No. 693,912. Patented Feb. 25, 1902.

J. M. SELLMAYER.

BUFFING MACHINE.

(Application filed Jan. 11, 1901.)

(No Model.) 3 Sheets—Sheet 1.

Fig. 1.

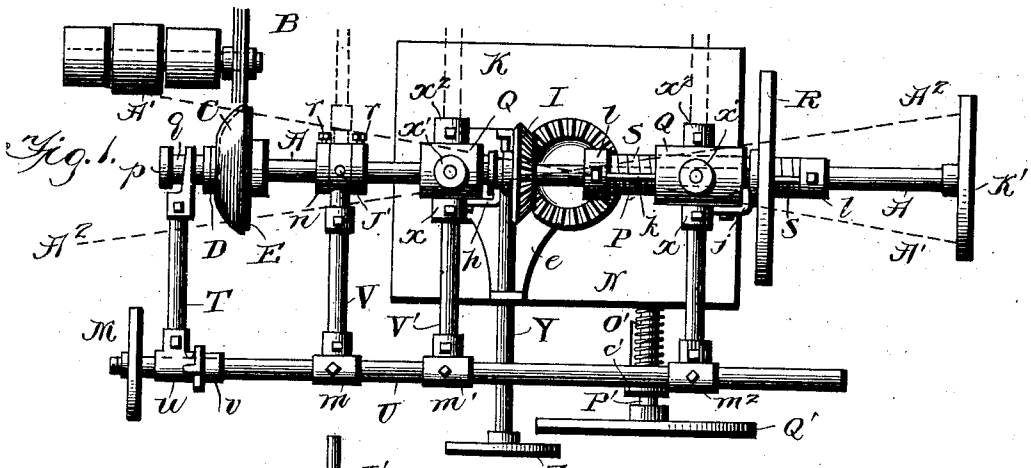
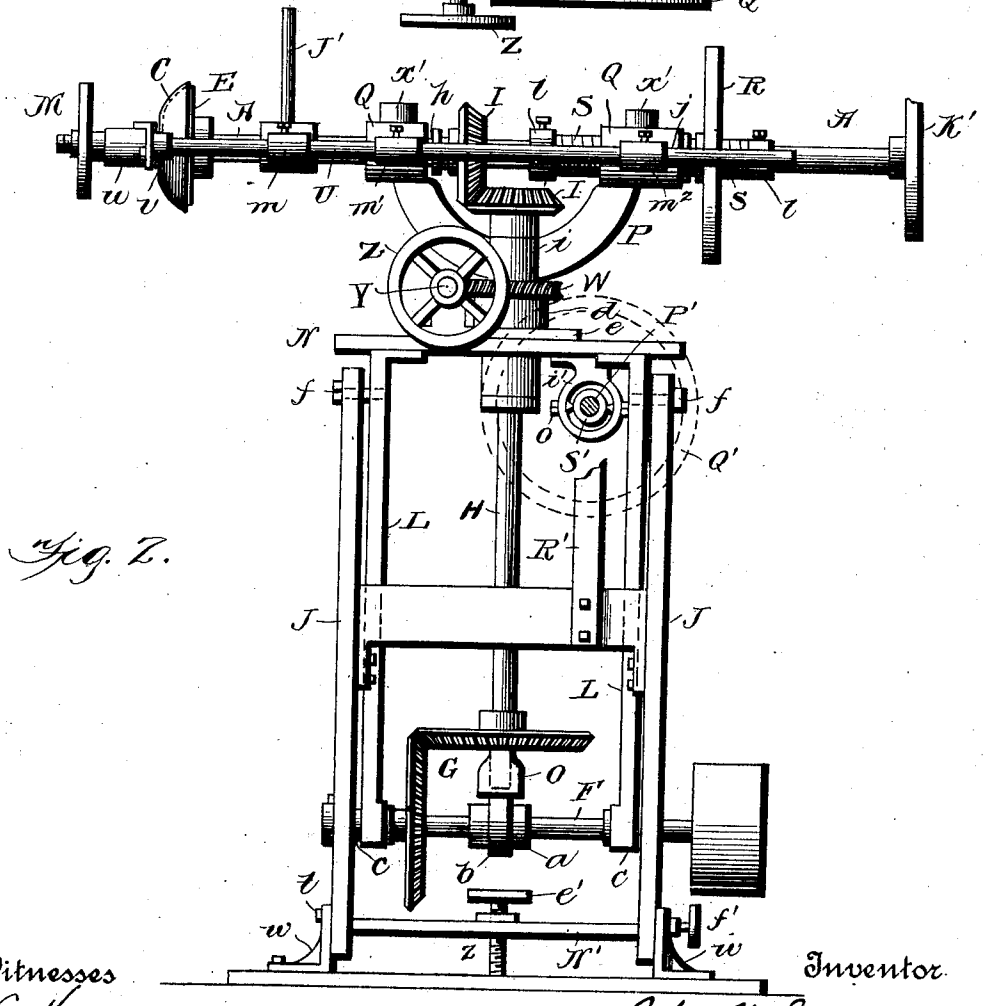


