

No. 628,878.

Patented July 11, 1899.

P. C. WARING.
HAT MAKING MACHINE.

(Application filed June 16, 1898.)

(No Model.)

3 Sheets—Sheet 1.

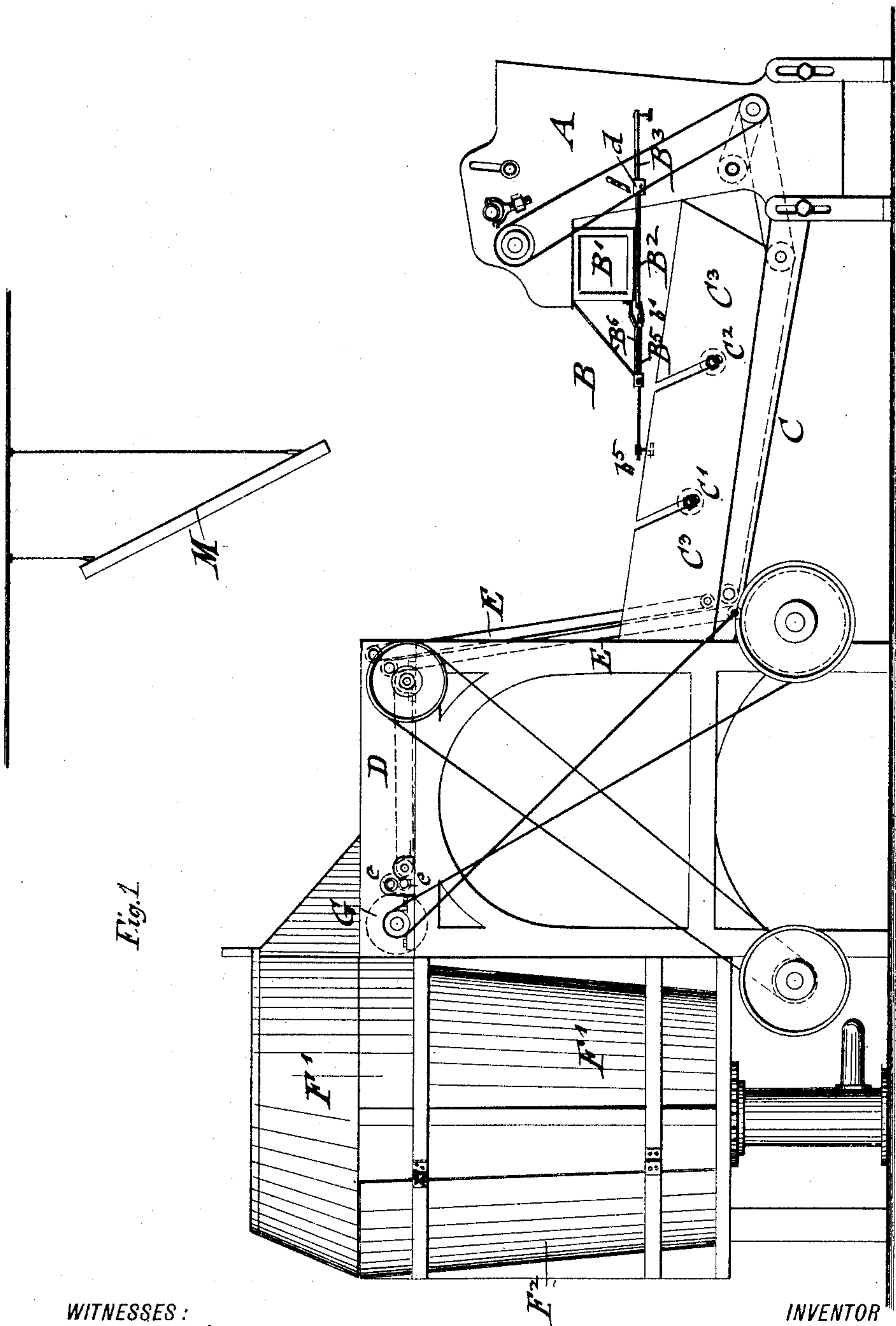


Fig. 1.

