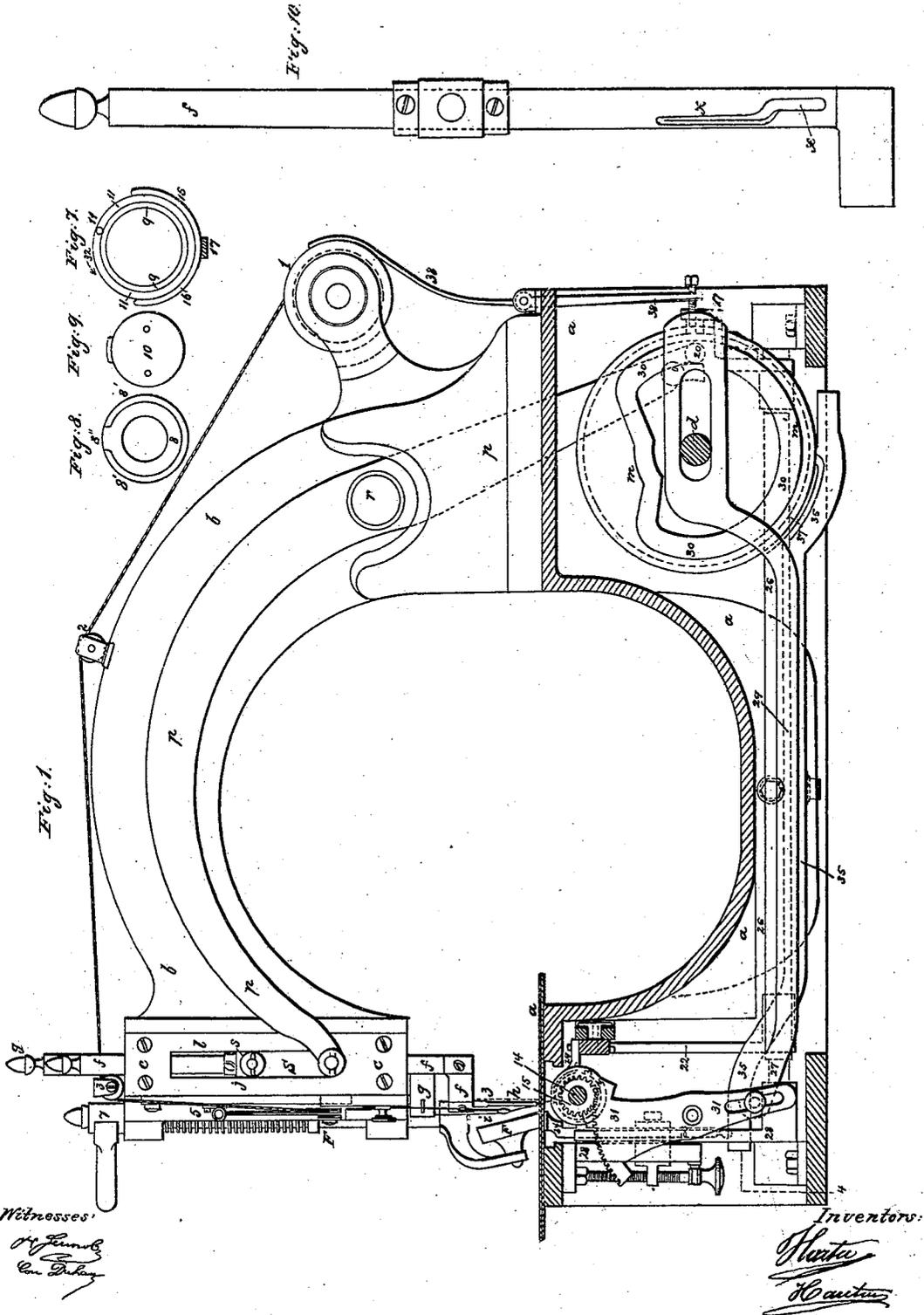


HURTU & HAUTIN,
Sewing Machine.

2 Sheets—Sheet 1.

No. 98,064.

Patented Dec. 21, 1869.

