

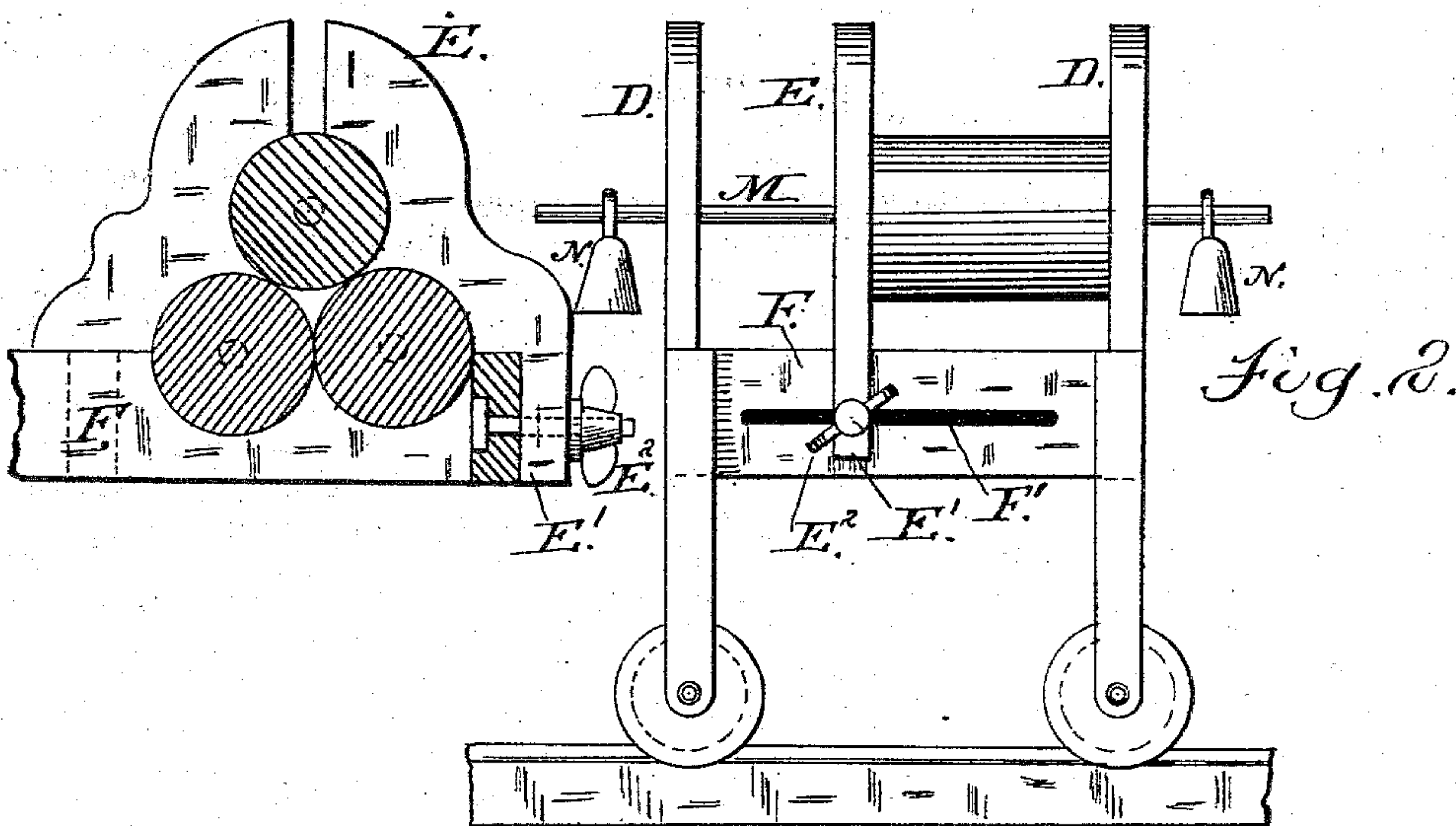
