No. 690,284. Patented Dec. 31, 1901.

T. P. HICKS.

DEVICE FOR FASTENING METAL OR WOOD WORK TO STONE.

(Application filed Oct. 21, 1901.)

(No Model.)

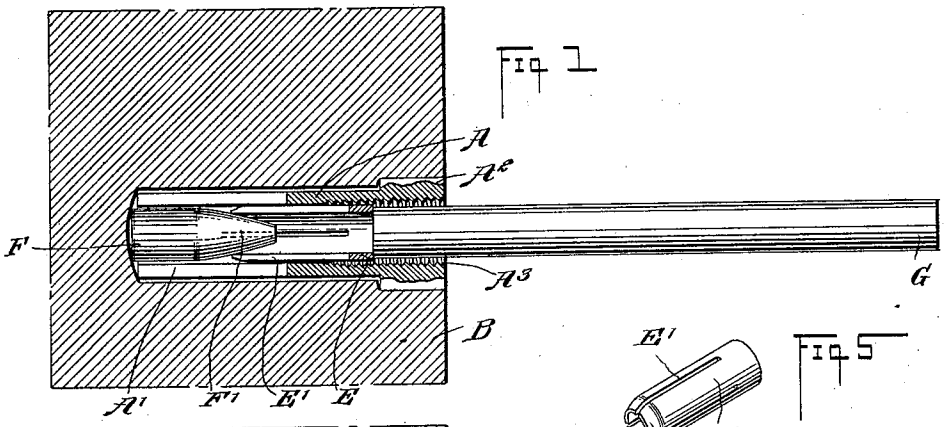


FIG. 1

FIG. 5

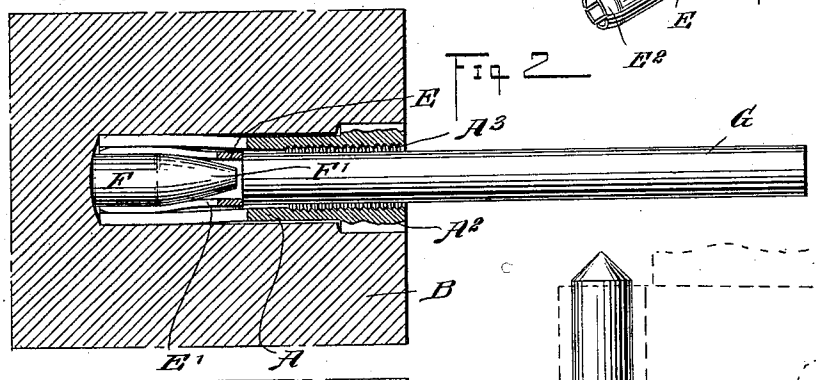


FIG. 2

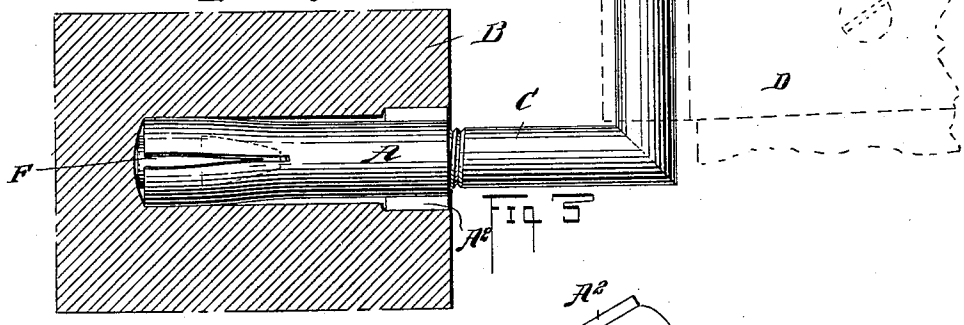


FIG. 3

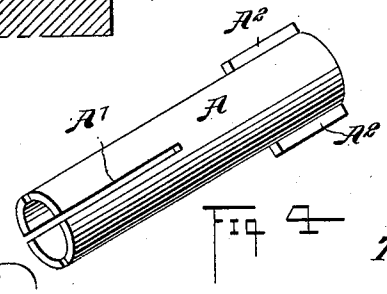


FIG. 4

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DEVICE FOR FASTENING METAL OR WOOD WORK TO STONE.

SPECIFICATION forming part of Letters Patent No. 690,284, dated December 31, 1901.

Application filed October 21, 1901. Serial No. 79,415. (No model.)

To all whom it may concern:

Be it known that I, THOMAS P. HICKS, a citizen of the United States, and a resident of the city of New York, borough of the Bronx, in the county and State of New York, have invented a new and Improved Device for Fastening Metal or Wood Work to Stone, of which the following is a full, clear, and exact description.

