

E. B. STIMPSON.
RIVET.
APPLICATION FILED MAY 6, 1907.

922,059.

Patented May 18, 1909.

Fig. 1

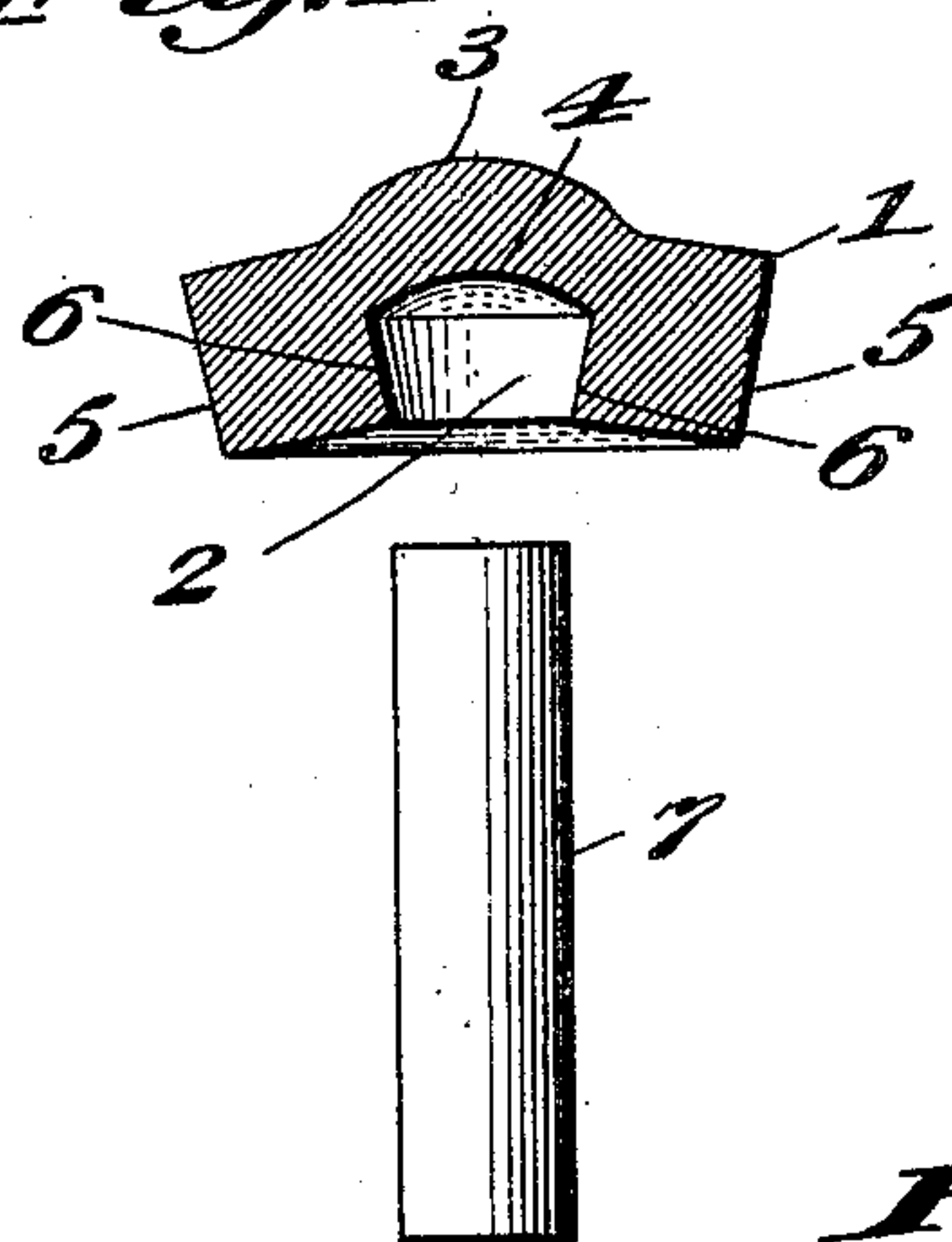


Fig. 2

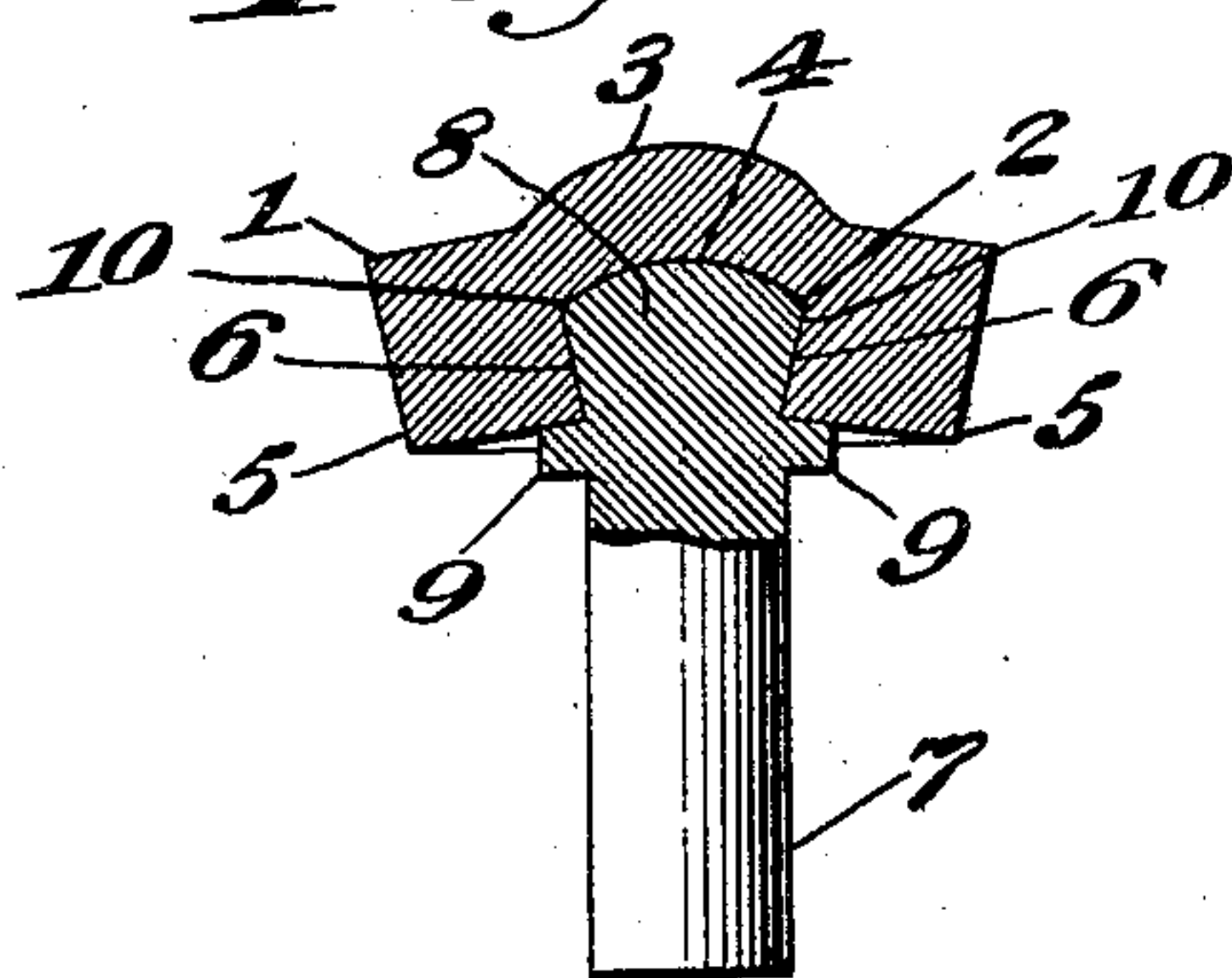
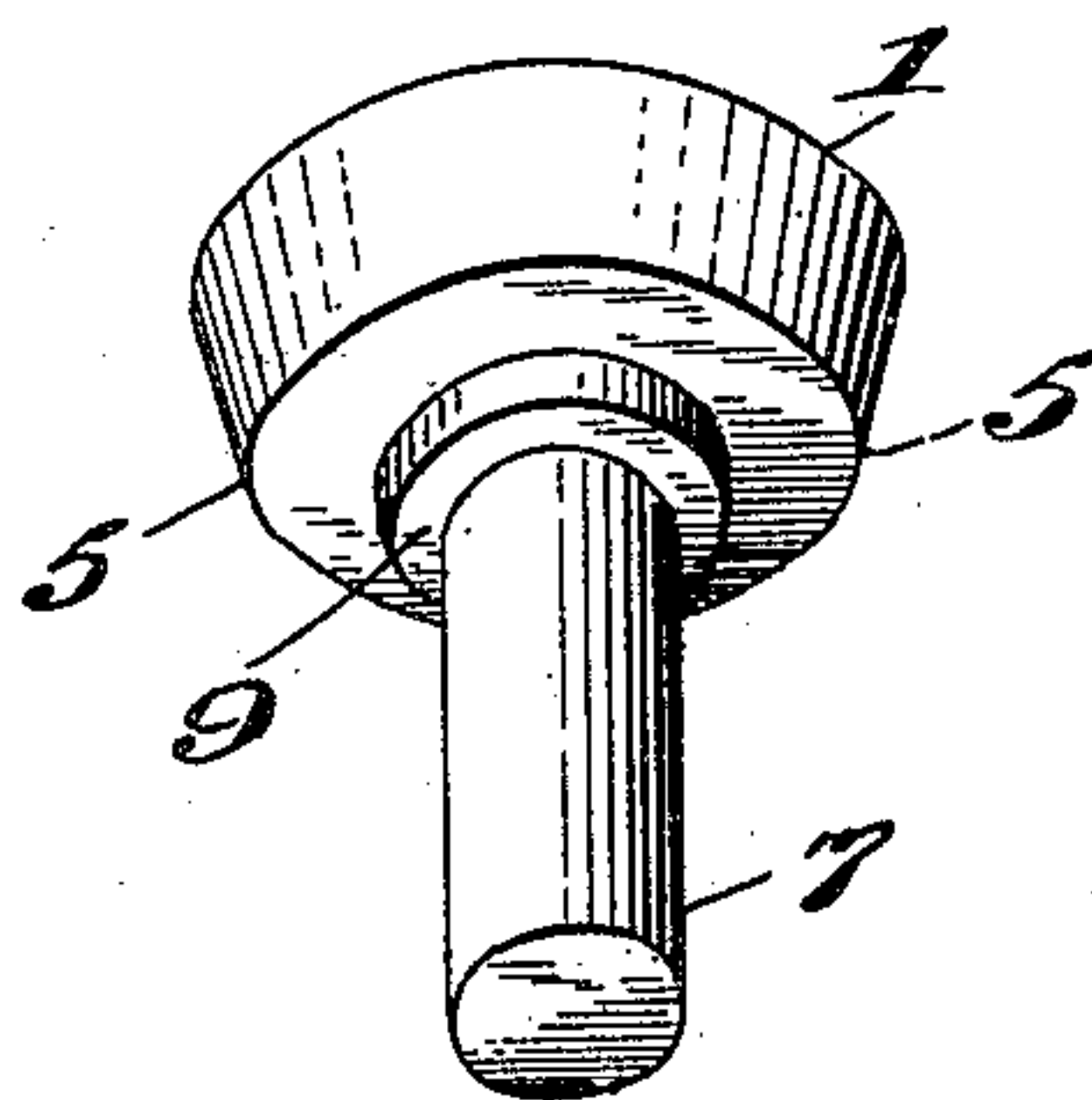


