

July 3, 1962

3,042,432

K. FEIGE  
DEVICE FOR FASTENING BOARDS TO TUBULAR  
SUPPORTS AND THE LIKE

4 Sheets-Sheet 1

Filed Oct. 6, 1958

FIG. 1

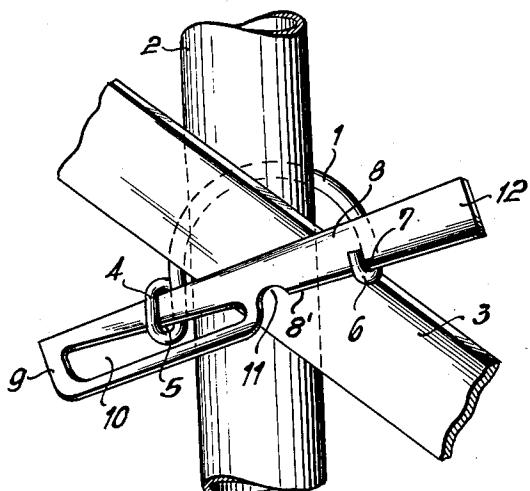
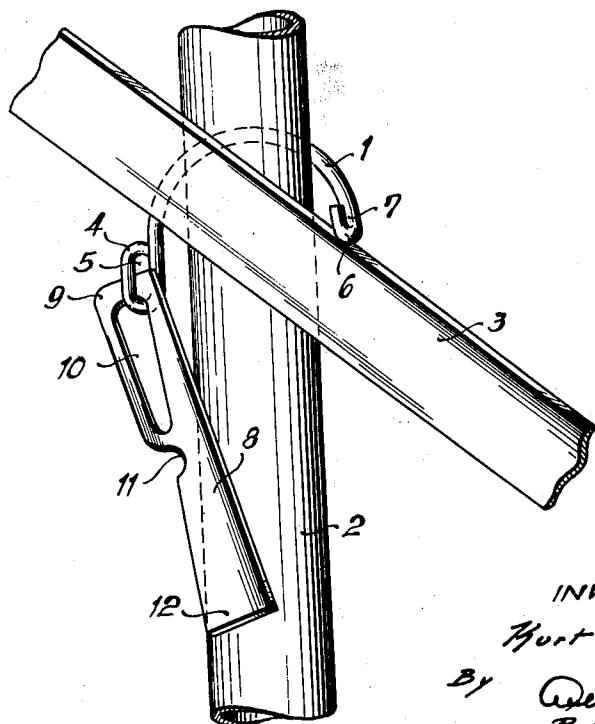


FIG. 2



INVENTOR  
Kurt Feige  
By *Walter Schleser*  
Patent Agent

July 3, 1962

K. FEIGE  
DEVICE FOR FASTENING BOARDS TO TUBULAR  
SUPPORTS AND THE LIKE

3,042,432

Filed Oct. 6, 1958

4 Sheets-Sheet 2

FIG. 3

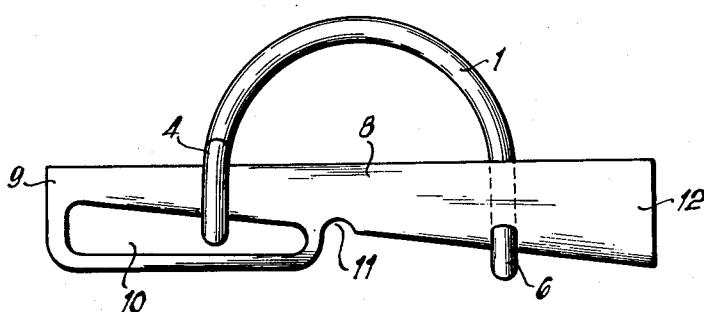
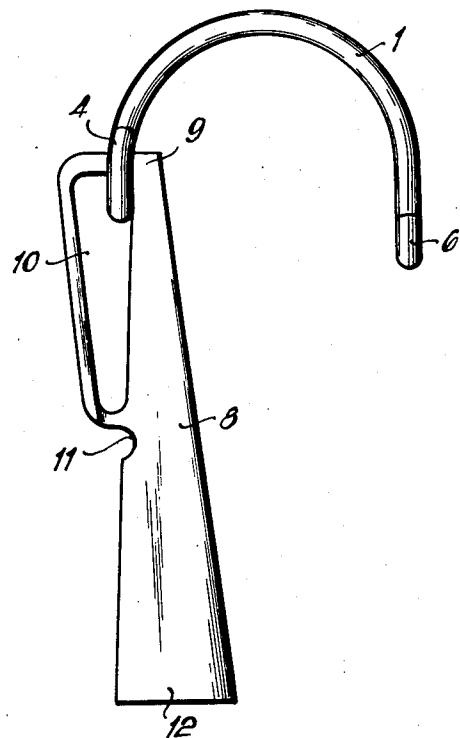


