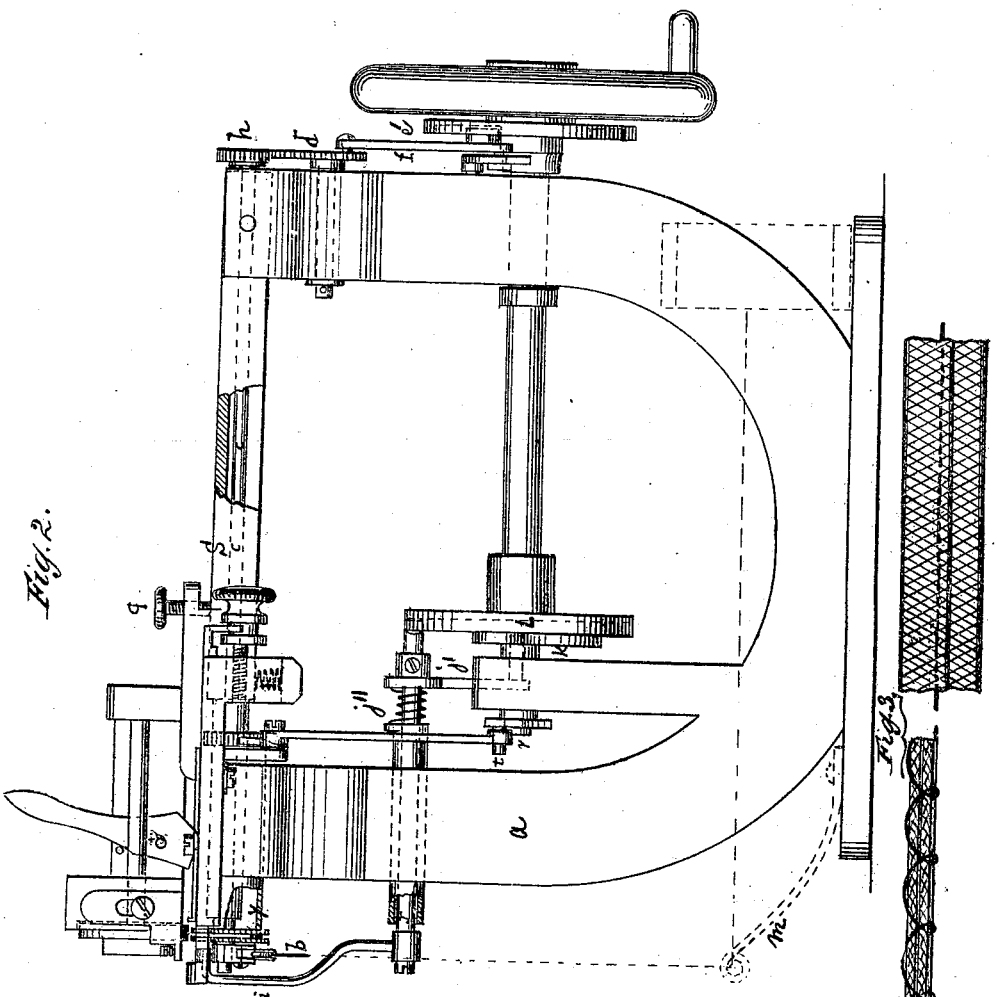

Fig. 2.

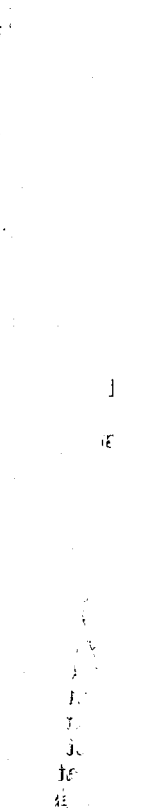

Fig. 3.

