Apr. 24, 1923.

1,452,953

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MACHINE FOR FACING MOUTHPIECES OF MUSICAL WIND INSTRUMENTS

Filed July 11, 1921

3 Sheets-Sheet 1

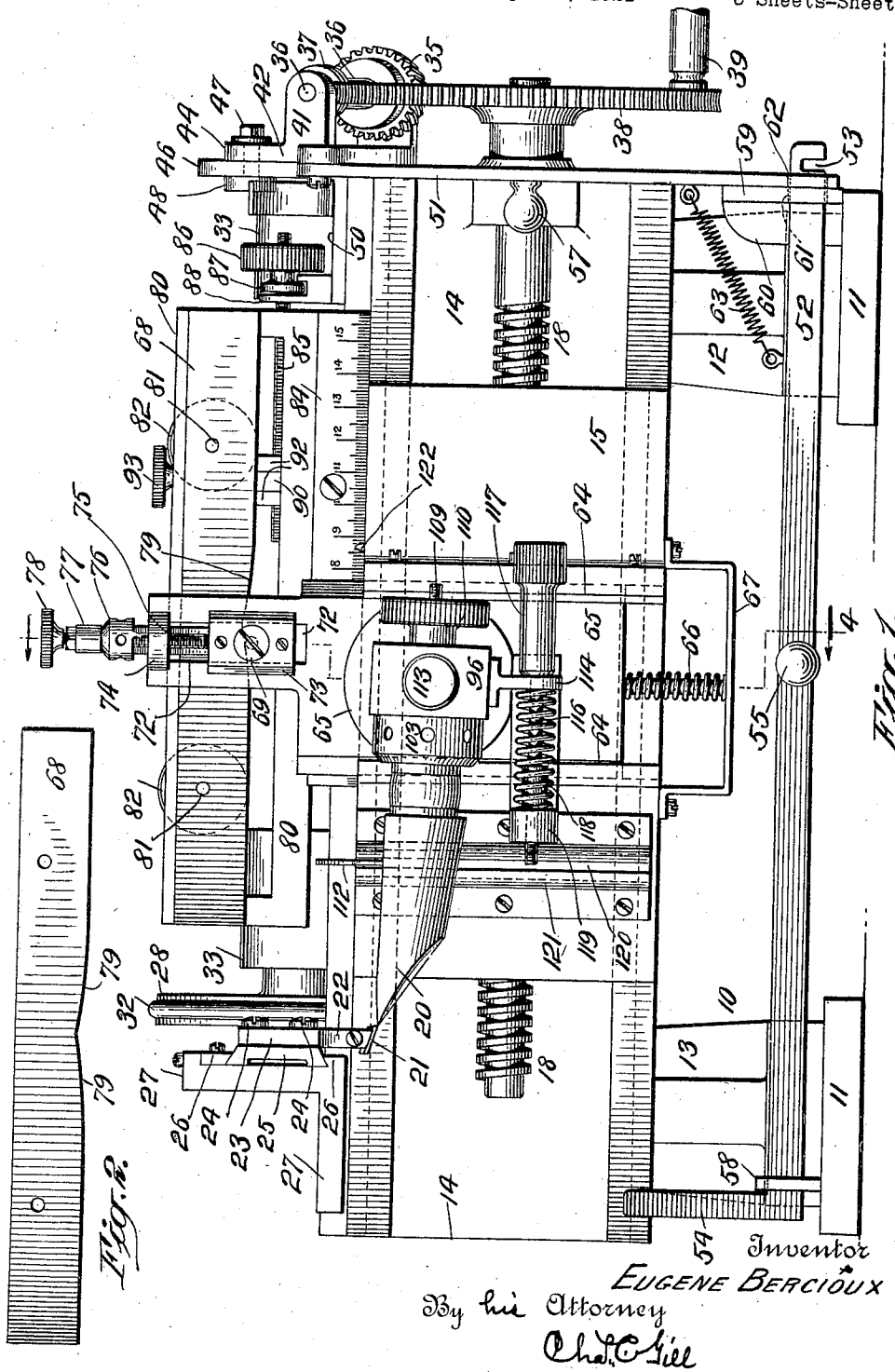

Fig. 1.

Fig. 2.

