

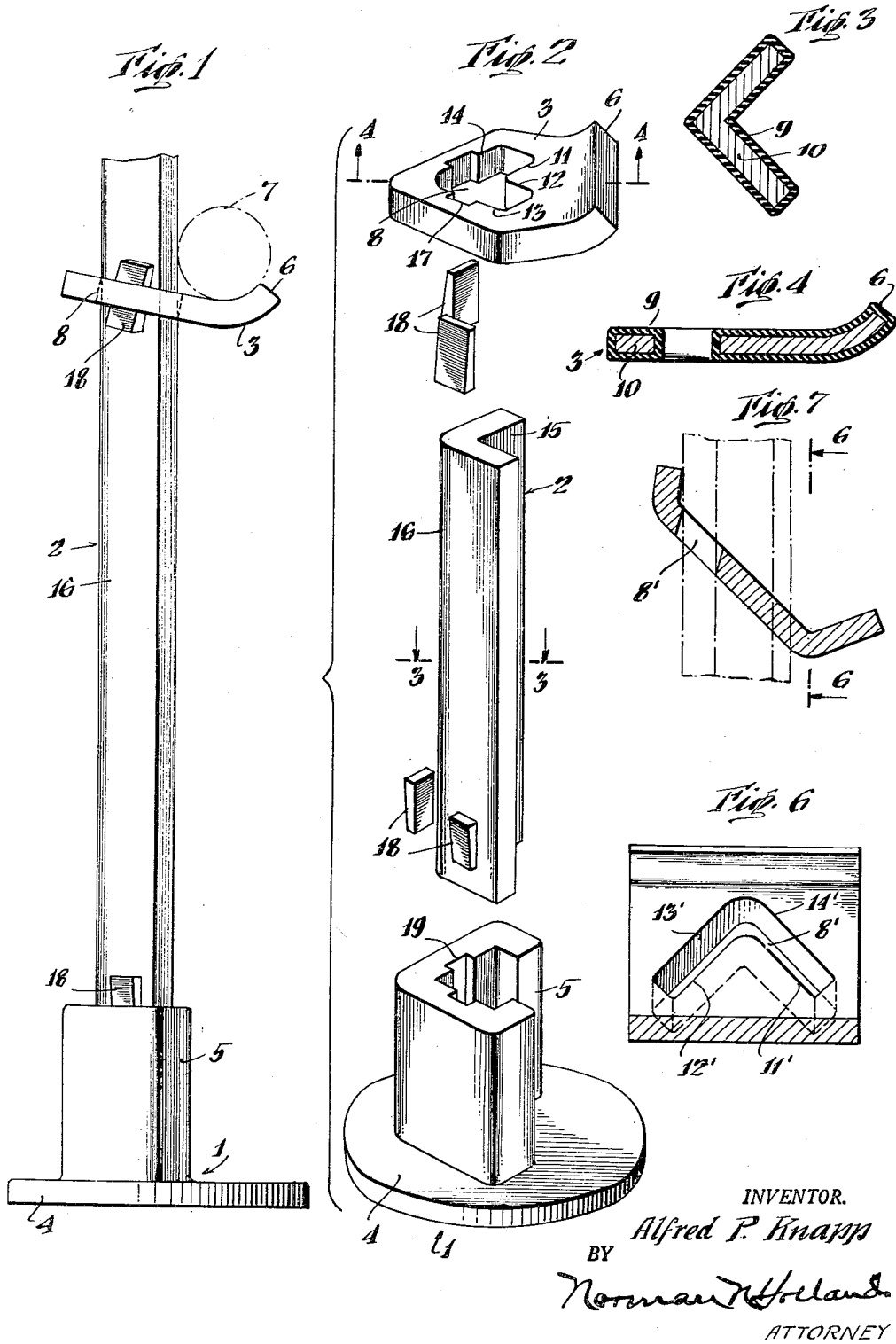
Oct. 2, 1956

A. P. KNAPP
SUPPORT MEANS

2,765,136

Filed May 3, 1951

2 Sheets-Sheet 1



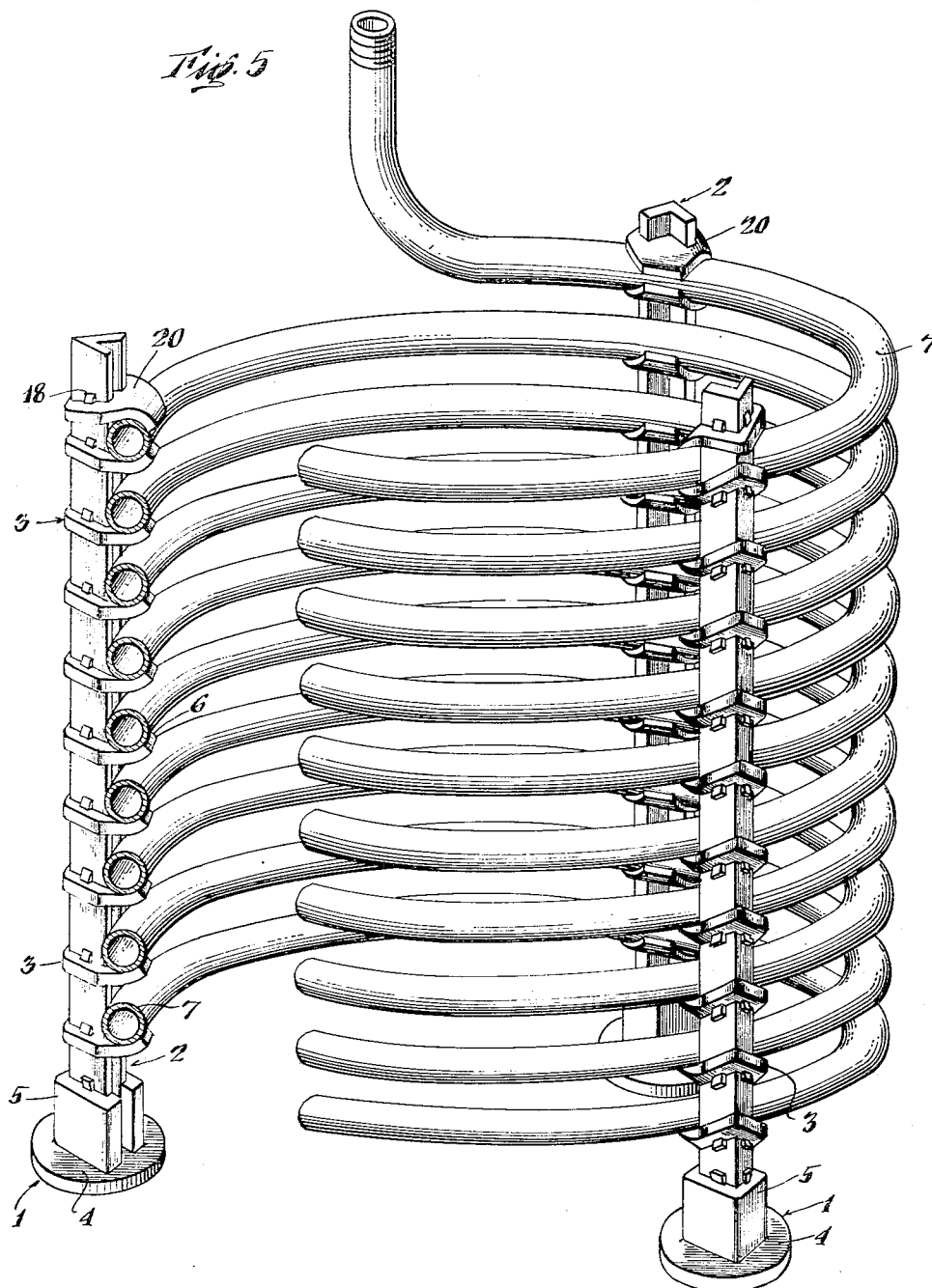
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SUPPORT MEANS

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1 Claim. (Cl. 248—49)

The present invention relates generally to a support means of a type wherein a generally upright post has mounted thereon one or more gripping members adapted to be moved upwardly or downwardly on said post and to support an object placed on said member. The weight of the object causes the edges of the gripping member to grip or dig into the post and remain vertically affixed thereto. The invention is particularly directed to an improved construction of post and gripping member whereby the grip between the two is enhanced.

When one or more articles are to be supported in a vertically spaced arrangement, it is particularly desirable that the supporting means be adapted for use interchangeably with articles of various dimensions. In mounting pipe coils, for example, it would be a distinct advantage to have a supporting means with a plurality of members movably mountable thereon, each of said members adapted to be secured beneath and support a convolution of the pipe coil. Difficulty has been experienced, however, in providing a satisfactory supporting means of this type. In a conventional construction of post and gripping member, the gripping member tends to slide down along the post member, its biting edge area frequently being insufficient to maintain the member in a fixed position on the post. This is particularly true when the weight which has been placed on the gripping member is not substantial. Further, previous post members tend quickly to become badly scarred and chewed up by the biting action of the gripping members, limiting their useful life. Disadvantages such as this tend to make supporting means of the conventional type unreliable and impractical.

