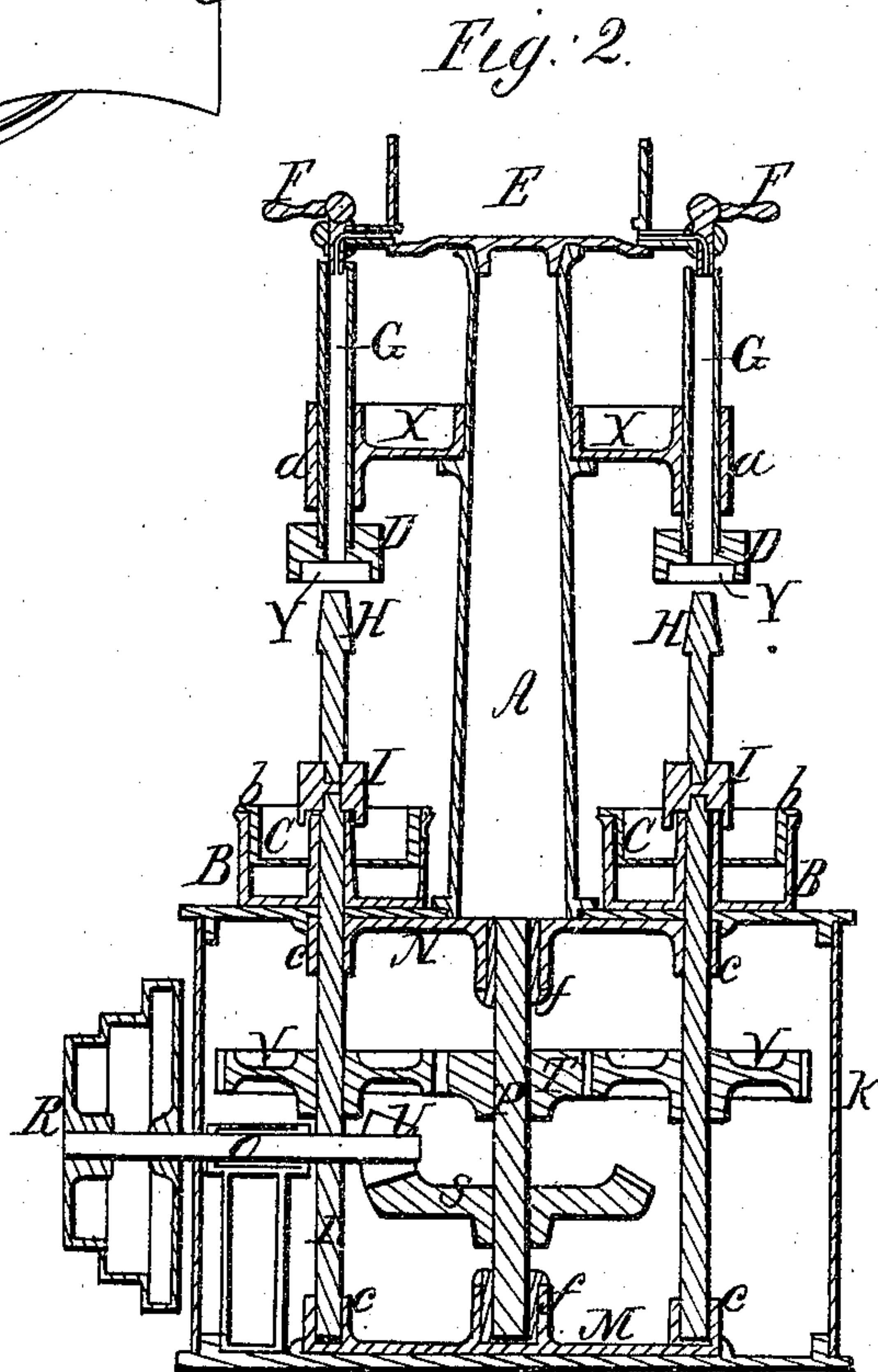
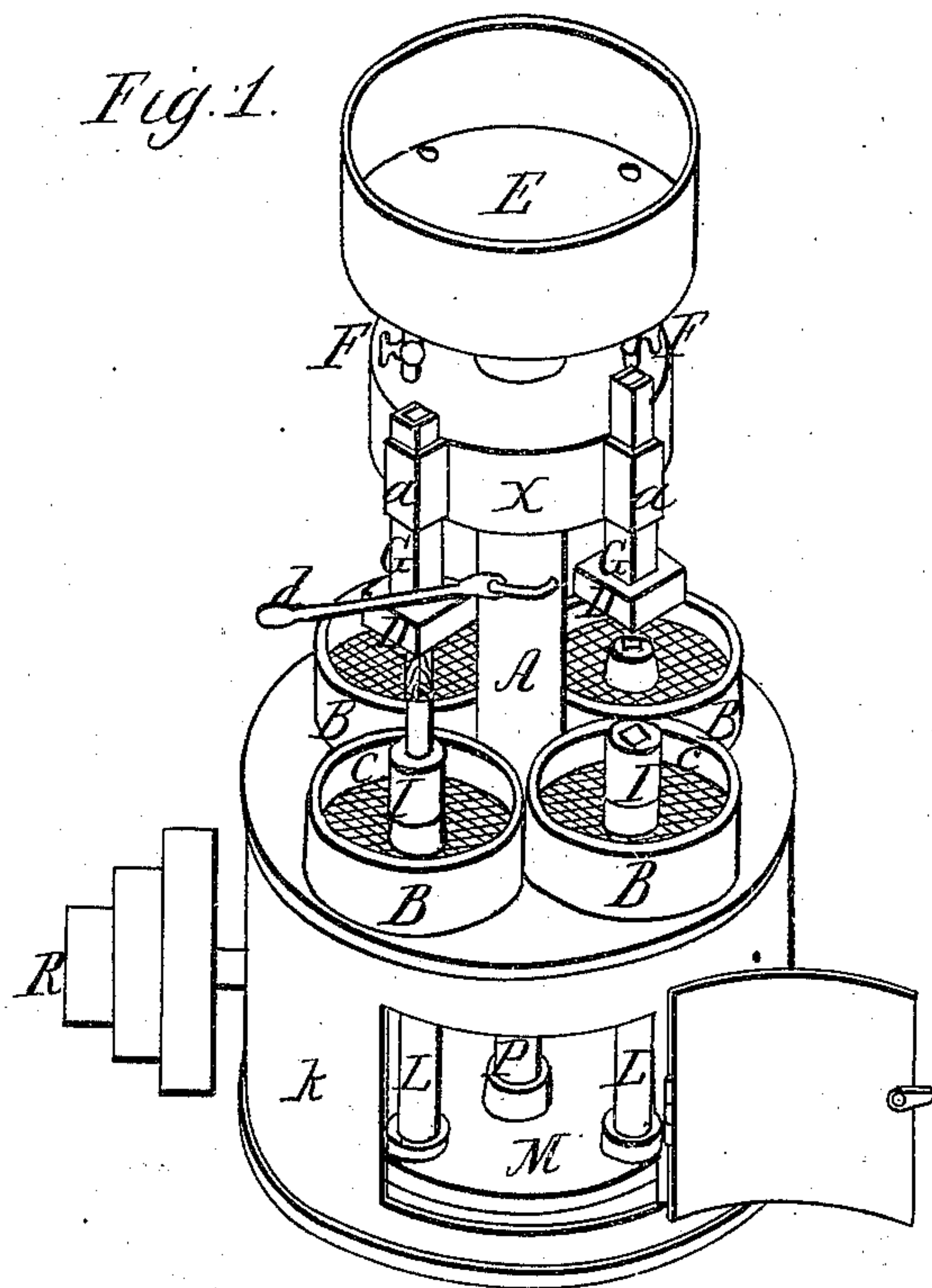


