

(No Model.)

3 Sheets—Sheet 1.

L. COTÉ.
HEEL STIFFENER MACHINE.

No. 515,114.

Patented Feb. 20, 1894.

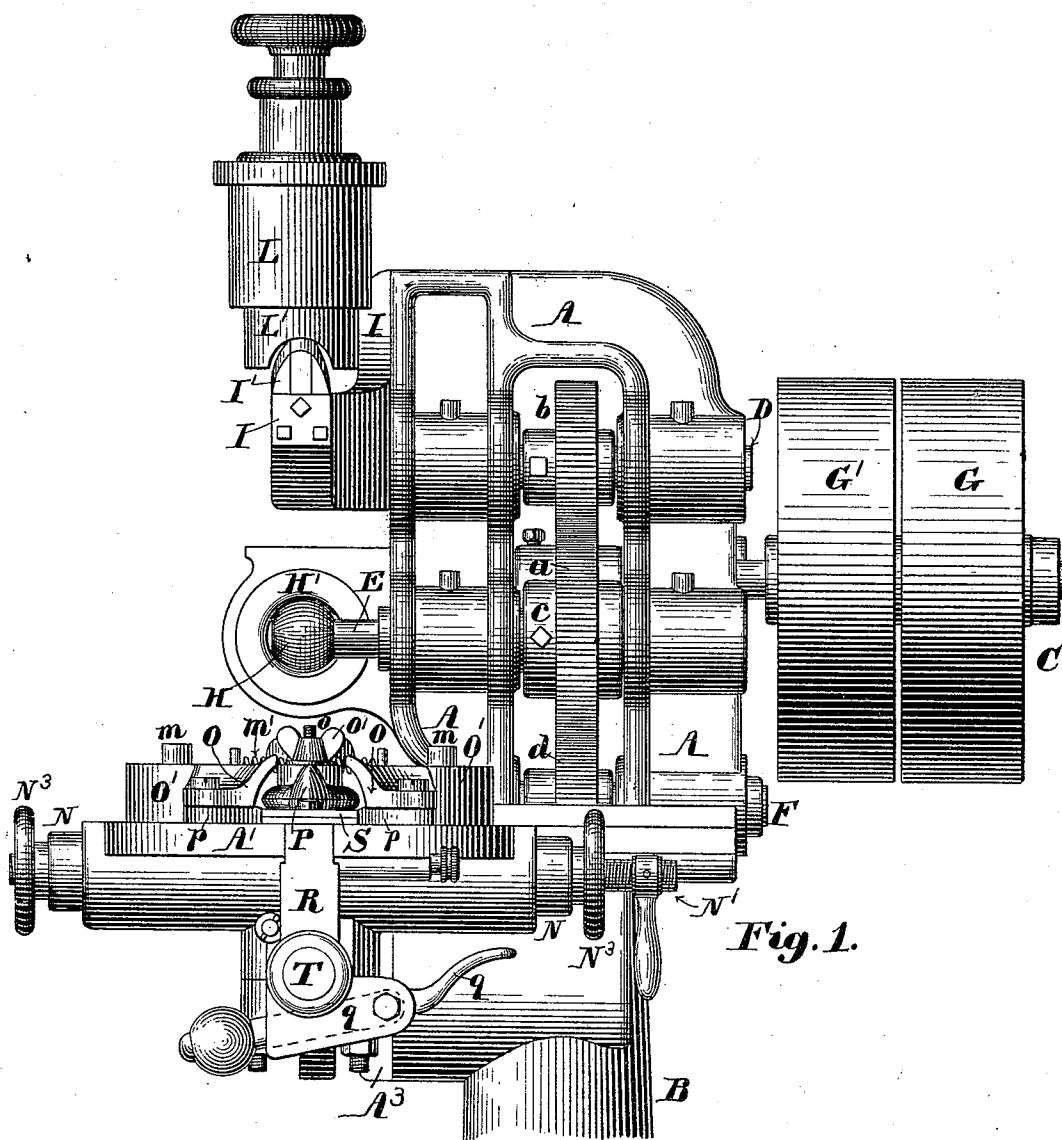


Fig. 1.

