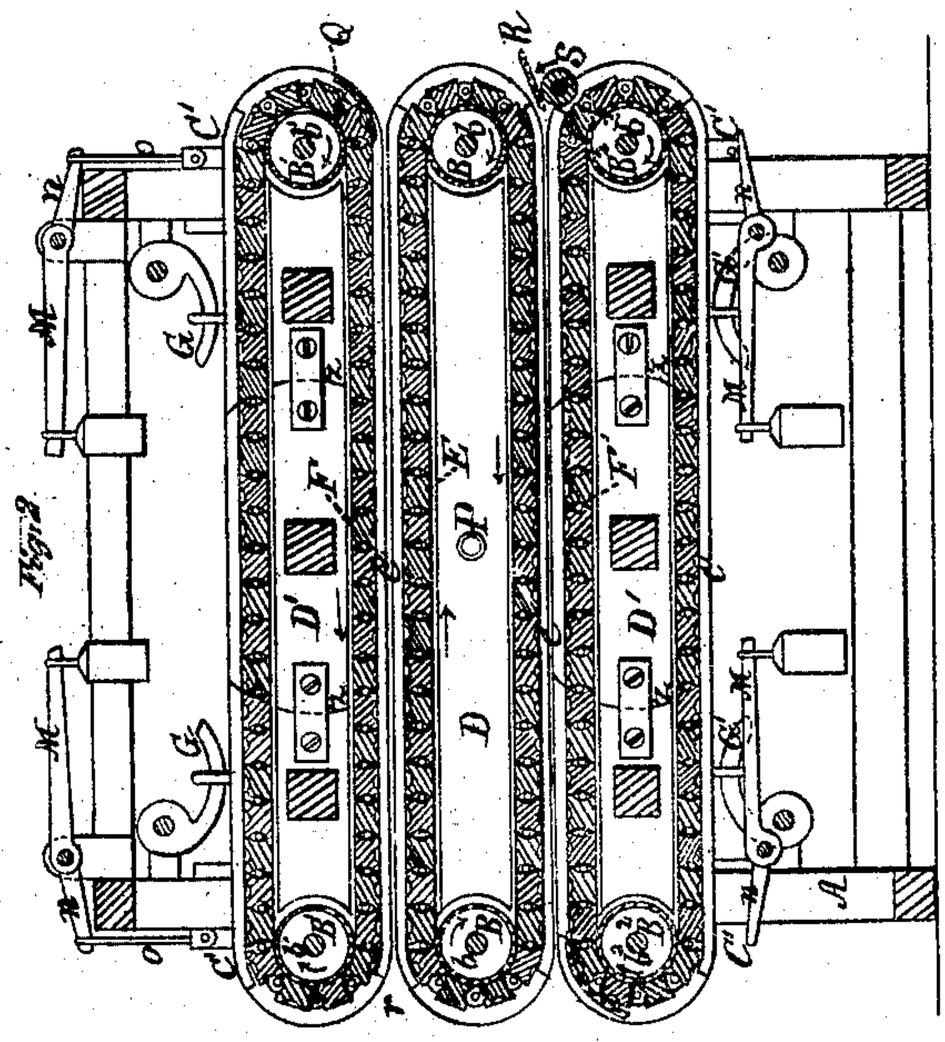
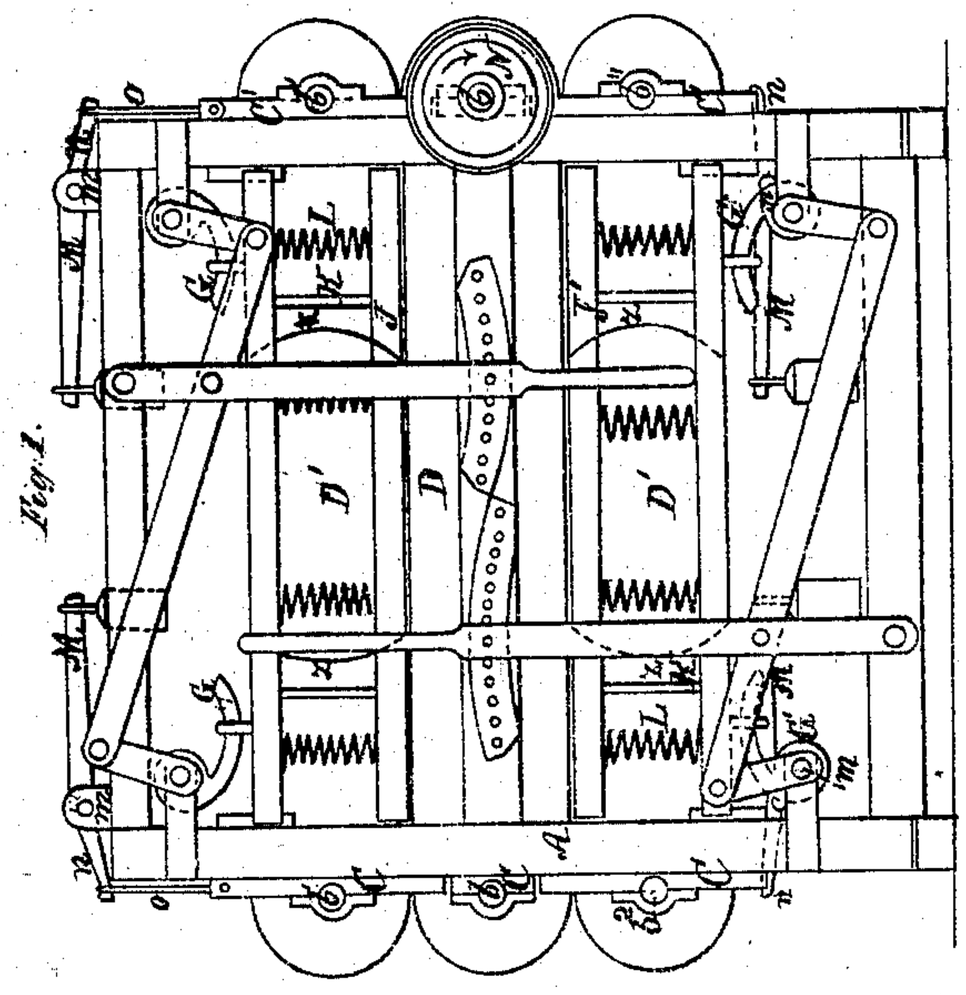
Lodge. v. Platner,
Felting Machine.

