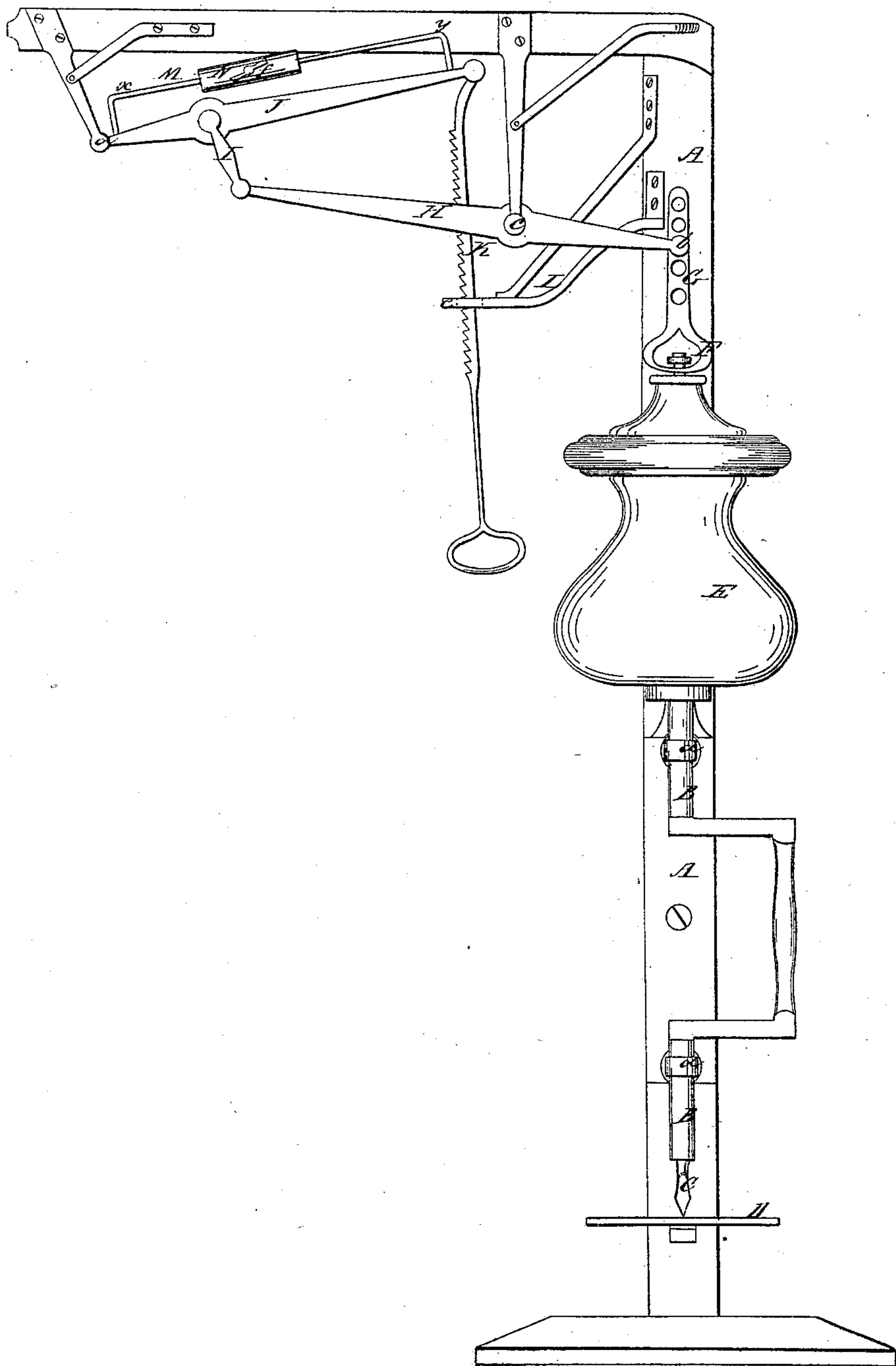


*W. Lyon,
Metal Drill,*

N^o 10,035.

Patented Sep. 20, 1853.



UNITED STATES PATENT OFFICE.

WARREN LYON, OF NEW YORK, N. Y.

METAL-DRILL.

Specification of Letters Patent No. 10,035, dated September 20, 1853.

To all whom it may concern:

Be it known that I, WARREN LYON, of the city, county, and State of New York, have invented a new and useful Improvement in Drilling and Countersinking Machines; and I 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 accompanying drawing, making a part of this specification, which drawing is a front elevation of my improved drilling-machine.

The nature of my invention consists in having a weight attached to the arbor of the drill, for the purpose of giving the requisite pressure, and in having a system of levers and a counterpoise connected to the upper part of the arbor, for the purpose of elevating the arbor and graduating the pressure which is given the drill by the weight upon the arbor.

The combination of the weight and levers with the counterpoise constitutes the invention.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A, represents a standard, to which is attached by horizontal arms the bearings, (a), through which a vertical arbor, B, works loosely. In the lower end of the arbor, B, is affixed the drill, C, underneath which is a bedplate, D, on which the work to be drilled is placed. On the upper end of the arbor, B, there is attached a weight, E, which is of sufficient size to give the requisite pressure to the drill, C, and also to serve as a balance wheel, which is advantageous if the arbor be turned by a crank. To the upper end of the arbor, B, there is attached by a swivel, F, a small upright, G, to which is secured by a pivot, (b), one end of a lever, H; said lever, H, having its fulcrum at, (c). The opposite end of the lever, H, is attached by a small connecting rod, I, to a lever, J, having its fulcrum at, (d). The inner end of the lever, J, has a rack bar, K, suspended from it, which rack bar passes through a slot, (e), in the end of an arm, L. On the upper surface of the lever, J, there is secured a horizontal rod, M, on which a counterpoise, N, slides. This counterpoise may be secured firmly to the rod, M, at any desired point, by a set screw, (f).

Operation: The article to be drilled is placed upon the bedplate, D, and the drill, C, bears upon it with sufficient pressure to give the necessary feed, owing to the weight, E. The pressure is always regular, (no variation,) hence the drill is not liable to be broken as in ordinary drills where the feed movement is produced by a screw or lever.

When it is necessary to withdraw the drill from the hole, or the work, the rack bar, K, is drawn downward, and the rack is made to catch into the side of the recess, (e), by which arrangement the drill is kept suspended until the work on the bedplate is shifted; the rack bar is then freed from the side of the recess, (e), and the drill is allowed to descend and rest upon the work.

By properly adjusting the counterpoise, N, on the rod, M, the pressure of the weight, E, may be made greater or less, as desired; for instance, if the counterpoise be moved toward the end, (y), of the rod, M, the pressure of the weight, E, is diminished; and the reverse is the case when the counterpoise is moved toward the opposite end, (x), of the rod, M.

The arbor, B, may be turned by a crank, O, by hand, or it may be turned by other power; two pulleys—a loose one and a working one—being put on the arbor.

The above machine is extremely useful in countersinking, as unequal pressure or an unequal feed motion, in that case, is very liable to break the drill.

I do not claim the weight, attached to the arbor, irrespective of the levers and counterpoise; nor do I claim any of the within named parts separately; but

Having described my invention, what I claim as new, and desire to secure by Letters-Patent, is,

The combination of the weight, E, levers, H, J, and counterpoise, N, constructed, arranged, and operating, in the manner, and for the purposes substantially as herein shown and described.

WARREN LYON.

Witnesses:

ALBERT LYON,
L. F. COHEN.