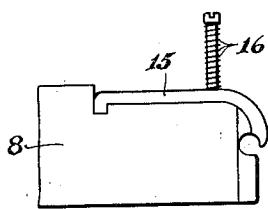
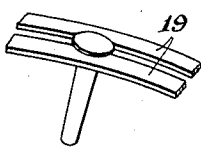
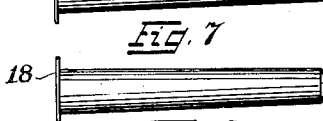
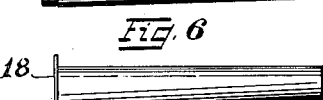
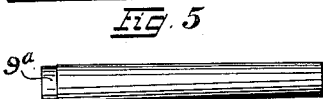
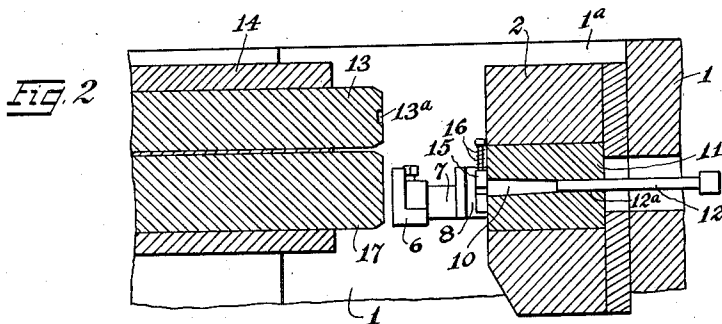
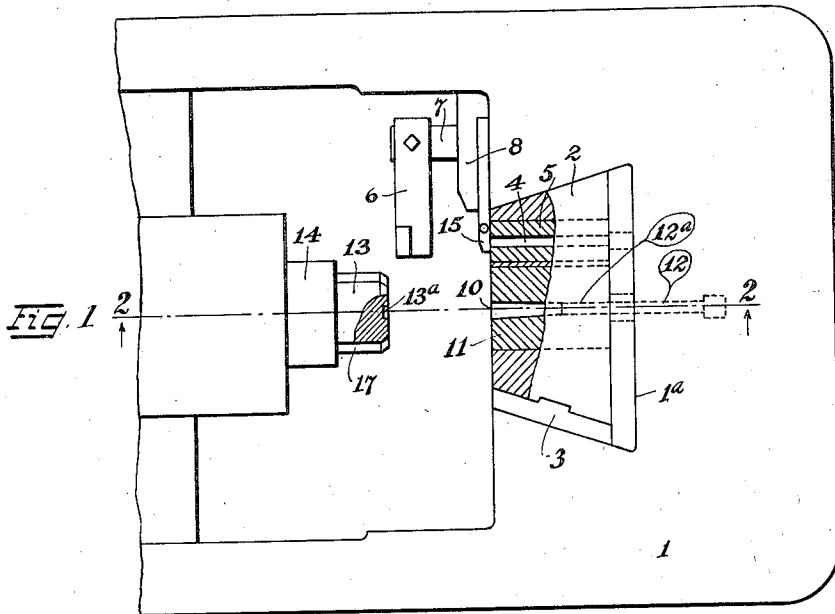


T. FERRY.  
 METHOD OF MAKING TAPER PINS.  
 APPLICATION FILED JULY 21, 1911.

1,110,762.

Patented Sept. 15, 1914.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

THOMAS FERRY, OF CLEVELAND, OHIO.

METHOD OF MAKING TAPER PINS.

1,110,762.

Specification of Letters Patent.

Patented Sept. 15, 1914.

Application filed July 21, 1911. Serial No. 639,757.

*To all whom it may concern:*

Be it known that I, THOMAS FERRY, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Methods of Making Taper Pins, of which the following is a specification.

My invention relates to an improved method or process of making taper pins, the primary object of the invention being to improve and cheapen the method of manufacture as well as the product resulting therefrom.

A further object of the invention is to provide an improved method or process which will result in the production of absolutely uniform taper pins of improved quality, and having an absolutely uniform surface throughout, as compared with and distinguished from the commonly employed method or process which consists in cutting blanks of suitable length and thickness from a bar or wire, and turning and rounding the ends thereof, in suitable machines, thus resulting in circumferentially extending grooves or marks on the surface as well as frequent imperfections in the form or taper of the pin. This roughness on the exterior and lack of proper form in the pins impairs the fit and driving qualities of the pins, and when driven out, the form of the holes will be found to be deformed and impaired.

With the above-mentioned and other ends in view, the invention consists in the improved method or process hereinafter described and claimed, the steps in the process and the product, together with suitable mechanism for carrying the same into effect being illustrated in the accompanying drawings.

Referring to the drawings forming a part of this specification, Figure 1, is a top plan view of suitable mechanism for carrying the improved method into effect. Fig. 2, a vertical sectional view, taken on line 2—2 of Fig. 1. Fig. 3, a detailed side elevation of the blank cutter and carrier detached. Fig. 4, a perspective view of a partially formed headed taper pin in one of the guide-ways used in handling the blanks in the pointing and shaving machines for rounding the ends thereof as illustrated in Figs. 8 and 9, of the drawings. Fig. 5, a view of the taper pin blank as received from the cutter and

carrier. Fig. 6, a view of the same as the result of the action of the first plunger member in forcing the same into the blank receiving and taper pin forming opening of the die block. Fig. 7, a view of the same as the result of the action of the second or plunger header. Fig. 8, a view of the same as received from the pointing machine. Fig. 9, a view of the completed taper pin as received from the shaving machine which removes the head of the pin, as shown in Figs. 7 and 8.