Fig. 2.



Witnesses

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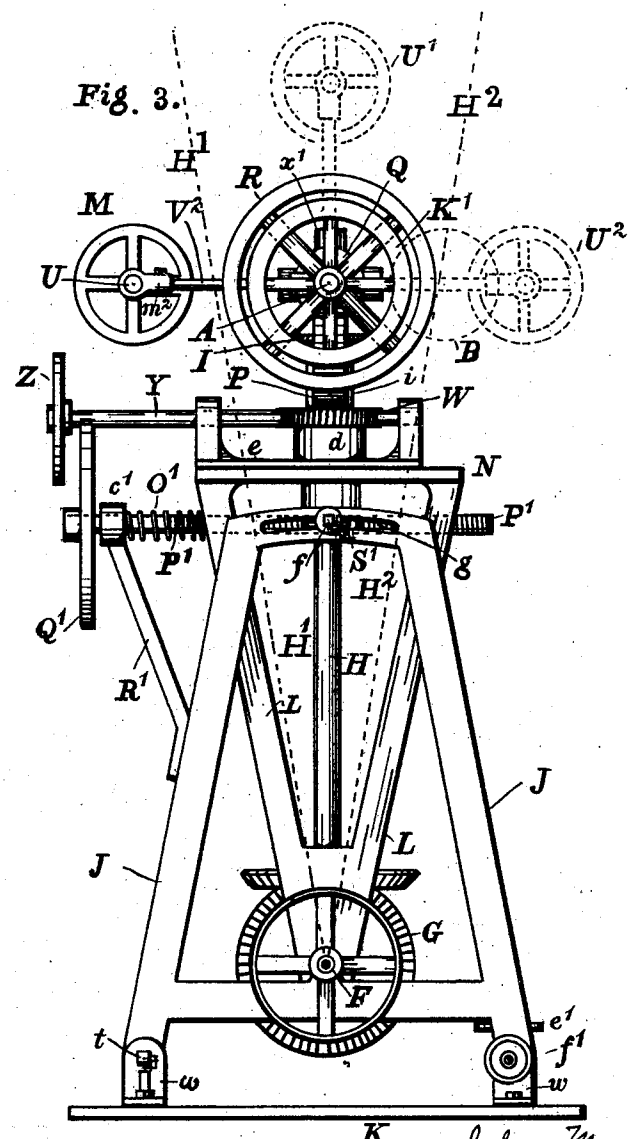
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Fig. 3.



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Fig. 4.

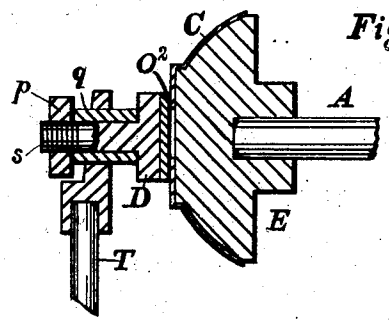


Fig. 5.

