(No Model.) 3 Sheets—Sheet 1.

S. T. NEWMAN.

HAT DIPPING APPARATUS.

No. 456,706. Patented July 28, 1891.

Fig. 1.

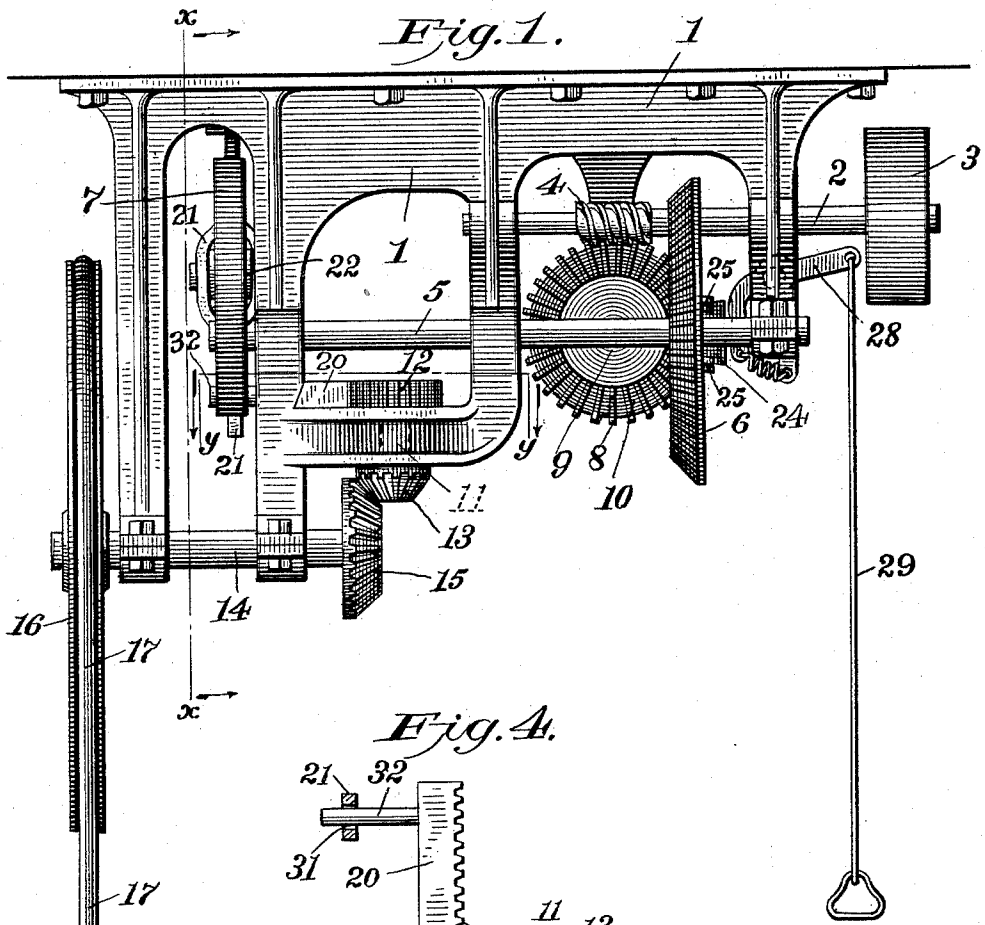
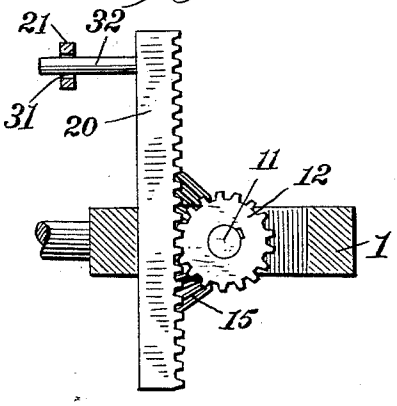


Fig. 4.



