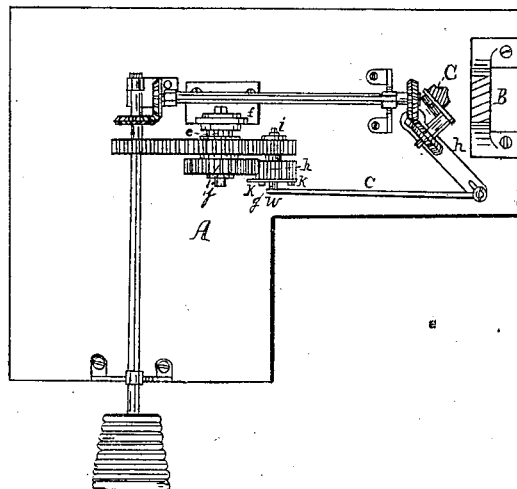
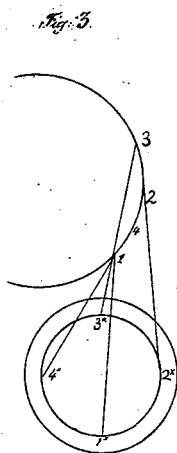
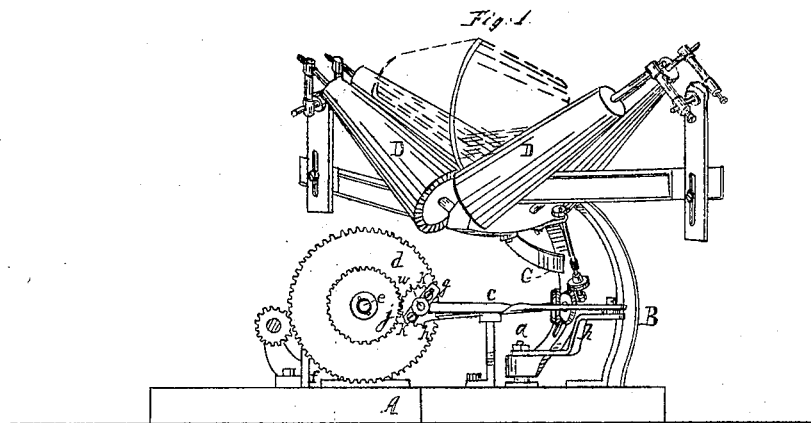


H. N. Swift, Forming Bats.

No. 53196.

Patented Mar. 13, 1866.



Witnesses.
Wm. C. Lyon
Jas. B. Livingston

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UNITED STATES PATENT OFFICE.

H. N. SWIFT, OF MATTEAWAN, NEW YORK.

IMPROVEMENT IN HAT-FORMING MACHINES.

Specification forming part of Letters Patent No. 53,196, dated March 13, 1866.

To all whom it may concern:

Be it known that I, H. N. SWIFT, of Matteawan, in the county of Dutchess and State of New York, have invented a new and Improved Hat-Forming Machine; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a side elevation of this invention. Fig. 2 is a plan or top view of the same, partly in section. Fig. 3 is a diagram showing the relative position of the connecting rod and crank when the driving-wheel is in a horizontal position.

Similar letters of reference indicate like parts.

This invention consists, first, in placing the driving-wheel of a hat-forming machine in a vertical position, in contradistinction to placing it in a horizontal position, as usual, in such a manner that the vibrations of the frame which carries the formers are equalized; second, in transmitting the motion from the driving-wheel to the frame which carries the formers, by means of a sun-and-planet gear, in such a manner that the web passes slower over the former at half-motion, while the motion of the driving-wheel continues without interruption, and the operation of "banding" or forming the brims of the hats can be effected without stopping the vibrating of the frame; third, in combining, with the sun-and-planet gear, an adjustable wrist-pin in such a manner that the speed of the vibrating can be increased or decreased at pleasure while passing the center.

A represents a platform or bed-plate, which supports the several working parts of my machine. From this bed-plate rises a standard, B, which serves to steady the upper part of an oscillating frame, C, the lower part of which has its bearing on a pivot, *a*, and to which the desired oscillating motion is imparted by means of an arm, *b*, which extends from the lower part of said frame and connects by a rod, *c*, with the driving-wheel *d*.

In the frame C are mounted the rolls D, to which a revolving motion is imparted by suitable bevel-gear in the usual manner.

The driving-wheel *d*, which in ordinary hat-forming machines is mounted on a vertical

arbor, I have secured to a horizontal shaft or stud, *e*, which is fastened in a standard, *f*, rising from the platform A, and by this arrangement the vibrations of the oscillating frame are equalized, which is not the case with hat-forming machines of the ordinary construction, in which the driving-wheel revolves on a vertical shaft, as will be readily understood by referring to Fig. 3 of the drawings. If in this figure *e** represents the center of the driving-wheel *d**, *b** the arm which is connected to the oscillating frame and swings on the center *a**, and *c** the connecting-rod, which is secured to the eccentric wrist-pin *w** on the driving-wheel, the outer end of the arm *b** will swing through the arc 1 2 while the wrist-pin *w** travels from 1* to 2*, and through the arc 2 3 while the wrist-pin travels from 2* to 3*; but while the wrist-pin travels from 3* to 4* the arm *b** swings through the arc 3 4, (which is much larger than the arc 2 3,) and while the wrist-pin travels through the last quarter of its circuit, from 4* to 1*, the motion of the arm is limited to the arc 4 1.

In my machine, where the driving-wheel is placed in a vertical position, the motion imparted to the arm *b* is the same while the wrist-pin *w* passes the upper half of its circuit as it is while said wrist-pin passes the lower half, and the vibrations of the frame C, which carries the formers, are equalized.

The wrist-pin *w* in my machine is secured to a plate, *g*, which is fastened to a pinion, *h*, mounted on a stud, *i*, which projects from the driving-wheel *d*, as shown particularly in Fig. 2. The pinion *h* gears in a cog-wheel or toothed rim, *j*, which is firmly keyed or otherwise secured to the stud *e*, on which the driving-wheel revolves, and by these means a sun-and-planet motion is obtained, and the vibrating of the oscillating frame C becomes slower while passing over the center in proportion as the wrist in plate *y*, which is attached to the pinion, is thrown off the center of said pinion, thus giving time for the operation of banding or forming the brim without stopping the vibration, which is necessary on ordinary machines. This plate *y* is secured to the pinion *h* by means of screws *k*, which pass through slots in said plate, so that the position of said plate can be changed and the wrist-pin can be adjusted so as to cause the oscillating frame to sweep through a greater or smaller arc, and

by these means the speed of the vibration can be increased or diminished at pleasure.

Instead of the sun-and-planet gear a cam-groove of suitable form might be used and the same effect could be produced.

What I claim as new, and desire to secure by Letters Patent, is—

1. Placing the driving-wheel *d* of a hat-forming machine in a plane parallel with the axis of the pin or stud *a* on which the frame C oscillates instead of at right angles to the same, substantially as and for the purpose described.

2. The sun-and-planet gear *h j*, or its equiva-

lent, in combination with the driving-wheel *d* and oscillating frame C, which carries the rolls D, substantially as and for the purpose set forth.

3. The adjustable wrist-pin *w*, in combination with the pinion *h*, cog-wheel *j*, driving-wheel *d*, and oscillating frame C, constructed and operating substantially as and for the purpose described.

H. N. SWIFT.

Witnesses:

W. HAUFF,

WM. E. LYNN.