FIG. 4



INVENTOR

Kurt Feige

By *Walter J. Schlesinger*  
Patent Agent

July 3, 1962

K. FEIGE

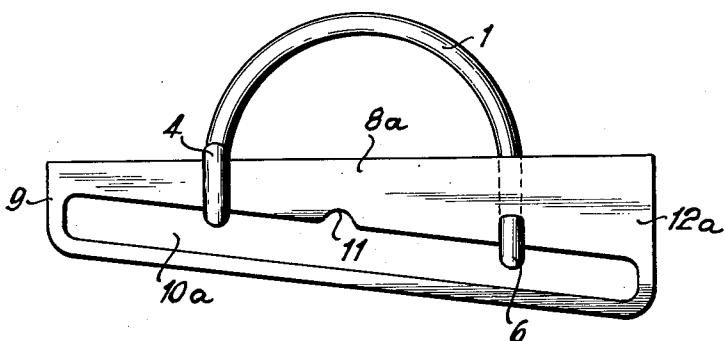
3,042,432

DEVICE FOR FASTENING BOARDS TO TUBULAR  
SUPPORTS AND THE LIKE

Filed Oct. 6, 1958

4 Sheets-Sheet 3

FIG. 5



INVENTOR

Hurt Feige

By *W. B. Feige*  
Patent Agent

July 3, 1962

K. FEIGE  
DEVICE FOR FASTENING BOARDS TO TUBULAR  
SUPPORTS AND THE LIKE

Filed Oct. 6, 1958

3,042,432

4 Sheets-Sheet 4

FIG. 6

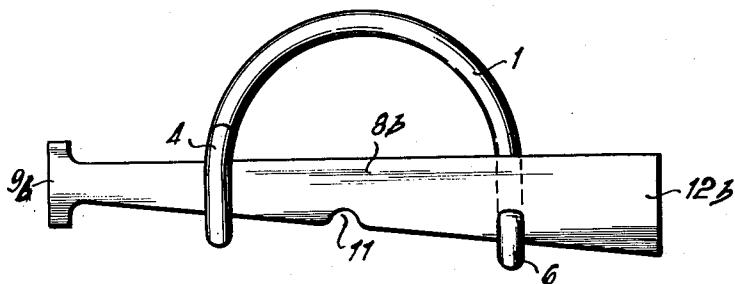


FIG. 7

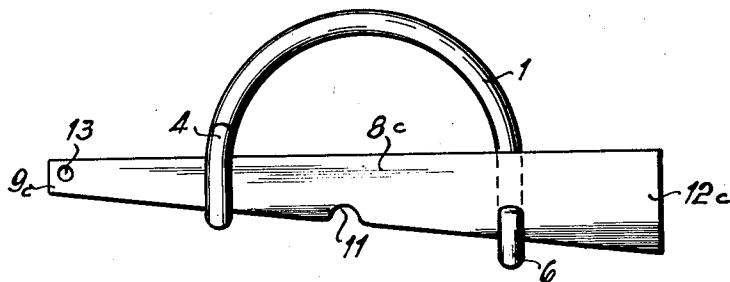
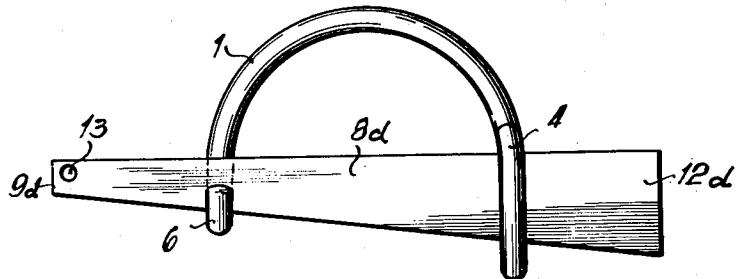


FIG. 8



INVENTOR

Kurt Feige.

By Detlef Buhler  
Patent Agent.

