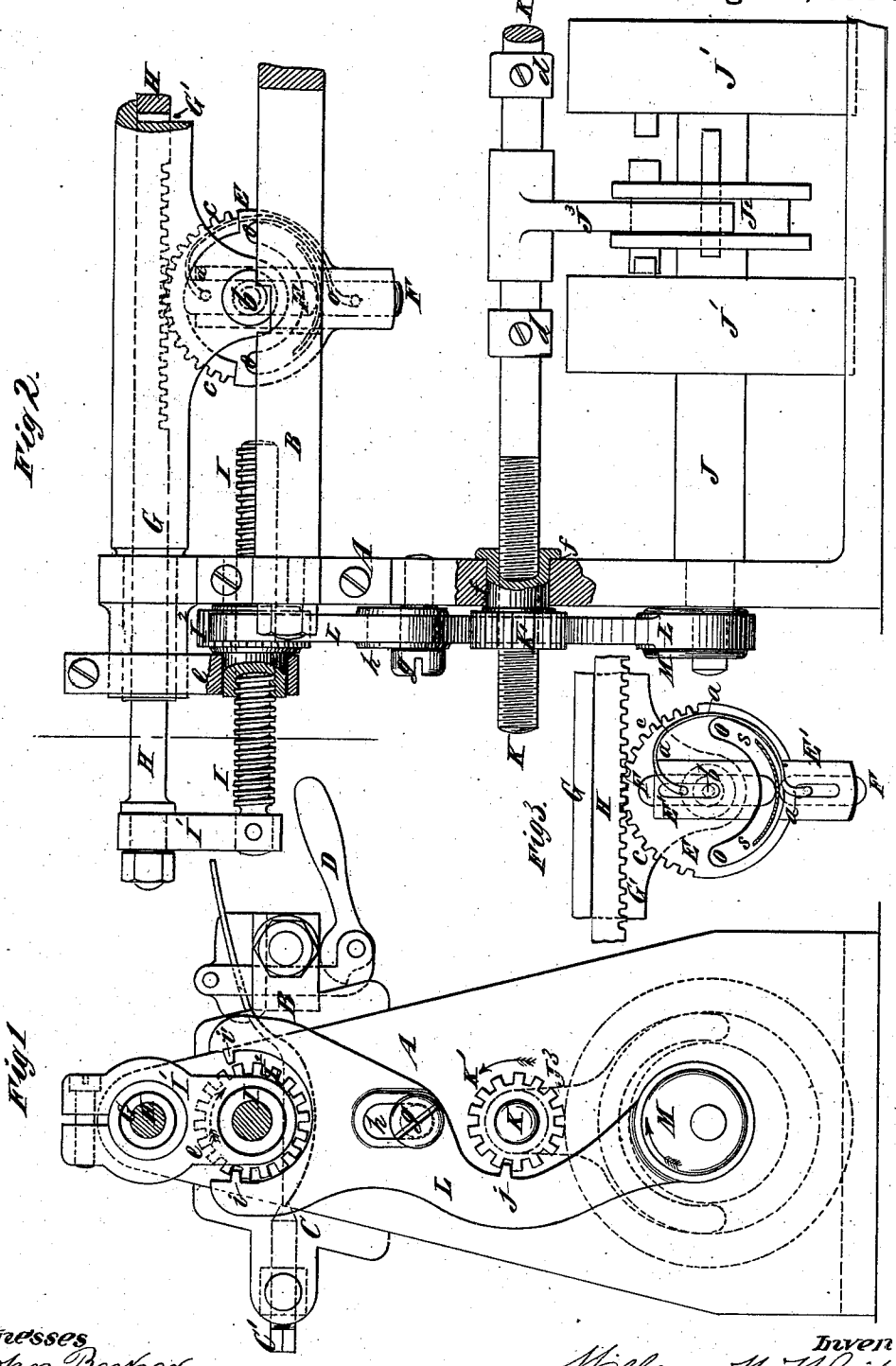
(No Model.)

W. W. WHITE.

Feed Motion for Burnishing Machines.

No. 231,876. Patented Aug. 31, 1880.