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A. M. Morin

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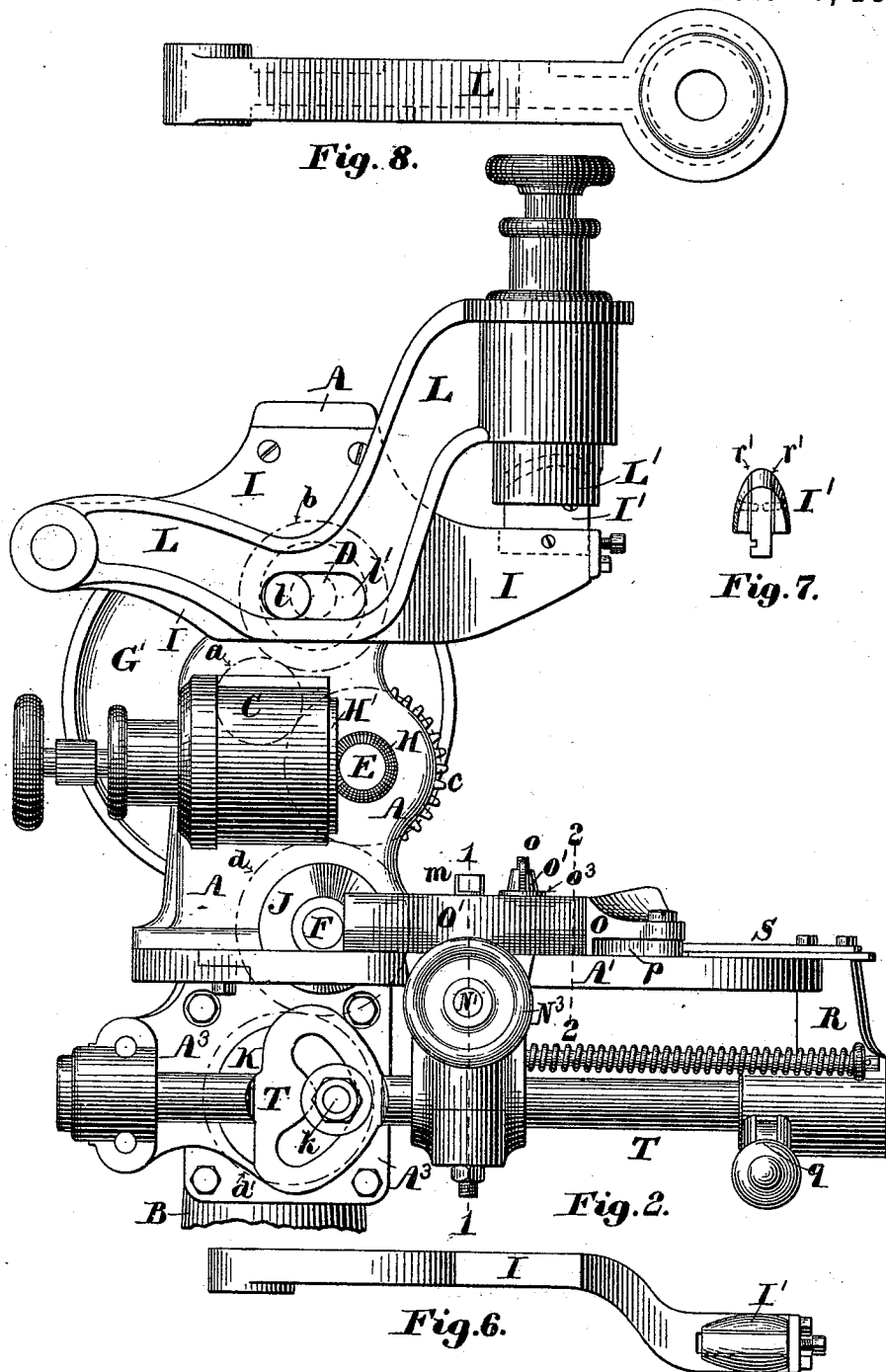
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3 Sheets—Sheet 2.