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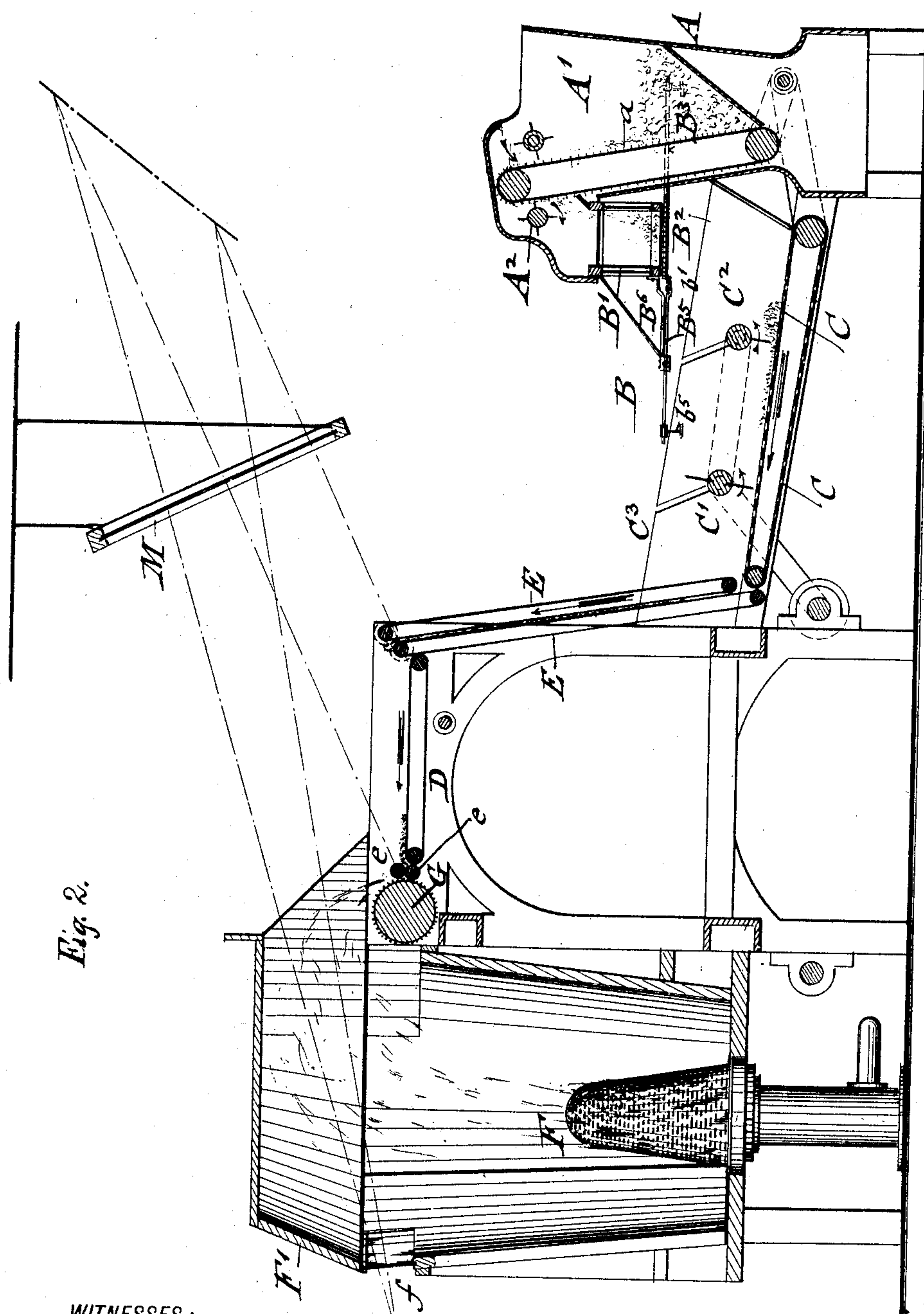
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P. C. WARING.
HAT MAKING MACHINE.