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3 Sheets-Sheet 2

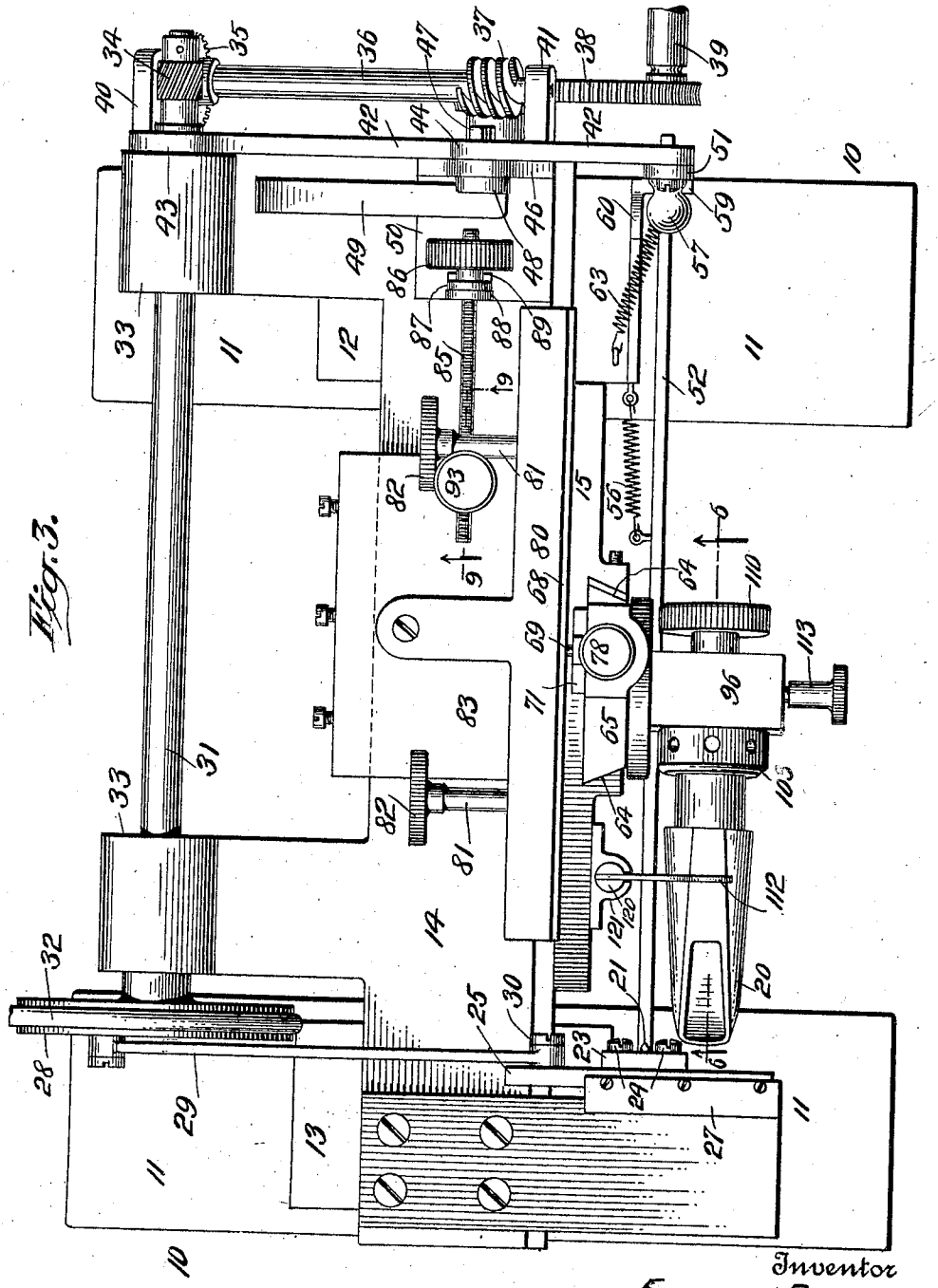

Fig. 3.

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Filed July 11, 1921 3 Sheets-Sheet 3