Fig. 3



Witnesses:
W. J. Feith

Inventor
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By his Attorney
J. B. Springer

UNITED STATES PATENT OFFICE.

EDWIN BALL STIMPSON, OF NEW YORK, N. Y., ASSIGNOR TO EDWIN B. STIMPSON COMPANY, A CORPORATION OF NEW YORK.

RIVET.

No. 922,059.

Specification of Letters Patent.

Patented May 18, 1909.

Application filed May 6, 1907. Serial No. 371,967.

To all whom it may concern:

Be it known that I, EDWIN BALL STIMPSON, a citizen of the United States, residing in the borough of Brooklyn, county of Kings, city and State of New York, have invented certain new and useful Improvements in Rivets, of which the following is a specification.

This invention relates to certain improvements in rivets, and more particularly in that class of rivets which are formed with hardened metal heads and soft or malleable metal shanks or stems, and the object of the invention is to provide a rivet of this general character of a simple and comparatively inexpensive nature wherein the soft or malleable shank or stem is separately formed from but securely connected with the hardened metal head, so that tempering or annealing after the parts of the rivet are assembled is dispensed with, whereby the manufacture of the rivets is greatly facilitated and may be conducted with a material economy.

The invention consists in certain novel features of the construction, and combinations and arrangements of the several parts of the improved rivet, whereby certain important advantages are attained and the device is rendered simpler, cheaper and otherwise better adapted and more convenient for manufacture and use, all as will be hereinafter fully set forth.

The novel features of the invention will be carefully defined in the claim.

In the accompanying drawings which serve to illustrate my invention—Figure 1 is a view showing the head and shank portions of the improved rivet as they appear prior to being assembled, the head being shown in axial section, and the shank portion being seen in side elevation; Fig. 2 is an axial section showing the improved rivet, with the parts assembled and connected according to my present invention, and Fig. 3 is a perspective view looking toward the underside of the improved rivet.