The present invention contemplates a greatly improved supporting means wherein the contacting edge area between the gripping member and the post is considerably increased so that the gripping member remains fixedly secured to the post when placed beneath an article to be supported. It does not tend to slip even when the article is light in weight. The improved supporting means is simple and inexpensive in construction and designed to give long durable service.

An object of the present invention is to provide an improved supporting means.

Another object of the present invention is to provide an improved supporting means wherein the gripping edge area of the device is substantially increased.

Another object of the present invention is to provide a device which is adapted to support in a vertically spaced arrangement articles of various dimensions.

A further object of the present invention is to provide a supporting means which will restrain articles mounted thereon from upwardly or downwardly movement.

Still another object of the present invention is to provide an inexpensive device which is rugged in construction, impervious to the deleterious effects of acids and caustics, and fully capable of withstanding the usage to which it may be subjected.

Other and further objects of the invention will be obvious upon an understanding of the illustrative embodi-

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ment about to be described, or will be indicated in the appended claim, and various advantages not referred to herein will occur to one skilled in the art upon employment of the invention in practice.

A preferred embodiment of the invention has been chosen for purposes of illustration and description and is shown in the accompanying drawings, forming a part of the specification, wherein:

Fig. 1 is an elevational view of a preferred embodiment of the invention;

Fig. 2 is an exploded perspective view showing the parts of the present invention;

Fig. 3 is a sectional view taken along the line 3—3 of Fig. 2;

Fig. 4 is a sectional view taken along the line 4—4 of Fig. 2;

Fig. 5 is a perspective view showing a pipe coil mounted on a plurality of supporting means;

Fig. 6 is a plan view of the modified form of the present invention partly in section, and

Fig. 7 is a sectional view showing the modified form mounted on a support.

Referring to the preferred embodiment shown in Figs. 1 through 5, the device comprises a base 1, a post 2 secured to the base and one or more gripping members 3 mounted on the post. The post 2 may be an elongated metal bar of substantially L-shaped cross section, having flange portions angularly disposed to one another, supported in an upright position by the base 1. In the preferred embodiment the base comprises a flat pedestal portion 4 and a socket portion 5 adapted to receive the bottom portion of the post. The base may, however, comprise merely a pedestal portion permanently secured to the post as by welding, or the base could be eliminated entirely, the post 2 resting on its bottom portion.

Slidably mounted on the post is a gripping member 3 having a lip portion 6 adapted to support an article shown in dotted outline. The portion 6 may be arcuate in shape, although it need not be. As shown in Fig. 2 the gripping member has a substantially L-shaped recess 8 extending therethrough, said recess being complementary to, but slightly larger than, the post 2, so that the gripping member may be moved up or down on the post. When weight is applied to the lip portion 6 of the gripping member, said member tilts from a generally horizontal position to the slanting position shown in Fig. 1 and the edges of the wall portions adjacent said recess 8 bite into and grip the outer surfaces of the post 2.

The gripping action between the members 3 and the post is greatly enhanced by the improved construction provided whereby the gripping edge area is substantially doubled. Referring to Figs. 2 and 3, when weight is placed on the lip portion 6 of the gripping member the bottom edges of the wall portions 11 and 12 of the recess and the top edges of the wall portions 13 and 14 of said recess come into face contact with both the inner and outer surfaces of the post flanges 15 and 16; in effect the post is being gripped by four biting edges of each member 3. Were the post and recess in the gripping member of square or round configuration the gripping member would contact the post only at two gripping edges, namely the bottom and topmost edges of the gripping member in its tilted position.

The post and gripping member 3 are preferably provided with a coating 9 (Figs. 3 and 4) of a soft metal over a core of a relatively hard metal 10. The hard core 10 which may be steel provides great structural strength and permits one or more heavy articles to be mounted on a single support means. The coating of relatively soft material on the post and gripping member enables the edges of the member to bite into and grip the post so as to become firmly secured thereto. A post of this

construction, however, does not tend to become easily scarred and chewed up and has a substantially long useful life.

