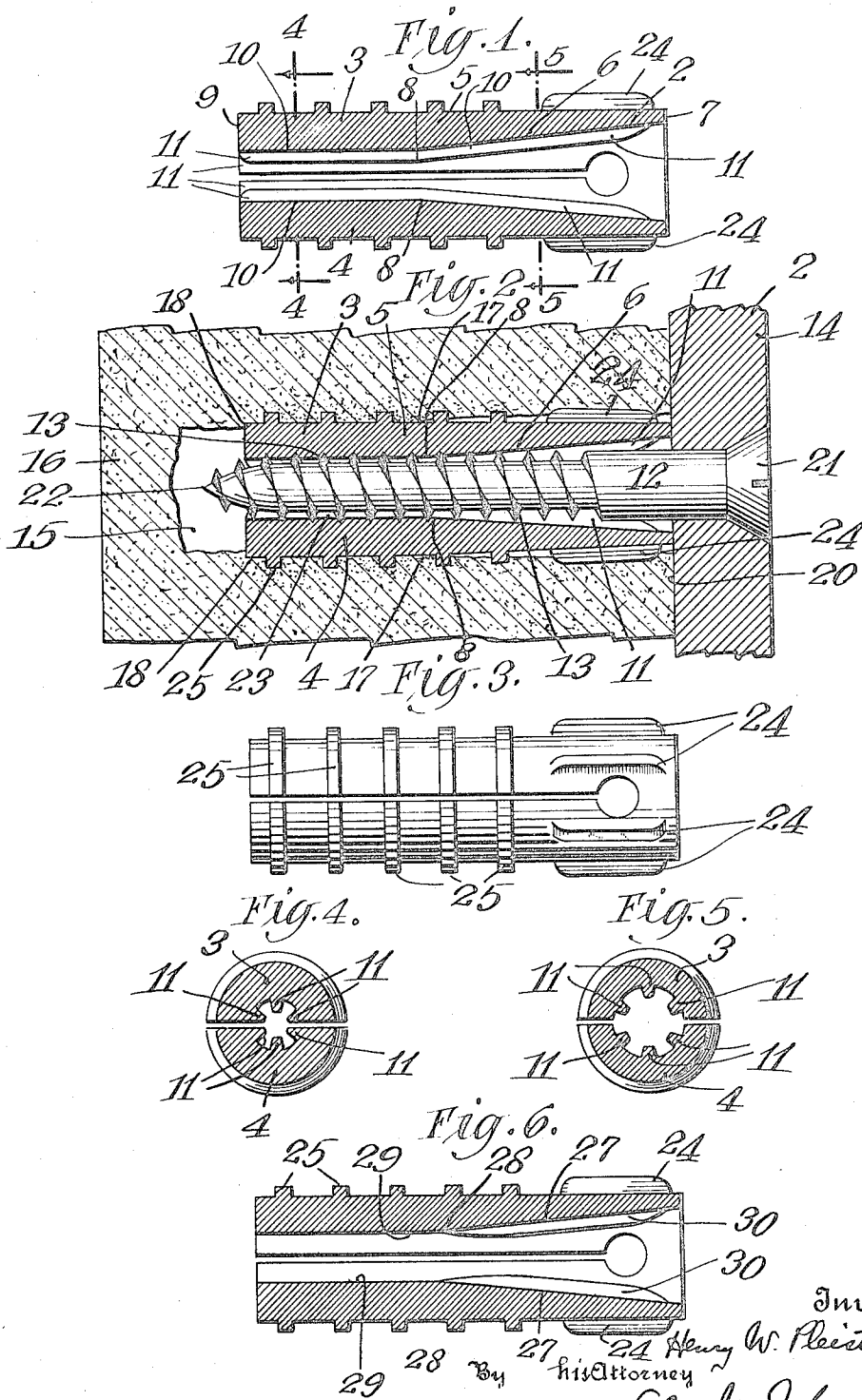


H. W. PLEISTER.
BOLT ANCHOR.
APPLICATION FILED APR. 7, 1917.

1,248,008.

Patented Nov. 27, 1917.