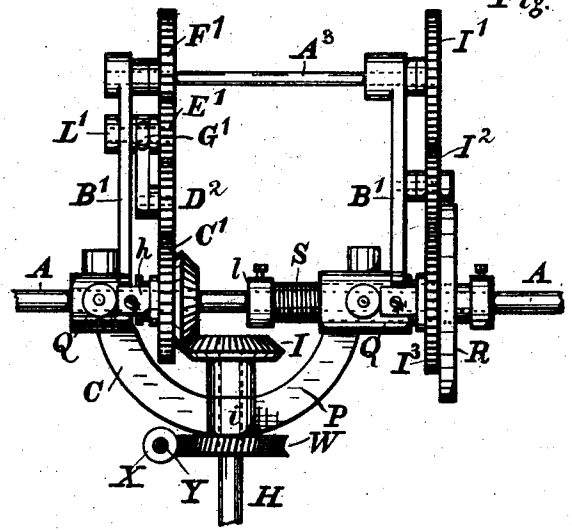


Fig. 6.

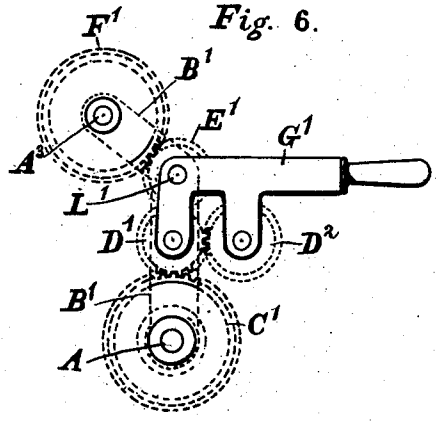
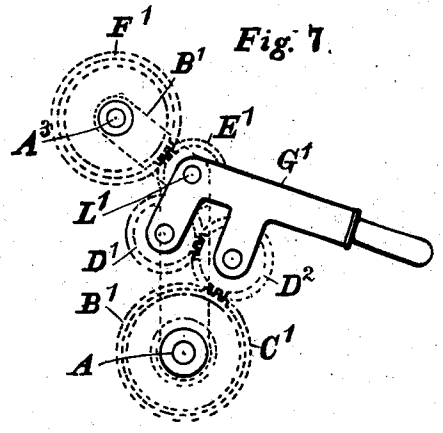


Fig. 7.



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UNITED STATES PATENT OFFICE.

JOHN M. SELLMAYER, OF ROCHESTER, NEW YORK.

BUFFING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 693,912, dated February 25, 1902.

Application filed January 11, 1901. Serial No. 42,859. (No model.)

To all whom it may concern:

Be it known that I, JOHN M. SELLMAYER, a citizen of the United States, residing at Rochester, Monroe county, New York, have invented an Improved Buffing-Machine, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to an improved construction of buffing-machines, designed more particularly for buffing the outside surfaces of hollow ware, but capable of many other uses.

My improvements are fully described and illustrated in the following specification and the accompanying drawings, the novel features thereof being specified in the claims annexed to the said specification.

In the accompanying drawings, representing my improved buffing-machine, Figure 1 is a plan view. Fig. 2 is a front elevation. Fig. 3 is a side elevation. Fig. 4 is a section through the form and clamp. Fig. 5 represents the mechanism for shifting the buffing-shaft positively. Figs. 6 and 7 are side elevations of the same in different positions, showing the reversing mechanism.

A represents the revolving buffing-shaft, which carries the work or articles to be buffed at one end and presents it to the buffer or buffing-wheel B. The work is indicated at C, and the clamp is shown at D for holding the work C against a suitable form E on the end of the buffing-shaft.

F, Fig. 2, is the main driving-shaft, which drives the buffing-shaft A by means of the bevel-gears G, the upright shaft H, and the bevel-gears I. The shaft A is so supported and arranged that while running it may be shifted lengthwise and laterally and also inclined in either direction in the horizontal plane, as indicated by the dotted lines $A' A' A^2 A^2$, Fig. 1. Provision is also made for shifting the shaft up and down in the vertical plane by adjusting the framework, as hereinafter described.

The buffer or buffing-wheel B is of any ordinary or preferred construction, supported and driven on any suitable frame, and arranged in suitable relation with the buffing-shaft. The buffer and the shaft A may revolve in the same or in opposite directions.