(Application filed June 18, 1898.)

(No Model.)

3 Sheets—Sheet 2.



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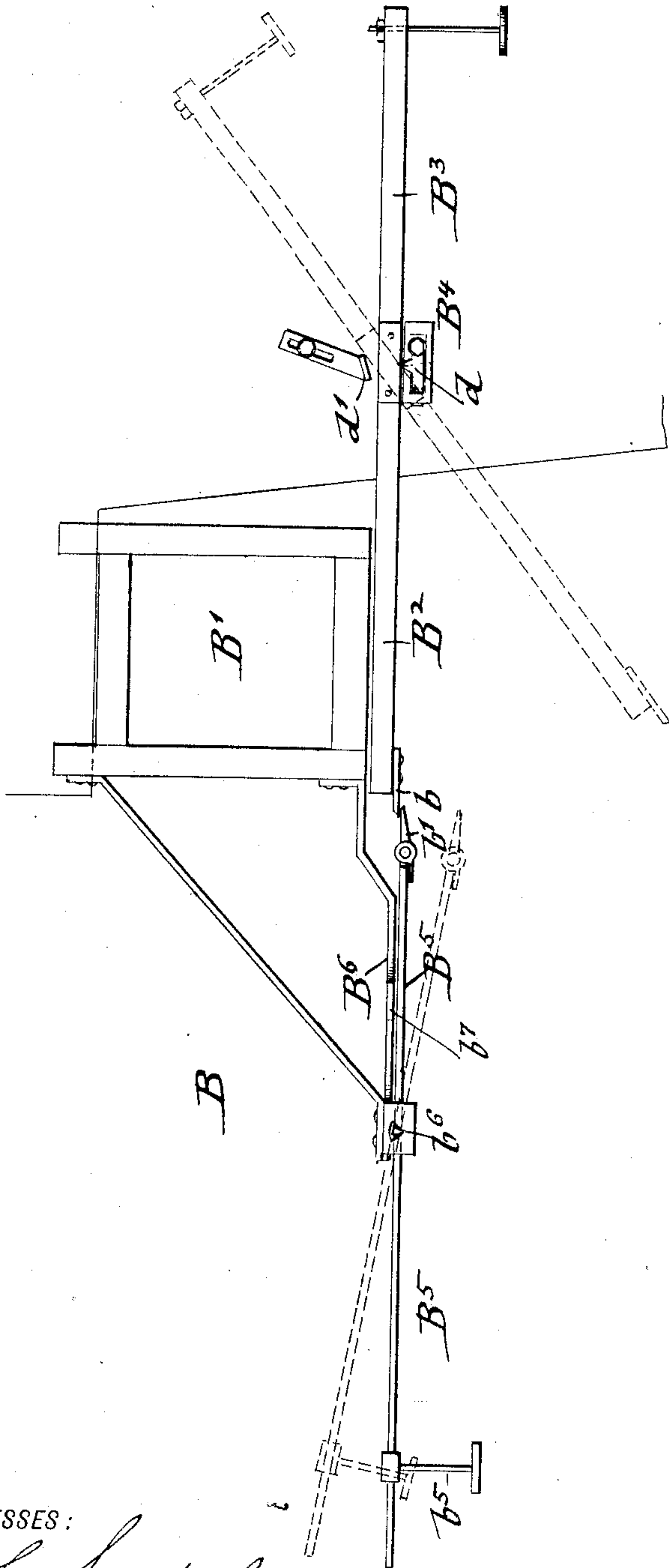
P. C. WARING.
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(No Model.)

3 Sheets—Sheet 3.

Fig. 3.



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UNITED STATES PATENT OFFICE.

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HAT-MAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 628,878, dated July 11, 1899.

Application filed June 16, 1898. Serial No. 683,585. (No model.)

To all whom it may concern:

Be it known that I, PIERRE C. WARING, a citizen of the United States, residing at Yonkers, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Hat-Making Machines, of which the following is a specification.

