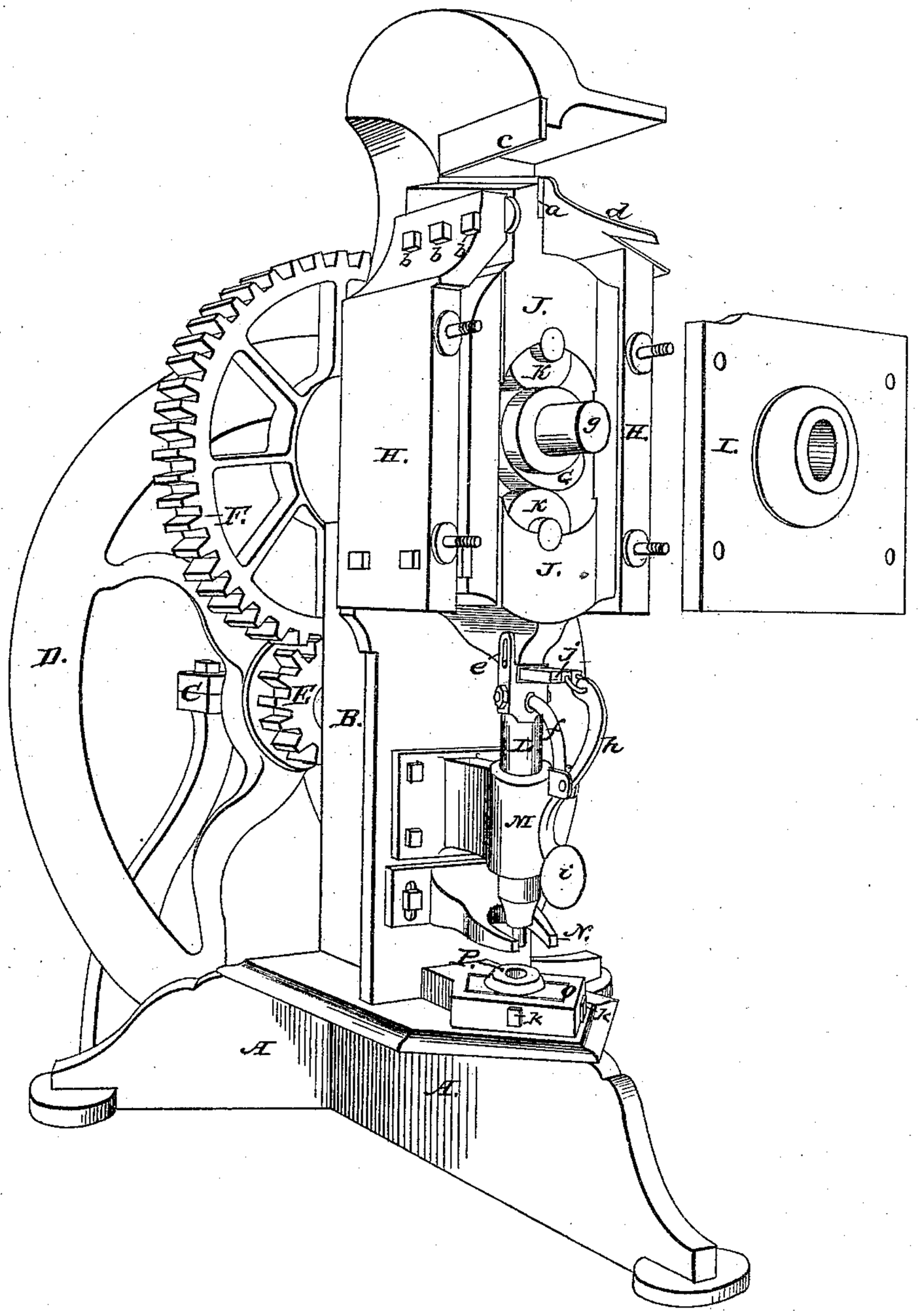
Davie & Stephens,

Metal Punch and Shears,

No. 10,098. Patented Oct. 4, 1853.



UNITED STATES PATENT OFFICE.

O. J. DAVIE AND T. W. STEPHENS, OF ERIE, PENNSYLVANIA.

MACHINE FOR PUNCHING METAL.

Specification of Letters Patent No. 10,098, dated October 4, 1853.