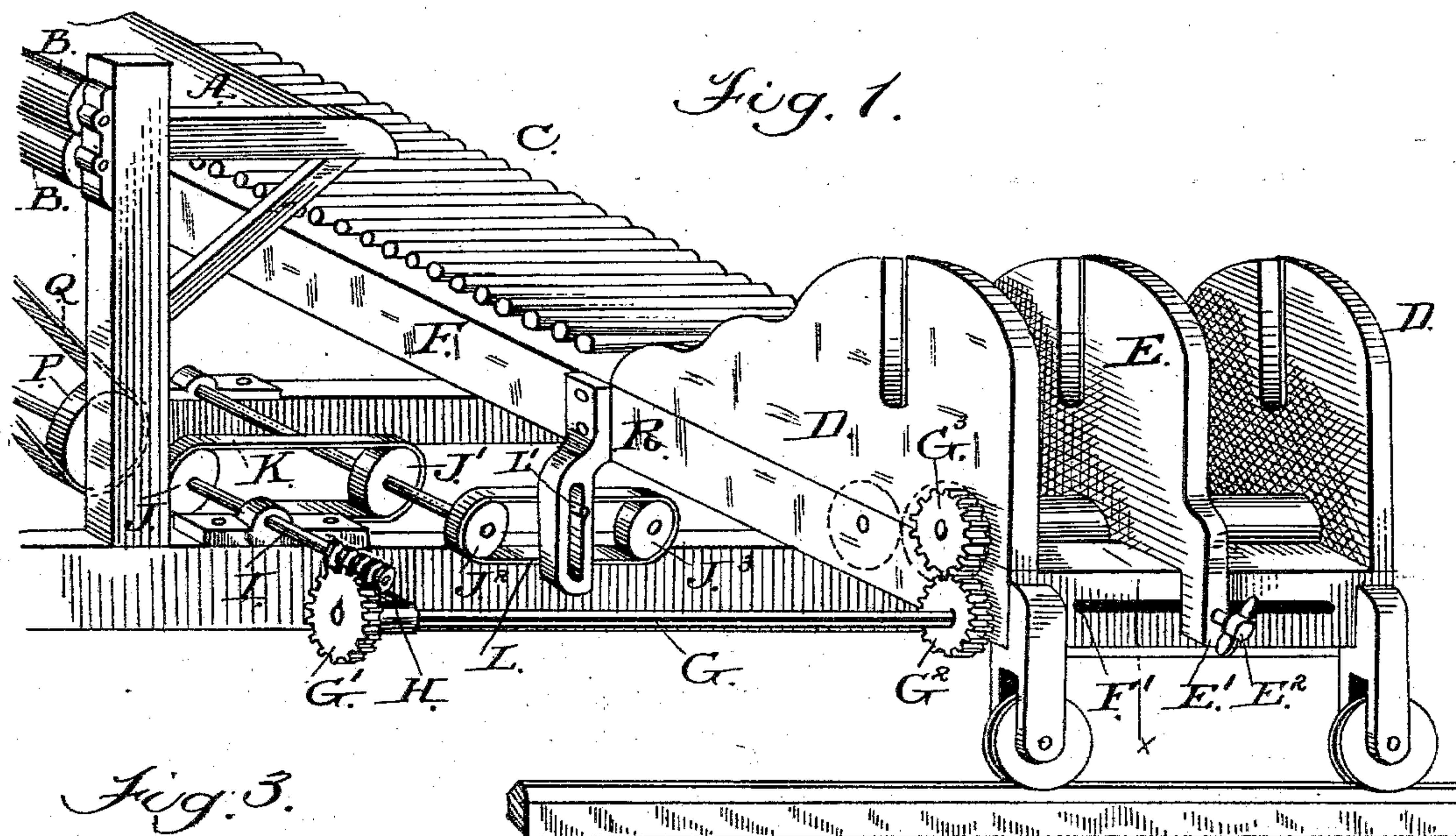
(No Model.)