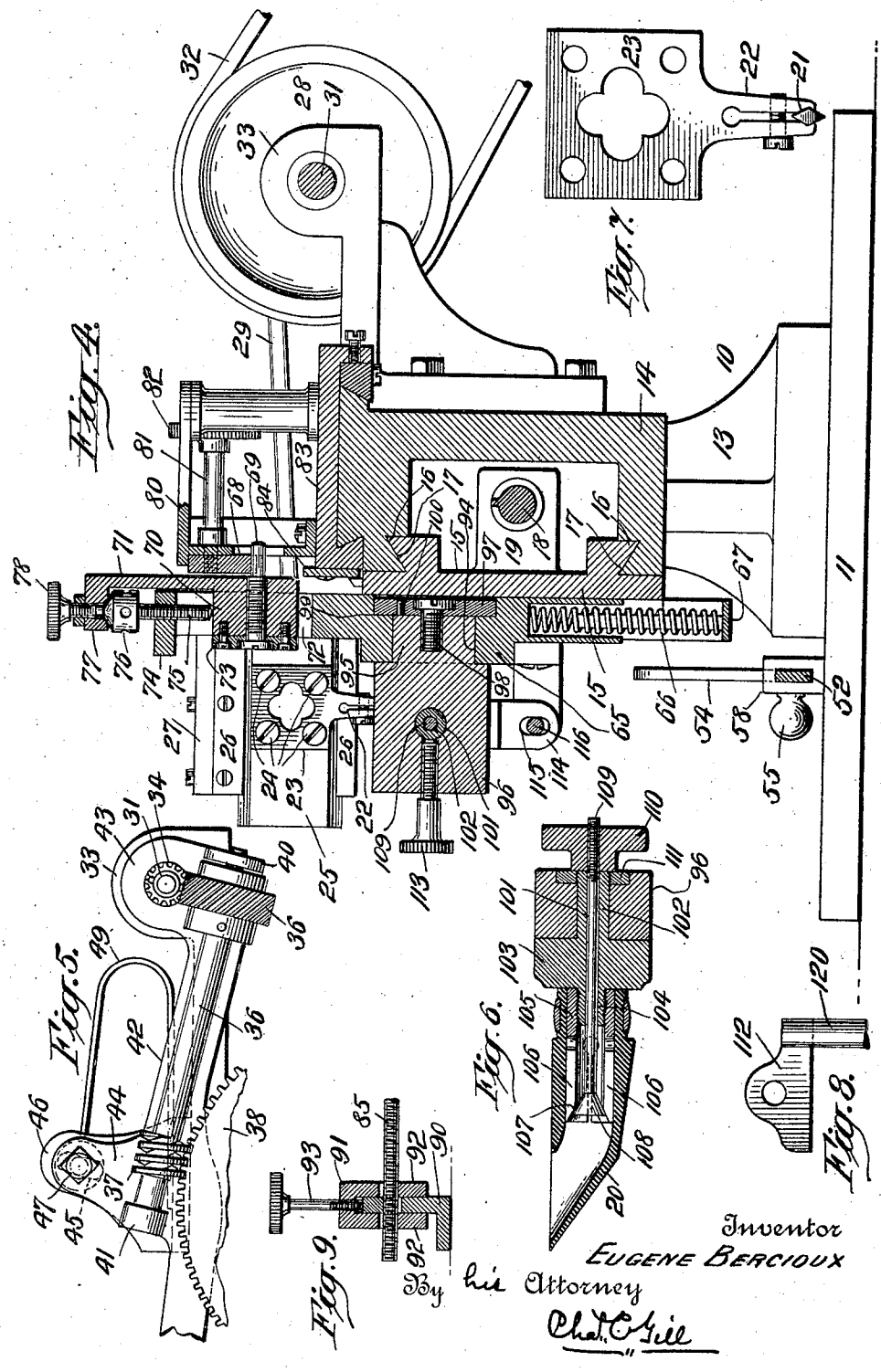

Fig. 7.

Fig. 4.

Fig. 5.

Fig. 6.

Fig. 8.

Fig. 9.

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UNITED STATES PATENT OFFICE.

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MACHINE FOR FACING MOUTHPIECES OF MUSICAL WIND INSTRUMENTS.

Application filed July 11, 1921. Serial No. 483,727.

To all whom it may concern:

Be it known that I, EUGENE BERCIOUX, a citizen of the Republic of France, and a resident of New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Machines for Facing Mouthpieces of Musical Wind Instruments, of which the following is a specification.

The invention relates to a novel machine for correctly facing the mouth-pieces of clarinets, saxophones and the like, and it consists in the novel features, arrangements and combinations of parts hereinafter described, and particularly pointed out in the claims.

The facing of the mouth-piece for a clarinet or saxophone is a delicate operation and one requiring great accuracy. It is also desirable that the several mouth-pieces should be faced exactly alike. It is one of the objects of my invention to provide a machine by which the facing of the mouth-pieces for clarinets and saxophones may be performed with precision and with a due amount of rapidity, and to this end I have produced the machine made the subject of this application and which is adapted to correctly perform the duties required of it.

The machine of my invention comprises a traveling carriage supporting the mouth-piece to be treated, a transversely reciprocating cutter to provide a proper surface on the mouth-piece during the travel of the latter, a templet controlling the position of the mouth-piece with relation to the cutting tool and means for permitting a correct inclination to be given to the mouth-piece in accordance with the curvature or slant or other shape it may be desired to have imparted to the face of the mouth-piece. My machine also comprises novel mechanism for carrying its general purposes into effect, and means for adjusting the various operative parts of the machine for correct action and result.

The invention will be fully understood from the detailed description hereinafter presented, reference being had to the accompanying drawings, in which:

Fig. 1 is a front elevation of a machine for facing mouth-pieces for clarinets and the like constructed in accordance with and embodying the invention;

Fig. 2 is a front elevation of a templet employed as a portion of the machine for controlling the shape to be given to the facing of the mouth-piece;

Fig. 3 is a plan view of the machine;

Fig. 4 is a vertical transverse section through the same, taken on the dotted line 4—4 of Fig. 1;

Fig. 5 is an end view, taken from the upper right hand side of Fig. 3, of a portion of the machine, this figure being presented to more clearly illustrate certain features of the driving gearing associated with the machine;

Fig. 6 is a vertical longitudinal section through the head for holding the mouth-piece to be treated by means of my machine, the mouth-piece being shown in position and the section being taken on the dotted line 6—6 of Fig. 3;

Fig. 7 is a face view of the tool-holder used as a part of the machine, the tool itself being of diamond shape and shown as clamped by the holder;

Fig. 8 is a detached view, partly broken away, of a gauge employed by me as an aid to correctly positioning the mouth-piece on the machine, and

Fig. 9 is a vertical section, partly broken away, through a portion of the machine, taken on the dotted line 9—9 of Fig. 3.

In the drawings, 10 designates the general frame of the machine, said frame comprising two transverse base plates 11, standards 12, 13 extending upwardly therefrom and a longitudinal body member or frame 14 formed integrally with said standards and serving to support the main operating features of the machine.