J. L. Gills, Jr.

Nut-Tapping Mach.

N^o 113,512.

Patented Apr. 11, 1871.



*Witnesses;
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UNITED STATES PATENT OFFICE.

JOHN L. GILL, JR., OF COLUMBUS, OHIO.

IMPROVEMENT IN MACHINES FOR TAPPING NUTS.

Specification forming part of Letters Patent No. **113,512**, dated April 11, 1871.

To all whom it may concern:

Be it known that I, JOHN L. GILL, Jr., of Columbus, in the county of Franklin and State of Ohio, have invented a certain new and useful Improved Vertical Nut-Tapping Machine; and do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making part of this specification, in which—

Figure 1 is a perspective view of my new nut-tapping machine, and Fig. 2 is a vertical section of the same.

My improved nut-tapping machine is designed for and adapted to tapping one or more nuts at the same time. It is automatic in its operation after the nuts are placed in the nut-holders—feeding the nuts onto the taps, supplying oil to the taps through the bore of the nut, and separating the superfluous oil from the clips or cuttings.

The arrangement of my machine is such that the gearing and the bearings and sockets of the spindles and shafts are protected from the clips or cuttings, and the clothing and person of the operator are kept or protected from danger of entanglement in the machinery.

The peculiar feature of my machine, which renders it much more simple in construction and efficient in operation, is the placing of the nuts to be tapped in vertically-sliding nut-holders above instead of below the revolving taps, so that the nuts are automatically fed down onto the taps; and as the nut-holders need no gearing and do not revolve, all the gear-wheels of the machine may be placed below the taps, and can be confined in a comparatively small compass and inclosed in the space below the operative portion of the machine.