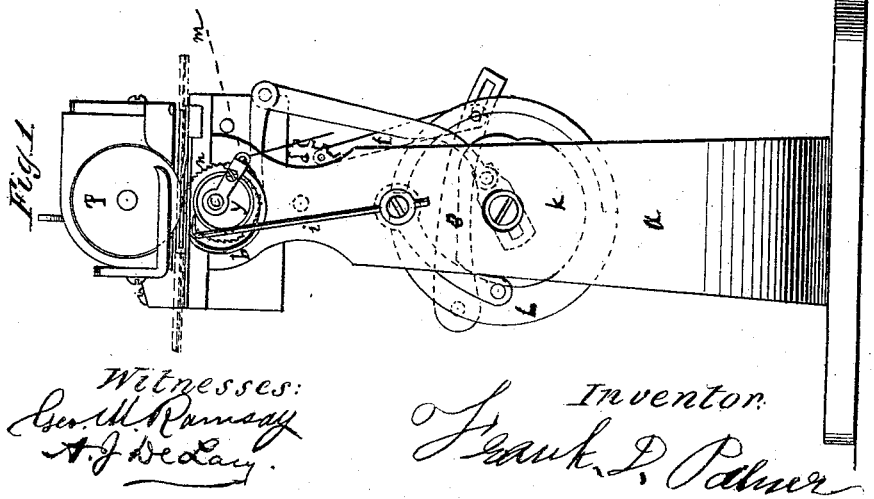

Fig. 1.

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IMPROVEMENT IN MACHINES FOR SEWING STRAW BRAID.

Specification forming part of Letters Patent No. **181,590**, dated August 29, 1876; application filed August 5, 1875.

To all whom it may concern:

Be it known that I, FRANK D. PALMER, of the city, county, and State of New York, have invented new and useful improvements in that class of sewing-machines which are designed and used in the manufacture of straw hats from continuous braid, starting from a small button of braid in the center of the crown, and sewed into complete hat form, and avoid showing the stitch on the right or outer side of the hat by the use of a curved or half-circular needle oscillated on the end of a proper shaft.

The improvements consist of certain parts and combinations to produce results the details of which are fully set forth in the following specification, including accompanying drawing and letters of reference marked thereon.

Figure 1 represents a front view; Fig. 2, a side view. Fig. 3 shows the form of stitch.

To enable those skilled in the arts to which my invention belongs to make and use it, I herein describe fully and clearly its construction and operation.

a represents the frame, to which are attached and fitted all the operating parts. *b* is the curved needle, attached to and carried by a right-angular or crank-shaped projection on the end of needle-shaft *c*, which runs horizontally through frame *a*. *d* is a segment of gear, oscillated by lever *e*, cam-lever *e'*, connecting-rod *f*, working in pinion *h*, to give oscillating motion to needle-shaft *c*.

i is a looper-hook for catching the thread after it has been carried through the braid by the needle, holding the loop until the needle passes back out of the braid, then carrying the loop forward to allow the point of the needle to pass through the loop on its advancing again to enter the braid, thus forming a chain-stitch.

In order to have the looper-hook perform its functions properly and without complication, it is necessary to give it a longitudinal and lateral motion, which motions are produced by attaching the looper-hook to an oscillating shaft, J, which shaft is allowed to slide back and forth in its bearing, the longitudinal motion being given by cam L and the lateral motion by cam K.

To release the loop after the needle has passed through, it is necessary for the looper-hook *i* to drop back past the circular line of motion described by the needle.

The needle is given the requisite degree of throw by the adjustment of connecting-rod *f* in slotted end of cam-lever *e'* to or from the center of motion.

The needle-shaft *c* is held in an adjustable bearing, S, whereby the needle may be adjusted to the proper depth in the braid by the set-screw *q*.

m is a thread-guide, carrying the thread in the proper line for the needle. *n* is a circular feed, with a hollow shaft, *y*, allowing the needle-shaft to run entirely through it for the purpose of bringing the feed central with the needle, to facilitate the starting of a hat from a small button-like center.

The hole through the circular feed is sufficiently large to allow of the adjustment of the needle-shaft up or down without interfering with the feed.

p is a free-running roller to lessen the friction on the braid while it is being fed to the needle.

The feed is rotated by a ratchet and pawl, operated by crank *r* on the end of the main shaft. The crank *r* is slotted, in which crank-pin *t* may be moved to or from the center, and thus obtain the desired length of stitch.

j' is an arm or rod connecting main shaft with shaft J. *j''* is a spiral spring, to assist in giving the proper longitudinal motion to the shaft J.

I claim—

1. In combination with looper-hook *i* and shaft J, the cams L and K, arm *j'*, and spring *j''*, arranged as described, whereby an oscillatory and reciprocatory motion transverse to the line of stitching is imparted to said looper, as and for the purposes set forth.

2. In combination with the needle-shaft *c*, carrying gear *h*, the segment *d*, connecting-rod *f*, lever *e*, and cam *e'*, whereby the proper oscillatory motion is imparted to the needle, as set forth.

3. The adjustable bearing S, in combination with the shaft *c*, and curved needle *b*, as and for the purposes described.

4. The circular feed *n*, in combination with hollow shaft *y*, needle-shaft *c*, and curved needle *b*, substantially as set forth.

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