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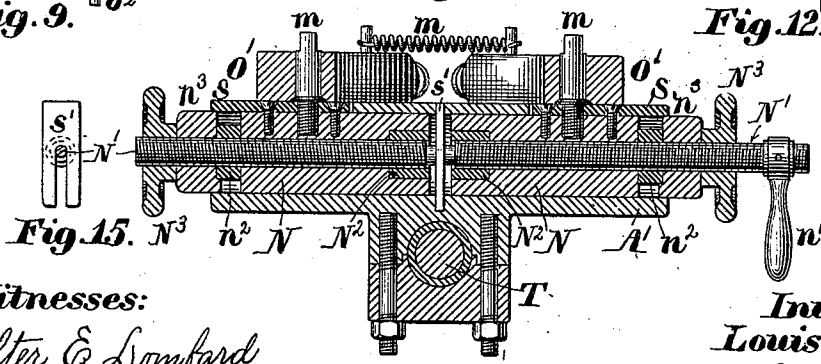
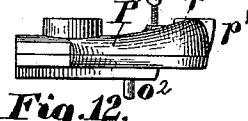
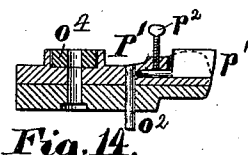
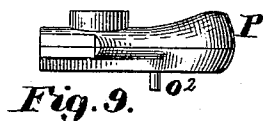
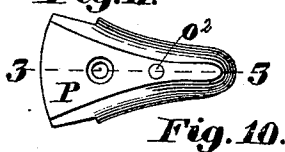
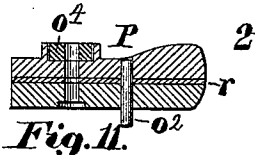
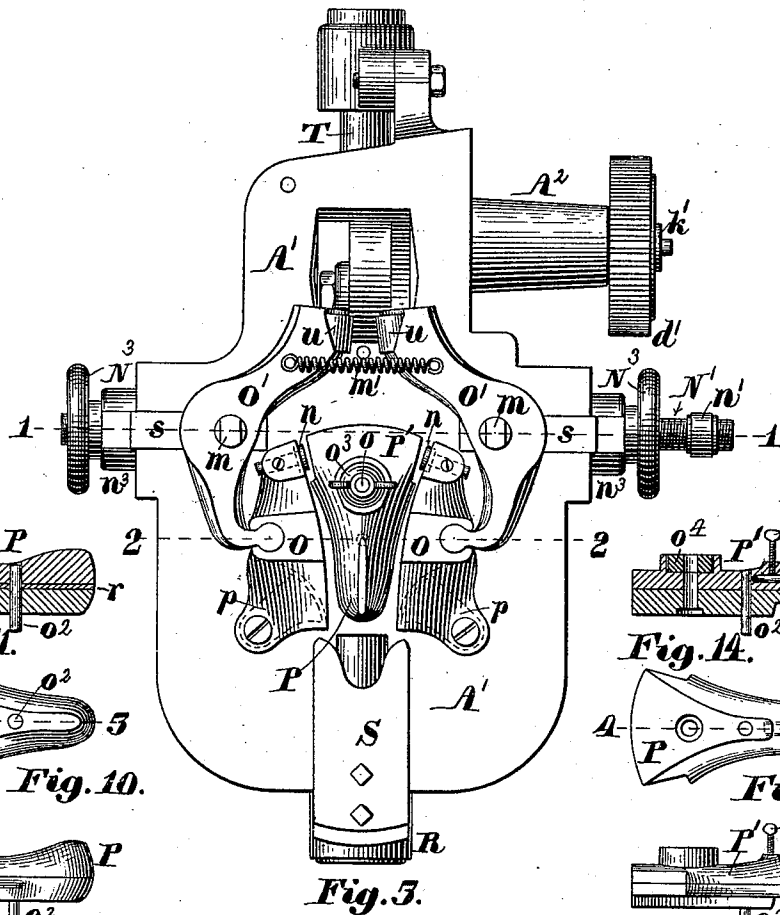
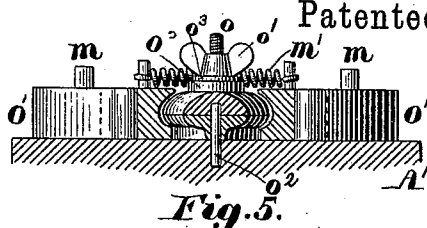
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A. H. Morin

Inventor:
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UNITED STATES PATENT OFFICE.

