

(No Model.)

3 Sheets—Sheet 1.

C. H. REID.
HAT FINISHING LATHE.

No. 301,279.

Patented July 1, 1884.

Fig. 1

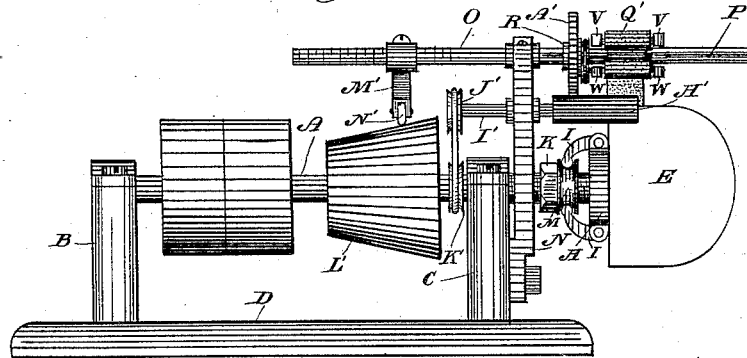


Fig. 2

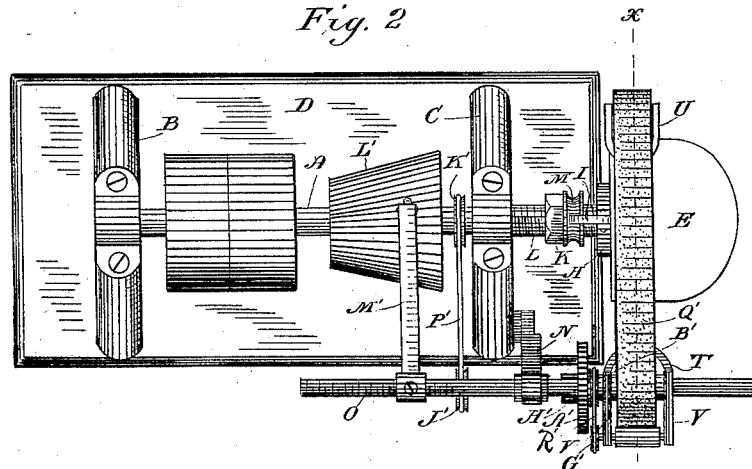
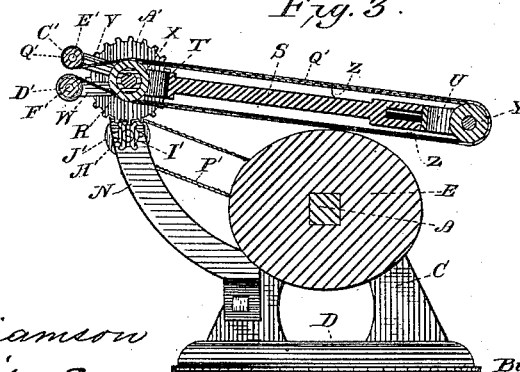