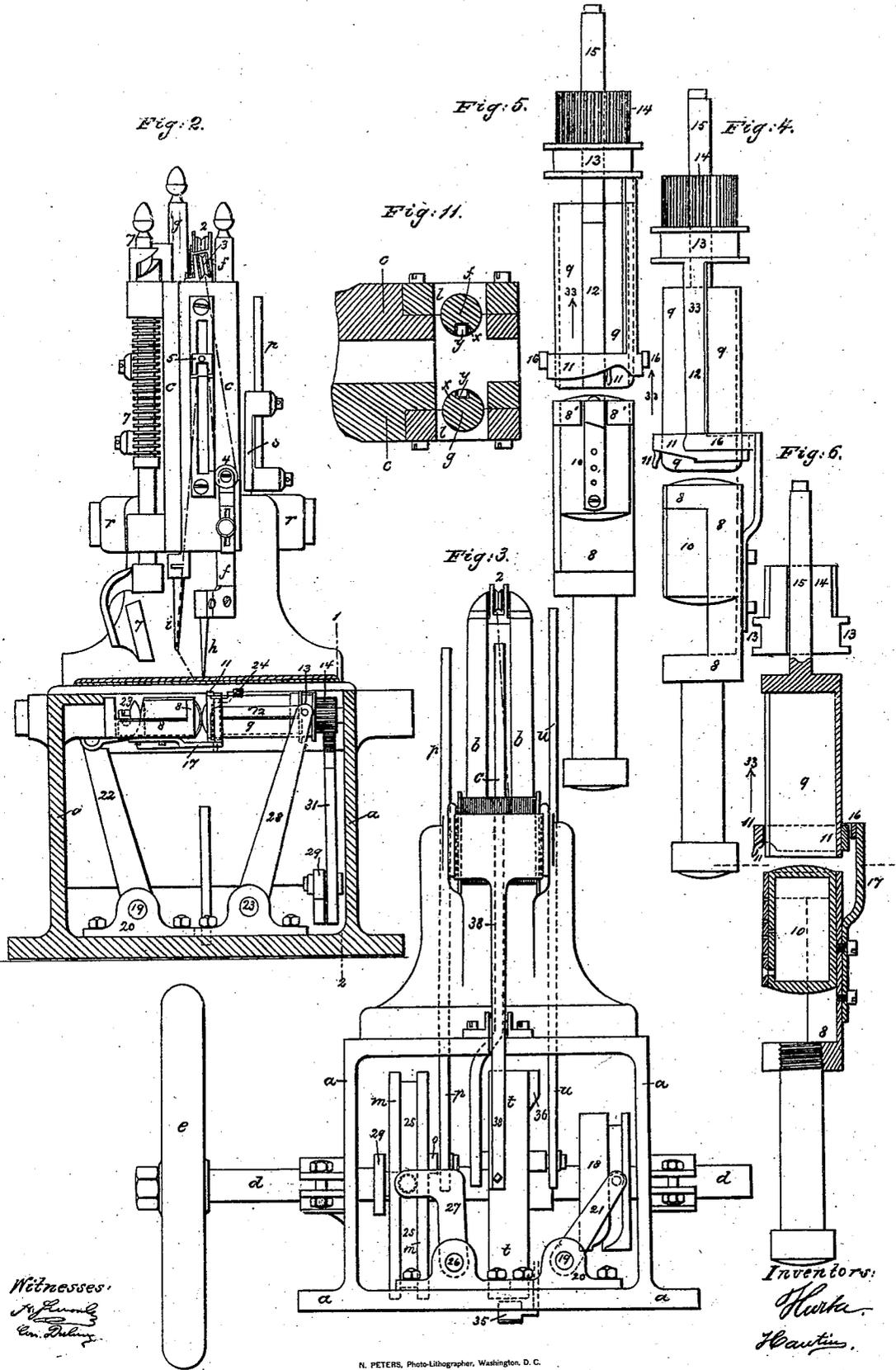


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Witnesses:
J. L. ...
Wm. ...

Inventors:
Hurtu.
Hautin.

United States Patent Office.

AUGUSTE JACQUES HURTU AND VICTOR JOSEPH HAUTIN, OF PARIS,
FRANCE.

Letters Patent No. 98,064, dated December 21, 1869.

IMPROVEMENT IN SEWING-MACHINE.

