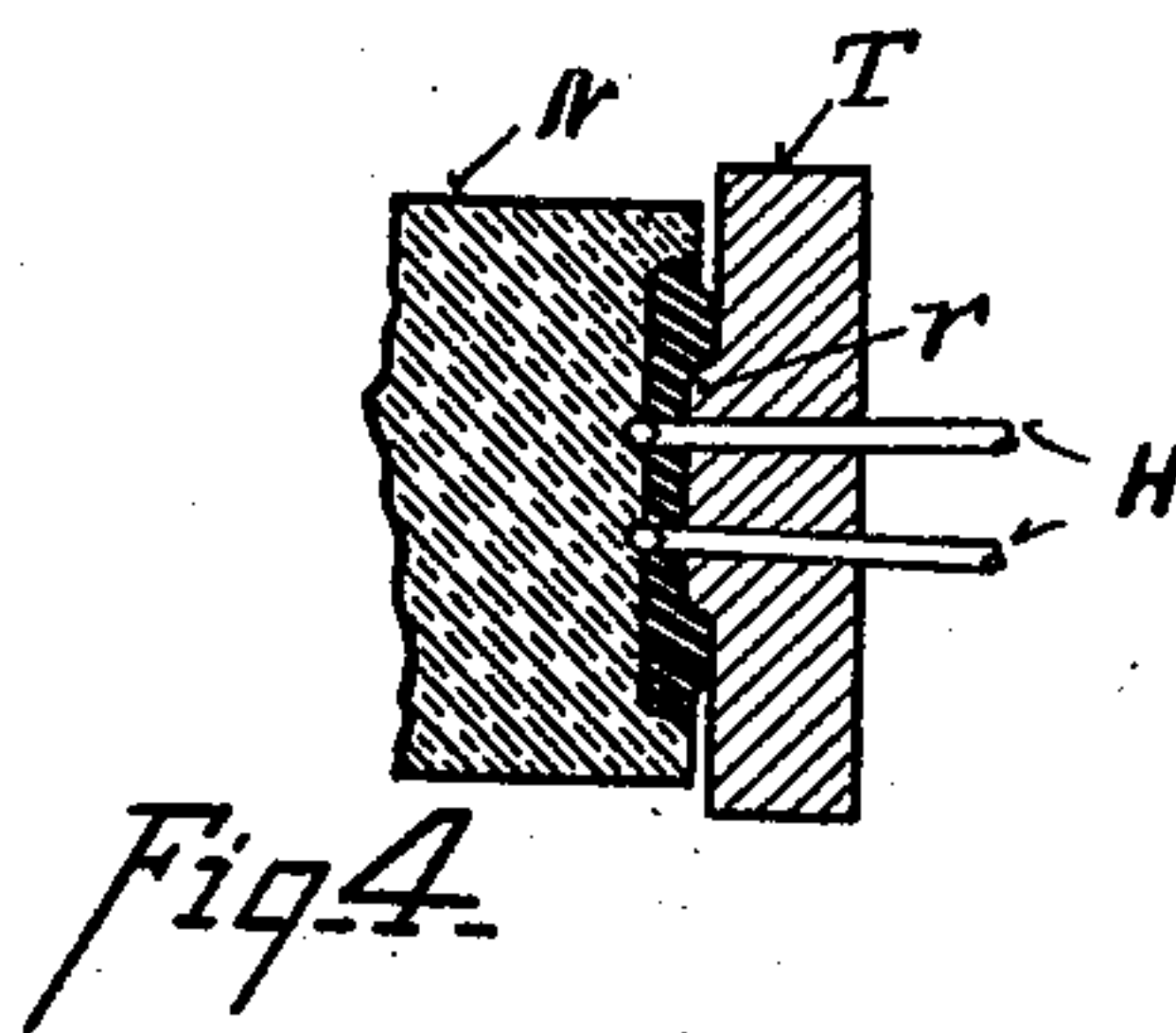
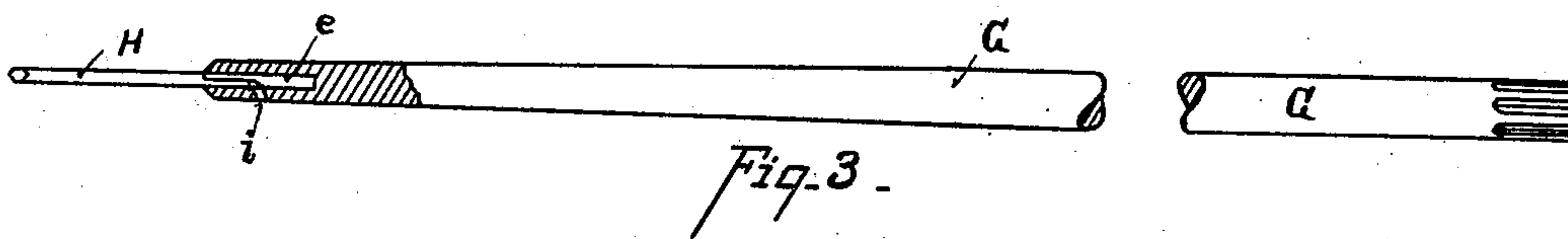