At the front of and mounted upon the longitudinal frame 14 is located a longitudinally slidable carriage 15, which has dovetail ribs 16 disposed within correspondingly shaped recesses 17 formed in the body frame 14, as shown in Fig. 4. The carriage 15 is in the nature of a vertical plate to which certain features of the operative mechanism are connected and which is adapted to have a longitudinal movement imparted to it by means of a screw-shaft 18 which extends through the hollow interior of the frame 14 and engages an internally threaded lug 19 formed integrally with said carriage 15. The screw-shaft 18 may be rotated by hand or by power, as hereinafter explained.

The carriage 15 supports the means for holding the mouth-piece, indicated at 20, and during the movement of said carriage

toward the left, looking at Fig. 1, said mouth-piece is propelled along and subjected to the action of a reciprocatory diamond-shaped tool 21 held in a clamp 22 formed on the lower end of a plate 23 which is fastened by screws 24 to a transverse slide 25, said tool 21 having, from the slide 25, a reciprocating motion imparted to it and in the operation of the machine moving transversely across the mouth-piece 20, commencing at the tip thereof, during the travel toward the left, looking at Fig. 1, of said mouth-piece. The tool 21 may be a diamond or a piece of the best high speed steel or tool steel and said tool has a sharp V-shaped lower cutting edge, as shown. The slide 25 is shown in face view in Fig. 4 and in top edge view in Fig. 3, and said slide is mounted in guides 26 provided on a plate 27 which is stationary with the framing of the machine and secured by screws (Fig. 3) or otherwise to the left hand end of the top of the general body frame 14. The slide 25 is given its reciprocatory motion to carry the tool 21 transversely of the mouth-piece 20 by means of a drive-wheel 28 and connecting rod 29, the latter being pivoted at one end to a crank pin carried by said wheel and at the other end to a pin or screw 30 connected with said slide 25. The crank-wheel 28 is secured on one end of a power transmitting shaft 31 and said wheel is preferably a pulley-wheel adapted to receive a belt 32 by which power from a motor or other suitable source may be communicated to the wheel 28, shaft 31, connecting rod 29 and other operative parts of the machine.

The shaft 31 is mounted in bearings 33 formed on arms extending rearwardly from the body frame 14 (Fig. 3) and has on its right hand end, looking at Fig. 3 a worm-pinion 34 which is in mesh with a worm wheel 35 on the rear end of a transverse shaft 36 (Fig. 5) on whose front end is a worm 37 in mesh with a large worm gear wheel 38 equipped with a crank-handle 39 for use when it is desired to operate the screw-shaft 18 by manually applied power. The shaft 36 is mounted in bearings 40, 41 connected with a plate 42 which has an upwardly extending rear member 43 pivoted on the shaft 31 and an upwardly extending member 44 (Fig. 5) through which and a slot 45 in a vertical rigid bracket 46 passes a screw 47 having a slotted head 48 within which is held one end of a folded leaf spring 49 whose other end presses against a stationary seat 50 (Fig. 1). The spring 49 normally maintains the plate 42 in an upwardly tilted position wherein the worm 37 is held out of mesh with the gear wheel 38, this being the condition when I desire to rotate the screw-shaft 18 from the wheel 38 and crank handle 39 independently of the shaft 31. When the worm 37 is free of the gear wheel 38, I may rotate the screw-shaft 18 for retiring or otherwise moving the carriage 15 and positioning the parts carried by it, including the mouth-piece 20, without regard to the shaft 31, which may then be idle.

I provide means for maintaining, at proper periods, the worm 37 in mesh with the gear-wheel 38 so that power may be communicated from the shaft 31 to the worm or screw shaft 18, this condition existing during the general operation of the machine, and the means I provide for maintaining the worm 37 in mesh with the gear-wheel 38 is in the nature of a latch and comprises a vertical rod 51 pivoted at its upper end to the plate 42 and at its lower end receiving within a slot 62 in it the right hand end, looking at Fig. 1, of a latch-bar 52, which extends longitudinally of the machine and at its right hand end is formed with a downwardly opening recess 53, while at its left hand end said bar 52 is formed with an upturned arm 54. The bar 52 is provided with a knob 55 for manual use and has connected with it a spring 56 (Fig. 3) whose tendency is to draw the bar 52 toward the right and to maintain the recess 53 projected beyond the lower end of the rod 51. When the latch bar 52 is in the position shown in Fig. 1 it serves to maintain the rod 51 in its lower position, holding the forward end of the plate 42 downwardly against the tension of the spring 49 and maintaining the worm 37 in mesh with the gear-wheel 38. When, however, by means of the knob 55 or otherwise, the bar 52 is slid toward the left, looking at Fig. 1, its recess 53 will pass into vertical alignment with the rod 51 and said rod then, under the stress of the spring 49, will spring upwardly into said recess 53 and this will result in the turning of the plate 42 upwardly and tilting the shaft 36 to carry its worm 37 from engagement with the gear-wheel 38. During the operation of the machine in facing the mouth-piece 20, the mechanism will be in the condition shown in Fig. 1 with the worm 37 in mesh with the gear-wheel 38, and at such time power from the shaft 31 will be communicated through the shaft 36 to the gear-wheel 38 and thereby effect the rotation of the screw-shaft 18 and the gradual travel of the carriage 15, with the mounth-piece 20, toward or from the tool 21. After the carriage 15 has traveled sufficiently toward the left, looking at Fig. 1, I will move the latch-bar 52 toward the left, using the handle or knob 55 for that purpose, until the recess 53 of said bar reaches a position in vertical line with the rod 51, and at that time the spring 49 will elevate the rod to enter said recess, turn the plate 42 upwardly and tilt the shaft 36 to free its worm 37 from the

gear wheel 38, thereby cutting off the power of the shaft 31 from the screw shaft 18. When the latch-bar 52 is moved toward the right, the arm 54 thereof will strike against the guiding lug 58 for said latch bar and arrest the bar so that it will not unduly slide through the slot in the lower end of the rod 51 but will be left with its recess 53 projected beyond the rod 51 and a solid portion of the bar disposed within the slot or opening 62 of said rod so as to prevent said rod from being elevated by the spring 49, as shown in Fig. 1.