J J, Fig. 2, represent the side frames of the machine, which are attached to any suitable base K and connected together by any suitable cross-bars. The driving-shaft F is journaled in the side frames and provided with a suitable pulley, by which power is transmitted to the machine. The buffing-shaft A is supported on a swinging frame, consisting of the arms L and the top or table N, arranged to swing laterally between the side frames J J, so that by this movement (indicated by the dotted lines $H' H' H^2 H^2$, Fig. 3) the shaft A may be shifted bodily to and from the buffer B. The lower end of the shaft H revolves in a step O, attached to a sleeve *b*, fitted freely on the shaft F between the collars *a a*. In this way the frame L L is allowed to swing around the axis of the shaft F, while keeping the gears G in mesh. The journals *c c* of the shaft F project into openings in bosses on the lower ends of the arms L L, so that the arms swing on the journals and not on the shaft. The upper end of the shaft H revolves in a journal *d* on a plate *e*, attached to the top N of the swinging frame. By means of clamp-screws *f*, Fig. 3, the swinging frame can be fixed in any desired position, such screws passing through curved slots *g* in the upper portions of the side frames J. Above the table N the shaft H passes through a boss *i*, carrying the curved frame P, which supports the journals Q Q, in which the buffing-shaft A revolves. The bevel-gears I are placed within this curved frame. As the boss *i* is free to rotate on the shaft H, the bevel-gears I will remain in mesh while the shaft A is shifted in the horizontal plane, as indicated by the dotted lines $A' A' A^2 A^2$, Fig. 1. In order to permit the lengthwise adjustment of the shaft A, the bevel-gear I on the shaft is splined and its hub is provided with a circumferential groove into which is fitted a guide *h*, Fig. 1, attached to one of the journals Q. The bevel-gear is thus held in proper relation with its mate, while the shaft A may be shifted lengthwise through it.

To shift the buffing-shaft A lengthwise through its journals, the hand-wheel R is employed in connection with the threaded sleeve S. The hub of the wheel R is provided with a circumferential groove, in which a guide *j*, Fig. 1, attached to the journal Q, engages, so that the wheel can revolve without shifting

laterally. The hub of the wheel R is threaded internally onto the sleeve S. A key or spline *k*, Fig. 1, prevents the sleeve S from rotating in the journal Q. The sleeve S is confined lengthwise on the shaft A by the collars *l l*, fastened to the shaft. The sleeve is free to slide through the journal Q. Since the sleeve S cannot turn in the journal Q and has collars *l l* at each end which prevent its moving lengthwise on the shaft A, it will be evident that turning the hand-wheel R will shift the shaft A lengthwise or in the direction of its axis, and so will present the work to the buffer in a different position.

The manner of supporting the article to be buffed will be understood from Figs. 1 and 4. E is a form of a shape suitable to fit the interior of the article to be buffed, which form is attached to the end of the shaft A. The article is clamped by the clamp D against the outer end of the form. O^2, Fig. 4, is a washer, of any suitable material, which may be placed between the clamp and the form to hold the article in place. The clamp D is supported by an arm T, mounted on the end of a rod U, which is itself supported by the journals Q. The rod U extends parallel to the buffer-shaft A, being supported by the arms $V' V^2$, the inner ends of which are inserted in bosses on the journals Q Q, the outer ends carrying the sockets $m' m^2$, in which the rod U slides, with provision for clamping it in any desired position. The arm V is attached in a similar manner to the rod U by the socket *m*, its inner end being fastened to a collar *n*, Fig. 1, within which the shaft A revolves freely, with adjustable collars *r r* on each side of the same, the construction being designed to cause the clamp D to travel with the shaft A and its form E when they are shifted lengthwise. The clamp D and its washer O^2 are permitted to revolve with the article C by the stem *s*, Fig. 4, arranged to rotate in a socket *q*, secured on the inner end of the arm T, or of a socket thereon. *p* is a nut on the outer end of the stem *s*. It is necessary to swing the clamp D out of the way for the insertion or removal of the article to be buffed, C. For this purpose the arm T is pivotally connected with the end of the rod U in any suitable manner, such as by the socket *u* and clamping-wheel M, threaded on the end of the rod. *v* is a collar fixed on the rod inside the socket *u*, which may be provided with any suitable stops arranged to limit the movement of the arm T and the clamp D when it is swung up or down out of line with the shaft A and its form. The manner of applying or removing the article to be buffed and of securing it to the form E will now be understood. The wheel M being unscrewed, the arm T and the clamp D are swung out of line with the shaft A, the article is applied to the form, and the clamp is replaced and forced against the article on the form by the threaded hand-wheel M or by the adjustments provided in the socket *m*, so that the article is compelled to revolve with the buffer-shaft, while the article, the clamp, and the form are permitted to be shifted lengthwise of the shaft to present the whole surface of the article to the buffer-wheel B. In order to provide for conditions where it may be desirable to arrange the rod U on either side or on top of the shaft A, the journals Q Q carry three sets of bosses $x x' x^2$, in any of which the arms V' and V^2 may be inserted and secured, as indicated by the dotted lines in Figs. 1 and 3. The positions of the shaft U at these times are indicated by the dotted lines $U' U^2$, Fig. 3. This construction provides for locating the buffer-wheel in any desired position relative to the buffing-shaft.

