

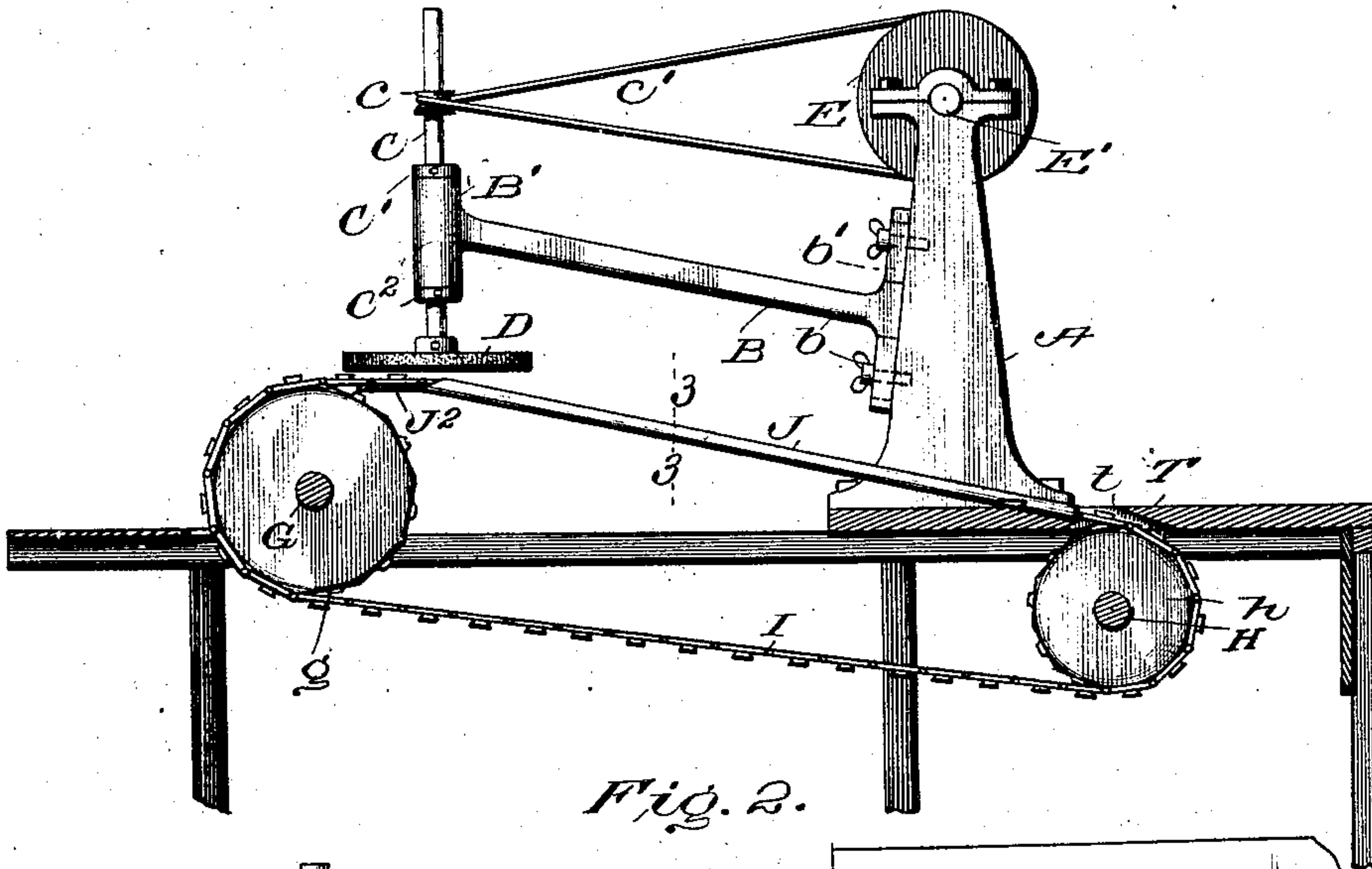
(No Model.)