A coiled spring 63 is connected with the vertical rod 51 and serves to pull or draw the lower portion of the rod against the face-plate 59 of a bracket 60 which is rigid with the general machine frame. The face plate 59 has a hole 61 through it within which the latch bar 52 slides, and said hole 61, when the rod 51 is in its lower position shown in Fig. 1, is in alignment with the slot or hole 62 in said rod.

Upon the front face of the carriage 15 is mounted, in dove-tail guides 64, a vertically slidable plate or auxiliary carriage 65, which is normally pressed upwardly by a coiled spring 66 socketed at its upper end within the same, as shown in Fig. 4, and supported at its lower end on a stirrup 67. The upward movement of the plate 65 under the action of the spring 66 is resisted by a templet 68 and a combined pin and screw 69 supported by a plate 71 connected with the upper portion of said plate 65. The pin 69 has a plain surface where it engages the lower edge of the templet 68, as shown in Fig. 4, and is threaded at its forward portions to engage a threaded aperture in a block or hub 70 formed integrally with the vertically adjustable plate 71 which lies against the rear surface of the upper portion of the plate 65 and which plate 65 is vertically slotted, as at 72, to receive the block or hub 70 and guide the same. Upon the front face of the block 70 is secured, by screws, a plate 73 which overlaps the sides of the slot 72 and engages at its opposite vertical edges the front face of the plate 65 as an aid to the positioning of the plate 71 and the guiding of the said plate 71 and block 70 in their necessary adjustments. At the extreme upper end of the plate 65 and over the vertical slot 72 therein is formed a head or cross-bar 74 which has a threaded opening and receives an adjusting screw 75 on whose upper end is a head 76 located directly below a shoulder 77 on the upper end of the plate 71. The shoulder 77 has a threaded opening and receives a set screw 78, and the lower end of said opening is recessed and receives the upper conical end of the head 76. The screw 75 and screw 78 are provided for predetermining the position to be given to the block 70 and screw or pin 69, and to resist any independent movement of said hub and pin during the operation of the machine. The pin 69 during the operation of the machine rides along the lower edge of the templet 68 and must follow the outline of said templet, and therefore can have no upward or downward movement except with the vertical plate 65 and controlled by the templet 68 and the spring 66. By working or loosening the set screw 78 upwardly, the screw 75 is freed to be screwed upwardly or downwardly to permit the vertical adjustment upwardly or downwardly of the plate 71 for positioning the block 70 and pin 69 with relation to the templet 68, and thereupon the plate 71 will be made rigid with the plate 65 by working or tightening the set screw 78 downwardly against the upper end of the screw 75. The screw 75 prevents accidental upward movement of the block 70, pin 69 and plate 71 and the head 77 by engaging the head 76 on the screw 75 prevents any accidental downward movement of the block 70, pin 69 and plate 71. The set screw 78 serves to bind the screw 75 in rigid position and also to lend rigidity to the plate 71, and in addition a lock-nut may be provided on the screw 78 above the shoulder 77, as shown in Fig. 4. The pin 69 is kept against the templet 68 by the action of the spring 66 against the plate 65, to which the plate 71 and block 70 are clamped, and the action of the spring 66 is resisted and kept under control by the engagement of the pin 69 with the templet 68, which affords a rigid abutment.

The templet 68 is a rigid flat bar suitably shaped at its lower edge, as at 79, to control the presentation of the mouth-piece 20 to the tool 21, so that said tool may impart the desired finish to said mouth-piece. The surfaces 79 are convexly curved from the center of the templet outwardly and when the pin 69 travels along the curved edge of the templet 68, the mouth-piece 20, through the means hereinafter described, will be presented to the tool 21 in such manner that the facing surface of the mouth-piece shall have the desired curvature to receive the reed, not shown. I provide a surface 79 on each side of the center point of the templet 68, so that either end of the templet may be utilized in connection with the pin 69. The templet 68 is fastened against the front face of a frame 80 by means of screws 81 having heads 82 by which the screws may be conveniently manipulated. The screws 81 pass through the vertical front plate of the frame 80 and enter threaded apertures in the templet 68, as shown in Fig. 4.