Witnesses
John Becker
Thomas E. Birch

Inventor
William W. White
by his Attorneys
Brown & Brown

UNITED STATES PATENT OFFICE.

WILLIAM W. WHITE, OF WATERBURY, CONNECTICUT, ASSIGNOR TO ROGERS & BROTHER, OF SAME PLACE.

FEED-MOTION FOR BURNISHING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 231,876, dated August 31, 1880.

Application filed May 22, 1880. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM W. WHITE, of Waterbury, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Feed-Motions for Burnishing-Machines, of which the following is a specification.

My invention relates chiefly to burnishing-machines for burnishing the bowls of spoons, but might be applied to burnishing other articles having a convex and a concave side.

In such machines two burnishers are arranged opposite each other and adapted to bear upon the spoon-bowl at opposite points inside and outside the same, as shown in Letters Patent No. 23,520, granted April 5, 1859, to Le Roy S. White.

In machines of this kind the burnishers are held in a stock which is pivoted to a rock-shaft, by the oscillation of which the burnishers are moved over the spoon from shank to tip lengthwise of the bowl, and the required feed of the burnishers from side to side of the bowl has been effected by a reciprocating rack-bar longitudinally movable within the rock-shaft and engaging with a toothed segment upon the burnisher-stock to turn the latter forward and back. A fixed screw is arranged parallel with and connected to said rack-bar, and a nut fitted to said screw and held in fixed bearings is rotated to produce the forward and backward movement of the rack-bar. Motion is imparted to the rack-bar by means of open and cross belts and a clutch; and my invention consists in a novel combination of mechanism for rotating the nut of the feed-screw, and also for shifting the clutch, so as to reverse the direction of the movement of the feed-screw.

In the accompanying drawings, Figure 1 represents an end view and partial section of a machine embodying my invention. Fig. 2 represents a side view of a portion of such a machine, partly in section, so as to more clearly illustrate my invention; and Fig. 3 represents a back view of a portion of the rock-shaft and rack-bar and one of the burnisher-stocks.

Similar letters of reference designate corresponding parts in the figures.

A designates one of the end standards or frames of the machine, and B and C designate rails extending from one end to the other of the machine. The rail B is furnished with a number of clamping devices for clamping and holding the shanks of the spoons, which devices may be operated by cam-levers D to clamp or release a spoon. The rail C is provided with a number of set-screws, C′, which are notched in their ends, so as to form supports for the tips of the spoons, as shown clearly in Fig. 1.

E designates a burnisher-stock, of which any number may be employed, (shown as of circular form,) and provided with two sockets, E′, arranged in line with each other, and receiving in them burnishers F, between the adjacent ends of which a spoon-bowl, S, may be inserted, as shown clearly in Fig. 3, through an arc-shaped slot, *o*, in the stock E.

The burnishers F both slide freely in their sockets E′, and are caused to exert a pressure upon opposite sides of the spoon-bowl by a bent spring, *a*, the two ends of which engage with the two burnishers, as shown in Fig. 3, and press them together or toward each other.

G designates the rock-shaft, which is oscillated by a crank or eccentric in the usual manner, and to which the stocks E are secured by pivots *b*.

H designates the feed-bar, contained within a recess, G′, in the back of the rock-shaft, and toothed to engage with a circular rack, *c*, upon the stock E.

I designates a feed-screw attached to an arm, I′, projecting from the feed-bar H, and I^2 designates a nut by which the screw I may be operated to reciprocate the feed-bar and impart a partial rotation to the burnisher-stocks E.

J designates the driving-shaft, upon which are pulleys J′ J′, one of which receives an open and the other a crossed belt. J^2 designates a clutch adapted to be shifted longitudinally on the shaft by an arm, J^3, and serving to shift the clutch J^2, so as to lock either pulley to the shaft.

K designates a screw-threaded shipper bar or rod, and K′ designates a nut, by the turning of which the rod or bar K is moved longitudinally, and through tappets *d* is caused to move the clutch J^2, a suitable trip-motion being employed in connection therewith.

Inasmuch as all the above-mentioned parts are common in machines already in use, a fuller description thereof is unnecessary, my invention consisting solely in the construction of the nuts I^2 and K′ and the mechanism employed to operate them.