To all whom it may concern:

Be it known that we, OZIAS J. DAVIE and THOMAS W. STEPHENS, both of Erie, in the county of Erie and State of Pennsylvania, have invented certain new and useful Improvements in Machines for Punching and Shearing Iron; and we do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing, making a part thereof, and which represents a perspective view of the entire machine with the front plate removed for the purpose of showing the rollers, eccentric, and yoke in which they are arranged and operate.

The nature of our invention consists in disconnecting the punch or its stock from the yoke by an automatic movement at each operation of the machine by means of a weight, spring, or their equivalents acting in connection with a wedge or its equivalent in which position the punch ceases to operate until the metal to be punched is properly in place, when by a slight touch of the operator upon the rising of the punch the connection between them is again made, and the punch is thrown into operation, by this means allowing the machine to continue in motion, while the punch is only brought into action when the sheet of metal is properly placed for it.

To enable others skilled in the art to make and use our invention we will proceed to describe the same with reference to the drawing.

The base A, and upright part B, of the frame, may be cast in one solid piece, and on the rear of this frame is attached a trussed pillow block C, in such position as to form a proper bearing for one of the journals of the shaft which carries the fly wheel D, the other journal of the shaft having its box or bearing on the frame. On the same shaft with the fly wheel is placed a spur gear E, meshing with the cog wheel F, on the shaft *a*, of the eccentric G, which shaft is also provided with suitable bearings in which it may freely turn. In the front part of the machine the side plates H, and the front plate I, form a square chamber in which is placed and operated a yoke J, in the top and bottom of which yoke are placed the friction and pressing rolls K, K, in suitable bearings, said rolls being provided with small journals to avoid friction. The eccentric G, is placed between the friction rolls, the shafts or journals of all three standing perpendicularly one over the other; and as the eccentric G turns upon its bearings which are in the frame, it alternately raises and depresses the yoke by means of the rolls K, K, having their bearings in the yoke, and is always in contact with the surfaces of both rolls, so that the reciprocating movement of the yoke is without jar being both raised and lowered by the eccentric, and consequently with the same power. On top of the yoke may be placed one of the blades *a* of a pair of shears, made adjustable by the set-screws *b*—the other blade *c* of the pair being permanently fixed to the overhanging part of the top of the frame. A gage for the shears may be applied in any well known manner, and as they are common to other machines for a similar purpose may not be herein described or represented. The pieces cut by the shears are thrown off by the guard plate *d*. To the lower part of the yoke J, is attached by a slip joint *e*, the punch stock L, which carries the punches, and on said stock, is arranged a curved arm *f*, in which is hinged a curved lever *h*, having on its lower end a ball or weight *i*, and on its upper end, a flat wedge-shaped key *j*, which when forced into the slip joint *e*, between the yoke and the punch stock completes the connection and throws the punch into operation. When the yoke is being raised up, the key becomes loosened (the weight or pressure of the yoke and rolls being removed from it), and by means of the weight *i*, on the end of the curved lever, draws out said key, when the punch will remain inoperative, while the machine continues to run, until the operator has placed the sheet of metal to be operated upon in its proper position, when by slightly raising the ball or weight *j*, the key is again thrown in to form the working connection, and the punch then acts. This gives the operator sufficient time without regard to the motion of the machine to properly place his sheets or piece of metal to be operated upon.

M, is the punch stock guide, and N, an adjustable gage for holding down the piece while the punch is being withdrawn.

O, is the die stock, and P the die therein, made adjustable to the punch by the set screws *k*.

By this arrangement of rolls and eccentric in a yoke, we get immense power, which when at its utmost, is in a line perpendicular

over the punch; and as the rolls and eccentric are always in contact with each other, and the rolls in contact with the yoke, there is no sudden jar—the shears and punch being raised and depressed alternately by the eccentric, avoids the necessity of spring straps or any other device for raising the punch or opening the shears.

Having thus fully described our invention what we claim therein as new and desire to secure by Letters Patent is—

Disconnecting the punch stock from the machine automatically at each operation of the punch, by means of the weighted lever and key, or their equivalents, for the purpose of affording the operator time to place his sheets without regard to the motions of the machine, when by a slight movement of the ball or lever upon the rising of the punch the connection can be again formed, substantially as described.

O. J. DAVIE.
THOS. WM. STEPHENS.

Witnesses to the signature of Ozias J. Davie:

A. B. STOUGHTON,
L. K. DONN.

Witnesses to the signature of Thomas W. Stephens:

AZRO GOFF,
M. I. GUDDELL.