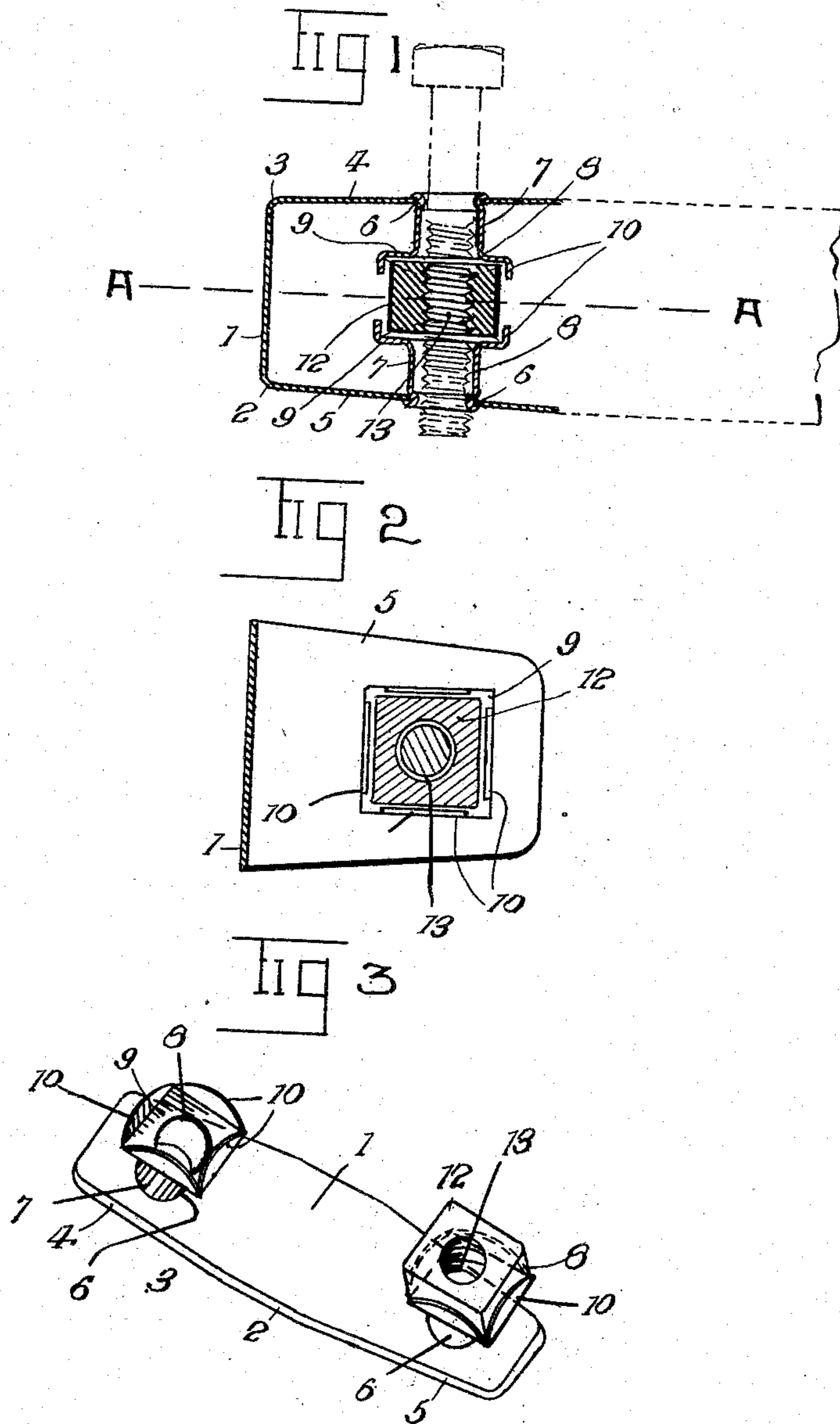


M. M. KING.
 MEANS FOR FORMING OPENINGS IN CASTINGS.
 APPLICATION FILED NOV. 8, 1907.

947,159.

Patented Jan. 18, 1910.



WITNESSES

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MEANS FOR FORMING OPENINGS IN CASTINGS.

947,159.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, MADISON M. KING, a citizen of the United States, residing at Albany, in the county of Albany and State of New York, have invented certain new and useful Improvements in Means for Forming Openings in Castings, of which the following is a specification.

This invention relates to improvements in means for providing threaded openings in castings, without the necessity of boring or tapping after the casting is taken from the mold.

When it is desired to provide a threaded opening in a casting, the present practice is to employ a drill and a tap. Frequently these openings are to be formed at points where it is exceedingly difficult to handle the tools, which makes the operation slow, and in many instances expensive.

One of the prime objects of this invention is to remedy certain defects and obviate difficulties incident to the formation of the threaded openings in castings, and according to my invention, I propose to employ a support of appropriate character, to hold and maintain in fixed position, a threaded nut, then fill the threaded opening and the tubular part of the support leading thereto with core composition, and place it in the mold. When the molten metal is poured in the mold it finds its way around the nut and its support and fuses thereto, practically forming a threaded opening in the casting when the metal cools.

The invention further comprehends improvements in the specific details of construction, and arrangement of parts, which will be hereinafter described and particularly pointed out in the claims.

In the drawing, Figure 1 is a transverse vertical section of a nut mounted in a suitable support, the casting being indicated in dotted lines. Fig. 2 is a section on the line A—A, Fig. 1. Fig. 3 is a perspective view of the blank forming the support previous to bending it as shown in Fig. 1, and showing a nut in position.

