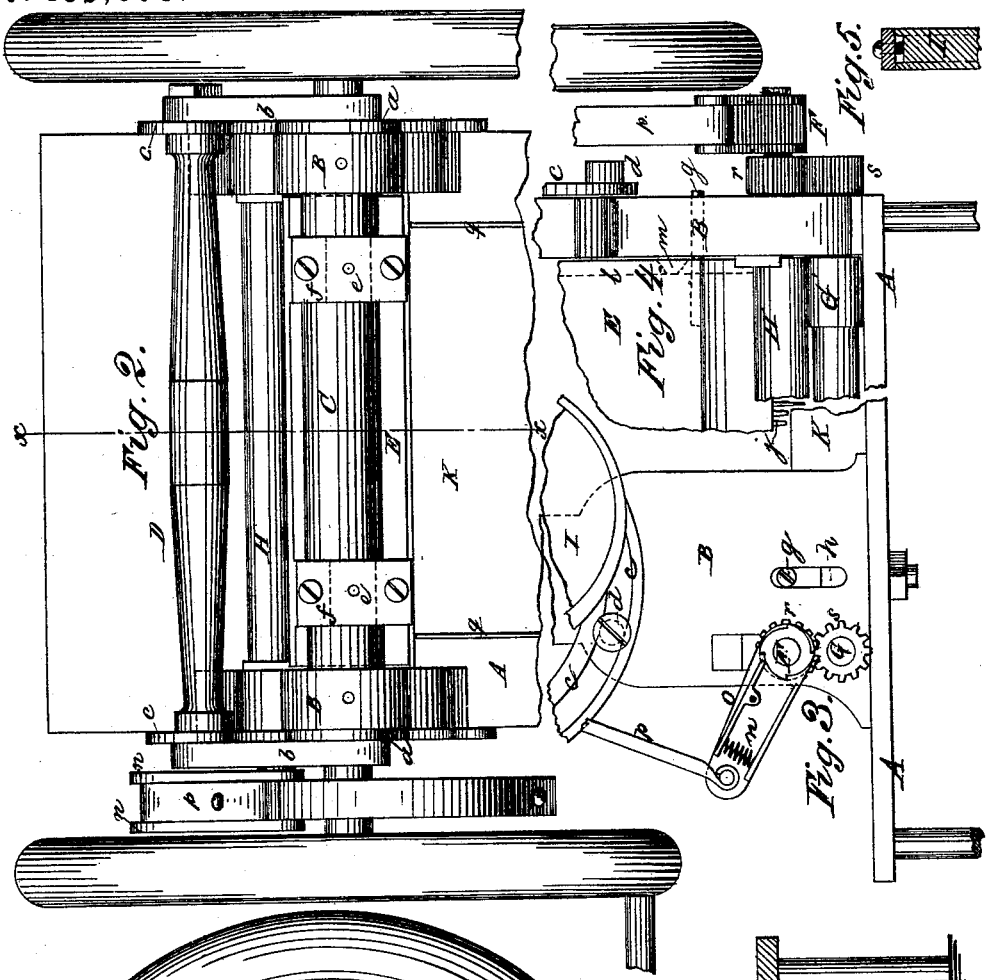
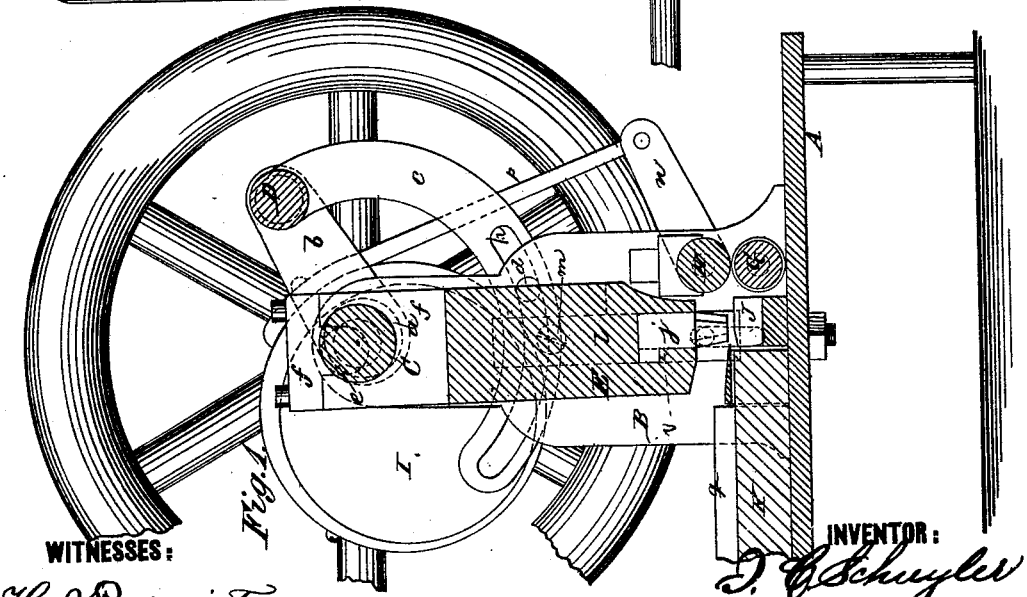
I. C. SCHUYLER.