Inventor

Henry W. Pleister

By *Alfred W. Johnson*
his Attorney

UNITED STATES PATENT OFFICE.

HENRY W. PLEISTER, OF WESTFIELD, NEW JERSEY, ASSIGNOR TO HENRY B. NEWHALL,
OF WESTFIELD, NEW JERSEY.

BOLT-ANCHOR.

1,248,008.

Specification of Letters Patent.

Patented Nov. 27, 1917.

Original application filed January 20, 1917, Serial No. 143,423. Divided and this application filed April 7, 1917. Serial No. 160,416.

To all whom it may concern:

Be it known that I, HENRY W. PLEISTER, a citizen of the United States, residing at Westfield, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Bolt-Anchors, of which the following is a specification, taken in connection with the accompanying drawings.

10 This application is a division of my co-pending application Ser. No. 143,423, filed Jan. 20, 1917.

My invention relates to bolt anchors.

15 More particularly my present invention relates to that class of bolt anchors known as "anchors," "lead anchors" and "screw anchors," in which the material of the anchor is formed of more or less ductile material such as an alloy of lead, in which a wood 20 screw will cut its own coöperating female threads. Such anchors are used to hold lighter work than are lag shields.

In the present form of anchors the maximum expansion is approximately at the extreme inner end of the anchor. In practice 25 this is often a serious detriment in that the wood screw having forced the anchor out to its maximum expansion binds and it is impossible to bring the head of the wood screw up flush with the work. This requires the 30 hole to be enlarged entailing additional labor and expense, or a different size anchor has to be used.

By my invention I overcome this serious 35 objection and give a longer surface of maximum contact or grip on the exterior of the anchor, thereby giving an increased frictional hold, and distributing this maximum grip over a larger area than with the present 40 form of anchors. My invention further permits the wood screw to coöperate with the anchor with less effort than with the present forms.

45 In my present invention I provide the interior of the anchor with longitudinally extending ribs or surfaces which first engage and guide the screw as it is screwed home. The wood screw cuts its own coöperating 50 screwthreads in these ribs or surfaces, and generally, though not necessarily, cuts entirely through the ribs into the body of the anchor.

In my present invention I provide the anchor with a body formed with an axial bore

inclined from near one end to a point intermediate the ends of the anchor, and from 55 that point merging into a cylindrical bore, the inclined and cylindrical bores being provided with internal ribs of substantially the same height. 60

My invention further relates to certain details of construction which will be described in the specification and pointed out in the claims.

In the drawings the same reference numerals refer to similar parts in the different figures. 65

Figure 1 is a longitudinal, vertical section of my present invention;

Fig. 2 is a vertical section of the bolt anchor shown in Fig. 1, located within a wall or other support and coöperating with a 70 wood screw;

Fig. 3 is a plan view of the anchor shown in Fig. 1; 75

Fig. 4 is a transverse vertical section, substantially on the line 4—4 of Fig. 1, looking in the direction of the arrows;

Fig. 5 is a transverse, vertical section, substantially on the line 5—5 of Fig. 1, looking 80 in the direction of the arrows; and

Fig. 6 is a vertical section of a modification in which the ribs are provided only upon the interior inclined bore of the anchor.

In the illustrative embodiment of my invention, 1. Fig. 1, is an anchor having a collar 2 and tines 3 and 4. This anchor has a body portion 5 provided with an inclined or conical axial bore 6 extending from substantially one end 7 to a point 8, which is 90 the nearest approach to the axis of the anchor, and which is located between the end 7 and the end 9. From the point 8 the axial bore is cylindrical to the end 9 of the anchor. Of course the particular location of 95 the point 8 may be varied. On the inclined or conical axial bore 6 and the cylindrical bore 10, I form longitudinally extending ribs 11 of substantially the same height throughout their length. 100

In my present invention, the point 8, where the ribs 11, 11 approach the nearest to the axis, is due to the formation of the body portion 5 rather than to varying the height or depth of the ribs 11, which is one 105 of the forms shown in my said parent application. These ribs 11 serve to guide the entering wood screw 12 and permit its easy

passage into the anchor, its male threads 13 cutting their own cooperating female threads in the ribs 11, and usually, though not necessarily, in the body 5 of the anchor also.