LOUIS COTÉ, OF ST. HYACINTHE, CANADA.

HEEL-STIFFENER MACHINE.

SPECIFICATION forming part of Letters Patent No. 515,114, dated February 20, 1894.

Application filed September 8, 1893. Serial No. 485,051. (No model.)

To all whom it may concern:

Be it known that I, LOUIS COTÉ, of St. Hyacinthe, in the Province of Quebec and Dominion of Canada, have invented certain new and useful Improvements in Machines for Forming Heel-Stiffeners, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to machines for forming heel stiffeners for boots and shoes, is an improvement upon the machines shown and described in the Letters-Patent Nos. 435,481, 447,944, and 469,774, granted to me September 2, 1890, March 10, 1891, and March 1, 1892, respectively, and it consists in certain novel features of construction, arrangement and combination of parts, which will be readily understood by reference to the description of the accompanying drawings, and to the claims at the end of this specification, in which my invention is clearly pointed out.

Figure 1, of the drawings, is a front side elevation of a machine embodying my invention. Fig. 2 is an end elevation of the same. Fig. 3 is a plan of the bed or table of the machine, and the side forming, and flange turning mechanisms. Fig. 4 is a vertical section on line 1, 1, on Fig. 3. Fig. 5 is a partial vertical section on line 2, 2, on Figs. 2 and 3. Fig. 6 is a plan of the former for re-shaping the heel end of the stiffener, and the fixed arm for supporting said former. Fig. 7 is an end elevation of said former detached from its supporting arm. Fig. 8 is a plan of the mold carrying lever for shaping the heel end of the stiffener. Figs. 9 and 10 are respectively a side elevation and an inverted plan of the former for re-shaping the sides of the stiffener, to be used when it is not desired to turn the flange or heel seat to fit the bottom of the last. Fig. 11 is a vertical section on line 3, 3, on Fig. 10. Figs. 12 and 13, are respectively a side elevation and an inverted plan of the former for re-shaping the sides of the stiffener, to be used when it is desired to turn the flange or heel seat to fit the bottom of the last. Fig. 14 is a vertical section on line 4, 4 on Fig. 13, and Fig. 15 is an elevation of the forked stop for locating the mold adjusting screw.

In the drawings A is the main frame of the head of the machine, secured to the top of the column B, only a small portion of which is shown, and having firmly secured thereto and to said column the table A' upon which are mounted the devices for re-shaping the sides of the stiffener and turning the heel seat flange. The frame A has mounted in bearings therein the shafts C, D, E and F, and the shaft C has mounted thereon the tight and loose pulleys G and G', and is connected by the spur gear wheels *a*, *b*, *c* and *d* with said shafts D, E, and F.

H and H' are respectively the former and mold for performing the operation of imparting to the flat blank both longitudinal and lateral curves.

The shaft F has mounted thereon the wedge like revoluble cam J, for operating the devices for re-shaping the side portions of the stiffener.

The table A' has mounted in pendent bearings thereon, the horizontally reciprocating rod T, to which motion is imparted by the crank pin *k* set in the crank disk K, secured on the shaft *k'* mounted in a bearing in the hub A² projecting horizontally from the foot or flange A³ of the table A' said shaft having secured thereon the gear *d'* which is engaged and operated by the gear *d*. The rod T is connected to and disengaged from the bracket or arm R which carries the flange turner S, by means of the pivoted latch lever *q*.

So far the several parts are constructed, arranged, and operate substantially as in said before cited patents except in some few matters of detail which will be hereinafter explained.

In the machines described in said prior patents the upper end of the frame had mounted therein so as to be adjustable but remain fixed when in operation a mold with which a revolving disk mounted on the shaft D co-operated to re-shape the heel end of the stiffener. In this present invention said disk is dispensed with and the hub or boss at the upper end of the frame is removed therefrom; a cross arm I is bolted firmly to the frame A so as to project laterally therefrom in opposite directions and has adjustably set in one

end thereof the heel shaped former I', and has pivoted to its opposite end the crooked lever L the free end of which has adjustably set therein the mold L' which serves as a hammer head co-operating with the former I' in re-shaping the heel end of the stiffener when the lever L is vibrated about its pivotal connection to the arm I by the action of the crank-pin l upon the sides of the slot l' formed in said lever L as shown in Fig. 2.