This invention relates to certain improvements in hat-making machines, and more specifically to fur-weighing appliances for the same, by which the exact quantity of fur required for one hat is automatically weighed off and formed into a layer of uniform thickness before it is fed to the hat-body-forming cone, said layer being watched by the attendant in its progress toward the forming-cone, so that he can readily remove the cone, with a hat formed thereon, and replace it by a new cone for the next layer of fur.

The invention consists of certain details of construction and combinations of parts to be more fully described hereinafter and finally pointed out in the claims.

In the accompanying drawings, Figure 1 represents a side elevation of my improved hat-making machine. Fig. 2 is a vertical longitudinal section of the same; and Fig. 3 is a detail side elevation, drawn on a larger scale, of my improved weighing attachment.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents the fur-feeding mechanism of my improved hat-making machine; B, the automatic weighing attachment, which is located below the fur-feeding attachment; C, a conveyer, which is located below the fur-weighing attachment; D, a second endless conveyer located at a certain height above the first conveyer C; E E, a pair of endless aprons, which connect the lower conveyer with the upper conveyer; F, a rotary hat-body-forming cone; F', the casing which incloses the same, which casing is provided with hinged doors F², one of said doors being provided with a glass-covered window *f* at its upper part. G is a quickly-rotating card-cylinder, by which the weighed-off layer or sliver of fur is taken up and quickly fed to the casing, so as to be subjected to the suction action of the hat-body-forming cone, and M is a mirror, which is supported at a suitable inclination above the upper conveyer in such position that the attendant can readily

watch the progress of the fur toward the forming-cone on the upper conveyer.

The fur-feeding mechanism A consists of an endless belt *a*, provided with pins, which take up the fur from the supply-box A', the fur being removed from the conveyer by a rotary clearer A², so as to be dropped into the receiving box or hopper B' of the fur-weighing attachment B. The receiving-box B' is made stationary and supported in any suitable manner on the casing of the fur-feeding device and is closed at its lower end by a tilting platform B², that normally closes the lower part of the box or hopper B', as shown in Fig. 2. The tilting platform B² is applied to the end of a fulcrumed lever-frame B³, which turns on knife-edges *d* of the supporting-bracket B⁴, said lever-frame being provided with an adjustable stop device *d'*, that is adjusted in a suitable manner so as to arrest the lever-frame B³ when the same is tilted into inclined position. The tilting platform B² is provided at its front edge with a projection *b*, that is engaged by the pivoted finger or latch *b'* at the end of a fulcrumed scale-beam B⁵, which is provided at its opposite end with a sliding weight *b⁵*, so as to regulate the quantity of fur to be deposited on the platform B² before the same is tilted. The fulcrumed scale-beam B⁵ is supported by means of knife-edges *b⁶* on a suitable supporting-arm B⁶, which is attached to the receiving box or hopper B', as shown in Fig. 3. The end of the scale-beam is prevented from being moved in upward direction by means of the stop *b⁷* on the supporting-arm B⁶. The tilting finger or latch *b'* at the end of the scale-beam B⁵ holds under the influence of the weight *b⁵* the platform B' in closed position, said finger engaging the projection *b* on the platform and preventing the downward tilting of the same. As soon as the required quantity of fur is supplied to the platform B² the latter overbalances the weight on the scale-beam and causes the tilting of the lever-frame B³ until the projection on the platform B² clears the end of the pivoted finger or latch. The platform B² is moved under the weight of the fur into an inclined position, as shown in dotted lines in Fig. 3, until the quantity of fur collected thereon is slid off onto the horizontal conveyer C. Simultaneously the scale-beam is returned under the influence of its weight into its normal position until it is ar-