## 1

3,042,432

## DEVICE FOR FASTENING BOARDS TO TUBULAR SUPPORTS AND THE LIKE

Kurt Feige, Neuss am Rhine, Germany, assignor to Betonbau G.m.b.H., Neuss am Rhine, Germany

Filed Oct. 6, 1958, Ser. No. 766,372

Claims priority, application Germany Oct. 12, 1957

9 Claims. (Cl. 287—51)

The present invention relates to a device for connecting boards to tubular supports such as steel pipes and similar supports for purposes of diagonally bracing or strutting.

Heretofore known devices for this purpose consisted of flat iron or sheet metal pieces which were welded or clamped to the bottom of the outer pipe of the steel pipe support and/or to the top of the inner pipe. Such flat irons or flat bars or sheet metal pieces are provided with a plurality of bores through which are passed nails holding the boards intended as braces or struts.

Such an arrangement, however, has the drawback that without cutting back the board ends, it is in most instances not possible to fasten through all nail holes ordinary boards which are employed as braces or struts and extend at an angle with regard to the longitudinal axis of the support.

In order to overcome this drawback, it has been suggested to arrange the flat bars not perpendicular to the longitudinal axis of the support but at an angle thereto while connecting said bars to the top and bottom end of the support.

In order to be able to nail in two planes, it has also been known to fasten rectangularly bent fish plates at an angle with regard to the longitudinal axis of the support.

The last mentioned two arrangements have the drawback that ordinarily nails are not available at the building site which completely fill-in the bores for the nails, and even if available, the nailed connection between a perforated flat iron bar and a board is not suitable for conveying large forces. Moreover, the nailing itself causes considerable difficulties because the light steel pipe supports will vibrate considerably during the nailing operation so that a second workman is required to hold a heavy object against the steel pipe while the other workman carries out his nailing operation. Above all, it is to be mentioned that any nailing whatsoever brings about considerable drawbacks, not only because the nails can be used only once, but also because the nails considerably damage the wood and moreover have to be removed after the stripping of the mold. The employment of nails also always represents a danger which may lead to accidents.

It is, therefore, an object of the present invention to provide a device for connecting boards to post-like or tubular members or the like for purposes of diagonally bracing and strutting, which will overcome the above mentioned drawbacks.

It is also an object of this invention to provide a device of the type set forth in the preceding paragraph, which will make it possible to employ boards on steel pipe supports for bracing and strutting at any desired point of said supports without the necessity of employing nails.

It is still another object of this invention to provide a connecting device of the type involved which will have no loose parts that could easily be lost and which will not use any screws or similar parts which could easily be soiled or damaged.

It is still a further object of this invention to provide a connecting device for connecting boards or the like to tubular supports or similar members for bracing and

## 2

strutting which is extremely simple in construction and handling.

These and other objects and advantages of the invention will appear more clearly from the following specification in connection with the accompanying drawings, in which:

FIGURE 1 illustrates a device according to the present invention in locked condition while connecting a strut to a tubular support.

FIGURE 2 shows the connecting device according to the invention in opened condition to allow the removal of the strut from the tubular support.

FIGURE 3 represents a top view of the device itself in locked condition.

FIG. 4 shows a top view of the device of FIG. 3 in opened condition.

FIG. 5 shows a top view of a modified connecting device according to the invention which differs from that of FIG. 3 primarily in that the longitudinal slot extends substantially over the entire length of the device.

FIGS. 6 to 8 illustrate further modifications of a device according to the present invention, in which the longitudinal slot of FIGS. 3 and 5 has been omitted.

The connecting device according to the present invention is characterized primarily by an arched or U-shaped heavy wire-like member and a cooperating element having a wedge-shaped section and a longitudinal slot one edge of which tapers. The U-shaped member extends through said slot and is bent over the cooperating element so as to form a complete loop, whereas the other end of said U-shaped member is hook-shaped for engagement with the wedge-shaped section.

More specifically, with regard to FIG. 1, the device comprises an arched or U-shaped member 1 preferably of round steel and adapted partly to extend around the inner or outer tube of a steel pipe support 2 and the board 3 constituting the strut or brace. One end 4 of the connecting device according to the invention is bent back so as to form an eye 5, whereas the other end 6 of said arched member or yoke 1 is bent so as to form a hook 7.