C. L. APPEL.  
BUTTON GRINDING MACHINE.

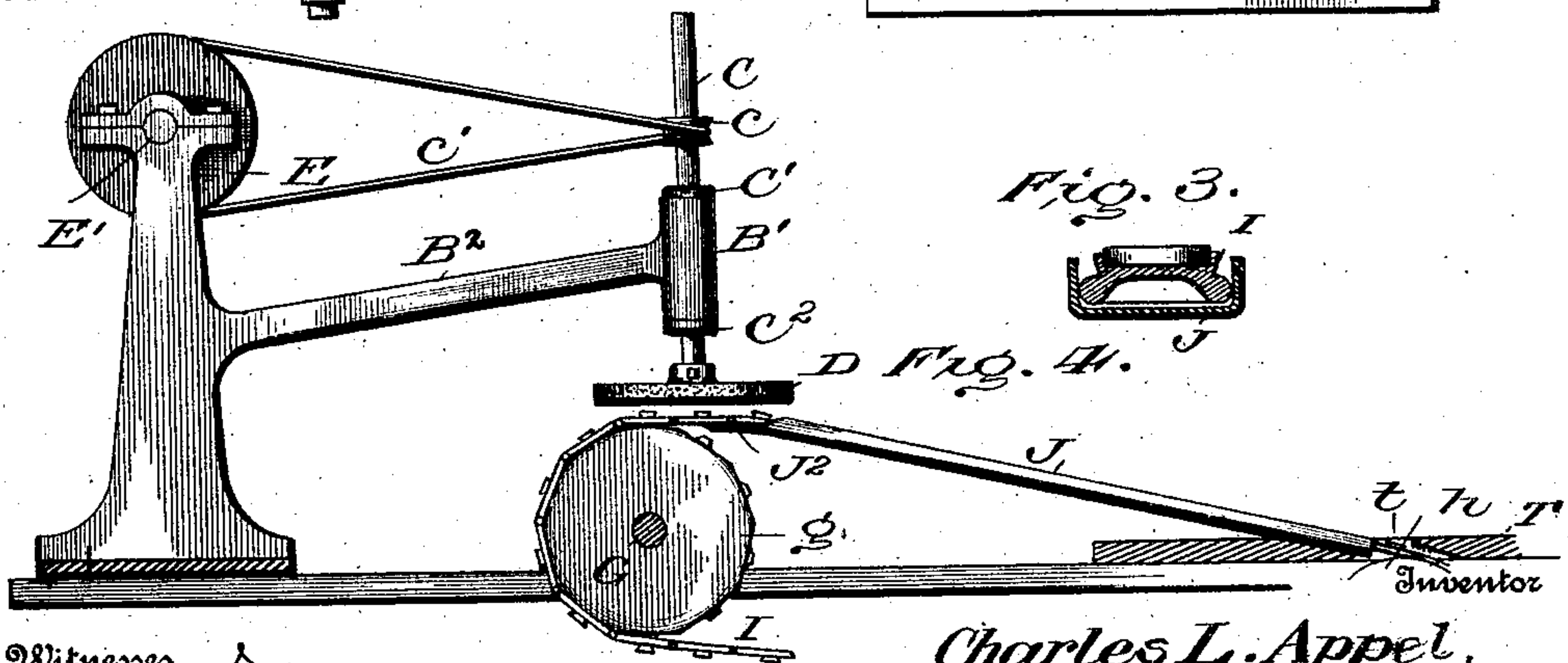
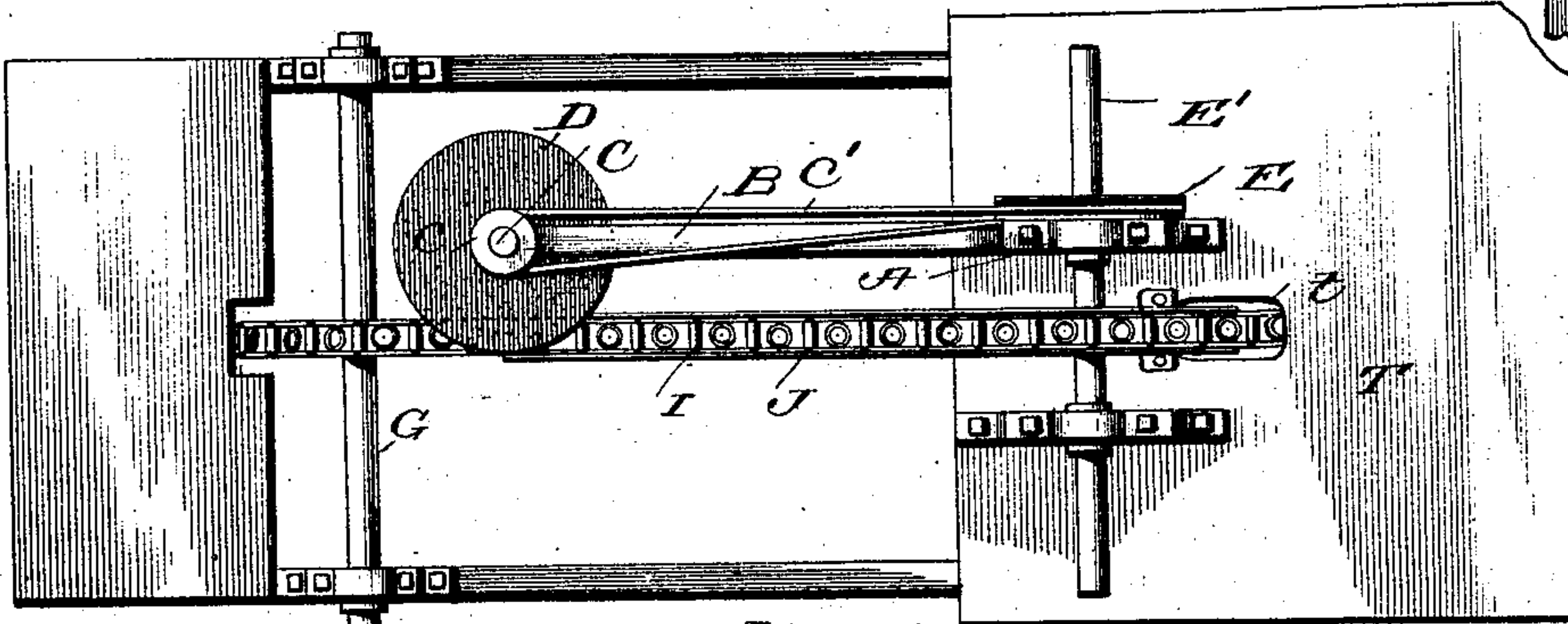
No. 604,952.

