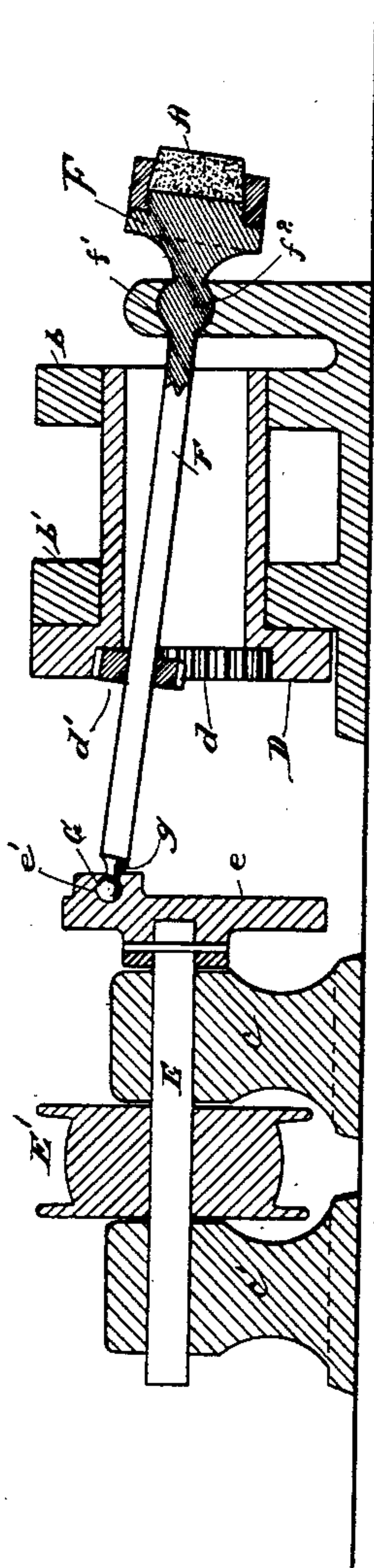
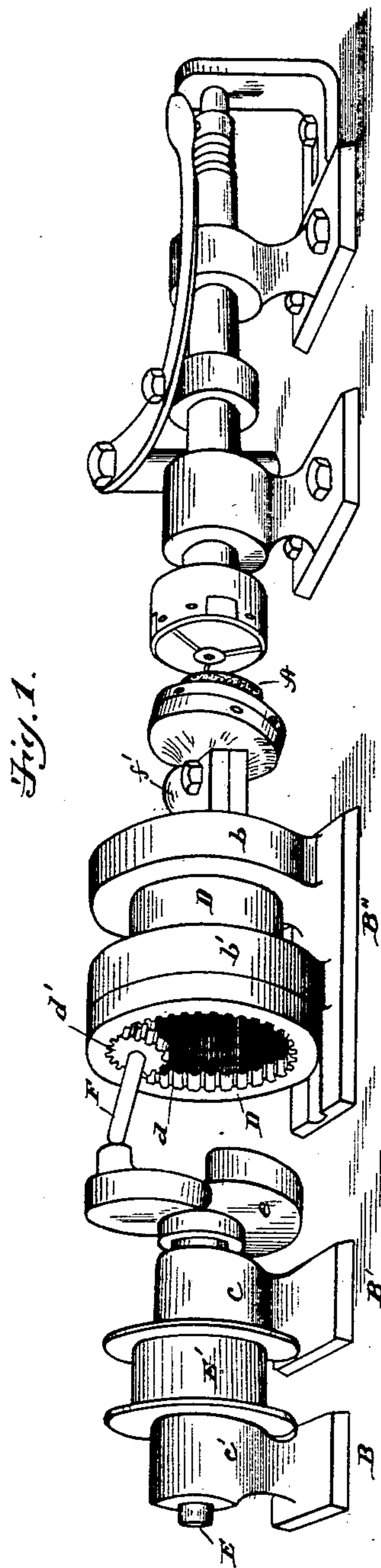


(No Model.)

S. NACHTIGAL.
MACHINE FOR BACKING PEARL BUTTONS.

No. 541,382.

Patented June 18, 1895.



WITNESSES
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UNITED STATES PATENT OFFICE.

STEPHAN NACHTIGAL, OF DETROIT, MICHIGAN, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE EXCELSIOR BUTTON COMPANY, OF SAME PLACE.

MACHINE FOR BACKING PEARL BUTTONS.

SPECIFICATION forming part of Letters Patent No. 541,382, dated June 18, 1895.

Application filed January 21, 1895. Serial No. 535,623. (No model.)

To all whom it may concern:

Be it known that I, STEPHAN NACHTIGAL, a citizen of Germany, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Machines for Backing Pearl Buttons; and I declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This machine relates to pearl button lathes, and has for its object an improved form of lathe for dressing the backs of pearl buttons and other buttons, or articles of a similar character.