Fig. 3



Witnesses
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Fig 4

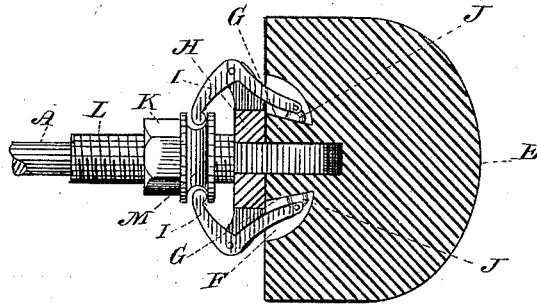


Fig. 5

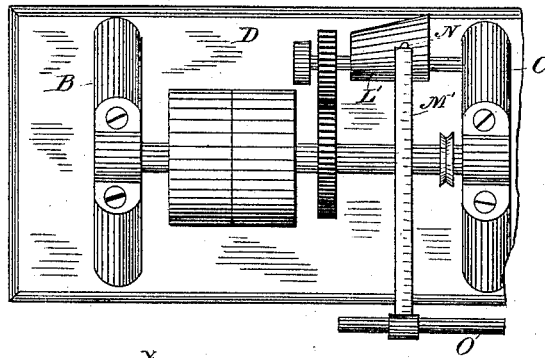


Fig 6

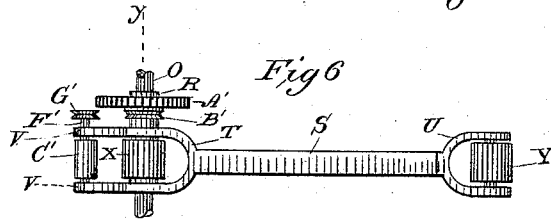
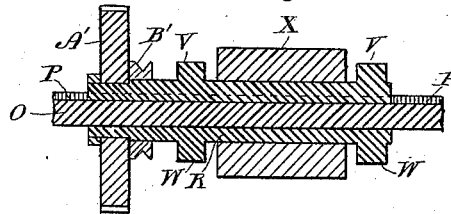


Fig. 7



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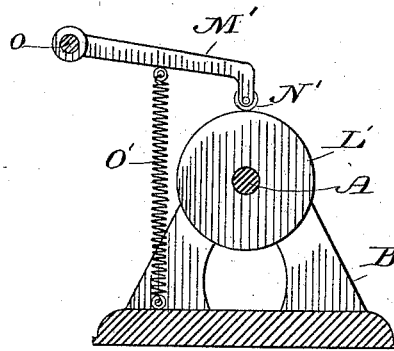
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Fig 8



Witnesses
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UNITED STATES PATENT OFFICE.

CHARLES H. REID, OF DANBURY, CONNECTICUT.

HAT-FINISHING LATHE.

SPECIFICATION forming part of Letters Patent No. 301,279, dated July 1, 1884.

Application filed February 18, 1884. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. REID, 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-Finishing Lathes; 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 novel and useful improvements in that class of machines known as "hat-finishing lathes," and has for its object to do away with all vertical movement of the hat-block, and to so construct and arrange the sandpapering mechanism that it will be adapted to the varying distance of the external contour of the hat-body from the center of revolution; also, to provide means whereby the hat-block may be securely held in position on the revolving shaft; and, furthermore, to enable the sand-paper or other rubbing-surface to act on the hat with a continuous and uniform movement and pressure, whereby not only a great saving of sand-paper is effected, but also much time and labor are saved which would otherwise be consumed in tearing and utilizing said paper in suitable strips; and with these ends in view my invention consists in the details of construction and combination of elements hereinafter fully and in detail explained, and then specifically designated by the claims.

In order that those skilled in the art to which my invention appertains may more fully understand the same, I will proceed to describe the construction and operation, referring by letter to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a side elevation of a hat-finishing lathe constructed in accordance with my improvement; Fig. 2, a plan view of the same; Fig. 3, a section through the line *xx* of Fig. 2; Fig. 4, a detail view, with the hat-block in section and the shaft broken away, and illustrating the means for securing the block to said shaft; Fig. 5, a plan view showing a modified form and arrangement of the operating cam or templet; Fig. 6, a detail plan view of

the arm which supports the sandpapering mechanism, and showing its arrangement relative to the splined collar; Fig. 7, a section taken at the line *yy* of Fig. 6; and Fig. 8 is a cross-section through the main shaft, showing the templet, L-shaped lever, and spring in side elevation.

Similar letters denote like parts in the several figures of the drawings.

A is the main shaft, journaled in any ordinary way within standards B C, projecting upward from the bed-plate D. The forward extremity of this shaft is square or rectangular in cross-section, and is adapted to enter a corresponding central opening in the hat-block E. In the rear portion of the block is formed an annular recess, F, the inner wall of which flares outwardly, thereby forming an incline, G, as seen at Fig. 4.

H is a collar on the outer portion of the shaft A, and having pivoted therein bell-crank levers I. The forward ends of these levers extend within the recess F, and are provided with pivoted shoes J, which bear against the incline G, as will be presently explained.

K is a nut running on a threaded collar, L, secured on the shaft A. The forward part of this nut is grooved or concaved, as seen at M, and thereby adapted to accommodate the heel ends of the levers I. By running the nut back on the collar L, the heel ends of the levers will be thrown upward, thereby forcing the shoes J firmly against the inclined wall G and securing the block E to the shaft.