In these views 1 represents the head of the improved rivet, which is made from steel in rounded or disk-like shape and is provided with a chamber or socket 2 centrally produced within it and opening at the lower face of said head portion, said chamber or socket 2 being closed or covered at the upper or outer side of the rivet, and having a concave top wall or roof 4. This head portion 1 of the rivet is preferably initially produced

from a piece or blank of soft metal, as annealed steel for example, so that the chamber or socket 2 may be conveniently formed therein by pressure or otherwise, and in so forming the said chamber or socket 2, the metal of said head portion 1 is pressed or thrown upward at the central part of the top thereof so as to produce a central upwardly extended or dome-like part 3 at the top or upper side of said head portion. When the chamber or socket 2 is initially formed in this way, it will, of course, have cylindrical side walls, and be of uniform diameter from top to bottom, but after the forming operation above described, the edge-portions 5, 5 of the head 1, which form the side walls of said chamber or socket 2, are bent or otherwise directed toward each other at the lower or under side of the head, whereby the said side walls 6, 6 of said chamber or socket 2 are made tapered or conical, so that the lower part of the chamber or socket 2, which is open at the underside of the head, is made contracted and of less diameter than the top or main body portion of said chamber or socket. After being thus produced from soft or annealed metal, the head portion 1 is hardened and given a high degree of temper in any preferred manner, so as to render it capable of resisting wear or abrasion when the improved rivet is applied for use with said head portion exposed, and in carrying out my present invention I take advantage of the high degree of hardness of said head portion of the rivet for the secure connection or attachment of the soft or malleable shank or stem thereto, as will be hereinafter set forth.

7 represents the shank or stem portion of the improved rivet, which is made from any desirable soft or annealed metal in cylindrical formation, and of a diameter such that its end portion is adapted to be snugly entered within the contracted open lower portion of the chamber or socket 2 in the hardened head, and in the manufacture of the improved rivet according to my present invention, the said end portion of the soft metal shank or stem 7 is so entered in said chamber or socket 2 of the hard metal head with application of pressure sufficient to cause said soft metal end portion of the shank or stem to expand or swell to produce a head or enlargement 8 of soft metal integral with the shank or stem and held within

and fitting snugly upon the conical or tapered side walls 6, of the chamber or socket so as to securely connect the parts and prevent subsequent withdrawal of the end portion of the shank from said chamber or socket of the head portion 1, the laterally projecting sides 10, 10 of the soft metal enlargement 8 of the shank or stem, and the contacting walls 6, 6 of the chamber or socket 2 in the head affording reciprocal engaging means interlocked with each other to prevent separation of the parts.

In the construction of the improved rivet, the initial length of the stem or shank 7 and the movement and pressure applied and exerted by the dies are so regulated and proportioned that a part of the soft metal of the shank or stem 7 is upset and thrown outwardly around and closely adjacent to the under or lower side of the head portion 1, so as to produce an annular flange or projection 9 upon the said shank or stem and surrounding the joint between the parts at the contracted lower end portion of the chamber or socket 2. By this means it is insured that the end portion of the soft metal shank or stem shall be expanded or swelled sufficiently to fill the chamber or socket 2 of the head despite variations in the compressibility of the soft metal from which the shank or stem is initially formed, the superfluous metal of the shank or stem beyond what is required for the formation of said enlargement or head 8, being thrown outwardly to produce the annular flange 9 and to further strengthen the joint between the parts of the rivet by engagement on the underside of the head around the contracted lower part of the chamber or socket 6.

The improved rivet formed according to my invention is of an extremely simple and comparatively inexpensive nature and is particularly well adapted for use by reason of the extreme degree of hardness which may be

imparted to the head portion without in any way affecting the soft and malleable nature of the shank or stem, and the device is also especially well adapted for use by reason of the secure connection between the head and shank which is afforded by my improvements, and of the convenience and economy with which the rivet may be manufactured. It will also be obvious from the above description that the device is capable of some modification without material departure from the principles and spirit of the invention, and for this reason I do not desire to be understood as limiting myself to the precise form and arrangement of the several parts herein set forth in carrying out my invention in practice. For example, the peculiar formations of the head and shank portions of the rivet herein set forth are not essential to the broad principles and spirit of the present invention and may be varied without departure therefrom.

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

A rivet comprising a head and a shank, the head consisting of a solid piece of metal having a cavity extending into it from its bottom face, said cavity being wholly above said bottom face and being enlarged interiorly, and having a relatively small diameter compared to the diameter of said solid piece of metal; and the shank, projecting from said cavity with its end within the cavity expanding into contact with its interior, said shank outside the cavity having a lateral fin swaged against the bottom of the head.

In witness whereof I have hereunto signed my name this 4th day of May 1907, in the presence of two subscribing witnesses.

EDWIN BALL STIMPSON.

Witnesses:

H. G. HOSE,

J. D. CAPLINGER.