As represented in Fig. 2, the nut I^2 has a bearing in an arm, *e*, by which it is held from longitudinal movement, and the nut K′ has a similar bearing, *f*, in the end frame, A, for a like purpose. As clearly shown in Fig. 1, both nuts are made circular and toothed at the periphery, so that they constitute spur-pinions; but in lieu thereof they might have separate pinions fixed to their sides.

L designates a lever, secured upon the face of the end frame, A, by means of a stud or bolt, *g*, which passes through a slot, *h*, and has a head which overlaps the sides of the slot and holds the lever against the end frame, as well as constitutes a fulcrum therefor.

Upon the driving-shaft J is an eccentric, M, and the end of the lever L is fitted to the same, so that the rotation of the shaft and eccentric imparts a slight oscillating movement to the lever as well as a reciprocal movement.

The upper end of the lever L is here shown as bifurcated or forked, so as to embrace the nut I^2, and the fork has upon its inner faces teeth *i i′*, both of which teeth are brought into engagement with the toothed nut I^2 during a complete revolution of the driving-shaft J, one tooth acting while the lever L moves upward and is oscillated in one direction, and the other while the said lever moves downward and is oscillated in the other direction. This turning of the nut I^2 moves the screw longitudinally, and through the toothed feed-bar H turns the stock E, carrying the burnishers, and moves the stock so as to feed the burnishers from one side to the other of the spoon-bowl while they are moved quickly from end to end thereof.

It is obvious that the lever L might have only one tooth, *i*, in which case the nut I^2 would only be turned half as fast as when it has two teeth; and, if desired, a crank might be fixed upon the driving-shaft J, to give the desired movement to the lever L, in lieu of the eccentric M.

As before stated, the nut K′ is also toothed, and the lever L has upon it a tooth, *j*, which, as said lever is moved longitudinally and oscillated, engages with said nut, and by turning moves the screw-threaded shipper-bar longitudinally, and causes it to operate the clutch-arm J^3.

The lever L, as shown clearly in Fig. 1, is curved or crooked, so as to pass upon one side of the nut K′; but it might, if desirable, have an opening in it to permit of its fitting over the nut.

It is obvious that when the eccentric M is rotated in the direction indicated by the arrow the tooth *j* engages with the nut K′ upon the downward movement of the lever, and that the tooth *i′* simultaneously engages with the nut I^2, while the tooth *i* engages with said nut during the upward movement of the lever. If the direction of the movement of the eccentric be reversed the tooth *i* will engage during the downward movement of the lever and the tooth *i′* during its upward movement.

This feed-motion which I have invented is very simple and composed of few parts, and is therefore very desirable.

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

1. The combination, with the feed-bar and feed-screw of a burnishing-machine, of a nut fitted to said screw, adapted to rotate in fixed bearings, and having a spur-pinion formed upon or attached to it, a pivoted lever provided with a tooth or teeth, and a crank or eccentric for imparting to said lever an oscillating and a reciprocal movement to cause the tooth or teeth to engage said pinion and rotate said nut in either direction, according to the direction of rotation of the crank or eccentric, substantially as and for the purpose specified.

2. The combination, in a burnishing-machine, with the feed-bar and feed-screw and with a screw-threaded shipper rod or bar for reversing the movement of the machine, of nuts fitted to said feed-screw and shipper rod or bar, adapted to rotate in fixed bearings and having spur-pinions formed upon or attached to them, a pivoted lever provided with teeth, and a crank or an eccentric for imparting to said lever an oscillating and reciprocal movement to cause said teeth to engage with said pinions and rotate both of said nuts, substantially as and for the purpose specified.

3. The combination, in a burnishing-machine, with the feed-bar H, feed-screw I, and shipper rod or bar K, of the nuts I^2 K′, the lever L, forked at its upper end and provided with teeth *i i′* for engaging with the nut I^2 on opposite sides thereof, and a tooth, *j*, for engaging with the nut K′, and the eccentric M or a crank, all operating substantially as specified.

WILLIAM W. WHITE.

Witnesses:
EDWARD F. COLE,
LE ROY UPSON.