In the machines described in the cited prior patents the former for reshaping the side portions of the stiffeners was made in two parts divided longitudinally and vertically and pivoted together at or near its heel end and the opposite end was acted upon by the wedge like cam J and a spring to vibrate said parts of the former and cause them to co-operate with the molds O O, which were pivoted to the pistons N N so as to be adjustable toward and from said former, and having secured thereto the plates s which project into slots in the table A' as shown.

In my present invention the former P or P' is secured to the bed A' in a fixed position and is not acted upon by the cam J and the molds O, O, are not pivoted to the pistons N but instead, the molds O O are pivoted or fulcrumed, at about the middle of their lengths, upon the outer ends of the levers O' O' which are mounted upon studs m m set in the pistons N N and are provided at their inner ends with anti-friction rolls u u upon which the cam J acts to move said levers about their fulcrums in one direction while the spring m' moves them in the opposite direction and thus causes the molds O O to be moved toward and from the former P or P' and strike a series of blows upon the stiffener interposed between said former and molds to reshape its sides. The under sides of the molds O, O, are made flat, and rest upon the table A', and each of said molds has set in its inner end so as to be adjustable therein the stop-pin n which, when the levers O' O' are being acted upon by the cam J to move said molds toward the former P or P', comes in contact with the side of said former at or near its inner end, and limits the inward movement of the inner end of said former. The former P or P' is secured in position by the clamping bolt o, the thumb nut o' and the pin o² set in said former and fitted to a hole in the bed A', said nut o' having beneath it a metal washer o³ which rests upon the rubber spring o⁴ fitted to a circular recess formed in the upper side of said former as shown in Figs. 11 and 14.

The molds O, O, have pivoted to their under sides at their outer ends the segments p shown in full lines in Figs. 1 and 2 and in dotted lines in Fig. 3 and constructed and arranged to operate in connection with the flange turning plate S, carried by the stand R, substantially as described in the before

cited patent No. 469,774; for the purpose of turning the heel seat flange.

The pistons N are adjusted toward and from each other by means of the screw shaft N' having formed thereon right and left screw threads which engage with and act upon the nuts N² set in and secured to the inner end of said pistons as shown in Fig. 4, said screw shaft being operated by the handle n' and is prevented from moving endwise by the forked plate s set in the bed A' and engaging a circumferential groove formed in said shaft at a point near the middle of its length. A rubber spring n² surrounds said screw shaft outside of each of the pistons N, against which the follower n³ also fitted on said shaft, bears and upon which the wheel nut N³ acts to regulate the tension of the spring n² all as shown in Fig. 4.

The upsides of the heel end of the former P or P' has a longitudinal groove formed therein in which is adjustably secured the plate p' by means of a set screw p² for the purpose of varying the pitch or shape of the rear end of said former to adapt it to stiffeners of different patterns.

It is necessary that the inner faces of the molds L' and O should be made to conform accurately to the shape of the formers I' and P or P' or be parallel thereto when at a distance therefrom equal to the thickness of the heel stiffener to be shaped thereby and to accomplish this result in a comparatively inexpensive way, it is desirable that said molds be chambered and that said chambers be filled with Babbitt-metal by casting it upon the former. In order to accomplish this and have the mold of the right shape I make the former in two or three parts, in the case of the former P or P' in two parts, the line of division being horizontal as shown in Figs. 9 and 12, and when its desired to cast the Babbitt lining into the molds O O, a thin piece of metal r is placed between the upper and lower halves of said former as shown in Fig. 11, and the former is then placed in position on the bed of the machine, and the molds are placed on each side of the former at the proper distance therefrom for the required thickness of Babbitt, with a piece of metal beneath each mold of a thickness equal to one-half the thickness of the piece placed between the two parts of the former, and all the parts are firmly clamped in position on the bed of the machine, when the Babbitt metal is poured into the mold, while so clamped, and then the pieces of metal are removed from beneath the molds and from between the two parts of the former, and the upper and lower parts of the former P or P' are clamped firmly together and to the table A', when if a heel stiffener be placed on said former and the molds O O be pressed upon it, it will be forced to conform thereto and shape the stiffener to said former.