If lead or a metal of similar properties is used for the soft metal coating 9, the supporting means may be exposed to or immersed in acidic or caustic agents without ill effects, the lead coating serving to protect the inner metal core from attack by the acids. Thus a lead coating serves a double purpose, not only of increasing the gripping action between the gripping member and the posts but also of making the support impervious to caustics. It is to be understood, however, that an improved supporting means of the present invention need not be made of metal, the construction shown herein being adapted equally well when used on a supporting means made of wood or other material.

Small apertures 17 may be provided in the wall portions 13 and 14 adjacent the recess 8. When the gripping member 3 is mounted on the post 2, wedges 18 consisting of tapered pieces of metal may be inserted into said apertures as a safeguard against the member 3 moving downwardly on the post. Similar apertures 19 may be provided in the socket portion of the base so as to lock the post to the socket portions. Here, however, the wedges are inserted into the tops of the recesses and are designed to prevent the post from being lifted out of the socket portion of the base 1.

Referring to Fig. 5, the improved supporting means is shown with a pipe coil mounted thereon. It will be seen that no matter what the coil dimensions the gripping members 3 may be slidably adjusted on the post 2 until a member is beneath each convolution of the coil. The weight of a pipe suspended on the lip 6 of a gripping member presses two of the lower and two of the upper edges adjacent the recess 8 against the outer surfaces of the post so that they bite into and bind against the soft metal surfaces. Wedges 18 may be inserted into the apertures 17 to lock the members 3 in place. Wedges 18 inserted in the apertures 19 of the socket portion of the base 1 secure the posts firmly to the socket portion and permit the post and the base to be raised together. An additional gripping member 20 may be mounted on top of the uppermost turn of the pipe coil to restrain it against upward movement. In this instance, however, the gripping member is inverted; its lip portion 6 curving downwardly over the top of the pipe to restrain it from rising. As a result of this feature, the coil and its supports may be lifted as a unit when the coil is to be submerged in a chemical solution or otherwise moved.

In Figs. 6 and 7 a modified form of gripping member is shown. Referring to the sectional view of Fig. 7 it will be seen that an L-shaped recess 8' is provided as in the preferred embodiment; the wall portions adjacent the clamp recess 8', however, are beveled and extend obliquely to the plane of the clamp support rather than at right angles. Here again there is an increased biting edge area provided, the bottom edges of the wall portions 11' and 12' and the top edges of the wall portions 13' and 14' coming into contact with the surfaces of the post flanges 15 and 16.

The present invention has a variety of uses other than those described heretofore. It can also be used for supporting a series of pipes vertically spaced one from the other, the supports being spaced at intervals along the length of the pipes. Likewise, support means of the present invention are admirably suited for use as jigs to hold series of pipes rigidly during manufacturing operations,

an example being during the assembly of the many tubes of a steam boiler to the boiler shell during its construction. Other uses will occur to those skilled in the art.

The present improved support provides a novel construction of the post and gripping member recess which increases the gripping edge area of the device. Although the present invention has been described only in conjunction with an L-shaped post it is to be understood that various other configurations wherein the contacting edge area is increased, such as a W or V shaped post, also come within the scope of the present invention. A structural core of iron or steel enables the support to be used with a plurality of heavy articles, while an outer covering of soft metal affects the necessary binding action. If the outer covering is of lead, the support means will be impervious to the effects of acids or caustics. The improved device is of a simple, durable construction which may be used repeatedly and with articles of various sizes and dimensions interchangeably.

As various changes may be made in the form, construction and arrangement of the parts herein without departing from the spirit and scope of the invention and without sacrificing any of its advantages, it is to be understood that all matter herein is to be interpreted as illustrative and not in a limiting sense.

I claim:

A support of the class described comprising a pair of members, one member being a generally upright post member comprised of a pair of right-angularly related flange portions providing convex and concave faces, the other member being a gripping member having an aperture therein comprised of a pair of right-angularly disposed channels complementary to but slightly larger than the cross-sectional shape of said post member adapted to receive said post member to allow said gripping member to slide along said post member when perpendicular thereto, each of said channels having a front wall and a rear wall, said aperture having four biting edges including a biting edge on the top of the rear wall of each of said channels adapted to bite into and grip the convex face of said post member and a biting edge on the bottom of the front wall of each of said channels adapted to bite into and grip the concave face of said post member, and a load-bearing lip portion extending outwardly from the biting edge of said gripping member on the bottom wall of each channel of said aperture, whereby said gripping member is tilted from a horizontal position by a load placed on the lip portion and the biting edges grip the flange portions, and one of said pair of members being coated with a material softer than the other member to permit the edges of one member to bite into the edges of the other member.

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