N is an upwardly-projecting arm bolted to the standard C.

O is a shaft journaled within this arm, and having within its forward part a groove or seat, P, into which fits a spline, Q, of a collar, R, extending around the shaft. Cast integral with this collar or rigidly attached thereto is an arm, S, having forks T U at the extremities thereof. The rear fork, T, has two sets of prongs, V W, and the forward fork is swiveled to the arm, for the purpose presently explained.

X Y are pulleys, the former arranged to revolve freely on the collar R between the fork T, and the latter journaled within the swiveled fork U; and Z is an endless belt arranged around said pulleys.

A' is a cog-wheel having formed integral therewith or attached thereto a small pulley, B, and arranged on the collar R, so as to revolve freely.

- 5 C' D' are small rollers secured on short shafts E' F', which latter have their bearings within the prongs V W, respectively.

G' is a pulley secured on the same shaft with the roller D'.

- 10 H' is an elongated cog-wheel adapted to mesh with the wheel A', and secured on the shaft I', journaled within the arm N, and having secured on its inner extremity a pulley, J'.

- 15 K' is a pulley arranged tightly on the shaft A.

L' is the templet, which is secured on the main shaft A.

- Adjustably secured on the shaft O is an L-shaped lever, M', (see Fig. 8,) the lower extremity of which is provided with an anti-friction roll, N', which is kept in constant contact with the templet by means of a spring, O'. The templet is conformed in cross-section at various portions along its length to the various styles and sizes of ellipses of hat-bodies, and as the shaft A revolves, said templet will likewise revolve and raise the lever M' to different heights at different times, thereby causing the arm S to be elevated in the same manner, owing to the fact that the latter is rigidly connected with the collar R, which is splined to the shaft O, as previously explained.

P' is a belt connecting the pulleys J' K', and R' a belt running over the pulleys G' B'.

- 35 The sand-paper or other rubbing material, Q', is arranged in a coiled form on the roller C', brought over and underneath the belt Z, and then fastened to the roller D' in any suitable manner; and it will be readily understood that the revolution of the pulley G' will cause the roller D' to revolve and cause the sand-paper to be fed from the roller C'. The endless belt Z not only serves as a backing, but the friction between it and the sand-paper will cause the pulleys X Y to revolve, and thereby enable the paper to be fed with comparatively little friction or strain.

- Motion is communicated to the several parts of my improvement as follows: As the shaft 50 A revolves, motion will be transmitted from the pulley K' to the pulley J', thence from the cog H' to the cog A', and from the pulley B' to the pulley G'.

- The operation of my improvement is as follows: The hat is placed over the block E and the machine set in motion. The roll N' will travel over the templet L', and as the varying contour of the hat-body is brought against the sand-paper the action of the said templet 60 on the lever M' will cause the arm S, which supports the sandpapering mechanism, to be raised to different elevations at different times, as previously set forth. The operator grasps the said arm and pulls the same forward, so that the hat may be operated upon in different vertical planes, the connection between

the collar R and the shaft O permitting this movement. As hereinbefore set forth, the fork U is secured to this arm, so that in sandpapering the sloping part of the hat-crown 70 the belt will twist, thereby causing the paper to act obliquely on the hat.

The shaft O is graduated, as shown, in order to adjust the lever M' to different vertical planes of the templet, thereby changing the 75 throw of said lever and sandpapering mechanism to correspond with the various shapes in cross-section of hat-bodies.

It will be readily seen that any sized hat-block may be secured on the shaft A by means 80 of my improved method of fastening, and also the sand-paper rolls are readily renewed.

Prior to my invention the whole mechanism connected to the shaft which supports the hat-block has been thrown up and down with an 85 irregular movement, in order to bring the different portions of the hat-body to the same horizontal plane, and this method has been found by actual practice to be very expensive and disadvantageous, for the reason that the 90 said mechanism became almost useless and inoperative in a few years, owing to the general rocking and wrenching of the several parts, and, moreover, the hat was papered off in patches, and had to be refinished by hand. By 95 the use of my improvement the said mechanism has no movement except rotary motion in its bearings, and the sand-paper is adapted by a constant and steady movement to the different portions of the hat-body. 100

In Fig. 5 I have shown a templet of a different form mounted on an independent shaft, said shaft having thereon a cog-wheel meshing with a wheel mounted on the main shaft, the diameter of the latter wheel being twice 105 that of the former, so that for every revolution of the hat-body two revolutions of the templet will be required. This construction may be used with the same results as in the case of the templet mounted on the main shaft; but I 110 prefer the latter construction.

