

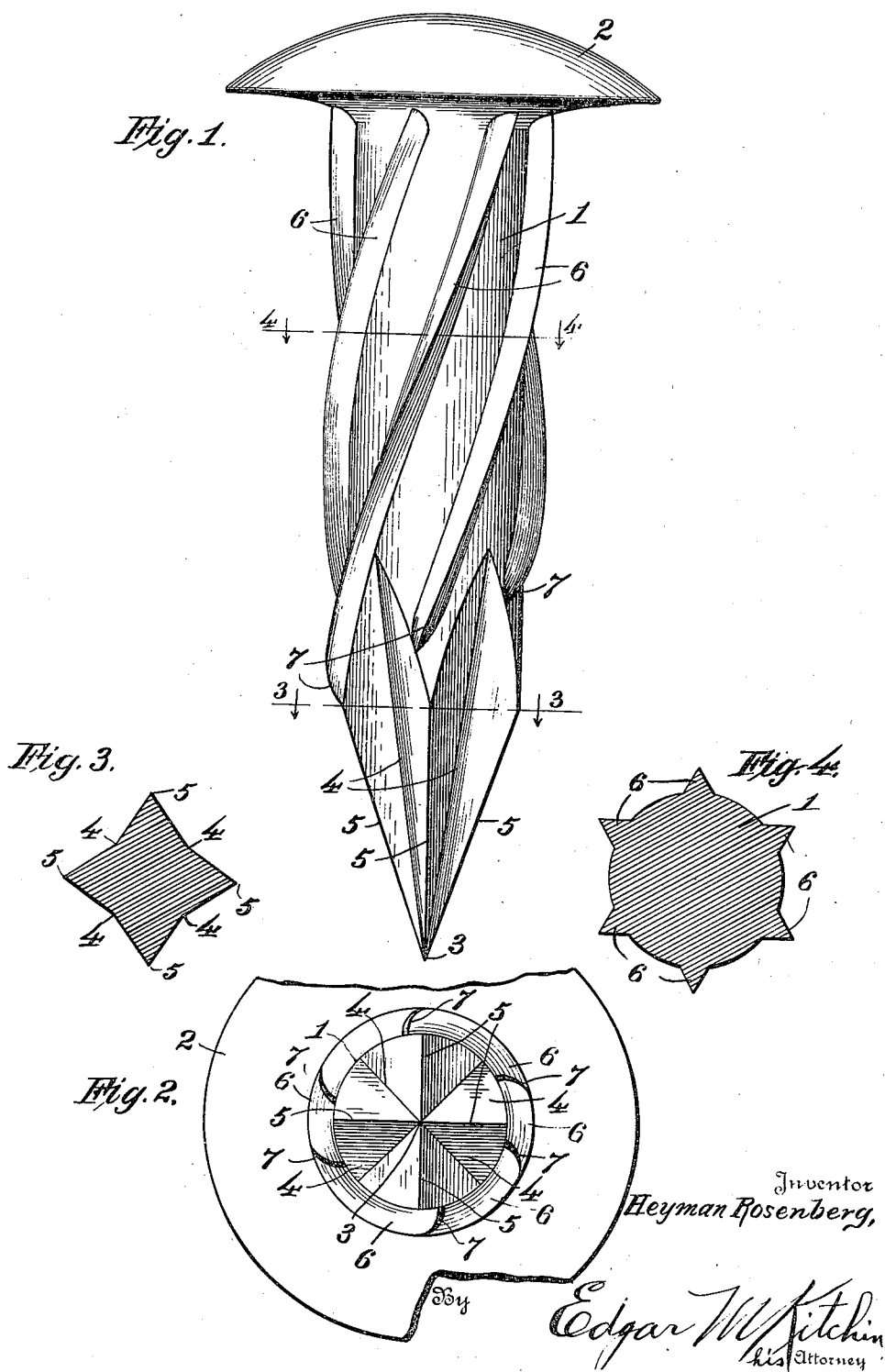
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H. ROSENBERG

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MASONRY ANCHORAGE DEVICE

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UNITED STATES PATENT OFFICE.

HEYMAN ROSENBERG, OF NEW YORK, N. Y.

MASONRY ANCHORAGE DEVICE.

Application filed April 12, 1923. Serial No. 631,591.

To all whom it may concern:

Be it known that I, HEYMAN ROSENBERG, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful improvements in Masonry Anchorage Devices; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in nails and like anchoring means, and has as its object the provision of easily and quickly operated means for effecting a permanent anchorage or connection to a wall of masonry, such as brick, concrete, porous tile, sand-stone, and like substances characterized by lack of elasticity or capacity for free expansion, and susceptible of being crumbled.

With this and further objects in view as will in part hereinafter become apparent and in part be stated, the invention comprises certain novel constructions, combinations and arrangements of parts as subsequently specified and claimed.