No. 66,096. Patented. June. 25. 1867





Witnesses:
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WILLIAM B. LODGE AND HIRAM PLATNER, OF DANBURY, CONNECTICUT.

Letters Patent No. 66,096, *dated June* 25, 1867.

IMPROVEMENT IN MACHINES FOR SIZING OR PLANKING HAT BODIES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that we, WILLIAM B. LODGE and HIRAM PLATNER, of Danbury, in the county of Fairfield, and State of Connecticut, have invented a certain new and useful Improvement on Machinery for Sizing or Planking Hat Bodies and other articles, whether of fur or wool, or both combined; and we hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming part of this specification, and in which—

Figure 1 represents a side elevation of a machine for sizing hat bodies or other articles constructed according to our improvement; and

Figure 2 a vertical longitudinal section of the same.

Like letters indicate like parts in both figures.

Our improvement relates to machines for sizing or planking various articles, such as hat bodies, in which the work to be sized or planked is introduced and passed between endless belts or aprons of lags, made to travel with their contiguous faces or surfaces in opposite directions at different velocities relatively to each other, such for instance as described in our application for which Letters Patent of the United States were allowed on the 14th day of December, 1866, and in which a series of endless aprons of lags arranged one above the other is used; the intermediate or central apron having a fixed or positive motion, while the aprons above and below it are capable at pleasure of being made to travel in a reverse direction at a reduced velocity, or be left free to act independently of it; also in which is used a combination of lag belts, drums, wheels, and levers for giving motion to the belts and controlling at pleasure the adjustability of the belts relatively to each other; likewise in which while said belts are kept true in their courses by rails, they, or certain of them, have a vertical flexibility given them to adapt them to different sizes or conditions of the work, and to insure uniform sizing or planking.

The nature of our invention, in connection with machines of the character described and here referred to, or others including more or less similar elements, or having the same general principle of action, consists firstly, in making the intermediate belt of lags the working apron, and giving a differential velocity to or simply using as beds the upper and lower aprons, and employing a shell at the exit end of the top apron to aid in discharging the hat bodies or work; also for returning the work to combine the operation of sizing or planking, in an arrangement of a roller and board at the same end to keep the felt clear of the lower apron till it has been fairly caught by the apron above it; likewise said invention consists in introducing steam between either or each apron to aid in the operation of planking; and furthermore, in a counterbalancing arrangement to the upper and lower aprons which are made vertically adjustable.