My invention relates to buildings, and has for its object to provide means for securely connecting various articles made of wood or metal with stonework. Devices of this class are frequently designated as "expansion-bolts." It has been my aim to provide a construction which may be readily applied without any danger of injury to the stone, thus avoiding a drawback found in the employment of the expansion-bolts generally used.

The invention will be fully described hereinafter and the features of novelty pointed out in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional view of a stone with my improved expansion-bolt inserted therein prior to the securing of the bolt. Fig. 2 illustrates the position of the parts after expansion. Fig. 3 shows the expanded bolt connected with a shutter-support. Fig. 4 is a detail of the outer shell of my improved expansion-bolt, and Fig. 5 is a detail perspective view of the inner tube forming a part of the bolt.

My improved fastening device comprises three parts, namely: first, an outer shell; second, an inner tube, and, third, a central expander. The outer shell A is a tube originally cylindrical and split at its inner end, as indicated at A'. At its outer end the shell has wings or lugs A^2, adapted to be seated in corresponding sockets in the stone B, so as to hold the shell against turning in the stone. Preferably a shoulder is formed in the stone against which the inner ends of the lugs A^2 abut. Interiorly the shell A is provided at its outer end with a screw-thread A^3, adapted to receive any device which it is desired to connect with a stone. For instance, as shown in Fig. 3, the thread may receive the supporting-pintle C for a shutter D. Instead of screw connection any other desirable means may be employed.

Within the shell A is arranged to slide freely lengthwise a short tube E, having longitudinal slits E' extending to its inner end, which latter is preferably beveled, as shown at E^2. The third part of my fastening device is an expander F of cylindrical shape with a conical end F' pointing outwardly. The diameter of the expander F is such that it fits rather closely against the slitted end of the shell A when the device is first inserted into the stone, as shown in Fig. 1.

In applying my invention the shell A is first introduced into a suitably-bored hole in the stone B, then the expander F is pushed through the bore of the shell until it abuts against the stone, whereupon the tube E is inserted so that its split end will engage the conical portion F' of the expander. With the parts in this position a suitable driver, such as a rod G, is introduced into the outer end of the shell and held against the tube E. By delivering blows upon the outer end of the driver G the tube E is then forced inward, and in doing this the split end of the tube E is expanded as soon as it slips over the conical surface of the expander F and wedges itself between the said expander and the split end of the shell A. This of course forces the inner end of the shell against the stone, expanding the shell, so as to securely clamp it in place. It will be observed, however, that during the expansion no part of the fastening device which is in engagement with the stone slides on the stone, and, further, the blows are not transmitted to the stone directly, and thus I avoid two drawbacks, which in devices used hitherto have often caused a stone to be injured by cracking or even breaking. The driver G is removed when the device has been expanded as described, and the support C or any other article which it is desired to secure to the stone is then connected with the shell A by means of the screw-thread A^3 or equivalent means.

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

1. A fastening device, comprising an outer

expansible shell, an inner expansible tube of a diameter to be received within the outer shell, and an expander of a diameter to be received within the outer shell but larger than the normal bore of the inner tube, the said expander having a reduced end adapted to enter in the inner tube for expanding the same.

2. A fastening device of the character described, comprising a tubular shell slitted at one end, an inner tube capable of sliding in said shell and likewise slitted at one end, an expander adapted to be received in the shell, and provided with a tapered end adapted to engage and expand the split end of the inner tube and through its medium the corresponding end of the shell.

3. A fastening device of the character described, comprising a tubular shell slitted at one end, an inner tube likewise slitted at one end and adapted to slide within the shell, the said tube being tapered at its slitted end, and an expander adapted to be received within the shell, and having a tapered end arranged to fit into the slitted end of the inner tube to expand the same and through its medium, also expand the outer shell.

4. A fastening device of the character described, comprising an outer shell slitted at one end and provided at its other end with external projections to prevent its turning, an inner tube fitted to slide within the shell and likewise slitted at one end, and an expander adapted to be received within the shell, and having a tapered end arranged to fit into and to expand the slitted end of the inner tube and through its medium the corresponding end of the shell.

5. A fastening device of the character described, comprising a tubular shell split at one end and provided interiorly at its other end with means for connecting it with an article to be attached thereto, an inner tube split at one end and adapted to slide within the shell, and an expander adapted to be received within the shell and having a tapered end arranged to expand the split end of the inner tube and through its medium the corresponding end of the shell.

In witness whereof I have signed my name to this specification in the presence of two subscribing witnesses.

THOMAS P. HICKS.

Witnesses:
LOUIS STILGENBAUER,
SAMUEL B. HUTCHINGS.