The complete lathe consists of two parts, one of which holds the button, and the other of which holds the tool employed to dress the button.

The tool shown in this case consists of a grinding wheel, for which may be substituted any suitable cutting device.

In the drawings, Figure 1 shows in perspective the complete machine. Fig. 2 shows in sectional elevation that part of the machine in which the cutting-wheel is held and by which it is rotated.

This machine is intended to produce on the back of the button a shape which is the result of grinding it by a cutting tool or an abrading tool, which rotates and wabbles, thus producing a composite motion, which forms on the back of the button an oval shape, depending somewhat on the relative size of the button and the abrading tool.

At the right hand of the drawings is shown the chuck, which I do not desire to describe in this application further than to say that it is adapted to grasp the button by its edges and hold it against the face of the stone.

At the left end of the drawings is shown the device by which the abrading stone A is held and actuated.

B B' B'' indicate the main frame or bed piece, from which rise bearings *b b' c c'*. These bearings are in pairs. In the bearings *b b'* is journaled a hollow wheel D. Within that end which lies toward the bearing *c* is an internal gear *d*. Between the bearings *b b'*,

upon the rim of the hollow wheel D, provision is made for a driving belt by which the wheel D is driven from any convenient source of power. Beyond that end of the wheel D which is farthest from the bearings *c*, is a ball socket, *f'*, at a point concentric to the wheel D; and within the ball socket *f'* is journaled the ball *f²* on the shank F, to the head of which is secured in any suitable way the abrading wheel A.

As shown in the drawings, the abrading wheel A is made in the form of the frustum of a cone, and is held to the face F' of the head of the shank F by a hollow cone that engages with suitable screw threads with the head F'. At the extreme opposite end of the shank F is a spherical head or ball G, joined to the shank F by a neck *g*. The bearing posts *c* and *c'* support an arbor E, and on that end of the arbor E which lies toward the bearing post *b'*, is a crank wheel *e*, provided with a socket *e'*, in which rests the ball G on the end of the shank F. A suitable driving pulley E' is secured to the arbor E between the bearing posts *c* and *c'*. The arbor E is axially in line with the axis of the wheel D, and the center of the bearing *f'* is in the same axial line.

On the shaft F is a pinion *d'* that engages within the internal gear *d*. The rotation of the shaft E and the crank wheel *e* causes the abrading wheel A to both rotate and wabble. It will readily be seen that, if the crank wheel *e* were to be driven and the wheel D made stationary, the rotation of the abrading wheel A would be several times faster than its wabbling speed, and, in order to obtain the required wabbling speed, it would necessitate a rotating speed that would be destructive to the driving gears. To obviate this, I have provided means for regulating the speed, consisting in the means for driving the wheel D, and the gear *d*, as above referred to. It will also be apparent that the relative speed of the rotation of the abrading wheel A and its wabbling motion may be varied at will by changing the speed of the wheel E' or the wheel D. The finished cut on the work will depend somewhat on its size, inasmuch as a larger button cannot be thrust as far into the angle formed by the path of the face of the abrad-

ing wheel, as can be thrust a smaller button, as the smaller button would be finished farther over the edges than a larger one would; and, conversely, by changing the size of the
5 abrading wheel A, removing one of one size, and placing one of another size upon it, which can readily be provided for, will enable the user to produce almost any shape in the backing off of buttons that may be desired.

10 What I desire to claim is—

1. In a lathe for treating buttons, the combination of means for holding the buttons, an annular wheel and a traveling pinion, an
15 abrading tool on the shaft of said pinion, means for operating said annular wheel, and means for producing travel of the pinion whereby said abrading tool is given both a rotating and a wobbling motion, substantially as and for the purpose described.

20 2. In a machine for treating buttons, in combination with means for holding a button, mounted on one end of a single shaft, means engaging the opposite end of said shaft adapted to give said tool a wobbling motion, a pin-

ion mounted on said shaft, an internal gear 25 adapted to engage with said pinion whereby said tool is made to rotate, and means for giving said internal gear a rotary motion whereby the relative speed of rotation and wobbling of said tool may be regulated, substantially 30 as and for the purpose described.

3. In a machine for treating buttons, the combination of means for holding the button, an abrading device rotatively held on a ball and socket joint, a stem connecting such 35 abrading device, connected eccentrically to a rotating wheel, a hollow rotating wheel surrounding the stem, and means for driving the stem by a motion independent of that derived from its eccentric connection with the first 40 mentioned wheel, substantially as described.

In testimony whereof I sign this specification in the presence of two witnesses.

STEPHAN NACHTIGAL.

Witnesses:

CHARLES F. BURTON,
HERMAN PRESSLER.