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, AUGUSTE JACQUES HURTU and VICTOR JOSEPH HAUTIN, of Paris, in the French Empire, merchants, have invented "Improvements in Apparatus for Sewing Saddlery, and other Leather or Strong Materials;" and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed sheets of drawings, making a part of the same.

Our invention relates to apparatus more especially applicable for sewing leather, saddlery, harness, and other similar work, with waxed thread. In this invention, a needle and an awl are employed, having a vertical and an adjustable horizontal movement, and are operated alternately, so that the needle may pass the thread through the hole made just previously by the awl, and before the leather is moved forward. By this means the sewing may be carried on with great regularity, and the material be turned in any direction, in order to execute small designs.

The invention relates, also, to improvements in the arrangement of the shuttle, whereby it is caused to pass through the loops formed by the waxed thread, without touching it.

These improvements are illustrated in the accompanying drawings—

Figure 1 of which shows a side elevation of the apparatus, on the line 1 2.

Figure 2, the latter being a front view of the same on the line 3 4, fig. 1.

Figure 3 shows a back view of the machine.

Figure 4, a view of the shuttle-mechanism on a larger scale.

Figure 5, a plan,

Figure 6, a longitudinal section, and

Figure 7, an end view of the same,

Figure 8 shows a part detached,

Figure 9 is an end view of the shuttle,

Figure 10, separate view of the awl-carrier; while

Figure 11 shows, in plan, the arrangement of the needle and awl-carriers in the head of the machine.

The same reference-letters and figures serve for all the figures.

a, foot of the machine, carrying the arm *b*, at the end of which is the head *c*.

d, driving-shaft, mounted at the back end of the foot *a*, carrying a fly-wheel not shown, and receiving rotary motion either from a treadle, crank, or strap.

f g, awl and needle-carriers, working up and down in the head *c*, and having cranked ends, *f'* *g'*, in which are fixed the awl *h* and needle *i*, carrying the waxed thread.

The parts *f g* are fitted to turn in parts *j*, which are guided vertically in openings *l*, made laterally in the head *c*.

m, disk, keyed on the driving-shaft *d*, and provided with a cam-groove on its lateral surface, in which works a stud, *o*, carried on the end of a lever, *p*, jointed at point *r*, for communicating oscillating movements thereto. The other end of said lever is connected to the slide *j* by a connecting-link, *s*, for imparting a continuous up-and-down motion to the awl-carrier.

t, disk, keyed on the driving-shaft *d*, having a cam-groove on its lateral surface for operating a lever, *u*, oscillating on point *r* on the other side of the machine-arm, for working the needle-carrier, it being connected by a link thereto.

The driving-cams are combined in such manner that the awl-carrier may be at the highest position while the needle-carrier is at the lowest, and *vice versa*.

Besides the up-and-down motion of the two parts *f g*, they have, also, partial rotary motion in a horizontal plane, for the purpose of insuring the awl and needle penetrating the leather at the same point, one after the other.

This motion is obtained by the aid of grooves *x*, fig. 10, in the needle and awl-carriers, in which are received the frictional studs *y*, fig. 11, fitted in the head *c*.

The grooves *x* are so arranged that the piercer may first make the hole in the leather and then rise, after which the needle will perform the same motion, so as to pass the thread through the hole so made.

The arrangement of needle and piercer operating exactly in the manner of hand-work, is one of the chief points of the invention.

The thread is furnished from a bobbin, 1, rotating in a fork at the back of the machine-arm, the thread passing over guide-pulleys, 2, 3, 4, and thence to the needle from the tension-regulator 5, which is fitted to work up and down in the head *c*, and is governed by a lever, 6, fig. 3, receiving oscillating motion from a cam-groove made in the lateral face of disk *t*.

7, work-presser, of the same kind as ordinarily used.

We will next describe the arrangement for operating the shuttle, combined in such manner that the latter may pass through the loop formed by the thread, without effecting contact therewith.

8, part seen separately in front view at fig. 8, having a semi-cylindrical space made in it, and a ring, 8¹, with a space, 8².

9, cylindrical part, fixed as the end of part 8, but leaving a space between for the passage of the needle and awl.