The device according to the invention furthermore comprises a wedge-shaped member 8 preferably made of flat iron and equipped with a yoke 9 preferably integral with the wedge-shaped part 8 and defining with the latter an opening 10 extending in longitudinal direction of the wedge-shaped part 8. The wedge-shaped member 8 is slideable in eye 6 and thus is displaceably but non-detachably connected to yoke 1. The downwardly extending longitudinal edge 8' is provided with one or more notches 11 which will make it possible to lock and open the device even when pipes of larger diameter or boards of great thickness are employed. That side of notch 11 which is remote from slot 10 is preferably inclined only slightly with regard to the adjacent tapered edge of part 8 to make it easier for hook 6 to enter and leave notch 11.

When the device is to be closed, the wedge-shaped member 8 is moved toward the right with regard to FIG. 1 so that the bent back portion 4 substantially touches the end portion 9 of member 8. In this position, hook 6 enters the notch 11 so that there is a maximum space between the tubular member 2 and that surface portion of wedge-shaped member 8 which faces brace 3. The bent back portion or loop 4 and hook 6 form two bearings for the wedge-shaped member 8 which latter by means of hammer blows in the direction toward the end portion 9 may then be driven toward the left with regard to FIG. 1 thereby pulling pipe 2 and brace 3 toward each other and clamping both parts firmly against each other. In this way, it is assured

that the forces to be conveyed will be properly absorbed by these parts.

When the device has to be unlocked, the wedge-shaped member 8 is subjected to hammer blows from the left-hand side of FIG. 1 upon the end portion 9 so that due to the taper of member 8 the space between the wedge-shaped member 8 and part 1 will increase. When the end 9 engages or is adjacent loop 4, wedge-shaped member 8 can be lifted out of loop 6, thereby releasing board 3 so that the latter can be removed.

It will thus be seen from the above that the device according to the present invention constitutes a simple device for connecting boards or the like to tubular supports for the purpose of bracing and strutting which in its locked position firmly presses the brace or strut against the tubular support to such an extent that a sliding or accidental displacement is impossible, while an unlocking is easily effected, and a damaging of the brace during the closing or opening operation and while it is in its effective position is impossible.

Referring now to FIG. 5, the arrangement shown therein corresponds substantially to that of FIG. 3 with the exception that the longitudinal slot 10 of FIG. 3 has been extended substantially over the entire length of the wedge-shaped member which in FIG. 5 is designated with the reference numeral 8a while the slot extending over the length of the wedge-shaped member 8a has been designated with the numeral 10a. All other parts corresponding to those of FIG. 3 have been designated with the same numerals as in FIG. 3. It will be appreciated that in order to unhook the hook-shaped end 6 from slot 10a, it is merely necessary to tilt yoke 1 about the wedge-shaped member 8a whereupon it will be possible to remove the end 6 from slot 10a. Yoke 1 can then be placed around a post or tubular member in the manner described in connection with FIGS. 1 to 4.

According to the arrangements shown in FIGS. 6, 7 and 8, the wedge-shaped member, respectively designated as 8b, 8c and 8d, has no longitudinal slot at all. Yoke 1 and, more specifically, eye 4 and hook 6 engage the respective wedge-shaped member in the same manner as disclosed in and described in connection with FIGS. 1 to 4. In order to prevent the detachment of yoke 1 from the wedge-shaped member 8b, according to FIG. 6, the narrower end of wedge-shaped member 8b is provided with a hammer head 9 which has such an extension that once the eye 4 has been bent around the wedge-shaped member 8b, it will be normally non-detachably secured thereto.

The arrangement of FIGS. 7 and 8 differs from that of FIG. 6 merely in that the hammer head shaped portion 9 of FIG. 6 has been eliminated and instead the narrower ends 9c and 9d respectively have been provided with a transverse pin 13 which, of course, may also be replaced by any other convenient transverse abutment. This pin is, of course, so long that the loop or eye 4 cannot slip thereover so that yoke 1 is normally non-detachably connected to the wedge-shaped member 8c and 8d respectively.

