2 Sheets—Sheet 1.

S. L. LOOMIS.
Bullet-Machine.

No. 209,619. Patented Nov. 5, 1878.

Fig. 1.

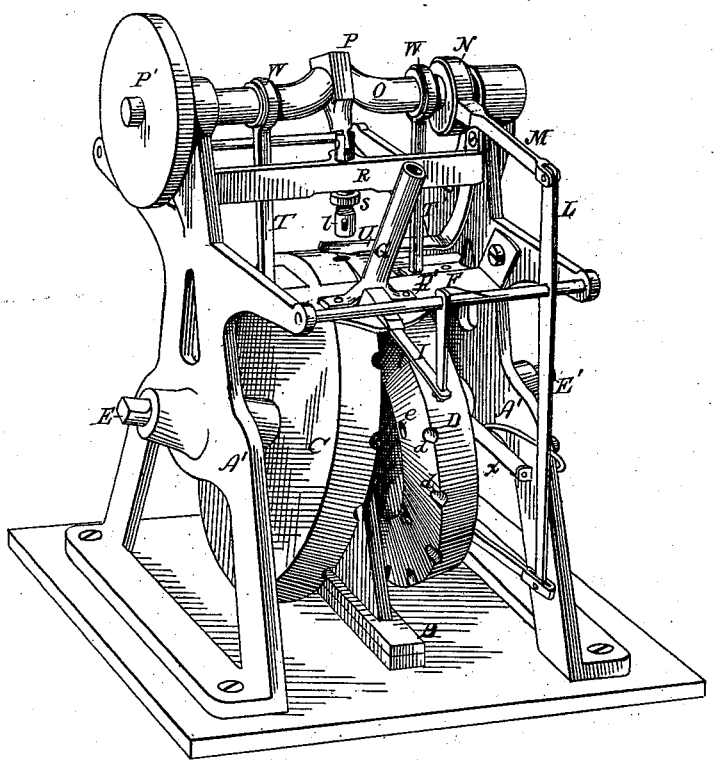
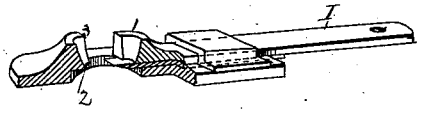


Fig. 4.



WITNESSES:
C. Clarence Poole
R. K. Evans

INVENTOR:
Saml. L. Loomis
by A. H. Evans & Co
attys.

S. L. LOOMIS.
Bullet-Machine.

No. 209,619. Patented Nov. 5, 1878.

Fig. 2.

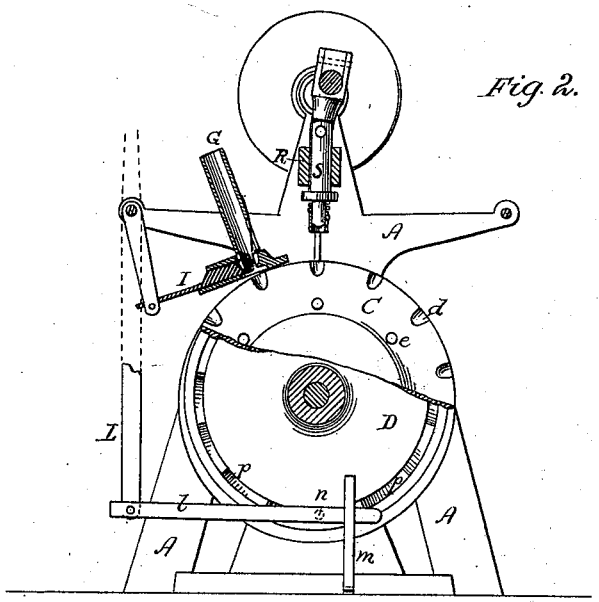
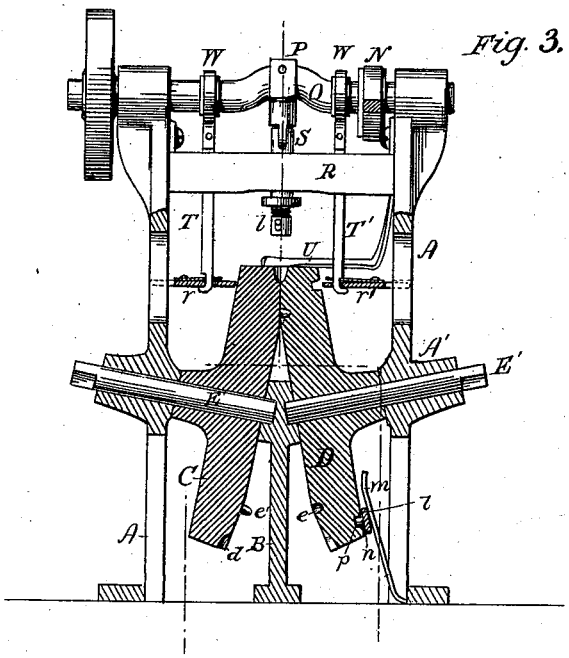


Fig. 3.



WITNESSES:
C. Clarence Poole
R. K. Evans

INVENTOR:
Saml. L. Loomis
by A. H. Evans & Co
Attys

UNITED STATES PATENT OFFICE.