G. W. ALEXANDER.

LAP MACHINE FOR HAT MANUFACTURERS.

No. 281,226.

Patented July 17, 1883.



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LAP-MACHINE FOR HAT-MANUFACTURERS.

SPECIFICATION forming part of Letters Patent No. 281,226, dated July 17, 1883.

Application filed February 23, 1883. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. ALEXANDER, a citizen of the United States, residing at the city of Reading, county of Berks, and State of Pennsylvania, have invented a new and useful Improvement in Lap-Machines for Hat-Manufacturers, of which the following is a specification.

This invention relates more particularly to the arrangement of the carriage-head, by which the width of the web is controlled and the feed transmitted to the receiving-apron and winding-rolls from a fixed revolving shaft to the reciprocating carriage.

The object of the invention is to produce various widths of lap-web upon the same carriage, and thus save the expense of separate carriages for each width of lap-web it is desired to form. These results are attained by the use of the improvements shown in the accompanying drawings, which form part of this specification, similar parts being indicated by similar letters throughout.

Figure 1 represents a portion of the carriage end of a lap-machine exhibiting my improvement thereto. Fig. 2 is an end elevation of the carriage, showing the adjustable head and gathering-roll; Fig. 3, an elevation of the adjustable head detached from the carriage frame.

A represents the discharging-apron of the machine; B B, apron delivery-rolls; C, the receiving-apron of the carriage; D, fixed carriage-heads; E, adjustable carriage-head; E', arm projected downward from the carriage; E², a thumb-screw with nut working in the frame-slot; F, the carriage-frame; F', a slot for the adjusting head-bolt; G, a horizontal feed driving-shaft, supported from the carriage-sills, provided with a feather spline-groove of the maximum length of the carriage-traverse; G', a worm-wheel on the end of the shaft, driven by a worm, H, on the shaft I, a feed-wheel, G², fitted with a sliding fit to the shaft G, and made to revolve by a spline common to the wheel and groove of the same, and which, by contact with a suitable series of gear-wheels connected with the winding and apron rolls of the carriage, causes the same to operate with due relation to the movement of the lap and web forming upon the apron C. The worm H is driven by belt Q and pulley P on

the shaft I, pulleys J J' J² J³, and belts K and L. The latter, provided with a pin working in a slot of the arm R, causes the carriage F to traverse upon the ways provided for the same. M is the condensing-shaft weighted by the weights N N.

The operation of the machinery and the part taken by my improvement therein are as follows: The material is fed, as usual, by a front apron to the lap-machine, and is delivered at the rear by the rolls B B upon the apron A, which carries and delivers it upon the endless apron C of the reciprocating carriage F. The carriage is provided with stationary heads D D for the gathering-rolls, having vertical slots, in which the condensing-shafts of the gathering-rolls are placed. Just beneath the slot, and central thereto, are fixed winding-rolls, upon which the gathering-rolls rest, and are put in motion thereby. These winding-rolls have their shafts extending through the frame of the carriage, and are provided with gear-wheels thereon, which, by connection with a gear-wheel from the shaft G and by a series of intermediate gears with gears on the ends of the apron rollers, drive the same toward the heads D D. The shaft G has its motion by gear G' and worm H from the shaft I and pulley P, the belt Q leading from the machine or a counter-shaft. An intermediate pulley, J, by belt K drives a small counter-shaft by pulley J', the opposite end of the shaft having a pulley, J², in combination with an adjustable pulley, J³, connected by an endless belt, L, having secured thereto a pin, L', which, working in a slot in the arm R, carries the carriage back and forth upon the rollers and ways provided for the same. The pulley J³ being adjustable horizontally, if the belts L are lengthened or shortened, and the pulley J³ adjusted thereto, the reciprocations of the carriage are correspondingly altered. As the carriage reciprocates beneath the apron A, the lap delivered from the machine is laid layer upon layer thereon, the feed of the apron C being so adjusted relative to the delivery that a certain desired thickness of web shall be attained before it is wound upon the gathering-rolls. At the same time the width is governed by the space between the heads D D, which serves to condense the web endwise; but should the traverse of the carriage be

less than the space between the heads D D, then there would be no end condensation, and the web would be ragged on its edges. This up to the time of my improvement necessitated a separate carriage for each width of web to be manufactured. To obviate this I introduce the adjustable head E, which is provided with a vertical slot for the condensing-shaft, and is in every respect similar to the fixed heads D D, except that it slides upon the frame, and is secured thereto at any desired point by the arm E' and screw E². This improvement enables the hat-manufacturer to form a web from the maximum width for which the carriage of the machine was designed down to the narrowest width desired for boys' goods.

The shaft M lies within the slots of the heads D E D, and the web is seized as it is pressed forward by the apron C, wrapped around the shaft, and dropped upon the winding-rolls, usually placed in such machines beneath the slot. As the roll of web increases in diameter, the shaft M rises in the slots, and the weights N N, being graduated in size according to their distance from the ends of the web-roll, condense the same transversely and uniformly. The worm-gear makes a direct and positive transmission of motion to the carriage-apron and the winding-rolls, dispensing with belts or racks, as used generally upon lap-machines.

I make no claim to the mode of reciprocating the carriage, nor to the general arrangement of the machinery connected with a lap-machine and its carriage, my improvement being confined to the introduction of the adjustable head E for the purpose of controlling the width of the web formed upon the gathering-roll of a lap-machine for hatting purposes.

Having shown my improvement and described its operation, I desire to secure by Letters Patent the following claims thereon:

1. In a lap-machine for hat-manufacturers, the addition to the carriage of the same of an intermediate adjustable head, E, provided with arm E' and screw E², in combination with the carriage F, apron C, and its usual actuating gear, whereby the width of the web is controlled by end condensation irrespective of the traverse of the carriage, substantially as shown, and for the purpose set forth.

2. The combination of an adjustable head, E, as described, with the usual heads, D D, and the actuating and reciprocating machinery of the carriage and apron of a lap-machine for hatting purposes, whereby an adjustment of the head E in concert therewith will square up the width of the web formed upon the apron, in the manner described, and for the purpose set forth.

GEORGE W. ALEXANDER.

Witnesses:

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