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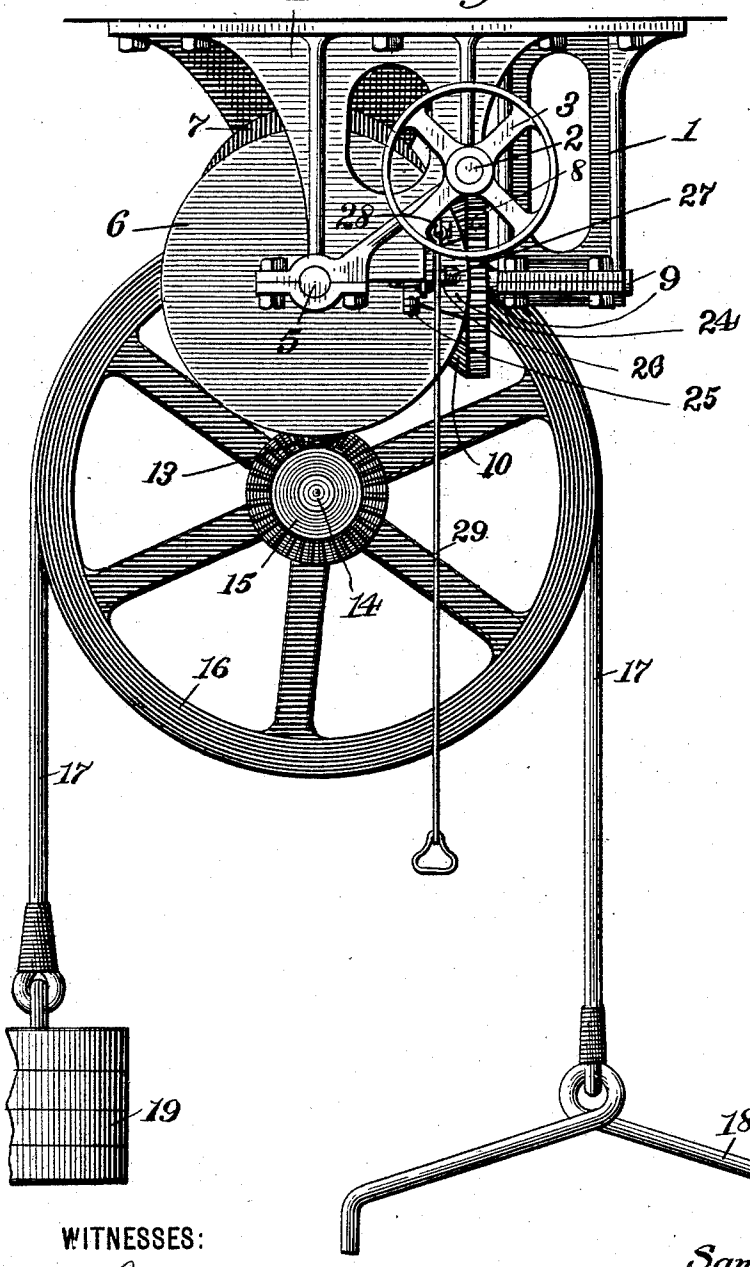
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Fig. 2.



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S. T. NEWMAN.

HAT DIPPING APPARATUS.

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Fig. 3.

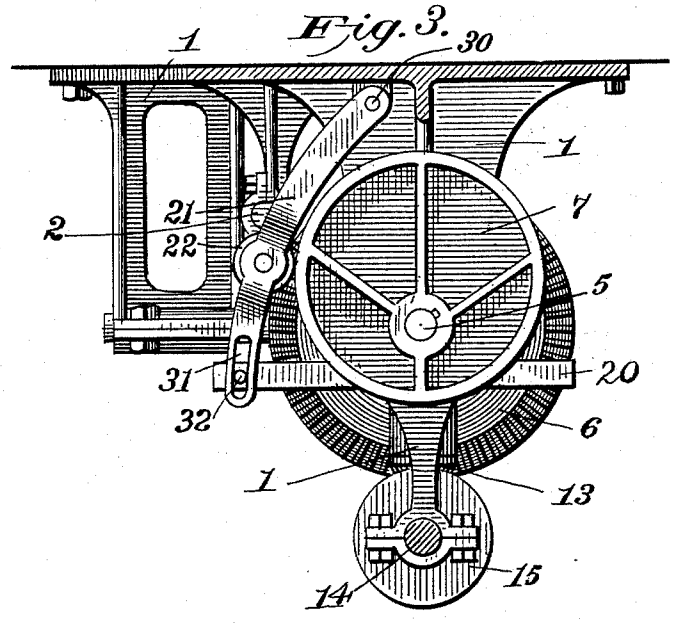
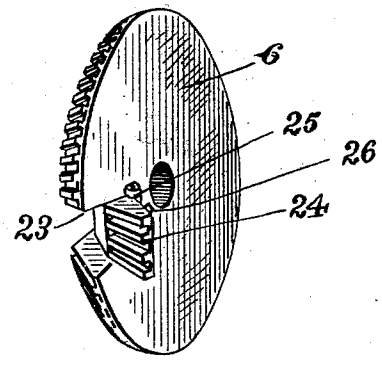


