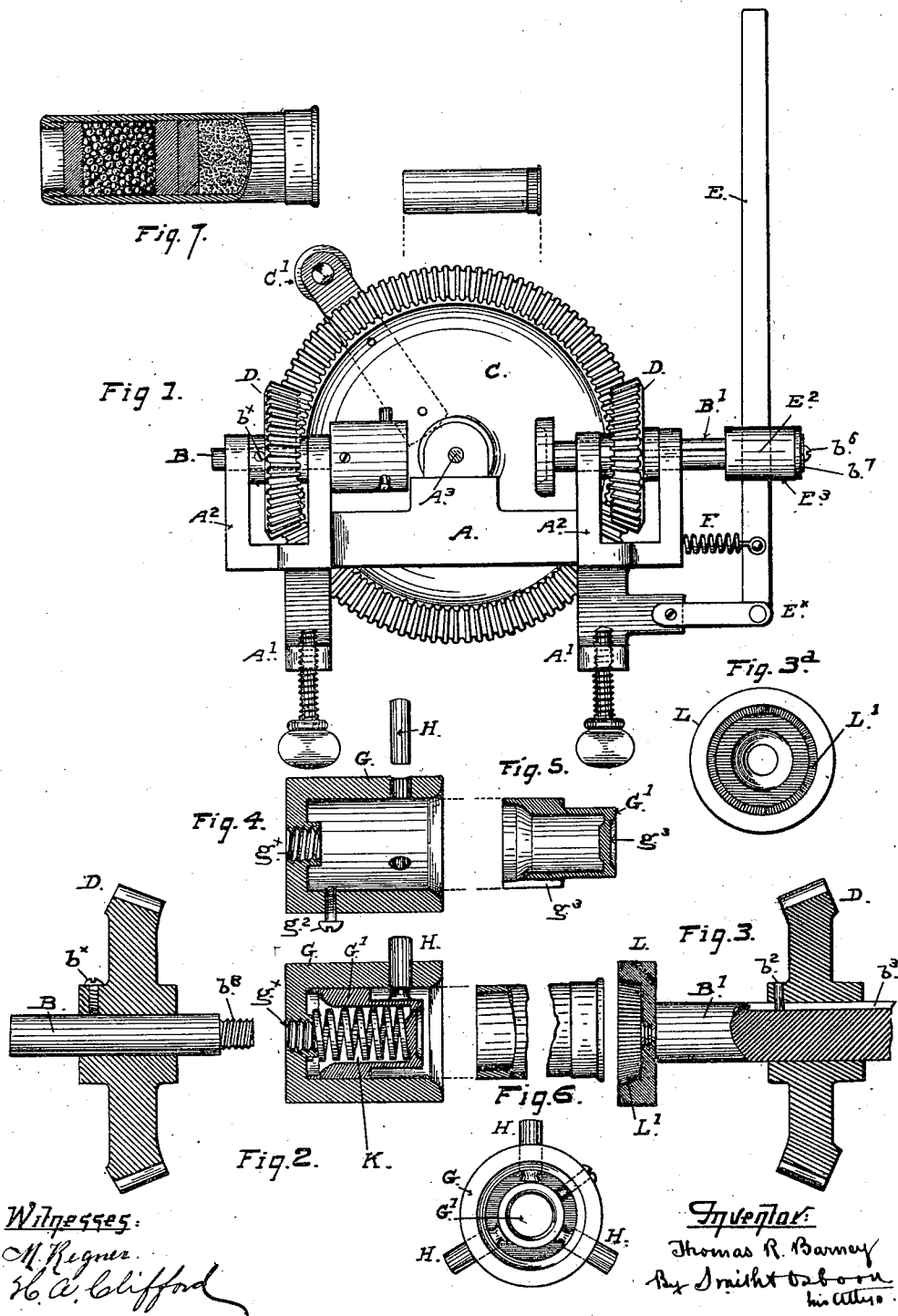


T. R. BARNEY.
CARTRIDGE CRIMPING MACHINE.

Patented Dec. 25, 1894.



UNITED STATES PATENT OFFICE.