In the accompanying drawings,—

Figure 1 is a view in side elevation of a device embodying the features of the present invention.

Figure 2 is an end view thereof, looking at the point.

Figures 3 and 4 are transverse sections taken respectively on lines 3—3 and 4—4 of Figure 1.

Referring to the drawings by numerals, 1 indicates a cylindrical body preferably having a head 2 at one end and terminating in a penetrating point 3 at the other. The point 3 is the product of the tapered end portion of the body 1, which tapered end portion instead of being finished like a cone is provided with longitudinal cut-away portions or grooves 4, 4, leaving cutting edges 5, 5. The cutting edges 5 converge at the point 3, and considering the device as arranged in the position shown in Figure 1, the said cutting edges extend upwardly and terminate at the surface of the body 1, the grooves 4 extending upward beyond the terminus of the cutting edges 5. There are preferably four of the grooves 4, making four of the cutting edges 5.

Formed integral with and outstanding from the body 1 are parallel ribs or threads

6, 6, each substantially triangular in cross section, as clearly seen in Figure 4, the apex of the triangle outstanding and the base blending into and formed integral with the body 1. Thus each thread or rib 6 is formed with a cutting edge throughout its length, and each rib or thread 6 preferably extends to and blends into the head 2, and also extends to the terminus of the full diameter of the body 1. That is to say, each rib or thread 6 extends to the margin of a groove 4, and at such margin terminates with a curved end portion 7 blending into the material of the body 1 and presenting a continuation, at the end of each rib 6, of the cutting edge of that rib. The number of ribs 6, like the number of grooves 4, may be varied, but there are preferably six ribs 6 arranged as shown in Figure 1, so that they may be said to be arranged in diametrically-opposite pairs, one pair being of greatest length, a second pair of intermediate length, and a third pair of shortest length, presenting the stepped relation seen at the lower terminal portion of body 1 in Figure 1. The advantage of this relation will become apparent in the discussion of the operation of the device hereinafter. Each thread or rib 6 is given a slight pitch or angular slant about the body 1, and, in practice, each of the longest ribs or threads should extend one-third the way around the body in the length of the body, or, in other words, angularly 120° when the body is made one-fourth of an inch in diameter and one and three-eighths inches long from the point of blending into the head 2 to the upper terminus of one of the cutting edges 5. While the showing in the drawing is that of a much larger device, or may be said to be greatly magnified, the proportions are maintained which will enable the determination of the preferred relative transverse area of each rib or thread 6.

The body 1 and its connected parts are formed preferably of soft steel and then case-hardened. The preferable method of case-hardening is known as the cyanide process, but it should be understood that the essential characteristic of the finished structure is its effective hardness, especially of those parts employed for cutting, as hereinafter stated, and it is not a part of the present invention as to how the hardening is effected. It is of primal importance, however, that the penetrating point with its

cutting edges 5 and the ribs or threads 6 shall be of sufficient hardness to cut the wall into which the parts are to be forced with substantially no injury to the point or threads. It should thus be apparent that the body 1 itself and the head 2 do not require hardening, but when the device is hardened by the cyaniding process, these parts are hardened as an incident, and the hardened condition may be of value in preventing injury to the surface of the body in contacting with abrasive portions of the wall into which it enters.

In conducting the preferred operation with the present improved anchorage device, the operator manually holds the body 1 in position with the point 3 contacting with the surface of the wall to receive the anchor, and then taps with a hammer on the head 2 while manually rotating or moving the body 1 angularly, so that the penetrating point enters the wall after the fashion of a masonry drill. This action is kept up until the longest threads of threads 6 come in contact with the exposed surface of the wall. The operator then discontinues the rotary motion, and taps the head 2 for driving the anchor directly into the wall, and in so doing causes the longest threads 6 to enter the wall and cause the body 1 to rotate slightly as it advances, and then the second or intermediate length threads engage the wall, and finally the shortest threads engage the wall, and all tend to turn the anchor on its longitudinal axis. The rounded ends 7 of the threads 6 insure ready entry of the threads in the body of the wall in a manner to form grooves in such wall, which grooves accommodate the threads and provide for effective anchorage thereof and of the body 1. It should be understood that any masonry substance susceptible of being crumbled by the drill action of a penetrating point will have a hole or recess formed in it by the initial action above described of slightly greater diameter than the diameter of the body 1, so that as the anchor is driven further in during engagement of the threads 6 with the wall, a slight space is left between the surrounding wall and the entered portions of the body 1, through which space escapes the crumbled substance formed by the drill action of the point. This drill action continues as the point advances into the masonry incident to the angular movement caused by the threads 6, and the opening thus formed for the body 1 continues to be slightly larger than the body, so that the crumbled substance may continue to discharge out along the grooves 4 into the valleys between the threads, and thence to the outside of the wall. This action is continued until the anchor penetrates the wall to the required extent. If the anchor alone is intended to engage the wall, it is

left at any point desired in a location with the head 2 either resting against the wall or spaced therefrom to the distance required according to the use to be subsequently made of the anchor. It is obvious, of course, that when a board or strip of material is to be fastened to a wall, the anchor is passed through such board or strip before the final driving action occurs, that is, the action after the threads 6 begin to penetrate the wall.