Fig. 5.



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UNITED STATES PATENT OFFICE.

SAMUEL T. NEWMAN, OF DANBURY, ASSIGNOR TO THE HAT DIPPING MACHINE COMPANY, OF SOUTH NORWALK, CONNECTICUT.

HAT-DIPPING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 456,706, dated July 28, 1891.

Application filed February 10, 1891. Serial No. 380,987. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL T. NEWMAN, a citizen of the United States, residing at Danbury, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Hat-Dipping Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to certain new and useful improvements in hat-forming machines, but has especial reference to the mechanism which controls the operation of the platform which supports the hat-cone in an apparatus for automatically dipping the hats, and will be best understood from the following description, reference being had to the accompanying drawings, in which—

Figure 1 is a front elevation of a machine embodying my invention; Fig. 2, a side elevation thereof; Fig. 3, a section at the line *x x* of Fig. 1; Fig. 4, a section at the line *y y* of Fig. 1, and Fig. 5 a detail perspective of the mutilated bevel-gear.

Similar figures denote like parts in the several figures.

1 is a hanger adapted to be secured to the ceiling in any ordinary manner. 2 is the power-shaft, journaled in said hanger and having rigidly mounted thereon the power-pulley 3 and the worm 4. 5 is the primary shaft, journaled in said hanger and having tightly mounted thereon the beveled gear-wheel 6 and the cam-disk 7.

8 is a spur-gear mounted on the short shaft 9, which latter is suitably journaled in said hanger, and on the inner face of said gear is a beveled gear 10, which meshes with the bevel-gear 6. The worm-wheel 4 engages with the spur-wheel 8, and thereby communicates motion to the shaft 5 and cam 7.

11 is a short shaft journaled in the hanger and having tightly mounted on its upper and lower ends, respectively, the pinion 12 and bevel-gear 13.

14 is the secondary shaft, which supports the hat-dipping platform, said shaft being journaled similar to the shafts hereinbefore mentioned and having tightly mounted on its inner and outer ends, respectively, the bevel-gear 15 and pulley 16. The gear 15 meshes with the gear 13, while a rope 17 or an equivalent thereof is passed around the pulley 16, one end of said rope being secured to the bail 18 of the dipping platform, the other end having secured thereto a weight 19 considerably less than the weight of the said platform.

20 is a rack-bar adapted to slide freely within ways in the hanger and meshing with the pinion 12.

21 is a link-bar pivoted at the upper end to the hanger, as seen at 30, the lower end being provided with a slot 31, through which a pin 32 from the rack-bar projects. This connection of the rack with the bar 21 is an ordinary lose connection, whereby the oscillation of said bar will impart a to-and-fro sliding movement to the rack.

22 is a friction-roll journaled on the bar 21 about midway of its length and bearing normally by gravity against the cam, as shown in Fig. 3, so that it will be readily understood that the action of said cam during its revolution will effect the reciprocation of the rack-bar through the medium of the link-bar 21. Therefore a complete revolution of said cam will cause the pulley 16 to turn in two reverse directions, this being effected by the opposite actions of the rack-bar 20 on the pinion 12. These two movements of the pulley 16 will of course effect the raising and lowering of the dipping platform; but it is necessary to provide some means for stopping the action of said pulley after the platform has been elevated, in order that the dipped hat may be removed and replaced by another hat. In other words, the operation of dipping should be controlled by the workman in charge of the machine, and I will now describe certain means whereby the primary shaft 5 ceases to revolve at the end of each complete revolution thereof. A portion of the gear 6 is cut away, as shown at 23, and a separate section 24, having gear-teeth similar to those in the gear 6, is hinged to the latter, as shown at 25. A spring 26, secured to the back of the gear 6 and connected at 27 to the section 24, keeps the latter thrown back, as shown at Figs. 1 and 5.