The frame 80 is a casting of the outline represented in Figs. 3 and 4 and is secured to a horizontal carriage 83 mounted upon the body frame 14, as shown in Fig. 4, dove-tail grooves and recesses being made use of,

as shown in Fig. 4, for securing said carriage 83 upon the frame 14 and guiding said carriage 83 in its longitudinal movements along the frame 14. To the front of the carriage 83 is secured a gauge-plate 84 which I utilize in positioning the parts of the machine in accordance with the nature of the mouth-piece 20 to be treated, as hereinafter explained, as said gauge 84 being fastened to the carriage 83 and the templet 68 also being connected with said carriage, the gauge-plate 84 and templet 68 will have corresponding adjustment. The carriage 83 only moves on the frame 14 when manually adjusted so to do, and the means for adjusting said carriage on said frame include a screw 85 and a nut 86 thereon having a shoulder 87 which is located between a bracket plate 88 and a yoke 89 to prevent traveling movement of said nut. The nut 86 may be rotated at will to effect the travel of the screw 85 but is otherwise stationary, the shoulder 87 on said nut remaining confined between the plate 88 and yoke 89. The screw 85 extends through a bracket 90 which is rigid with the carriage 83, and upon the bracket 90 is mounted an inverted U-shaped block 91 (Fig. 9) whose sides 92 straddle the bracket-plate 90 and are apertured to permit the screw 85 to extend through them. In the top of the block 91 is provided a set-screw 93 whose point engages the upper edge of the bracket-plate 90. The holes through the sides 92 of the block 91 and the hole through the bracket-plate 90 for the screw 85 are greater in diameter than said screw, and hence when the screw 93 is worked downwardly, said screw elevates the block 91, as shown in Fig. 9, so that the lower edges of the holes through its sides and the upper edge of the hole through the plate 90 are brought into binding engagement with the screw 85. When the screw 93 is loosened upwardly so as to permit the block 91 to lower, the holes through the sides 92 of said block and the hole through the bracket-plate 90 pass into alignment with each other and with the screw 85, which then becomes loosely held in said openings and permits the manual movement of the carriage 83. When the screw 93 is worked downwardly so as to move the block 91 upwardly to engage the screw 85, the carriage 83 can only be adjusted on the frame 14 by effecting the travel of the screw 85 through the nut 86, and this will be done by rotating said nut and usually in making the final adjustments of the gauge-plate 84 and templet 68 with reference to the other features of the machine.

The front vertical carriage or plate 65 carries the means for supporting the mouth-piece 20, and said plate is formed with a circular opening 94 in which is snugly retained a circular hub 95 formed on a head 96 whose inner edges have a bearing against the face of the carriage or plate 65 and which is of the vertically elongated outline shown in Fig. 1. The head 96 is secured in position with its hub 95 in the opening 94 of the carriage or plate 65 by means of a disk washer 97 and screw 98, said washer 97 being seated in a circular recess 99 formed in the inner face of the carriage or plate 65 and said screw 98 having a head engaging said washer and a stem entering a threaded hole in the hub 95. The hub 95 carries a small pin 100 which enters a hole in the washer 97 and serves to prevent independent rotary motion of said hub or said washer. The washer 97 becomes in effect a part of the hub 95 and head 96 and while securing the head 96 and hub 95 in position, becomes so connected therewith that it will turn with said head and hub whenever the head and hub are caused to swivel on their horizontal axis.

The head 96 is longitudinally apertured, as at 101, and receives the tubular stem 102 of a chuck-head 103 (Figs. 4 and 6). The head 103 has an externally threaded neck 104 upon which is screwed a sleeve 105 having forwardly projecting split members 106, said members being formed by slotting the forward portion of the sleeve 105. The forward inner surfaces of the sleeve 105, at the outer ends of the members 106, are conical, as at 107, and receive a cone-wedge 108 which is on the forward end of a screw 109 which extends through the head 103 and stem 102 and is equipped with a nut 110 whose inner edge engages a facing or washer 111 on the side of the head 96, as shown in Fig. 6. When the cone-wedge 108 is in the outer portions of the cone recess formed at the outer ends of the members 106, said wedge has no effect on said members 106, and then the mouth-piece 20 may be slipped upon the sleeve 105 and against the head 103. Thereafter on the rotation of the nut 110 and the movement caused thereby of the screw 109 toward the right, looking at Figs. 1 and 6, the cone-wedge 108 is caused to travel inwardly against the cone surfaces 107 of the sleeve members 106 and spread said members 106 outwardly into binding engagement with the interior of the mouth-piece 20, thereby holding said mouth-piece on the sleeve 105 preparatory to said mouth-piece being subjected to the action of the tool 21. The chuck head 103 and sleeve 105, which forms a chuck, serve to secure the mouth-piece 20 to the head 96, which is, as aforesaid, connected with the vertical plate 65 and capable of swiveling movement, when desired, in the opening 94 of said plate 65. After the mouth-piece 20 has been placed on the sleeve 105, it is proper that the upper face of said mouth-piece shall be accurately

positioned with relation to the tool 21, and hence before finally securing the mouth-piece 20 in rigid position, I lower a gauge plate 112 against the upper surface of the mouth-piece 20, as shown in Fig. 1, so as to true the horizontal alignment of said surface, and thereafter and while the gauge 12 is in position on the mouth-piece 20, I tighten the chuck head 103 in rigid relation to the head 96 by means of a screw 113 which, as shown in Fig. 4, enters the head 96 and engages the stem 102 therein of the chuck-head 103, thereby binding the chuck head and mouth-piece 20, then held by the chuck-sleeve 105, in correct relation to the head 96. When the screw 113 is loose, the chuck head 103 may be rotated for freeing its neck 104 from the sleeve 105 or for drawing said sleeve 105 inwardly over said neck 104. The chuck sleeve 105 serves to firmly bind the mouth-piece 20 in correct position for treatment by the tool 21, and after the mouth-piece 20 has been faced by said tool, the nut 110 will be rotated in a direction to permit the forward movement of the screw 109 so as to release the wedge 108 from the chuck-sleeve members 106, and thereupon the finished mouth-piece 20 may be removed from the sleeve 105.

