M. A. CUMING & J. KNIGHT.

WIRING AND BINDING HATS.

No. 186,312. Patented Jan. 16, 1877.

Fig: 1.

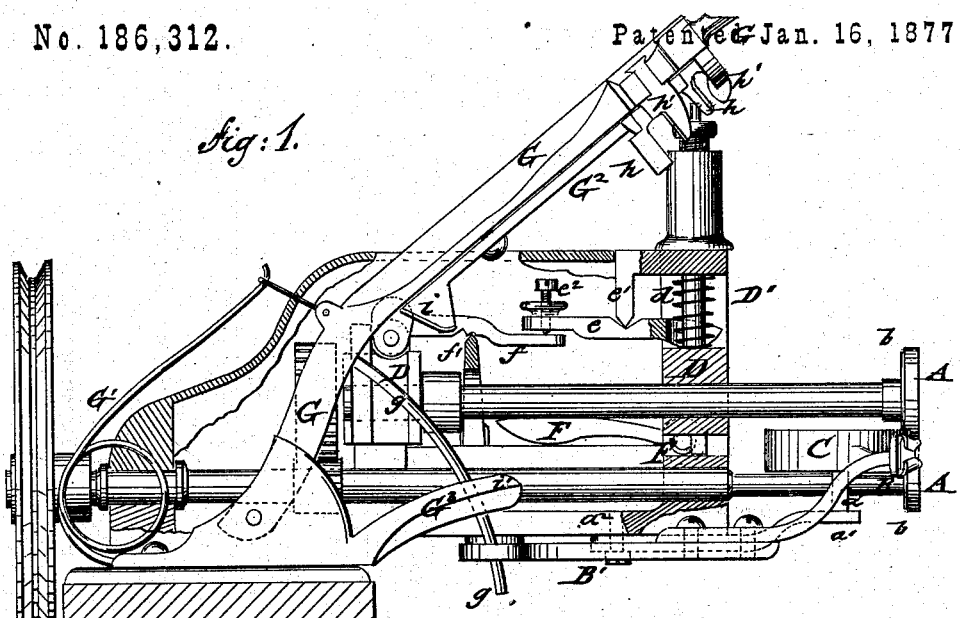


Fig: 2.

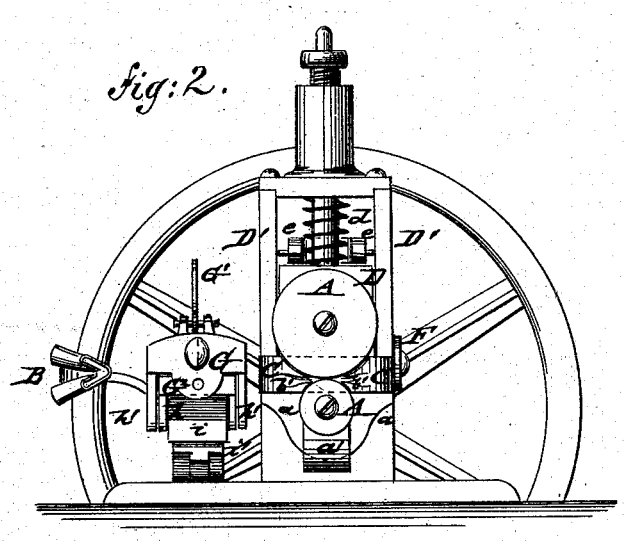


Fig: 3.

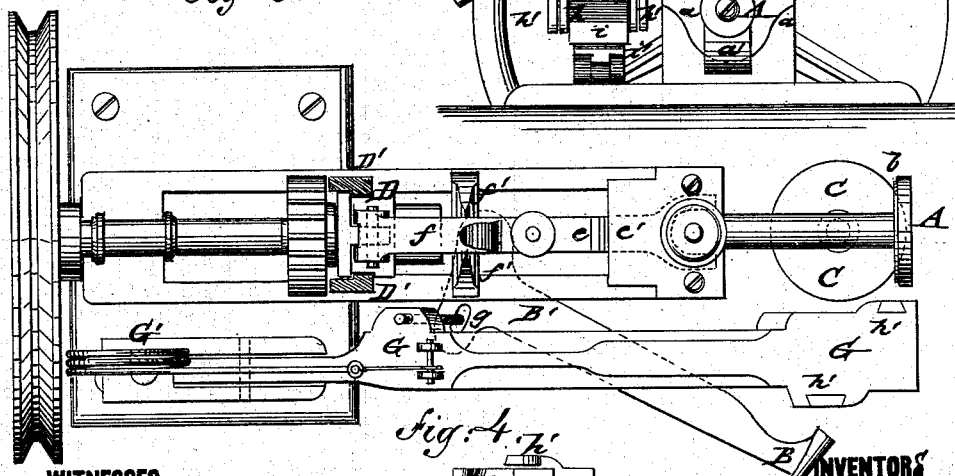
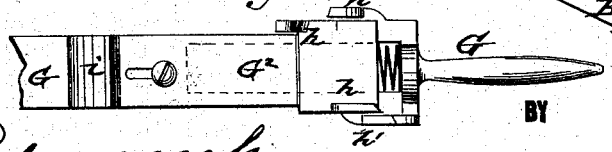


Fig: 4.



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UNITED STATES PATENT OFFICE.

MARI A. CUMING AND JUDSON KNIGHT, OF NEW YORK, N. Y.

IMPROVEMENT IN WIRING AND BINDING HATS.

Specification forming part of Letters Patent No. **186,312**, dated January 16, 1877; application filed November 18, 1876.