5 It is of course to be understood, that the depth of the screw threads cut by the screw depend upon the relative size of the anchor, the screw, the size of the hole and of the work or load 14. When this anchor is placed
10 in the hole 15 of the support 16 its tines 3 and 4, will be expanded, the maximum grip of the anchor in the hole of the support 16 will extend substantially from the points
15 17, 17 to the points 18, 18, thus giving a long surface of contact and increased frictional hold and distributing the maximum grip over a larger area than the old form of lead anchor now on the market. These old
20 forms employ a uniformly tapering axial bore in which the maximum grip is at the extreme inner end of the anchor equivalent to the points 18, 18.

Not only is it easier to position the wood screw 12 and to obtain a stronger and more
25 lasting grip upon the wall of the hole 15, but when the support 16 happens to be material which may be damaged, as for example a thin slab of marble or plaster, or any other material, the maximum grip is distributed
30 over a larger area to prevent any damage to the support.

In Fig. 2 I have shown the work 14 of a certain thickness held to the face 20 of the support 16. The same size anchor and wood
35 screw 12 will support different thicknesses of work and permit in all cases, the head 21 of the wood screw 12 to be brought up flush with the work without the screw jamming in the anchor in a position where its head 21
40 cannot be brought up snugly against the work.

In Fig. 6 I have shown a bolt anchor 26 provided with an inclined axial bore 27 reaching its nearest approach to the axis at
45 28 and there merging into a cylindrical bore 29. On the inclined axial bore I mount ribs 30, 30, which terminate at the point 28 and there merge into the unribbed or plain cylindrical bore 29.

50 That the screw does not jam is due to the fact that the point of maximum expansion is extended over a relatively large surface of the anchor, so that the end 22 of the screw 12 can be brought anywhere along that portion 23, 23 of the ribs 11, 11, which run parallel to each other, or past the end of the anchor as may be found necessary to bring
55 the head 21 flush against the work and at the same time obtain the requisite maximum expansion of the anchor. In the old form, where the maximum expansion is at the end

of the anchor, at points equivalent to the points 18, 18, the screw would often jam at this point before its head could be brought
65 flush with the work 19, whatever its thickness may be, requiring the removal of the anchor and the enlargement of the hole, or the use of a different size anchor.

My anchor may be formed of any exterior configuration. I have shown it provided with
70 longitudinal extending ribs 24, 24, on the collar extending slightly above the transverse ribs 25, 25.

Preferably the combined thickness of the wall of the anchor and the ribs is least at
75 the outer end of the anchor, said combined thickness increasing to a maximum at a point intermediate the ends of the anchor, and then continuing at a substantially uniform combined thickness to the other end of
80 the anchor.

In the different figures of the drawings, for purpose of illustration, I have somewhat exaggerated the preferred angle of the inclined portion of the axial bore.
85

Having thus described this invention in connection with an illustrative embodiment thereof, to the details of which I do not desire to be limited, what is claimed as new and what is desired to secure by Letters Patent
90 is set forth in the appended claims:

1. The combination of a hollow ductile anchor having a body portion which gradually increases in thickness from the outer end to a point intermediate its ends, and from that
95 intermediate point being of substantially uniform thickness to substantially the other end of the anchor, and a screw adapted to cut its own cooperating threads in the ductile anchor and to substantially expand the
100 part having uniform thickness.

2. An article of manufacture comprising a ductile anchor having an internal inclined bore reaching its minimum diameter between its ends and merging into a cylindrical
105 bore, and internal ribs of substantially the same depth or height located on the inclined and cylindrical bores.

3. An article of manufacture comprising a ductile anchor having a body portion of
110 varying thickness from one end to a point intermediate its ends and from that point being of uniform thickness to the other end of the anchor, said anchor being provided with an inclined and cylindrical axial bore
115 and internal ribs mounted in the inclined and cylindrical axial bore.

HENRY W. PLEISTER.

Witnesses:

MARY R. RYAN,

A. M. WILLIAMS.