Patented May 31, 1898.

*Fig. 1.*



*Fig. 2.*



### Witnesses

Witnesses  
 Mr. Mil.  
 James P. Mansfield.

*Charles L. Appel.*

by Alexander & Sowell.  
Attorneys.



# UNITED STATES PATENT OFFICE.

CHARLES L. APPEL, OF MUSCATINE, IOWA.

## BUTTON-GRINDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 604,952, dated May 31, 1898.

Application filed July 21, 1897. Serial No. 645,437. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES L. APPEL, of Muscatine, in the county of Muscatine and State of Iowa, have invented certain new and useful Improvements in Button-Grinding Machines; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form part of this specification.

This invention is an improved machine for grinding buttons to a uniform thickness, and is especially designed for use in the manufacture of bone and pearl or shell buttons.

It consists in the novel construction and combination of parts hereinafter fully described, and substantially as illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation, partly in section, of the machine. Fig. 2 is a top plan view thereof. Fig. 3 is a detail enlarged transverse section on line 3 3, Fig. 1. Fig. 4 is a side elevation of a modified arrangement of the machine.

In said drawings, A designates a supporting-standard mounted on a table T, and to said standard is adjustably secured an arm B by means of set-screws *b*, passing through slots *b'* in the T-head of said arm and tapped into suitable threaded holes in the standard. The arm is slightly upwardly inclined, as shown. On the outer end of said arm is a vertical sleeve B', in which is journaled a vertical shaft C, supported by a collar C', fixed thereto above sleeve B', and another collar C<sup>2</sup> below the sleeve prevents any vertical play of shaft C. These collars are adjustable, so that the shaft C can be adjusted vertically in the sleeve. On the lower end of shaft C is fixed a horizontal abrading-disk D of any suitable material, such as emery, and on the upper end of said shaft is a grooved pulley *c*, which is driven by a belt *c'* from a pulley on a horizontal shaft E, journaled on the top of support A. This shaft may be driven in any suitable manner.