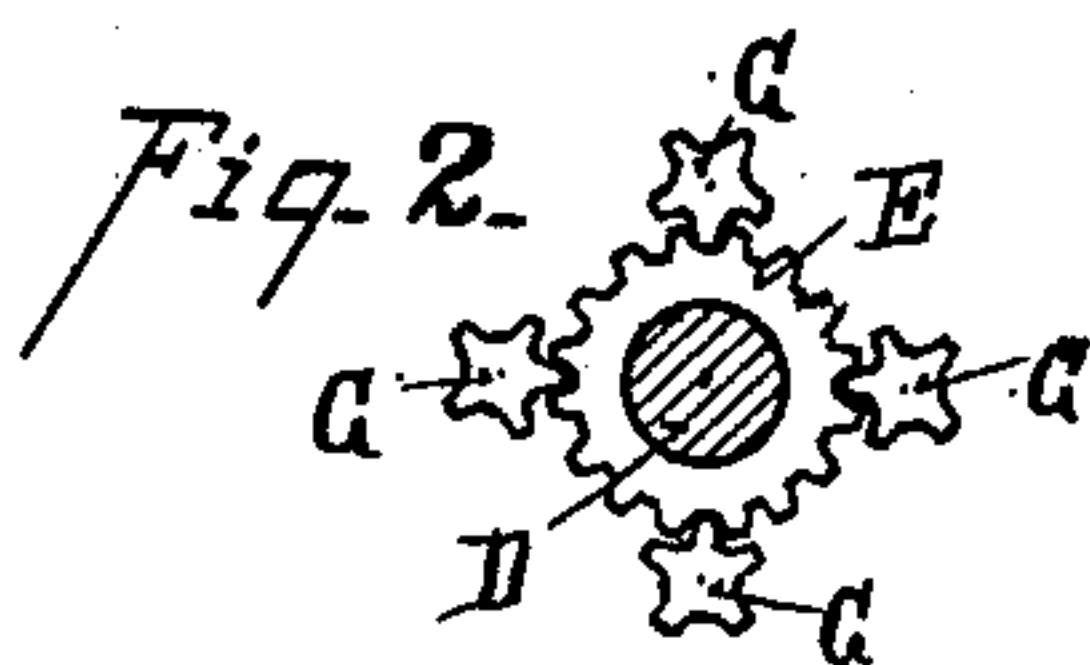
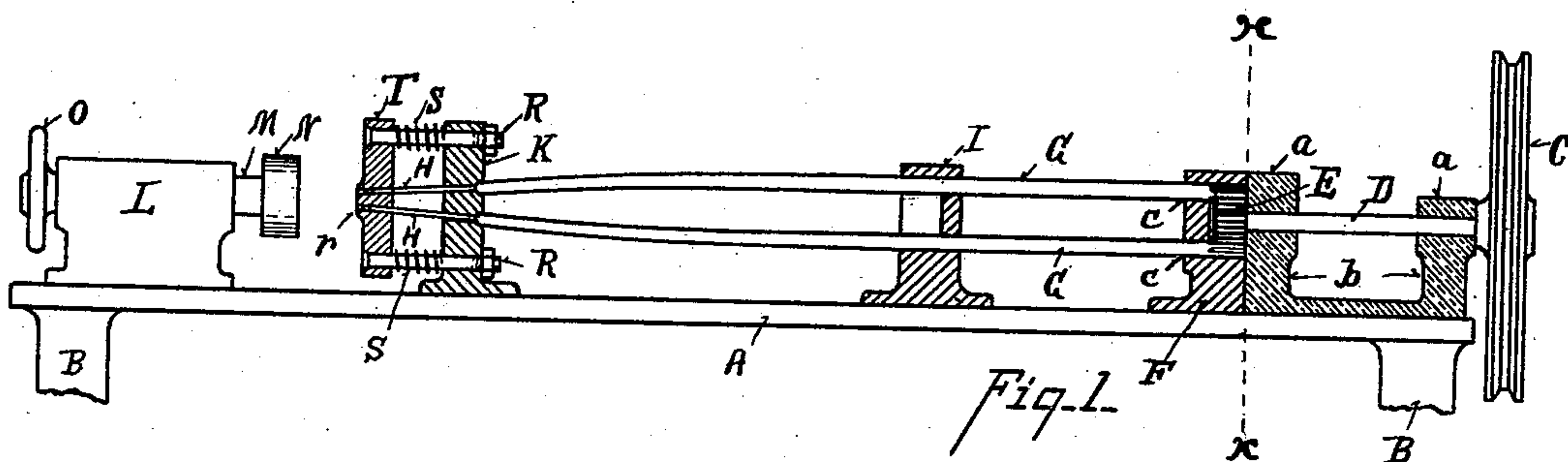