The numeral 1, indicates a support, preferably of thin metal, bent at the points 2, and 3, to provide two members 4, and 5. The two members 4, and 5, each have an opening 6, in which is mounted the tubular exten-

sion 7, of the nut retainers 8. The ends of the tubes may be beaded, or otherwise secured to the members 4, and 5. Each retainer comprises a base portion 9, having wings 10, which extend in the opposite direction to the tubular extension. Any number of wings may be employed, and are of such shape as will be found most convenient. Seated between the base portions of the retainers, and held in position by the wings, is a nut 12, provided with a threaded opening 13, in alinement with the tubular extensions, but preferably of less diameter, as clearly indicated in Fig. 1.

In making tapped holes in large castings, it is commercially essential that the latter be handled as little as possible, particularly when the hole is to be in a place where an artisan cannot conveniently reach the point with his tools. According to my present invention I successfully overcome this objection by inserting in the mold a supported threaded nut, such as described.

In use, the support carrying the nut is placed in the mold at the determinate point, and the opening formed by the tubular extensions and the nut, is packed with core composition to prevent the molten metal from running in and filling it. Of course it will be understood that the pattern will be recessed to receive the support, so that when the former is drawn from the sand the support will remain in the mold. The support having been properly positioned, the molten metal is poured in, and surrounds the support, and the nut, and fuses, forming practically a unit with the resultant casting. It will be noted that the entire outside of the nut is not inclosed by the wings, as it is desirable, in fact practically essential to run the molten metal in touch with the nut, to fuse with it to rigidly retain the nut in the predetermined fixed position. After the casting cools, it is removed from the mold, and the sand is also removed from the opening therein formed by the nut and support, leaving a clean and well defined internally threaded opening in the casing.

My invention is extremely simple; is durable and inexpensive. By employing the nut and support in the manner specified, the cost of a finished casting will be materially reduced, and considerable time will

be saved in producing it. At present where a threaded opening is to be formed at a point where the mechanic finds it difficult to handle his tools, there is liability of the thread not being properly located. But by my invention, this and many other commercial annoyances are overcome.

It will of course be obvious, many changes may be made in the form and size, of the support, and without departing from the spirit and scope of my invention. For instance the particular details of the manner of holding the nut may be altered so as to produce a threaded opening throughout the length of the opening.

Having now described my invention, what I claim is—

1. As a new article of manufacture, a support formed with a tubular portion, an element carried by the support and having a threaded opening in alinement with the tubular portion, and means for holding the support and the threaded element together.

2. In combination, a casting, a support carrying an element formed with a threaded opening, the support being of such thickness and rigidity that the heated metal forming the casting when placed around it will not change the shape or distort the opening, the support and the threaded element being in alinement and formed of metal which will fuse to the casting.

3. As a new article of manufacture, a threaded element formed of one thickness of metal, and a detached tubular element formed of thinner metal than the threaded element and in alinement with the threaded portion of the threaded element.

4. As an article of manufacture, a support having a tubular extension and adapted to be fused with the metal forming a casting, and an internally threaded element carried by the support and located inwardly from the outside planes of the support whereby a bore is formed each side the threaded element and also adapted to be fused with the metal forming the casting.

5. As an article of manufacture, a support provided with wings and tubular alined extensions, an element formed with a threaded opening, said element being embraced by the wings and the threaded opening being in alinement with the tubular extensions.

6. As an improved article of manufacture, a support having a tubular portion and wings embracing an internally threaded element, the threaded portion of the element being in alinement with the tubular portion.

7. An improved article of manufacture adapted to be fused with the metal forming a casting and having an opening, a portion of said opening being reduced and threaded, the reduced portion being within and at a distance from the surface of the article.

8. An improved article of manufacture

adapted to be fused with the metal forming a casting and having an opening, a portion of said opening being reduced and threaded, the threaded portion being in alinement with the remaining portion of the opening.

9. An improved article of manufacture, a support bent to provide two extended members having alined openings and wings, and an element supported by the wings, said element having an internally threaded opening in alinement with the openings in the members.

10. An improved article of manufacture, comprising a support having a tubular portion formed with oppositely disposed wings spaced from each other, and an internally threaded element supported by the wings, the threaded portion of the element being in alinement with the tubular portion of the support.

11. An improved article of manufacture, comprising a support bent to provide extended members formed with alined openings, a tube mounted in each said opening, each tube having a base portion of larger area than the tube and provided with wings, and an internally threaded element supported by the wings.

12. An improved article of manufacture, comprising a support bent to provide extended members formed with alined openings, a tube mounted in each said opening, each tube having a base portion of larger area than the tube and provided with wings, and an internally threaded element supported by the wings, the threaded portion of the element being of less diameter than the tubes.

13. An improved article of manufacture, comprising a support bent to provide extended members, tubular members extending toward each other from the support members, an internally threaded element carried by the tubular members, the members being of such proportion as to extend on all sides beyond the edges of the tubular members and the threaded element.

14. A device to be incorporated in a casting, comprising a threaded element, tubular extensions on each side the threaded element, the bore of the extensions being smaller than the bore of the threaded element, and means for holding the tubular elements to the threaded element.

15. A device to be incorporated in a casting, comprising a clip having tubular portions, a separate metal nut between the tubular portions and means for retaining the nut in position in the clip substantially in line with the tubular portions.

16. A device to be incorporated in a casting, comprising a clip having permanently connected tubular portions, a nut between the tubular portions and means for retaining the nut in position with its bore sub-

stantially in line with the axis of the tubular portions.

17. A device to be incorporated in a casting, comprising a clip having permanently
5 connected tubular portions, a nut between the tubular portions, the bore of the nut being considerably smaller than the inner diameter of the tube, and means for retaining the nut in position with its bore substan-

tially in line with the axis of the tubular 10 portions.

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

MADISON M. KING.

Witnesses:

R. WALLACE McKEE,
MORGAN SPEER.