The former I' is made in three pieces and

expanded by placing thin pieces of metal r' ,
 r' between the parts, for use in casting the
 Babbitt lining into the mold L' , which pieces
 $r' r'$ are removed when the former is placed
 5 in position in the machine for shaping stiff-
 eners.

The parts of the machine shown in the
 drawings and not referred to in the foregoing
 description are constructed and operate sub-
 10 stantially as described in the cited patent
 No. 469,774 and need not be described in de-
 tail here.

The operation of my invention is as follows:
 The machine being set in motion by shipping
 15 the belt from the loose pulley to the tight pul-
 ley a flat blank is passed endwise between the
 former H and mold H' to form what is termed
 in the trade a "clam-shell counter" which is
 then placed upon the former I' with the center
 20 of said counter upon the highest part of said
 former when the vibrations of the hammer
 like lever L and the mold L' will impart re-
 peated blows to the stiffener and cause its
 center portion to permanently assume a shape
 25 substantially conforming to the former I' .
 When this is done the stiffener is placed upon
 the former P' with its edge resting upon the
 table A' when repeated blows will be imparted
 to the sides of the stiffener to make said sides
 30 conform to the shape of the side portions of the
 former P' including the turning of the side
 portions of the bottom edge of said stiffener
 beneath the former P' to form the heel seat,
 if the former shown in Figs. 12, 13, and 14,
 35 is in the machine, in which case at the proper
 time the plate S is moved forward to turn the
 rear portion of the heel seat. If a stiffener
 is to be re-shaped without turning the heel
 seat flange, the former P shown in Figs. 9,
 40 10, and 11 is substituted for the former P'
 shown in Figs. 3, 5, 12, 13, and 14 and molds
 that conform to said former are placed in the
 machine, and the flange turner S is rendered
 inoperative by the bracket R remaining dis-
 45 connected from the rod T .

The former P shown in Figs. 9, 10, and 11,
 is a modification of that shown in Figs. 3, 5,
 12, 13, and 14, adapted to reshape a stiffener
 without turning the heel seat flange, said
 50 modification relating simply to its shape in
 cross section, but in all other respects it is

constructed, mounted and operates substan-
 tially as does the former shown in Figs. 3, 5,
 12, 13, and 14.

I claim—

1. In a machine for forming heel stiffeners;
 the combination of the bed or table A' hav-
 ing a cylindrical bore extending transversely
 through the same; a pair of piston like blocks
 60 N fitted to said bore and having the plates
 s secured thereto and projecting upward
 through slots in said table; a nut set in the
 inner end of each of said pistons; the screw
 shaft N' having right and left screw threads
 formed thereon and fitted one to each of said
 65 nuts; the forked stop s set in the table A'
 and engaging a groove in said shaft; the
 springs n^2 ; the followers n^3 ; the wheel nuts
 N^3 ; the lever n' or other means of revolving
 said shaft; the studs m set in said pistons;
 70 the levers O' mounted on said studs; the
 molds O, O , fulcrumed upon said levers; a
 heel shaped former secured to the table A' ,
 in a fixed position; the cam J ; and means
 having provision for revolving said cam. 75

2. In a machine for forming heel stiffeners,
 the combination with the table A' of the
 stud or bolt o set in said table; a heel shaped
 former fitted to said stud and provided with
 the steady pin o^2 and a circular recess in its
 80 upper side and surrounding said stud o ; the
 rubber spring o^4 the nut o' and the washer
 o^3 all constructed arranged and operating
 substantially as and for the purposes de-
 scribed. 85

3. In a machine for forming heel stiffeners,
 the combination with a pair of side molds
 and means for operating said molds of a fixed
 former secured to the table of the machine
 and provided with an adjustable piece fitted
 90 to a longitudinal groove in the heel end of
 said former and adapted to be adjusted lon-
 gitudinally therein to form counters of dif-
 ferent shapes.

In testimony whereof I have signed my 95
 name to this specification, in the presence of
 two subscribing witnesses, on this 30th day of
 August, A. D. 1893.

LOUIS COTÉ.

Witnesses:

F. X. A. BOISSEAU,
 J. P. BAZINET.