(No Model.)

R. J. OSTICK.
BUTTON DRILLING MACHINE.

No. 507,384.

Patented Oct. 24, 1893.



Attest—
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By Wood, Bond, Atty.

UNITED STATES PATENT OFFICE.

ROBERT J. OSTICK, OF COVINGTON, KENTUCKY.

BUTTON-DRILLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 507,384, dated October 24, 1893.

Application filed June 26, 1893. Serial No. 478,872. (No model.)

To all whom it may concern:

Be it known that I, ROBERT J. OSTICK, a citizen of the United States, residing at Covington, in the county of Kenton and State of Kentucky, have invented certain new and useful Improvements in Button-Drilling Machines, of which the following is a specification.

My invention is designed primarily for the drilling of holes in buttons, such as pearl, bone, and other similar material.

The object of the invention is to provide means for chucking, holding and simultaneously drilling two or more holes at one operation.

The various features of my invention are fully set forth in the description of the accompanying drawings making a part of this specification, in which—

Figure 1 is a longitudinal elevation, partly in section, of my improvement. Fig. 2 is an end elevation of the driving gear on line *x, x*, Fig. 1. Fig. 3 is a plan view, partly in section, of the drill and spindle. Fig. 4 is a sectional elevation of the chuck, templet, drills and button in position for operation.

A represents the bed plate upon which the operating parts of the machine are supported.

B represents the legs of the frame work.

C represents the driving wheel mounted upon the shaft D supported in bearings *a* on the standards *b*, which are rigidly attached to the bed-plate.

E represents a driving gear on the main shaft D.

F represents a standard provided with an enlarged cavity or opening in which the gear wheel E is loosely inclosed or housed, so as to travel without any frictional contact.

G represents a series of spindles each having an individual bearing *c* in the standard F; the rear ends of said spindles are each provided with a gear pinion preferably formed by recessing the spindles and housed in the cavity or opening of the standard F. These several spindles are set so as to engage in a gang around the periphery of the gear E, and meshing with the teeth thereof, as shown in Fig. 2.

I represents another standard likewise provided with individual bearings for the spindles G.

K represents a standard provided with step bearings for the spindles G.

H represents drills which are attached to the spindles G in the following manner:

e represents a pin inserted in the socket pierced in the end of the spindle; the forward end of said pin is halved or beveled away; the rear end of the drill H has its shank end beveled off so as to mesh with bevel pin *e* and form a half-tenon or interlocking joint of the spindle and drill.

i represents an orifice pierced in the spindle just in rear of the shank of the drill H, so that in cases said drills are accidentally broken off an instrument can be introduced to push the shank out.

L represents the chuck frame. M the chuck spindle; N the chuck; O a hand-wheel for turning the screw shaft for feeding the spindle M forward and backward in the ordinary manner of chuck spindles.

T represents a templet which is connected to the standard K by pins R.

S represents springs coiled around the pins for holding the templet in position, resting loosely against the button. The forward face of the templet is provided with the boss *r* which fits into the concave face of the button, rests and holds it firmly in position; the templets are pierced with holes for the gang drills H to protrude through as the templet is forced back by the screw O.

The mode of operation is as follows: The spindles G are made of steel with a spring templet so that they may be sprung toward each other, so that the points of the drills will approach sufficiently to bore the holes the proper distance apart in the button. The button is placed in the chuck end, and screw O turned up until the boss *r* of the templet seats in the concavity of the button; motion is applied to the driving wheel C and the drills rapidly revolve; the screw-wheel O is turned to force the button up as fast as the drills enter the same. As soon as the drills have done their work the screw O is turned back, the button taken out and a new one placed in. This templet performs two important functions: first, its boss seats against the button; second, being held in engagement by the springs it will yield backward as the screw is turned forward, so that the drills will be forced

through the boss just as fast as they enter the button, thus keeping the drills supported by the templet always bearing against the face of the button; this prevents the drills from running and insures the drilling of the holes in the right place.

Having described my invention, what I claim is—

1. In a button drilling machine, the combination of a standard F having a cavity, a driving-shaft D having a gear-wheel E housed in the said cavity of the standard, a series of drill spindles G having their rear ends provided with pinions also housed in the cavity of the standard and engaging the said gear-wheel, a front standard K having bearings for the front ends of the drill spindles, a templet T having a spring pin connection with and supported by the said front standard, and a chuck for holding the object to be drilled against the said templet, substantially as described.

2. In a button drilling machine, the combination of a standard F having a cavity, a driving-shaft D having a gear wheel E housed in the cavity of the standard, a series of drill spindles G provided with pinions also housed

in said standard and engaging the gear wheel, a front standard K having bearings for the front ends of the drill spindles, a templet T, pins R mounted on the front standard and supporting the templet, springs S arranged on the pins between the front standard and templet, and a chuck for holding the object to be drilled against the templet, substantially as described.

3. In a gang drilling machine, the templet T supported upon yielding springs, and provided with boss *r*, to enter the cavity in the button being drilled, and bearings for the button of drills H, substantially as specified.

4. The combination of the chuck M, yieldingly supported templet T, having a boss *r* to enter the cavity in the button being drilled, the gang of drills supported on spindles G, and driven by the common gear E, substantially as specified.

In testimony whereof I have hereunto set my hand.

ROBERT J. OSTICK.

Witnesses:

T. SIMMONS,
C. W. MILES.