The head 96 has a downwardly extending arm 114 which is slotted, as at 115, and through said slot receives a rod 116 having at one side of the arm 114 an enlarged portion or head 117 and at the other side of the arm 114 a coiled spring 118, which is restrained between the arm 114 and a stop sleeve 119 carried by the slidable plate 65 and exerts its pressure against said arm 114 to press the same against the inner conical end of the enlargement or head 117 on said rod 116. The pressure of the spring 118 against the arm 114 and the engagement of said arm with the head 117 prevents the spring 118 from turning the head 96 and mouth-piece 20 downwardly to any extent not permitted by the head 117. The left hand end of the rod 116 is threaded in the sleeve 119, and hence the head 117 is adjustable toward and from the arm 114, and thereby the initial position of the block 96 and mouth-piece 20 may be governed. During the operation of the machine the head 117 may, if desired, be adjusted outwardly or inwardly to vary the position of the mouth-piece 20 so as to secure with the use of the tool 21 the requisite surfacing of said mouth-piece.

The mouth-piece 20 shown in Fig. 1 represents the finished mouthpiece and it will be noticed that the tip-portion of the mouth-piece is slightly curved downwardly and outwardly, while the inner portion of the mouth-piece is on an inclined line merging into the curvature at the forward portion of the mouth-piece. The mouth-piece 20 is of the usual formation, and the purpose of my invention is to secure said formation, so far as the facing is concerned, by mechanical means.

I have hereinbefore referred to the gauge 112, and this gauge is shown in position in Fig. 1 engaging the mouth-piece 20. The gauge 112 is a flat plate having a lower horizontal straight edge and secured to a vertical rod 120 which is slidable within a split sleeve 121 secured to the carriage 15. The gauge 112 is free to be raised or lowered at will, and in use it will first be lifted upwardly and then lowered upon the mouth-piece 20 as a means for correctly positioning the mouth-piece so that its upper surface will be horizontal and in position for treatment by the cutting tool 21.

In the operation of the machine the latch-bar 52 will first be drawn toward the left, looking at Fig. 1, so that the rod 51 under the action of the spring 49 may, as hereinbefore described, disengage the worm 37 from the gear-wheel 38, and thereupon by the rotation of the gear-wheel 38 and screw-shaft 18, the carriage 15 and parts carried thereby may be drawn toward the right, looking at Fig. 1, after which a mouth-piece 20 will be applied upon the chuck-sleeve 105 and to the chuck-head 103, and said mouth-piece will be secured in position by the rotation of the nut 110, as hereinbefore explained. The templet 68 being in position, whatever vertical adjustment may be necessary for the frame or plate 71 carrying the pin 69 for cooperation with said templet, will be attended to, and likewise the angular adjustment of the head 96 and mouth-piece 20 by means of the head 117 will be attended to. The carriage 15 will then be moved to the proper predetermined position toward the left, looking at Fig. 1, governed by the length of the mouth-piece 20 and the initial relation of the same to the cutting tool 21, and to this end the carriage 15 is provided with a pointer 122 for cooperation with the scale plate 84. After the carriage 15 has been adjusted toward the left until the pointer 122 is at the desired position with respect to the scale plate 84, the rod 51 will be pulled downwardly to re-engage the worm 37, with the gear-wheel 38, and this engagement of said worm with said gear-wheel will be maintained due to the movement toward the right of the latch-bar 52 to the position illustrated in Fig. 1. Power may then be applied through the belt-wheel 28 to the shaft 31 and connecting rod 29. The action of the rod 29 will be to reciprocate the slide 25 and tool 21, carrying the cutting edge of said tool back and forth across the upper surface of the mouth-piece 20. The power from the shaft 31 will be communicated through the gearing hereinbefore described to the screw-shaft 18 which, while the cutter 21 is performing its

reciprocations, will move the carriage 15 toward the left to gradually subject the mouth-piece to the cutter, the cutter being thereby enabled to face off the entire upper surface of the mouth-piece, and the position of the mouth-piece with relation to the cutter during the travel of said mouth-piece being governed by the outline of the lower edge of the templet 68. The auxiliary carriage 83 will also be adjusted as may be required to properly position the templet 68 with respect to the pin 69, and this adjustment of the carriage 83 will be performed with the use of the screw 85, nut 86 and clamping members 90, 91, 92, 93, shown in Fig. 9, connected with the carriage 83 and engaging the left-hand end of the screw rod 85. When the screw 93 is loosened, I may more or less roughly position the carriage 83 by hand and then tighten the set-screw 93 against the vertical plate 90 and clamp the screw-rod 85 between the plates 90, 92, as shown in Fig. 9, and thereafter for a finer adjustment of the carriage 83 and templet 68 I may rotate the nut 86 to act through the screw 85 for moving the carriage 83 and templet 68 toward the left or toward the right, as the occasion may require.