rested by the stop b^1 . As soon as the fur is discharged on the conveyer-apron C the platform is returned by its counterbalancing lever-frame B^3 into its normal position, the projection at its front part lifting the tilting finger or latch sufficiently to permit the clearance of the platform B^2 and its return into closed position at the lower part of the receiving box or hopper B^1 . As soon as the platform has passed the tilting-finger b^1 it assumes its normal position at the end of the scale-beam, as shown in full lines in Fig. 3, so that the projection on the platform B^2 is located above the tilting-finger and permitted to rest on the same while the next charge of fur is being deposited by the fur-feeding devices in the hopper B^1 . The quantity of fur which is thus measured off by the weighing attachment and deposited on the conveyer-apron C is moved forward with the same and distributed in a layer of uniform thickness by means of two rotary distributors C^1 C^2 , the fingers of which spread the fur evenly over the conveyer-apron, as shown in Fig. 2. The conveyer-apron C is inclosed by side walls C^3 , so that no fur can pass over the edges of the same. The fur is spread by the distributors in a uniform layer or sliver on the conveyer C, is then taken up by the two endless aprons E E, that are moved in contact with each other by a suitable mechanism, so that the layer of fur is tightly held between the two aprons, and delivered by the upper end of the same to the second horizontal conveyer-apron D. From the conveyer D the fur is conducted between a pair of closely-arranged feed-rollers e e onto the rapidly-rotated card-cylinder G, by which the fur is thrown into the upper part of the casing which surrounds the hat-body-forming cone. Under the suction action of the rapidly-rotating perforated hat-body-forming cone the fur is deposited in a layer on said cone until, in connection with the moisture supplied thereto, a hat-body of uniform thickness is formed in the well-known manner.

Motion is imparted to the different parts of my improved hat-making machine by means of suitable power-transmitting shafts, belts, and cross-belts, as shown in Fig. 1, the various motions being so timed that when the charge is deposited from the weighing attachment on the lower conveyer-apron a second charge is passing along between the upright conducting-aprons and a third charge going forward over the upper conveyer-apron to the rapidly-rotating distributing-cylinder. In this manner a uniform feeding and weighing off of the quantity of fur required for a hat takes place by the automatic action of the machine without requiring the hand-feeding of the fur, as heretofore.

The inclined mirror M is so located relatively to the open upper rear end of the cone-casing and the upper conveyer-apron that the progress of the fur over the upper conveyer to the distributing card-cylinder can

be readily observed through the glass-covered opening f in the door by the attendant, who knows thereby exactly when a hat-body is formed on the cone. He then opens the doors, removes the cone, with the hat-body on the same, passes another cone into the casing, and closes the doors of the casing. During this time another layer of fur rises onto the upper conveyer-apron and is delivered into the casing and brought under the suction action of the forming-cone, so that the next hat-body is formed thereon, and so on. By the window in the casing of the forming-cone and the mirror the progress of the fur required for each hat can be fully observed by the attendant, and thereby the regular and effective working of the hat-making machine timed and controlled. The fur-weighing attachment produces an accurate and regular supply of fur required for a hat-body, so that the hand labor for weighing and feeding the fur to the hat-making machine is dispensed with and the fur automatically conveyed to the forming-cone and formed into a hat-body under the suction action of the same.

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

1. The combination of a fur-feeding mechanism, an intermittently-acting weighing mechanism comprising a receiving-box, a tilting platform adapted to close the lower end of said receiving-box, a counterbalancing scale-beam having a pivoted finger or latch for engaging said platform, and a stop against which said beam abuts when in horizontal position, a hat-body-forming cone, means for conveying the fur toward said cone, and a fur-distributing device at the end of said conveying means, for distributing the fur onto the cone, substantially as set forth.

2. The combination of a fur-feeding device, an intermittently-acting weighing mechanism below said fur-feeding device, said weighing mechanism consisting of a receiving-box, a tilting platform adapted to close the lower end of said box and a fulcrumed counterbalancing scale-beam adapted to engage said platform so as to hold it in closed position, a conveyer located below the weighing attachment, rotary distributors above the conveyer, an upper conveyer, inclined aprons moving in contact with each other for conveying the fur from the lower to the upper conveyer, a distributing device at the end of the upper conveyer, a hat-body-forming cone, and a casing inclosing said cone and distributing device, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

PIERRE C. WARING.

Witnesses:

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GEO. W. JAEKEL.