THOMAS R. BARNEY, OF SAN FRANCISCO, CALIFORNIA.

CARTRIDGE-CRIMPING MACHINE.

SPECIFICATION forming part of Letters Patent No. 531,495, dated December 25, 1894.

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To all whom it may concern:

Be it known that I, THOMAS R. BARNEY, a citizen of the United States, residing in the city and county of San Francisco and State of California, have invented certain new and useful Improvements in Cartridge-Crimping Tools, of which the following is a specification.

My invention relates to improvements made in tools for performing the operation of turning the rim of a cartridge-shell over upon the charge, commonly known as crimping, and the said improvements have for their object to turn a smooth crimp and produce a close joint all around the wad of better quality or character and in much less time than can be done with most of the tools and devices heretofore provided for the purpose.

To such end and object my invention consists in certain novel construction and combination of parts and mechanism producing a machine or tool for crimping cartridge shells, as hereinafter fully described and pointed out in the claims.

The nature of my said improvements and the manner in which I proceed to construct, produce and carry out the same will be understood from the following description, in which the accompanying drawings, forming part of this specification, is referred to by letters.

Figure 1 of said drawings represents in elevation a tool, or machine, embodying my improvements. Fig. 2 is a longitudinal section on an enlarged scale of the crimping-head and its driving-spindle and gear. Fig. 3 is a similar section of the revolving-head and driving-spindle that holds the cartridge up to the crimping-head and at the same time gives the cartridge rotation in a direction contrary to that part. Fig. 3^a is a front-view of the revolving-head in Fig. 3. Figs. 4 and 5 are details in section of the parts that compose the crimping-head. Fig. 6 is an end-view of the crimping-head looking at the front end of the piece. Fig. 7 is a longitudinal section of a loaded and crimped shell.

One of the important features of these improvements consists in giving to the cartridge a rotary movement during the crimping operation in a contrary direction to the rotation of the crimping-head; the effect of which is to produce a closer and smoother turn and crimp of the rim than is obtained

when the shell is held stationary and only the crimping-tool is rotated, and with a considerable saving in time.

Another feature of the said improvements consists in constructing a crimping-head with a yielding core as a complete piece or device which can be fixed upon and removed from a driving-spindle at pleasure; thereby allowing a crimping-head of one size to be removed from the machine and another of a different size to be substituted for it when cartridges of different sizes are to be operated on.

These features and parts I construct and carry out substantially as follows; the said drawings being referred to by letters:

A indicates a bed or frame of a portable character provided with clamps A' A' by which to secure it on some convenient fixture such as a work-bench.

A² are brackets on the frame furnishing bearings for two driving-spindles B B', which are thus supported in line with each other, but on opposite sides of a stud A³ in the middle part of the frame.

C is a bevel-gear mounted on the before-mentioned stud to turn freely, and provided with a hand-crank C' for driving it.

On each of the aforesaid spindles is secured a bevel-pinion D meshing with the bevel-wheel C, as shown in Fig. 1, by which arrangement of wheel and pinion the two spindles are rotated in contrary directions.

The pinion on the spindle B is fixed by a set screw b^x, but the pinion on the opposite spindle is secured to it by a pin or feather b² and a groove b³, so that the spindle may move longitudinally in the rotation of the pinion.

E is a hand-lever having a fulcrum at E^x on the frame, and attached at E² to a loose sleeve E³ on the spindle, from which last-mentioned part connecting it to the spindle it extends perpendicularly upward a proper length for a handle. The sleeve before mentioned is held on the spindle by the screw and washer b⁶ b⁷.

F is a spiral spring attached to the frame at one end and at the other end to the lever E.

The opposite spindle B carries the crimping-tool, or part which I have termed the crimping-head, but while rotatable in its bearings this spindle has no longitudinal movement.

The crimping-head is composed of the hollow cylindrical piece G, the cylindrical core

G' and the pins or studs H H. The piece G is closed at the back end, in which is a screw-threaded socket g^x for the end of the spindle. The rim at the opposite, open end is chamfered and the cylindrical space within is bored out smooth.