10, cylindrical shuttle enclosing the reel or ball of thread, and passing alternately from part 8 to part 9 by the aid of suitable driving-parts.

11, ring sliding on part 9, and provided with a hook, 11¹. This ring is fixed by the stem 12 of a grooved coupling, 13, and pinion, 14, fitted to slide on a spindle, 15.

16, semi-cylindrical part embracing ring 11, and held in position by an arm, 17, fixed below part 8.

18, cam keyed on the driving-shaft *d*, for producing the oscillating motion of a shaft, 19, turning in bearings, 20, by the aid of a lever, 21, fig. 3, mounted at one end of said shaft. The other end of this shaft, 19, carries a lever, 22, for imparting rectilinear motion to two arms, 23 24, embracing the front and back ends of the shuttle, so as to cause it to move alternately from right to left in parts 8 and 9.

25, groove made in the periphery of disk *m*, acting as a cam for oscillating a shaft, 26, by the aid of a lever, 27, fig. 3, keyed on one end of same. At the other end of this lever is keyed a lever, 28, fig. 2, having a friction-roller running in the groove of part 13, for causing the sliding movement of the ring 11 on the cylindrical part 9, the part 16 always remaining fixed.

The hook 11¹ and ring 11 have rotary motion imparted to them from a lever, 29, having a rectilinear sliding motion. For this purpose the lever is guided in its motion by a cam-groove, 30, made in the lateral face of disk *m*, producing the oscillation of a toothed segment, 31, fig. 1, gearing with pinion 14.

The whole being arranged as described, the following is the action of the shuttle, and the mode of forming the stitch, without the said shuttle being brought in contact with the loop of waxed thread:

The needle *i* descends in the space between the parts 8 and 9, and forms a loop. At this moment the lever 28 slides the ring 11 along so as to cover the space, and the hook 11¹ seizes the loop, first turning in the direction of the arrow 32, fig. 7, and then rotating in the opposite direction so as to coil or adapt the needle-thread to the periphery of said ring 11. The shuttle then passes from part 8 to part 9 through the ring, the waxed thread being kept on its exterior surface. After the shuttle-thread has passed through the loop, the latter is disengaged from the ring 11 by a backward movement of the ring in the direction of the arrow 33, while the part 16, being fixed, retains the thread during the movement of the ring. The thread, on being released, then rises by the action of the tension-regulator 5, in order to form the stitch.

The material being sewn, is fed by a claw, 34, the rectilinear and upward movement of which is produced by a lever, 35, oscillating and sliding a part, 34, to which said claw is fitted in a downward direction.

The lever 35 receives motion from disk *t* by the aid of the projecting cam-surfaces 36 37, oscillating said lever in two directions at right angles to each other.

The disk *t* also acts on a lever, 38, one end of which bears against the bobbin *L*, at the time the tension-regulator is in operation, to prevent the thread from being unwound, and for tightening the stitch.

Any other mode, partially rotating the needle and awl-carriers, so as to cause the awl and needle to enter the same hole, may also be adopted, instead of by the grooves before described.

It will also be understood that we reserve the right of varying the mode of transmitting motion, and the relative positions of the parts of the apparatus described and illustrated, without departing from the principle thereof.

Claims.

Having described the nature of this invention, and the manner of performing the same, we declare that what we claim as the invention of improvements in sewing-machines for operating on leather and similar work with waxed thread, to be protected by the hereinbefore in part recited Letters Patent, is—

1. The needle and awl-carriers *f g*, when adapted to be rotated in a horizontal plane, during their vertical movement, by means of the collar *j* and the cam-grooves *x*, working upon the pins *y* in the head *c*, for the purpose of insuring the passage, alternately, of the awl and needle through the leather at the same point, substantially as herein shown and described.

2. The combination of the shuttle 10 with the semi-cylindrical race 8, having the ring 8¹ and opening 8², the slotted race 9 upon the spindle 15, the sliding ring 11 carrying the hook 11¹, stem 12, and pinion 14, the oscillating toothed segment 31, the semi-cylindrical spring-jaw 16, and the shuttle-driver 23 and 24, all arranged and operating as described for the purpose specified.

HURTU.
HAUTIN.

Witnesses:

A. GUION,
EM. DUHAN,
F. OLCOTT.