To all whom it may concern:

Be it known that we, MARI A. CUMING and JUDSON KNIGHT, of the city, county, and State of New York, have invented a new and Improved Machine for Wiring and Binding Hats, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a sectional side elevation, Fig. 2 a front view, and Fig. 3 a plan view, of our improved machine for binding hats, showing the cutter in position for cutting the wire and binding; and Fig. 4 is a detail bottom view of the cutter.

Similar letters of reference indicate corresponding parts.

The object of this invention is to provide an improved machine for binding hats, felt skirts, and similar articles in a rapid and superior manner, by a uniform and parallel pressure on the rims, and by facilitating the applying and taking off of the articles from the machine, and accomplishing the cutting of the binding or braid and wire in a reliable and improved manner.

The invention will first be described in connection with drawing, and then pointed out in the claims.

In the drawing, A A are the pressure-rollers, to which the binding or braid is fed in the customary manner by a folding-guide, B. The pressure-rollers A attach the binding and the wire, if one is required, in connection with a grooved gage, C, that is supported on a seat, *a*, of the shaft of the lower pressure-roller. The wire is guided by annular recesses or chamferings *b* at the rear circumference of the pressure-rollers A and the groove *b'* of the gage.

The gage C is so connected to its seat that it may be turned and another guide-groove of the same be exposed to face the pressure-rollers, so as to adapt the same for a variety of work. The seat *a* is made to slide on the lower shaft, and applied to an arm, a^1, that is adjustable by slot and set-screw a^2, so as to admit the ready moving back of the gage and setting of the same, as required.

For the purpose of obtaining a uniform pressure of the rollers, whether heavy or light goods are passed between the same, the upper roller-shaft is supported in bearings D, which slide in upright guides D', so as to impart a parallel motion to the upper shaft and pressure-roller. The front bearing D is acted upon by a strong spiral spring, *d*, with adjustable tension, by which the roller is pressed down on the work. The parallel motion of the roller-shaft is accomplished by a compound lever-connection of the front and rear bearings D, the front lever *e* being fulcrumed to a knife-edge, e^1, of the guides D', so as to transmit the pressure on the shaft and bearing from the front end to the rear end of lever *e*, and from the same, by an adjustable set-screw, e^2, to the rear lever *f*, that swings on a knife-edge support, *f'*, and is hinged to the rear bearing D.

The parallel motion of the shafts imparts a uniform pressure on the goods, and overcomes the tendency of the upper pressure-roller to assume an inclined position toward the lower pressure-roller, which is liable to disarrange and draw the work, which feature forms one of the main objections to the present machines for binding hats.

By the use of a cam and lever, F, below the front shaft-bearing D, the upper roller may be lifted clear of the work analogous to the presser-foot of sewing-machines, and thereby the gear connection of the shafts interrupted, so that the lower shaft may continue to revolve without engaging the upper shaft. This facilitates in a great degree the removing of the hat, or other article, from the rollers, and the insertion of the next hat, as the lever is merely thrown up or down, and thereby the upper shaft thrown out of gear with the lower.

The folding-guide B is applied by fastening-screws to the front end of a swinging arm, B', that is pivoted to the supporting-frame of the machine.

By loosening the screws the guide may be taken off and replaced by another adapted to the work that is intended to be done on the machine.

The swinging arm B' is engaged eccentrically to its pivotal point by a curved arm, *g*, of a vertically-swinging lever, G, that is pivoted to bearings of the main frame, operated by a front handle in downward direction, and by a strong spring, G^1, for carrying the lever back into upward position. The curved arm

g causes the horizontal swinging of the guide when the lever G is lowered, so that the same will assume, when at its lowermost point, a position between the pressure-rollers and guide.

To the under side of the lever G is applied and guided, in suitable manner, a sliding and spring-acted piece, G^2, that carries cutting-knives *h* at both sides of its front end, which serve, in connection with stationary knives *h'* of the lever, to cut jointly the wire and the lining or braid.

The swinging action of the guide B carries the lining back, so as to clear the wire and expose the same and the lining separately to the action of the knives, of which the set closer to the rollers is arranged at some distance in front of the opposite set of the knives. This disposition of the cutting-knives has the advantage that the lining is cut off at greater length than the wire, so as to overlap and fully cover the same after being passed through between the pressure-rollers.

The cutter-carrying slide-piece G^2 has an inclined rear end or face, *i*, that comes in contact with the inclined end *i'* of a stationary forward-extending arm, G^3, when the lever is carried down, so as to actuate thereby the cutting-knives simultaneously with the placing in position of the binding by the swinging arm of the guide. The hat or other article is completed, after the cutting of binding and wire, by being passed through the rollers for lapping the binding, the top roller being then raised by the cam-lever and the hat taken away. The rim of the next hat is then placed on the lower roller and wire and binding adjusted, the top roller being then lowered and the rim covered till the cutter is again brought in operation near the end point of the rim, and so on.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. The front and rear bearings D D, combined with levers *e f*, fulcrumed on knife-edges e^1 *f'*, and connected by screw e^2, to insure the movement of upper roll with respect to the lower one, as shown and described.

2. The gage C, grooved and made adjustable, substantially as and for the purpose specified.

3. The combination of the cutter-lever G and slide-piece G^2, each having a knife arranged on opposite sides, and in advance of each other, to cut the wire and binding at different lengths, as described.

4. The swinging spring-lever G, having fixed cutters, combined with the slide G^2, having cutters at one end, and inclined projection at the other, for the purpose set forth.

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