In order to provide for the case when it is desired to shift the object to be buffed more rapidly than by the hand-wheel R, I arrange to drive the hand-wheel positively, as indicated in Figs. 5, 6, and 7. For this purpose the counter-shaft A^3 is employed, with a series of intermediate and reversing gears arranged so that the hand-wheel R and its nut may be driven positively in either direction from the power of the machine at a higher speed than can be given to it by hand. The counter-shaft is supported from the bosses Q Q by the arms B'. The counter-shaft A^3 is driven from the burnisher-shaft A by the gears C', D', D^2, E', and F', Fig. 6. The gear C' is mounted on the shaft A and revolves with it. The gears D' D^2 are carried by a movable arm G', by which either of them can be engaged with the gear C', so as to reverse the motion of the shaft A^3. The gears D' D^2 are always in mesh with each other, the relative positions when the shaft A^3 is running in one direction being shown in Fig. 6 and when running in the opposite direction in Fig. 7. The arm G' is pivoted on a pin L' in the bracket B', on which also the gear E' revolves in permanent mesh with the gear F' on the shaft A^3. When the gear D' is in mesh with the gear C', as shown in Fig. 6, the shaft A^3 will revolve in one direction, while when the gear D^2 is in mesh with the gear C', as indicated in Fig. 7, the shaft A^3 will revolve in the opposite direction. The shaft A^3 transmits its motion to the hand-wheel R through the gear I', the intermediate I^2, and the gear I^3. (See Fig. 5.) The gear I^3 revolves on a stud supported by the bracket B', and the gear I^3 is attached to the hand-wheel R. Any suitable devices may be employed for locking the lever G' in positions where the gears D' or D^2 are in mesh with the gear C'. If, therefore, the operator desires to shift the article to be buffed rapidly, he secures the longitudinal movement of the buffing-shaft A by manipulation of the hand-lever G'. At the same time when the lever G is placed in such a position that neither of the gears D' D^2 are in mesh with the gear C' the operator can shift the shaft A by the hand-wheel R.

Any suitable means may be employed to shift the buffer-shaft A about the vertical axis of the shaft H, as indicated by the dotted lines A′ A′ A^2 A^2, Fig. 1. In the construction illustrated the curved frame P, with its hub *i*, is shown as attached to the worm-gear W, operated by a worm X, Fig. 5, on a shaft Y, provided with a hand-wheel Z, Figs. 1 and 2. The shaft Y is supported by suitable brackets on the plate *e* or the table N, and by turning the hand-wheel Z in either direction the buffer-shaft is shifted in the horizontal plane and the article C presented to or removed from the buffer B, as indicated by the dotted lines in Fig 1.

In order to adjust the machine up or down to vary the position of the buffing-shaft relative to the buffer, I employ the hand-wheel and screw *e′* and *z*, Figs. 2 and 3. The side frames J J are pivoted on one side at *t* to the lugs or brackets *w* on the base K. On the other side the side frames are connected together by the bar N′, Fig. 2, and the screw *z* is threaded through this bar, with the lower end of the screw bearing on the base K, so that the right-hand side of the machine, as seen in Fig. 3, may be adjusted up and down, thereby varying the height of the buffing-shaft relative to the buffer. The screw *e′* may be provided with a jam-nut, and *f′* is a clamp-screw for holding the frame in any position in which it may be set.