If, in the forming of the entering opening in a wall, that is the opening up to the point where the threads 6 begin to act, difficulty is experienced in manipulating the anchorage device after the manner described, it is, of course, entirely practical to use a masonry drill of the proper diameter and of greater length than the anchorage device so as to enable and facilitate easy manual manipulation, and the drill is preferably operated only sufficiently for producing the initial opening in the wall of a depth required to allow the threads 6 to begin to act. It will be noted also that if such a drill should be used until a bore or opening is formed in the wall of practically the length of the body of the anchoring device, such anchoring device could be effectively applied by being driven into such opening while the threads or ribs 6 cut their way and form co-operating anchoring grooves. The drill, when used, must be of the requisite diameter, approximately identical with that of the body portion 1, for producing an opening or bore in the wall of a diameter only slightly larger than the diameter of said body portion 1, the increased diameter of the bore being due, as above stated, to the characteristic of the material of the wall which causes it to crumble when cut or broken.

It will be observed also that in whatever way the operation is carried out, the anchorage device does not injuriously wedge the material of the wall apart, and, therefore, does not tend to split or crack the same. The action is one of cutting away and crumbling the substance of the wall and not of expanding it, such as might occur were the instrument driven into a piece of wood or like elastic material.

While as above stated, the present improved anchorage device is especially well adapted for use in masonry and may be driven directly into a brick or like crumbling substance for producing effective anchorage thereto, it is also found to be capable of effective use as an anchorage device in metal or for connecting sheets of metal, when applied after the manner set forth in detail in my co-pending application, Serial No. 502,972, filed September 24, 1921. There is, therefore a genus of which the specific disclosures of said co-pending application and this application are species, but the

claims of neither of these two applications have been made broad enough to read upon the subject matter of the other, because the generic claims and the otherwise broader claims covering whatever is in common between these two applications and also covering matter not specifically claimed in this application are presented in my third co-pending application filed January 25, 1924, and designated by Serial No. 688,423.

What is claimed is:—

1. A masonry anchorage device comprising a body having a head at one terminus, a hardened penetrating point at the other, and high pitched threads extending along the body.

2. A masonry anchorage device comprising a substantially cylindrical body terminating in a hardened drill-like point at one end and having an outstanding thread extending along the body at a comparatively high pitch.

3. A masonry anchorage device comprising a body having a drill-like point, and a plurality of outstanding hardened threads extending along the body at a comparatively high pitch.

4. A masonry anchorage device comprising a substantially cylindrical body having a hardened tip at one end formed with cutting edges, and a head at the other end, the body being formed with a high pitched thread between the tip and head.

5. A masonry anchorage device comprising a substantially cylindrical body having a hardened, tapered tip formed with cutting edges, and also having hardened threads extending along the body at a relatively high pitch.

6. A masonry anchorage device comprising a substantially cylindrical body having a hardened, tapered tip formed with cutting edges, and also having hardened threads extending along the body at a relatively high pitch, the threads extending from the tip to

substantially the opposite terminus of the body.

7. A masonry anchorage device comprising a substantially cylindrical body having a hardened, tapered tip formed with cutting edges, and also having hardened threads extending along the body at a relatively high pitch, the threads extending from various points about the tip at different distances in the length of the body.

8. A masonry anchorage device comprising a substantially cylindrical body having a tapered tip formed with grooves providing cutting edges converging to a point at the terminus of the tip, the body being formed with threads extending longitudinally thereof at a relatively high pitch and lapping the grooves of the tip.

9. A masonry anchorage device comprising a substantially cylindrical body having a tapered tip formed with grooves providing cutting edges converging to a point at the terminus of the tip, the body being formed with threads extending longitudinally thereof at a relatively high pitch and lapping the grooves of the tip, the cutting edges and threads being hardened sufficiently for penetrating the masonry substantially without injury to such cutting edges and threads.

10. A masonry anchorage device comprising a substantially cylindrical body having a tapered tip formed with grooves providing cutting edges converging to a point at the terminus of the tip, the body being formed with threads extending longitudinally thereof at a relative high pitch and lapping the grooves of the tip, the entire structure being formed of case-hardened metal.

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

HEYMAN ROSENBERG.

Witnesses:

LOUIS SOVODKIN,
SIMON SOVODKIN.