METAL PUNCHING-MACHINE.

No. 185,973. Patented Jan. 2, 1877.





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UNITED STATES PATENT OFFICE.

ISAAC C. SCHUYLER, OF CENTRAL CITY, COLORADO, ASSIGNOR TO HIMSELF AND CHARLES W. LADD, OF SAME PLACE.

IMPROVEMENT IN METAL-PUNCHING MACHINES.

Specification forming part of Letters Patent No. **185,973**, dated January 2, 1877; application filed September 22, 1876.

To all whom it may concern:

Be it known that I, ISAAC C. SCHUYLER, of Central City, in the county of Gilpin and State of Colorado, have invented certain Improvements in Screen-Punching Machines, of which the following is a specification:

In the accompanying drawing, Figure 1 is a transverse section on line *x x* in Fig. 2. Fig. 2 is a top view of the machine, with a portion of the table omitted. Fig. 3 is a detail view of the feeding apparatus. Fig. 4 is an end elevation of a portion of the machine, showing the arrangement of the rollers and punches.

Similar letters of reference indicate corresponding parts.

My invention relates to a machine for perforating sheet-metal screens for screening ore and for other purposes.

The object of my invention is to rapidly perforate sheet-metal screens with slits or holes, surrounded by a burr upon one side of the sheet.

A is the bed-plate of the machine, to which the vertical standards B are secured. C is a shaft extending across the upper part of the machine, and having journal-boxes *a*, which are externally eccentric to the shaft, and are fitted to bearings in the standards B. To these journal-boxes the arms *b* are secured, and are connected by a bar, D. Slotted curved braces *c* are attached to the outer ends of the arms *b*, and are provided with clamping-screws *d*, that bind them closely to the standards B.

E is a follower, that receives motion from two similar eccentrics, *e*, formed on the shaft C. The eccentric boxes *f* are secured to the follower E, and the screws *g* project from the sides of the follower, and work in slots *h* in the standards B. The follower is slotted throughout its width in its lower side at *i*, to receive the punches *j*. The sides of the punches are clamped by clamping-pieces *l*, having screws *m*, by which the punches are secured in the follower.

J is a set of dies secured to the bed of the machine, that back up the metal between the punches, but do not fit the punches closely. A guide-piece, K, having the flanges *q* for guiding the metal to the punches, is attached to the bed-plate of the machine.

Rollers G H, for drawing the sheet metal through the machine, are provided with journal-boxes in the standards B, and are geared together by the pinions *r s*.

F is a ratchet-wheel secured to the shaft of the roller H, and is provided with an arm, *n*, which carries the spring-pawl *o*. The arm *n* is moved by the eccentric I on the main shaft through the eccentric rod *p*.

The roller G is cut away in the center to allow the burr formed by the punches to pass without becoming flattened, and engages only with the edges of the sheet.

The operation of my machine is as follows: The sheet of metal to be punched is laid upon the guide K, between the flanges *q*, and moved through between the punches and dies until it is caught by the rollers G H. The machine is set in motion, and the eccentric journal-boxes *a* are turned until the punches *j* will make a slit and burr of the required size and form in the metal sheet.

The rollers G H are moved by the eccentric I when the punches are out of the metal, throwing the sheet forward for a new set of holes.

The punches *j* increase both in width and thickness from their lower ends upward, so that the holes in the sheet of metal are varied in size by causing the punches to pass through the sheet a greater or less distance by turning the eccentric journal-boxes *a*.

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

1. The combination, with the slitting burring punches and dies, of the drawing-rolls G H, the former cut away in the middle, substantially as and for the purpose set forth.

2. The adjustable eccentric journal-boxes *a*, the arms *b*, connected by bar D, and the slotted, adjustable, curved braces *c*, in combination with the follower E, for the purpose of regulating the throw of the punches, in the manner specified.

ISAAC C. SCHUYLER.

Witnesses:
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