The core G' at the front end is of suitably smaller diameter than the surrounding cylinder to admit the rim-portion of the shell between the two parts, and behind this reduced portion the body of the core has the same diameter as the chamber of the piece G, and is fitted in that piece to work smoothly. The outer end of the core is closed by a head g^4 , which is usually countersunk in the center, as shown in Fig. 5, and the core is hollowed out to receive a stiff spiral-spring K that sets against the closed back of the piece G and against the back of the solid head of the core, as shown in Fig. 2.

The core is locked to the part G by a screw g^2 set through the body of that part from the outside and into a longitudinal slot g^3 in the core, so that it revolves with the part G, but at the same time it is free to move backward as the cartridge is pressed into the head G during the operation of crimping. The before mentioned crimping-pins prevent the core from being forced out of the part G by the spring. They are fixed in position on radial lines across the annular recess between the core and the surrounding body G, and that portion of the pin which sets across the crimping-recess is usually grooved as shown in Figs. 2 and 6 for the purpose of producing a rounded edge on the rim of the cartridge.

The crimping-head thus constructed is complete in itself and entirely independent of the spindle, so that heads of different sizes, that is to say with crimping-recesses and cores suitable for crimping-cartridges of the different sizes, can be furnished with one machine, and one head can readily and quickly be substituted for another according to the size of cartridge to be operated on. This enables much better work to be turned out than by operating on cartridges of different sizes with the same core as is the practice in other construction of machines where that piece is a part of the spindle.

The end of the driving-spindle B is cut with a screw b^8 that fits the socket in the back end of the crimping-head, so that the latter is readily detached by revolving it backward on the spindle.

L is the part fixed on the end of the opposite spindle to take the back end of the cartridge. This part which I have termed the revolving-head is countersunk and the inner face all around the recess or depression is finished on a taper increasing in diameter from the bottom face of the recess outward to the edge of the standing rim, and this tapering face L' is milled or rough-cut like the surface of a file to insure a firm hold and grip upon the head of the cartridge. This con-

struction also admits several different sizes of cartridge into the recess; so that while the crimping-head on the opposite spindle may be changed from time to time the same revolving-head will answer for several sizes of cartridges.

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

1. In a cartridge-crimping tool, or machine, the combination of two revolving spindles, geared into a bevel driving-wheel on opposite sides of the center and receiving simultaneous rotation in opposite directions from the motion of said driver, a crimping-head on the end of one spindle adapted to turn the end of the cartridge-shell a head on the end of the opposite spindle adapted to grip the head of the cartridge and means for moving said head longitudinally toward the opposite head to feed the edge of the cartridge shell forward during the crimping operation, substantially as hereinbefore described.

2. In a cartridge crimping tool, or machine, the combination of a suitable frame, a bevel driving-gear mounted therein, two separate revolving spindles B B' geared into said driver on opposite sides of its center to receive motion therefrom simultaneously in contrary directions by the rotation of said driver, the crimping-head fixed on the end of one spindle composed of a cylindrical-body G and a yielding cylindrical core G' movable therein, the revolving-head L fixed on the end of the opposite spindle having a flaring recess L' with roughened face to grip the head of the cartridge, the spindle of the said revolving head being movable longitudinally, and the handle E connected to said spindle as a means for moving the same forward to advance the cartridge shell into the crimping-head, substantially as hereinbefore described.

3. In a cartridge crimping-tool, a crimping head consisting of the hollow cylindrical body G, the cylindrical-core G' movable longitudinally in the body but rotating with it, and of smaller diameter at the front end than the surrounding body, the spiral spring K and the crimping-pins H H, the said device adapted to be fixed on and removed from a driving-spindle.

4. In a cartridge-crimping-tool, the revolving head L having a circular, flaring recess with a roughened face L' fixed on the end of a revolving-spindle, in combination with a spindle carrying a crimping-head and means whereby said spindles are simultaneously driven with rotary motion in contrary directions.

In testimony that I claim the foregoing I have hereunto set my hand and seal.

THOS. R. BARNEY. [L. S.]

Witnesses:

EDWARD E. OSBORN,
LEE D. CRAIG.