As already mentioned, the frame L L N and the buffing-shaft are supported so as to swing about the axis of the shaft F, as indicated by the dotted lines H′ H^2 in Fig. 3. A spring O′, Fig. 3, is arranged around the threaded shaft P′, provided at its outer end with the hand-wheel Q′ and supported in an arm R′, attached to one of the side frames J. The shaft P′ is threaded into a nut S′, attached to the swinging frame L L N by the pivots *o*, Fig. 2, inserted through a suitable bracket *i′*, fastened to the lower side of the table N. It will be understood that by turning the hand-wheel Q′ in one direction the frame, table, and object to be buffed will be withdrawn from the buffer, while by turning it the other way the article will be placed in contact with the buffer, against which it is held by the weight of the frame. The spring O′ prevents the frame from falling too far to the left in Fig. 3 when the article is withdrawn from the buffer.

The rod J′, Figs. 1 and 2, inserted in the collar *n*, serves to move the buffing-shaft and clamp by hand into any desired position.

K′ is a fly-wheel on the buffing-shaft, which may also be used for purposes of adjustment.

I claim—

1. In a buffing-machine, the combination with an upright shaft, of a revolving buffing-shaft axially mounted thereon and adapted to swing in a plane at right angles thereto, substantially as described.

2. In a buffing-machine, the combination with an upright shaft, of a revolving lengthwise-movable buffing-shaft and clamp axially mounted thereon and adapted to swing in a plane at right angles thereto, substantially as described.

3. In a buffing-machine, the combination with an upright shaft, of a revolving lengthwise-movable and laterally-adjustable buffing-shaft and clamp axially mounted thereon and adapted to swing in a plane at right angles thereto, substantially as described.

4. In a buffing-machine, the combination with an upright revolving shaft, of a revolving lengthwise-movable buffing-shaft and clamp axially mounted thereon and rotated thereby, substantially as described.

5. In a buffing-machine, the combination with an upright revolving shaft, of a revolving lengthwise-movable buffing-shaft and clamp positively driven thereby, means for oscillating said upright shaft and buffing-shaft, and means for rotating said buffing-shaft in a plane at right angles to said upright shaft, substantially as described.

6. The combination with the main frame, of the driving-shaft, the oscillating frame arranged to swing thereon and carrying the upright shaft, the gearing, the horizontal buffing-shaft and the clamp, and means for shifting the buffing-shaft and clamp lengthwise, as and for the purposes set forth.

7. The combination with the main frame, of the driving-shaft, the oscillating frame arranged to swing thereon and carrying the upright shaft, the gearing, the horizontal lengthwise-adjustable buffing-shaft and the clamp, and the worm and worm-gear for swinging the buffing-shaft about a vertical axis, as and for the purposes set forth.

8. The combination with the main frame, of the driving-shaft, the oscillating frame arranged to swing thereon and carrying the upright shaft, the gearing, the horizontal lengthwise-adjustable buffing-shaft and clamp, and the screw for adjusting the position of the oscillating frame, as and for the purposes set forth.

9. The combination with the main frame of the driving-shaft, the oscillating frame arranged to swing thereon and carrying the upright shaft, the gearing, the horizontal lengthwise-adjustable buffing-shaft and clamp, the screw for adjusting the position of the oscillating frame, and the worm and worm-gear for swinging the buffing-shaft about a vertical axis, as and for the purposes set forth.

10. The combination with the main frame, of the driving-shaft, the oscillating frame arranged to swing thereon and carrying the upright shaft, the gearing, the lengthwise-adjustable buffing-shaft and clamp, the threaded sleeve on the shaft, the nut on the sleeve, and suitable connecting-gearing for revolving the nut by power, as and for the purposes set forth.

11. The combination with the main frame, of the driving-shaft, the oscillating frame arranged to swing thereon and carrying the upright shaft, the gearing, the lengthwise-adjustable buffing-shaft and clamp, the threaded sleeve on the shaft, the nut on the sleeve, the connecting-gearing, and the pivoted arm carrying the reversing-gears, whereby the nut is revolved positively in either direction, as and for the purposes set forth.

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