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No. 877,118.

PATENTED JAN. 21, 1908.

R. S. PEIRCE.
FASTENING DEVICE FOR MASONRY.
APPLICATION FILED DEC. 24, 1906.

Fig. 1.

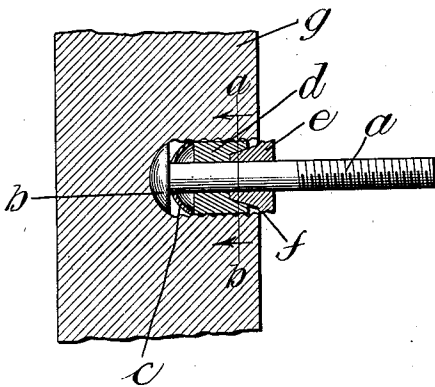


Fig. 2.

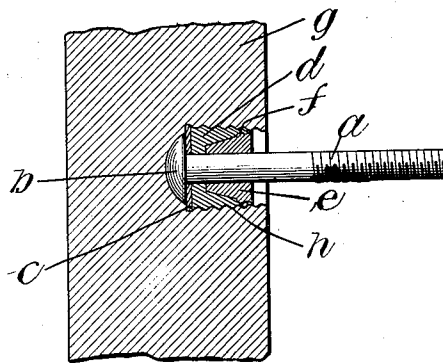
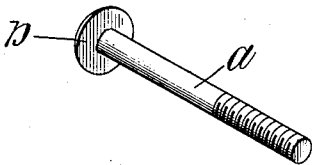
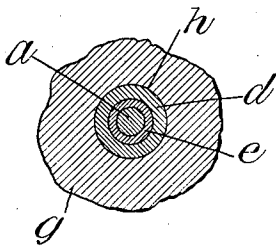


Fig. 3.

Fig. 4.



Witnesses:
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UNITED STATES PATENT OFFICE.

RALPH S. PEIRCE, OF CHICAGO, ILLINOIS.

FASTENING DEVICE FOR MASONRY.

No. 877,118.

Specification of Letters Patent.

Patented Jan. 21, 1908.

Application filed December 24, 1906. Serial No. 349,237.

To all whom it may concern:

Be it known that I, RALPH S. PEIRCE, a citizen of the United States of America, and a resident of Chicago, county of Cook, and State of Illinois, have invented a new and useful Improvement in Fastening Devices for Masonry, of which the following is a specification.

My invention relates to an improved means of securing objects to masonry in combination with bolts, rivets and screws, or lugs or projections, similar in shape but part of the object to be secured, and it consists of an expansive washer and a conically shaped sleeve between which soft metal is compressed and thus forced into the crevices in the side walls of bore provided in the material to which the object is to be fastened.

The object of my invention is to provide a fastening device, which under varying conditions and nature of the material to which the object is to be secured will withstand uniformly a much greater strain than the art has previously known in a device of the kind.

My invention is illustrated in the accompanying sheet of drawings in which Figure 1 is a sectional view of a part of some masonry structure, as the wall of a brick building, a hole having been provided therein and my device placed in said hole and loosely assembled on an ordinary bolt. Fig. 2 is a similar view but differs from Fig. 1 in that the several parts have been pressed together, illustrating the relative position of the parts when the device is completely set. Fig. 3 is a perspective view of the several parts shown separately. Fig. 4 is a sectional view of Fig. 1 taken on the line *a b*.

Similar letters refer to similar parts throughout the several views.

A brick *g* is provided with a circular perforation into said perforation the bolt *a* is placed the head *b* of the bolt being first inserted and placed in contact with the base of the perforation. On the shank of the bolt *a* are placed an expanded metal washer *c*, a soft metal cylinder *d*, and a conically shaped collar *e* provided with a ridge *f*, all arranged as shown in Fig. 1. The ridge *f* may be any roughness of the surface at the point indicated. The washer *c*, and collar *e* are preferably made of iron, and the cylinder *d* of lead. The method of securing my device is as follows: When the bolt has been thus inserted in the perforation of the brick or masonry *g*, a piece of pipe or hollow punch is

slipped over the threaded end of the bolt *a*, and placed in contact with the outer face of the collar *e*. The outer end of the pipe or hollow punch is then subjected to a few blows from a hammer, which drives the conically shaped collar *e* into the soft metal cylinder *d*, the soft metal cylinder *d* expanding into the crevices of the wall of the perforation in the masonry *g*, and is pressed against the dished metal washer *c*, thus forcing it back against the head of the bolt and the washer *c* expands into the side walls of the perforation in the brick *g*, the whole combination thus becoming securely wedged together. Any subsequent outer pull on the bolt *a* only tends to force the soft metal of the cylinder *d* the more into the crevices of the side walls of the perforation in the brick *g* by the peculiar arrangement and shape of the parts. The conically shaped collar *e* being loose on the shank of the bolt *a*, but secured in the perforation in the brick *g*, by the soft metal of the outer end of the cylinder *d* compressed around the ridge *f*, acts as a wedge when an outward pressure is applied to the bolt *a*, and thus further expands the soft metal of the cylinder *d* as the bolt *a* gives slightly under the pressure; the soft metal of the cylinder *d* being further compressed between the washer *c* and the collar *e*.

I do not claim broadly the use of soft metal as lead for securing bolts, etc. in masonry, as lead has thus been used with varying success for many years. Peculiarly shaped headed bolts have been used in endeavoring to increase the holding power, and while these peculiarly shaped heads may increase the holding power, when the head fits exactly into the perforation in the masonry, but it is found in practice that in making a hole of the kind in soft stone or brick that the material crumbles away more or less, with the result that the hole is irregularly formed, and such being the case the soft metal packing flows around the head in these irregular places, and the holding power of the bolt is thus much reduced. This, however, is not the case in my device, because of the dished washer *c* increasing in circumference after being inserted in the perforation, and thereby completely filling the perforation, thus preventing the soft metal packing from flowing around the head of the bolt and together with the addition of the conical collar the holding power of the device is materially increased.

It will be understood that a metal packing as lead, which is soft enough to be readily pressed into the crevices in the side walls of a perforation in masonry would not offer much resistance to the head of a bolt being pulled through it, unless the soft metal is so confined between harder material as to prevent the soft metal flowing readily and thus relieving the binding action. It is this reinforcing and preventing the flow of the soft metal in which my invention consists.

I do not wish to limit myself to the exact form of the several parts as shown herein, or the exact arrangement of the parts, as I consider other forms and arrangements could be made to accomplish the same results, which would lie within the scope of my invention.

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

1. The combination, in a device for fastening objects to masonry, of a fastener having a head and shank, with a dished metal washer sleeved on the shank adjacent the head, a hard metal sleeve surrounding the shank and soft metal packing provided between said dished washer and sleeve.

2. In a device for fastening objects to masonry, the combination of a fastener having a head and shank, a dished metal washer sleeved on the shank adjacent the head, a conically-shaped hard metal collar surrounding the shank and a soft metal cylinder provided between said washer and collar.

3. The combination, in a device for fastening objects to masonry, of a fastener having a head and shank, the herein described conical collar placed on the said shank and soft metal packing provided around said shank between the head and the conical collar.

4. The combination, in a device for fastening objects to masonry, of a fastener having a head and shank, soft metal packing provided around the shank and a dished metal washer sleeved on the shank between the head and the metal packing.

Signed by me at Chicago, county of Cook, State of Illinois, in the presence of two witnesses.

RALPH S. PEIRCE.

Witnesses:

CARLOTTA C. PEIRCE,
ETHEL P. BROWN.