SAMUEL L. LOOMIS, OF SAN JOSÉ, CALIFORNIA.

IMPROVEMENT IN BULLET-MACHINES.

Specification forming part of Letters Patent No. **209,619**, dated November 5, 1878; application filed April 30, 1878.

To all whom it may concern:

Be it known that I, SAMUEL L. LOOMIS, of San José, Santa Clara county, in the State of California, have invented a new and Improved Machine for Making Bullets; and I hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing, making a part of this specification, in which—

Figure 1 is a perspective view of the entire machine. Fig. 2 is a side elevation, partly in section. Fig. 3 is a front elevation, partly in section; Fig. 4, a detail view of the cutter.

My invention has for its object to make bullets from lead or other metals; and it consists in the combination and arrangement of parts, as will be hereinafter fully described.

In order that those skilled in the art may make and use my invention, I will proceed to describe the exact manner in which I have carried it out.

In the said drawings, A A is a frame-work, in which are located hubs A′ A′, carrying diagonal journals E E′, which have their inner ends journaled in a stud, B. On these journals are two rotating die-wheels, C D, their faces being at right angles to the line of the journals, so that they are tilted toward each other, and the faces bear against each other adjacent to the upper portion of the peripheries. Equidistant on the edges of die-wheels C D are pockets *d d*, each pocket forming one half of the die (of any shape) necessary to form a bullet. Just below the rows of pockets *d* the face of the die-wheel D is provided with a series of holes or sockets, *e*, into which interlock, as the faces of the die-wheels approach each other, a series of pins, *e′*, on the face of the die-wheel C. On the outside face of the die-wheel D is a circular row of long ratchet-teeth, *p p*, each tooth being of a length equal to the distance between each of the pockets *d d*.

Journaled on arms of the frame A is a rock-shaft, F, having a vertical lever, L, which is caused to vibrate by means of an eccentric connection, N, on shaft O, which has its bearings in the upper ends of the frame. At its lower end lever L has pivoted to it a horizontal bar or pitman, *l*, provided at *n* with a pin projecting into the ratchet *p* on the outer face of die-wheel D, and held against said ratchet by a spring, *m*. The vibration of lever L causes the pin on bar *l* to catch successively over each tooth of the die-wheel D, and feed it around intermittingly sufficiently each time to bring the molds or pockets of the die-wheels directly under a punch, S, operated by a crank-connection, P, on shaft O.

As die-wheel D turns, the holes *e* pass over the pins *e′*, and the die-wheel C is also turned, the teeth acting like cogs, and the two die-wheels synchronize, so that the pockets *d d* meet exactly under the punch, forming a complete mold.

A feeding-tube for the lead bar is seen at G, resting on a cross-plate, F′, and across the bottom of the tube is a sliding cutter, I, connected to a lever on rock-shaft F, which slides the knife back and forth, cutting off from the lead bar (as it passes into the mold, as the mold passes under the tube G) enough lead to form the bullet. The mold *d* passes on after the lead is cut off under the punch S, (which works in a cross-guide, R) and the pressure of the punch completes the formation of the bullet.

The end of the punch is formed into any necessary shape to form the bullet, whether it be a conical or spherical one. The lower end of the punch carries a telescopic spring, inclosing a guide, which passes over the end of the pellet of lead contained in the die, and keeps it from spreading when the punch comes down to form the bullet. After the bullet is formed the die-wheels carry it forward until their faces diverge sufficiently to allow the complete bullet to drop out.

A pawl, *x*, pivoted in the frame, falls against the ratchet *p*, and prevents the dies being turned in the wrong direction.

A spring-scraper, *u*, fastened to the frame, extends across the line of travel of the die-wheels, and has a blade lying close to their peripheries, so as to neatly trim or scrape the butts of the bullets.

The plates *r r′*, suspended by rods from the eccentrics W, are so arranged that at the moment the pressure of the punch S comes upon the bullet they drop between the die-wheels and the frame, so as to brace the die-wheels and keep them from spreading.

The knife I, which cuts off the pellet of

lead, is made as shown in Fig. 4. It has a sliding portion, furnished with a sharpened end, and near this end of the blade is the vertical curved or recessed projection 1. The curve or recess is in outline similar to the conical point of the ball. The sharp end of sliding knife I abuts against a sharpened plate, 2, above which rises a conical projection, 3, similar to projection 1. These two projections when coming together aid in forming the point of the ball.

As crank O is turned by driving-pulley P′, lever L is vibrated and feeds the dies around. At the same time the lead bar in tube G drops successively into the pockets *d d*, a pellet is cut off by cutter I, and the die-wheels carry it forward under punch S, which descends and makes a complete bullet by forcing the lead into the mold *d*.

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

1. In combination with the plunger S, the two intermittingly-rotated die-wheels C D, arranged on axes oblique to each other, and provided with pockets *d d*, formed in, but not extending entirely across, their adjacent faces, and uniting at the point of contact of the wheels, to form a matrix or mold of desired shape, as and for the purpose set forth.

2. The swinging plates *r r′*, in combination with the die-wheels C D and frame A, substantially as described.

SAMUEL L. LOOMIS.

Witnesses:
J. E. BROWN,
CHAS. C. REDMOND.