Below disk D is a vertically-disposed wheel *g*, mounted on a shaft G, journaled in suitable supports, and below the top of the table and in front of standard A is a similar wheel *h*, journaled on a shaft H. Over said wheels

*g h* runs an endless carrier-belt I of any suitable construction, preferably a sprocket-belt, so that its motion will be positive, said belt being provided at intervals with ribs or recesses adapted to receive a button-blank, which can be placed thereon through an opening or slot *t* in the top of table T. The upper part of belt I travels in a guideway J, which extends from wheel H up to and preferably past wheel *g*, passing close to disk D, so that the button-blanks fed up by the belt are brought into position to be acted upon by disk D, and being passed thereunder are ground down to a uniform thickness. The machine can operate at great speed, and the thickness of the button can be varied by adjusting the distance between disk D and top of belt I or guide J.

Power can be applied to either shaft G or H and to shaft E from any suitable prime mover.

If desired, a number of these grinding-machines may be mounted upon the same table side by side, the shafts E G H being common to all.

The distance between disk D and belt I or wheel *g* can be regulated by adjusting arm B on the standard, or shaft C in the sleeve B', or the shaft G in its bearings, or any or all these, as is obvious.

As shown in Fig. 4, the arm B<sup>2</sup> is rigid on the standard, and the latter is placed behind wheel *g*, the disk D, however, being held substantially in the same relation to disk-wheel *g*.

The end of guideway J may extend to the edge of or slightly beyond the disk D, so as to discharge the ground buttons to one side of wheel *g* out of the way. The buttons may be fed onto the belt by hand.

The guideway J is securely fastened at its receiving end to a projection on the table near the wheel *h* and is made of sheet metal or other suitable material, its upper end J<sup>2</sup> being bent so as to lie parallel with the face of disk D, and thus cause the belt or chain to travel horizontally under the disk or parallel with the face thereof, so that the button-blanks will be ground accurately.

The carrier may be either a belt or sprocket-chain, preferably the latter, and is provided with any suitable button-retaining devices



which will cause the button-blanks to move with the belt and be properly presented to the grinding-disk D.

Having thus described my invention, what I therefore claim as new, and desire to secure by Letters Patent thereon, is—

1. In a machine for grinding pearl buttons, the combination of a horizontal disk, vertically-adjustable supports for said disk, and means for rotating it; with a vertically-disposed and upwardly-inclined endless button-carrier located below and extending beneath and to one side of the disk, adapted to carry button-blanks placed on its upper side to, under and against the disk, part of said carrier directly under the disk being arranged parallel with the surface of said disk, substantially as and for the purpose described.

2. In a button-grinding machine, the combination of a feed-table, a standard thereon, an arm attached to said standard having a sleeve on its outer end, a vertically-adjustable shaft journaled in said sleeve, means for rotating said shaft, and a horizontally-disposed abrading-disk secured on the lower end of said shaft; with an endless button-carrier extending from the table to the disk, the supporting-wheels for said carrier respectively located below the table and disk, said carrier being adapted to carry buttons from the table to the disk, for the purpose and substantially as described.

3. In a button-grinding machine, the combination of the table, a horizontal abrading-disk attached to the lower end of a vertical shaft journaled in the support attached to said standard, a wheel below said disk, a wheel below the table, an endless upwardly-

inclined button-carrier running over said wheels, a guide for the upper portion of said carrier adapted to assist in guiding and retaining button-blanks thereon, said guide having its upper end extending parallel with the lower surface of the disk, and means for rotating said disk and said wheels, substantially as described.

4. In a button-grinding machine, the combination of an endless carrier, and a grinding-disk rotating in a plane at right angles to the plane of the carrier and adapted to operate upon the button-blanks as they are moved thereunder by the carrier and a guideway for the upper portion of said carrier extending under said disk, for the purpose and substantially as described.

5. In a button-grinding machine, the combination of the table, the standard mounted thereon, the adjustable arm attached to said standard having a sleeve on its outer end; and a vertical shaft mounted in said sleeve, and means for rotating said shaft; with a horizontal abrading-disk secured on the lower end of said shaft, a wheel below the disk, a wheel below the top of table, an endless carrier supported by said wheels and a guide extending along the upper part of said carrier from the table to the disk, all substantially as and for the purpose described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

CHARLES L. APPEL.

In presence of—

T. R. FITZGERALD,  
JAKE SCHOMBERG.