Referring to the accompanying drawing, which represents in the main a machine constructed according to our invention, on which Letters Patent have been allowed as hereinbefore referred to, and in which A is the frame of the machine; B B^1 and B^2 the drums hung on horizontal shafts a b^1 and b^2, at opposite ends of the frame, and supported in blocks C C′, the centre ones of which, at either end, may be rigidly secured to the frame A, while the upper and lower ones, C′, are of a vertically sliding character, and adjustable at pleasure, to regulate the distance of the upper and lower drums, and of the endless aprons they carry from the centre drums and their apron. D D′ are the side-boards, connecting on either side opposite end drums, and c c' the rails or guides thereof to the endless belts that pass round the drums. The upper and lower of these side-boards D′, with their rails, have preferably a vertical flexibility given them by constructing them in sections having curvilinear terminations z. The endless aprons E and F F′ are made up of lags in the ordinary or any suitable manner. In addition to the flexibility given the upper and lower aprons by constructing their side-boards in sections as described, suitably held together, said aprons are or may be vertically adjusted by hand, to give them the proper hold on the work, through sliding blocks C′ by means of cams G G′ at either end on opposite sides, secured to cross rock-shafts, and operated by rods and levers to raise or lower the frames which carry the upper and lower end drums and their aprons. The side-boards of the upper and lower aprons, and outside sectional or divided bars J J′, constituting the flexible and vertically adjustable frames of said aprons, are braced and have their flexibility regulated by means of screw-bolts K and springs L. While this construction secures the requisite flexibility to the upper and lower endless aprons to adapt their surfaces to different diameters or

conditions of the work, at say a given set or distance from the central apron, it is proposed, by way of facilitating making the variations in such set or distance, and which is effected through the provision afforded by the sliding blocks C′, and by cams, rods, and levers, as described or otherwise, to counterbalance the upper and lower endless aprons with their side-boards and attachments, which may be done by springs or weighted levers M, secured to rock-shafts *m*, and acting by levers *n* and rods *o* on the sliding blocks C′, whereby said aprons may be adjusted vertically with greater celerity and precision. In this our present improvement the middle apron E is the working one, and to the one drum of which motion may be communicated by a pulley, N, to travel it in one direction with a given velocity, while the upper and lower aprons F F′ are caused to move by pulleys and belts or otherwise, at a different and preferably slower speed, and in reverse directions relatively to the adjacent surfaces of the centre apron, for the purpose of more thoroughly and expeditiously sizing or planking the work by giving an increased number of rolls or turns in passing between either pair of aprons than when only the one of such aprons is caused to travel, which for certain work or in certain stages of work where a quick run through the machine is desired, may be adapted by only causing the middle apron to travel. The travel, however, of both upper and lower aprons, or either, in reverse directions, as described, relatively to the middle apron, so far as their action on the roll or work is concerned, is preferred for the reason before given. As such mode of action, however, as fully described in Letters Patent of the United States hereinbefore named, keeps the roll or work with its wrapper for a lengthened period between the aprons, as compared with aprons working in pairs the one only of which moves, there is a liability of the work becoming dryer than is desirable for proper planking, to obviate which, we introduce steam within either or each of the aprons, say by perforated coils arranged within the aprons, or it may be merely by a pipe, P, as applied to the centre apron and connecting with any suitable steam boiler. Again, in using aprons the contiguous surfaces of which move in opposite directions, and supposing, for instance, the work to be introduced between the upper and middle apron at the end or point *r*, then the roll on arriving at the opposite end, has a tendency to have its discharge retarded by the motion of the upper apron. To obviate this, we arrange at the discharge end a shell, Q, which covers the work from the counteraction on it of the upper apron, and restricts the final action on it to that of the middle apron which effects its rapid delivery, to be afterwards immersed in the battery prior to its passage between, in an opposite direction, the middle and lower apron, at the feed end of which we arrange a fixed board, R, and roller S, that may be driven by belt, and between which board and roller the work is fed, the same serving effectually to keep the felt or work clear of the lower apron till it is fairly caught by the middle apron, the line of travel of which is in direction of the feed, while the travel of the lower apron is contrary to it. This insures a sure and rapid entrance of the work.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. The combination, with the upper and middle aprons E F, arranged to travel as described, of the shell Q at the exit end of the upper apron, essentially as and for the purpose specified.

2. The combination with the aprons E and F′ of a guide-board, R, and roller S, at the feed end to said aprons, travelling as described, substantially as herein set forth.

3. In a combination of endless lag aprons, operating with their contiguous surfaces in opposite directions, as and for the purposes specified, the arrangement of a steam pipe or coil for the introduction of steam between said aprons, essentially as specified.

4. The combination with the vertically adjustable aprons F or F′ of counterbalance weights or their equivalent, to facilitate the adjustment of the same relatively to a centre or fixed apron, substantially as described.

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Witnesses:
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