To enable others skilled in the art to make and use my machine, I will proceed to describe its construction and operation, premising that, although I describe a series of nut taps and holders arranged around a central shaft, a machine may be built embracing the leading features of my improvement for only a single nut holder and tap.

In the drawings, A is a central column, firmly attached to and rising perpendicularly from the top of a chest or box, K, which is

closed on all sides, or made circular in shape, the circular side piece or sides K, with the top and bottom pieces, inclosing all the gear-wheels of the machine, and having a door in the side to give access to the gearing, and enable the operator to shut up therein his spare taps and nut-holders.

On the top of the column A is an oil can or reservoir, E, furnished with drip-cocks F F, the mouth of each of which is vertically over the hollow spindle G of each nut-holder D, so that the oil may drip therefrom through the spindle to the bore of the nut.

Instead of making the spindle G hollow, it may be grooved at the side, the groove communicating with the bore of the nut, so as to conduct the oil thereto; but the hollow spindle is more simple and direct in its action.

Lower down on the column A is fixed the bracket-frame X X, at the circumference of which are sleeves a, each having a square or angular cavity to receive its square or angular hollow spindle G, the object of making the spindles square or angular in cross-section instead of cylindrical being to prevent their turning on their axes, while permitting of a vertical movement. At the end of each spindle G, and firmly attached thereto by a screw, key, or pin, is a nut-holder, consisting of a metallic block with a cavity, y, to receive the nut to be tapped, and a central hole coinciding with the bore of the spindle G. When in operation, the nuts inserted in the cavities y of the nut-holders D are fed down on the revolving taps H by the thread of the tap, and cannot turn, because the nut-holders and their spindles have no revolving motion. The weight of the nut-holders D facilitates the descent of the nuts on the taps. A lever, d, which has its fulcrum on the central column, A, is used at starting to press down the nut-holders D, so as to enable the tap to take hold of the nut at starting. The taps H H are each set in a square mortise or cavity in a chuck, I, which chuck is supported and revolved by a vertical spindle, L, each tap, chuck, and spindle being placed in the same vertical line as the corresponding spindle and nut-holder.

The upper end of spindle L is squared, so as to enter a square mortise in its chuck I, so that the revolution of the spindle L may re-

volve the tap H. The upper end of the tap-spindle L projects above the top of the table or cover of the box K, which incloses the gearing, as before stated, and the lower extremities of the tap-spindles are set in steps *c*, in a spider-frame, M, placed on the bottom of the frame of the machine. A similar spider-frame, N, on the under side of the top of the table, furnishes at *c'* the upper bearings of the tap-spindles.

On the table of the machine, or top of the box K, is placed around each tap-spindle L an oil-drip pan, B, having a central sleeve to surround the spindle, as seen in section in Fig. 2, and in each pan is placed a shallow tray, C, having a wire-gauze or perforated bottom to retain the chips or cuttings made by the taps, and strain them out from the superfluous oil, which runs into the drip-pan B. The lower side of the tap-chucks I is recessed, so as to form lips, which extend beyond and overhang the edges of the central sleeve *s* of the drip-pans, thus preventing the oil and cuttings from passing down the tap-spindles.

In the center of the machine, under the column A, and beneath the surface of the table, a vertical main shaft, P, having its bearing *o* in the spider-frames M N, carries a horizontal gear-pinion, T, which gears into the gear-wheels V, keyed to the tap-spindles L, and gives the necessary revolving motion to all the tap-spindles which are placed around it. The main shaft P is driven by the bevel-gearing *v* *s*, by means of power communicated to the cross-shaft *o* from the cone-pulleys R.

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

1. The arrangement, in nut-tapping machines, of the nut-holder vertically above the tap, with its stem or spindle within a guiding-socket, or its equivalent, wherein it is free to slide downward by gravity as the tap penetrates the nut held by it, and upward by hand or otherwise, when necessary to remove the tapped nut, or to insert in the holder a fresh one.

2. The sleeve bracket or brackets X, in combination with the vertically-sliding nut spindle or spindles G, and nut holder or holders D, when so constructed and arranged, substantially as hereinbefore described, as to permit of a vertical and prevent a rotary motion of the nut-holders.

3. The arrangement of the nut-holder D inverted, as shown and described, with the hollow spindle G and oil-reservoir E, or its equivalent, as set forth.

4. An oil-drip pan constructed with a central vertical sleeve, which surrounds the tap-spindle, in combination with a shallow tray having a wire-gauze or perforated bottom arranged therein, substantially as and for the uses set forth.

5. The chuck or tap-wrench I, recessed on the under side around the tap-spindle, so as to prevent the oil and cuttings from reaching the tap-spindle below the chuck, substantially as hereinbefore described.

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Witnesses:

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