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

1. In a hat-lathe, the mechanism attached 115 to the shaft which supports the hat-block, adapted to revolve in its bearings without any vertical play, in combination with means for sandpapering the hat and mechanism for causing said means to act on the hat in different 120 horizontal planes at different times, substantially as set forth.

2. In a hat-lathe, the sandpapering mechanism, in combination with means for revolving the hat in a constant horizontal and up- 125 right plane, and means attached to the shaft of the hat-revolving mechanism for varying the horizontal plane of the sandpapering devices, substantially as set forth.

3. In a hat-lathe, the main shaft having se- 130 cured at its outer extremity the hat-block, and with the templet mounted thereon, in combi-

nation with the sandpapering mechanism and means for operating the same, substantially as described.

4. In a hat-lathe, the hat-block, recessed as described, and adapted to be placed over the main shaft, and secured thereon by bell-crank levers pivoted to a block on said shaft, and operated by a nut running on a collar secured to the shaft, substantially as shown and set forth.

5. The shaft A, journaled as described, and having mounted thereon the templet I' and hat-block E, in combination with the lever M' and shaft O, supporting the sandpapering mechanism, substantially as described.

6. The shaft A, having mounted thereon the templet and hat-block, in combination with the lever M', shaft O, having splined collar thereon, arm S, rigidly secured to said collar and supporting the sandpapering devices, wheel A', having pulley B' formed integral therewith, pulley G', and cog H', substantially as shown and specified.

7. The shaft O, having mounted thereon the arm supporting the sandpapering mechanism, in combination with means for feeding the sand-paper and means for causing the latter to operate in planes corresponding to the varying horizontal planes of the hat-body, substantially as specified.

8. The arm supporting the sandpapering devices, secured to a collar capable of a longitudinal movement on the shaft O, but without any rotary motion thereon, in combination with means for operating said devices, substantially as set forth.

9. The arm supporting the sandpapering devices, secured to a collar capable of a longitudinal movement on the shaft O, but without any rotary motion thereon, in combination with means for feeding the sand-paper and mechanism for causing said devices to operate in varying horizontal planes, substantially as herein shown and described.

10. In a hat-lathe, the sand-paper arranged in coiled form around a roller, and then carried over and around a belt running over pulleys mounted as described, in combination with means for feeding said paper from said

roll, whereby a backing is afforded to said paper and the strain on the latter relieved, substantially as described.

11. The shaft A, having secured thereon the threaded collar L, in combination with the hat-block E, adapted to be placed over the extremity of said shaft, and provided with annular recess F, having inclined inner wall, G, collar H, having pivoted thereto bell-crank levers I, provided with shoes J, and nut K, having groove M, substantially as set forth.

12. In a hat-lathe, the sand-paper or other rubbing-surface mounted on a feed-roll and adapted to be fed in a continuous strip, substantially as set forth.

13. In a hat-lathe, the shaft which supports the sandpapering mechanism, graduated as shown, whereby the varying throw imparted from the templet to the lever, which acts to rock said shaft, may be determined by adjusting said lever, thereby adapting the sandpapering devices to different shapes of hat-bodies, substantially as shown and described.

14. The arm S, secured to or cast integral with the collar R, and having rigid fork T and swiveled fork U, and with endless belt Z, running over pulleys mounted on bearings between said forks, in combination with the sand-paper or other rubbing material arranged in coiled form around a roller journaled between the prongs V, and carried over and around said belt, and attached to the roller D', journaled between the prongs W, and means for actuating the latter roller, substantially as described.

15. The arm which carries the sandpapering devices, having at its free extremity a swivel, with a pulley mounted thereon, which forms one of the supports for the sand-paper, whereby the latter may twist and act on the sloping portion of the hat-body, substantially as specified.

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

CHARLES H. REID.

Witnesses:

LEROY STURGES,
JAMES E. WALSH.