Similar numerals of reference designate like parts throughout all the figures of the drawings.

The mechanism for carrying out the improved method may be used in connection with a standard bolt heading machine, and may comprise a base block or housing 1, provided with a dove-tailed opening or recess 1<sup>a</sup>, to receive a similarly shaped die holder block 2, the latter being held in the opening or recess 1<sup>a</sup>, by means of a key member 3. The wire or rod from which the blanks are adapted to be cut is adapted to be received through the opening 4, of the block or member 5, being fed therein by suitable machinery, the length of the blank to be cut being regulated by means of the adjustable gage member carried upon the supporting bar 7.

As a means for cutting and holding the blanks, a reciprocating blank cutter and holder 8, is adapted to be operated by means of suitable mechanism immediately in front of the block or member 5, and across the opening 4, whereby a blank 9, of suitable length as illustrated in Fig. 5, may be cut and carried in front of the blank receiving and taper pin forming opening 10, of the die block 11.

As a means for regulating the length and form and particularly the upset head of the partially formed taper pin when operated upon by the plunger members as hereinafter described, as well as providing means whereby the same may be ejected from the blank receiving and forming opening 10, a reciprocatory plunger bar or member 12, is mounted in a reduced opening 12<sup>a</sup>, of the die block 11, said plunger bar being adapted to be intermittently operated or reciprocated by suitable mechanism, the normal position of said plunger 12, being adapted to be adjusted in any suitable and well known manner,

such for example,—as by means of mechanism employed in well known standard bolt heading machines.

As the blank cutter and holder 8, moves over to and holds the blank 1, in front of the blank receiving and taper forming opening 10, the first plunger member 13, is brought into alinement with the blank by means of the movable plunger holder 14, operated by suitable mechanism, said plunger member 13, being provided with a recess or opening 13<sup>a</sup>, adapted to receive and take over the outer end of the blank, holding the latter in proper position or centered as the same is driven by the reciprocation or forward movement of the plunger member 13, in driving the blank into the blank receiving and taper pin forming opening 10, such plunger member giving the blank the form shown in Fig. 6, a reduced head or end 9<sup>a</sup>, being formed thereon by the action of the opening or recess 13<sup>a</sup>, of the plunger member 13, as shown. As the blank is forced into the opening 10, the blank is released by the cutter and holder 8, the latter being moved back to its initial or normal position, the nose of the movable holder member 15, being first elevated against the resistance of the spring 16, (see Fig. 3) to permit the withdrawal of the blank cutter and holder 8, in the action described.

Upon the retraction of the plunger bar or member 13, the second or plunger head member 17, is brought into proper position by the movable holder 14, (see Fig. 2), said plunger or header 17, being moved forwardly and striking the reduced head or end 9<sup>a</sup>, of the blank 9, forming the upset head 18, as shown in Figs. 4, 7, and 8, of the drawings, the form and thickness of the blank and the adjustments of the parts being such as to form the proper upset head 18, at the mouth of the opening 10. Upon the retraction of the plunger header 17, the plunger bar or member 12, is operated, whereby the partially formed taper pin is ejected from the opening 10, and whereupon the headed blank 9, is carried by suitable mechanism through a suitable guide-way 19, as shown in Fig. 4; said guide-way being a part of a suitable pointing machine (not shown), the purpose of the upset head being to form a convenient head for handling and directing the partially formed taper pin in the machinery necessary to complete or round the ends of the taper pin as illustrated in Figs. 8 and 9, of the drawings.

Upon the completion of the beveled or rounded portion "a," at the pointed end of the taper pin as illustrated in Fig. 8, the pin is carried from the pointing machine through a guide-way 19, by suitable mechanism to a shaving machine where the upset head 18, is removed, and a beveled or rounded portion "b," is formed thereon, as illustrated in Fig. 9, which completes the machine operation.

The pins as received from the shaving machine are then placed in a tumbler which imparts a smooth finish to the pins in a well-known and understood manner.

From the foregoing description, taken in connection with the accompanying drawings, the operation and advantages of my improved method will be readily understood.

Having thus described the operation and advantages of my invention, what I claim and desire to secure by Letters Patent is,—

1. The method of making taper pins, consisting in (1) simultaneously cutting and moving a blank of suitable length, and holding the same in front of a constricted blank receiving opening, (2) driving the same into said opening and forming a reduced projecting portion at the mouth of said opening, (3) forming an upset fin portion from said reduced head, (4) ejecting the same from said constricted opening, (5) rounding the smaller end thereof, and (6) removing said upset fin portion and rounding.

2. The method of making taper pins, consisting in, (1) simultaneously cutting and moving a blank of suitable length from a wire and holding the same in front of a blank receiving and taper pin forming opening, (2) driving the same into said opening and forming a reduced projecting head at the larger end thereof, (3) upsetting said reduced head into a fin portion, (4) ejecting said blank, (5) conveying said blank through suitable blank guide and holding mechanism and rounding the smaller end thereof, (6) conveying and holding said blank through suitable guide and holding mechanism, and (7) removing said fin portion in suitable shaving and rounding mechanism.

In testimony whereof I have affixed my signature in presence of two witnesses.

THOMAS FERRY.

Witnesses:

O. C. BILLMAN,  
ALBERT EUGENE LAWRENCE.