During the facing of the mouth-piece 20 I may also adjust the screw-head 117 to allow the spring 118 to effect the proper turning of the block 96 for correctly positioning the mouth-piece 20 with relation to the cutting tool 21, all this being in accordance with the character of facing I may desire for the mouth-piece.

I have described the details of a preferred embodiment of my invention, but I do not wish to be limited to the details shown, further than the appended claims may render necessary, since I am aware that many of said details may be modified in form and construction without departure from the spirit of my invention.

What I claim as my invention and desire to secure by Letters-Patent, is:

1. In a machine of the character described, a main body-frame, a main vertically disposed carriage mounted on the front thereof and movable longitudinally along the same, a vertically movable plate carried by said carriage spring-pressed upwardly and carrying a pin to cooperate with a templet, a stationary templet against which said pin presses and slides, means carried by said plate for holding a mouth-piece to be faced and a reciprocatory cutter to move transversely across the face of said mouthpiece as the same is gradually fed thereto due to the movement of said carriage and said vertically movable plate, the presentation of the mouth-piece to the cutter being under the control of said templet, and mechanism for holding and reciprocating said cutter.

2. A machine as in claim 1, having an adjustable top carriage mounted on said body-frame to which said templet is secured and which has a graduated scale for cooperation with a pointer provided on said main carriage in the positioning of said adjustable carriage and the templet carried thereby.

3. A machine as in claim 1, having means connected with said vertically movable plate for adjustably mounting the aforesaid pin with reference to the templet.

4. A machine as in claim 3, in which the means for adjustably mounting the pin with reference to the templet consists of a vertically movable slide mounted on the upper end of said vertically movable plate and having a hub through which said pin projects and an upper shoulder extending laterally above a bar on the upper end of said plate, an adjusting screw extending vertically through said bar and engaging at one end the top of said hub and at its other end the said shoulder, and a set screw in said shoulder adapted to bind against the upper end of said adjusting screw.

5. A machine as in claim 1, in which the means on the vertically movable plate for holding the mouth-piece consists of a head having at its inner end a hub mounted to have limited rotary action or adjustment in said plate, a chuck on the forward side of said head to receive and hold the mouth-piece, an arm extending downwardly from said head, an adjustable rod extending through said arm and having an enlargement at one side thereof forming a shoulder against which said arm may press to resist turning action of said head, and a spring on said rod pressing said arm against said shoulder.

6. A machine as in claim 1, in which the means on the vertically movable plate for holding the mouth-piece consists of a head mounted for limited rotary adjustment, a chuck on the forward side of said head to receive and hold the mouth-piece and means for rotarily adjusting said head and chuck for positioning said mouth piece with relation to the cutter.

7. A machine as in claim 1, in which the means on the vertically movable plate for holding the mouth-piece consists of a head mounted on said plate, a chuck on the forward side of said head having a forwardly extending threaded sleeve and a plain sleeve extending through said head, a chuck sleeve having expansible forward members and engaging said threaded sleeve and being adapted to receive upon it the mouth piece, a rod extending through said chuck sleeve, chuck and chuck sleeves and having a wedge head to expand said forward members against the interior walls of the mouth-piece, and a nut on the rear end of said rod,

which is threaded, and engaging said head, whereby on the operation of said nut the chuck members may be caused to engage or release the mouth-piece, as desired.

8. A machine as in claim 2, having as means for adjusting said top carriage and securing it in adjusted position, a threaded rod extending through a stationary bracket having a threaded hole for said rod, a nut on one end of said rod for effecting the travel of the rod, a bracket plate fixed on said carriage and having a free hole in it for said rod, an inverted U-shaped frame slipped upon said bracket plate and having holes in its sides for said rod and a set screw in the top of said frame and adapted to be screwed downwardly against said bracket plate for moving said frame upwardly and binding said rod at three points.

9. A machine as in claim 1, in which the cutter is a tool of hard material and has a V-edge and which machine has a reciprocatory transverse slide, a plate fastened to said slide and having clamping arms at its lower end holding said tool, a wheel actuated from a source of power and a connecting rod pivoted at one end to said slide and at the other end to a crank-pin on said wheel.

10. A machine as in claim 1 having a screw-shaft connected with said main carriage for moving the same forwardly and backwardly along said body frame and provided on one end with a gear-wheel carrying a crank-handle, a power shaft, means connecting said power shaft with said gear wheel for operating said gear wheel and screw-shaft by power and means for disconnecting said power shaft from said gear wheel when said screw shaft is to be operated manually, the means connecting the power shaft with said gear wheel being a power worm wheel on the end of said power shaft, a pivotally hung shaft having on one end a worm wheel in mesh with said power worm wheel and on its other end a worm to be placed into or out of mesh with said gear wheel according as said shaft is swung downwardly or upwardly, means for latching said pivotally hung shaft in its down position so that it may transmit power to said gear wheel and a spring for turning said shaft upwardly when freed by its latch, leaving said gear wheel for manual operation.

Signed at New York city, in the county of New York and State of New York, this 7th day of July, A. D. 1921.

EUGENE BERCIOUX.