28 is a dog pivoted in the hanger, the nose of said dog being opposite to the rear face of the section 24 and in close proximity thereto when said section is in normal position and the shaft 5 is at a standstill. 29 is any suitable cord or rod depending from the heel of said dog within reach of the workman. The power-shaft 2 is continuously revolving, and the action of the shaft 5 ceases when the cut-away portion of the gear 6 arrives opposite to the teeth on the gear 10.

In order to impart power to the shaft 5, the cord or rod 29 is pulled downward, thereby throwing the nose of the dog 28 against the hinged section 24, and forcing the latter forward, so as to bridge the gap in the gear 6, and as soon as this is accomplished the teeth on the gear 10 will engage with the teeth on the section 24, thereby revolving the pinion 6. When the gear 10 leaves the section 24, the latter will spring back, so that when the gear 6 has completed a revolution the cut-away portion 23 will prevent further movement of said gear 6.

Of course various devices may be contrived for operating the spring-section 24, and I do not wish to be limited to the pivoted dog shown.

In dipping hats the platform which supports the cone should be lowered somewhat fast at first, but latterly very slowly, so that the air in the cone will not blow out the apex of the hat. The elevating of the platform should be accomplished at a quick speed in order to save time. The cam-disk 7 is so laid out that the proper variable speed is imparted to the rack-bar 20 through the link 21, whereby the pulley 16 will be operated to raise and lower the hat-dipping platform at the desired speeds.

I claim—

1. In a hat-forming machine, the combination, with the shaft which carries the dipping-pulley, of a short shaft having mounted thereon a pinion, intermeshing bevel-gears on said shafts, and a vibrating rack meshing with said pinion, and means for imparting to said rack different speeds, substantially as set forth.

2. In a hat-forming machine, as described, the combination of the pinion 12, rack 20, meshing with said pinion, rotatory cam 7, and link-bar 21, secured to said rack and having an effective connection with said cam, substantially as set forth.

3. In a hat-forming machine, as described, the combination of the hanger, the shafts 11 14, journaled therein and having intermeshing bevel-gears, the pinion 12, secured on said shaft 11, the rack 20, engaging said pinion, the rotatory cam 7, the link-bar 21, connected at one end to said rack, the other end being pivoted to the hanger, and the roll journaled on said bar and having a normal bearing against said cam, whereby the rotation of the latter will impart to and fro movements to said rack, substantially as set forth.

4. In a hat-forming machine, the means herein described for communicating power to the primary shaft of said machine, the same consisting of two intermeshing gears, the passive gear being mutilated and having a segment adapted to bridge said mutilation, a spring whereby said segment is normally distended, the power-driving mechanism, and operative connections intermediate the active gear and said mechanism, substantially as shown and set forth.

5. The combination of the power-shaft 2, having worm 4, shaft 9, having spur-gear 8 and bevel-gear 10, shaft 5, having cam 7 and mutilated bevel-gear 6, secured thereon, gear-segment 24, hinged to the latter, spring 26, normally distending said segment, pivoted dog 28, adapted to be forced against said segment, whereby the latter is thrown inward to bridge said mutilation, shaft 11, having rigid thereon the pinion 12 and bevel-gear 13, rack 20, meshing with said pinion, link-bar 21, connected at one end to said rack, the other end being pivoted to the hanger, roll 22, journaled on said bar and bearing normally against said cam, and shaft 14, provided with bevel-gear 15, meshing with gear 13 and having mounted thereon the pulley which supports the hat-dipping platform, all arranged and operating substantially as shown and set forth.

In testimony whereof I affix my signature in presence of two witnesses.

SAMUEL T. NEWMAN.

Witnesses:
JOS. W. GREEN,
F. W. SMITH, Jr.