The arrangement of FIG. 8 differs furthermore from the arrangement of FIGS. 1 to 7 in that the yoke 1 is reversed with regard to the wedge-shaped member 8d. In other words, the eye 4 is closer to the wider end 12d of wedge-shaped member 8d than is the hook-shaped end 6 of yoke 1. Furthermore, pin 13 of the arrangement of FIG. 8 is in contrast to pin 13 of the arrangement of FIG. 7 arranged near the upper edge of member 8d so that when knocking back member 8d (toward the right with regard to FIG. 8), pin 13 can slide over the upper edge of hook 6 thereby releasing the opening between yoke 1 and wedge-shaped member 8d only after wedge-shaped member 8d has been knocked back to such an extent that pin 13 has reached the eye 4 of yoke 1. In this way, the opening of the device is not effected by a hinge-like tilting of the wedge-shaped member 8d relative

to yoke 1 but by a complete knocking back of the wedge-shaped member 8d. In view of the different detachment of hook 6 from the wedge-shaped member 8d, the notch 11 present in the arrangement of FIGS. 1 to 7, is superfluous with the arrangement of FIG. 8. The length of pin 13 in the arrangement of FIG. 8 is, of course, also such that eye 4 cannot slide over pin 13 so that also in this instance yoke 1 is normally non-detachably secured to wedge-shaped member 8d.

It is, of course, to be understood that the present invention is, by no means, limited to the particular construction shown in the drawing but also comprises any modifications within the scope of the appended claims.

What I claim is:

1. A device for detachably connecting a board to a post, which comprises in combination: a wedge-shaped member and an arched substantially U-shaped yoke member non-detachably connected to said wedge-shaped member, one end of said substantially U-shaped member forming a hook defining a first passage and bearing for said wedge-shaped member, the other end of said wedge-shaped member forming an eye and defining a second passage and bearing for said yoke member in spaced relationship to said first passage and bearing, said wedge-shaped member being displaceable within said passages whereby said device is adapted selectively fully to embrace and secure to each other a post and a board to be connected thereto and both embraced by said wedge-shaped member and said yoke member or to allow disengagement of said device from said board and said post.

2. A device for detachably connecting a board to a post, which comprises in combination: a U-shaped yoke member having one end provided with a hook and having its other end provided with an eye, and a locking member having a first tapered section slidably but non-detachably extending through said eye and also having a second tapered section slidably engageable by said hook and detachable therefrom in a certain position of said eye relative to said first tapered section.

3. A device for detachably connecting a board to a tubular member, which comprises in combination: an arched U-shaped yoke member having one end provided with a hook and having its other end provided with an eye, a longitudinal latch member having a first tapered section slidably extending through said eye and also having a second tapered section for selective engagement with and disengagement from said hook, and an additional U-shaped yoke member having one of its legs connected to said latch member intermediate said two tapered sections and having its other leg connected to the narrower end of said first tapered section thereby non-detachably connecting said first mentioned U-shaped member to said latch member.

4. A device for detachably connecting a board to a tubular member, which comprises in combination: an arched U-shaped wire member having one end forming a hook and having its other end forming an eye, a longitudinal latch member having a first tapered section slidably extending through said eye and also having a second tapered section for selective engagement with and disengagement from said hook, and an additional U-shaped yoke member having one of its legs connected to the narrower end of said first tapered section and having its other leg connected to said latch member at a point intermediate the ends thereof, said latch member having that edge portion thereof which is engaged by said hook provided at least one notch adjacent said last mentioned leg for selectively receiving said hook prior to locking said first mentioned U-shaped yoke member to said latch member or to bring about unlocking of said first mentioned U-shaped yoke member from said latch member.

5. A device for detachably connecting a board to a post, which comprises in combination: a U-shaped yoke member having one end provided with a hook and hav-

ing its other end provided with an eye, and a latch member having a slot extending over the major portion of said latch member and having a tapering edge for engagement with said hook and said eye, said eye being permanently engaged by said latch member, and said hook being detachable from said latch member in a certain position of said eye relative to said latch member.

6. A device for detachably connecting a board to a post, which comprises in combination: a wedge-shaped member having a wider end and a narrower end, and a U-shaped yoke member having one of its ends forming an eye and having its other end forming a hook, said wedge-shaped member extending through said eye and having its wider end of a width exceeding the maximum inner dimension of said eye thereby preventing said eye from slipping off said wedge-shaped member over said wider end, and means arranged at the narrower end of said wedge-shaped member and extending in a direction transverse to the longitudinal direction of said wedge-shaped member over a total length exceeding the maximum inner dimension of said eye thereby preventing said eye from slipping off said wedge-shaped member over the narrower end thereof.

7. An arrangement according to claim 6, in which the narrower end of said wedge-shaped member is provided with a hammer head shaped abutment.

8. An arrangement according to claim 6, in which the means at the narrower end of said wedge-shaped member consists of a pin.

9. A device for detachably connecting a board to a post, which comprises in combination: a U-shaped yoke

member having one end thereof forming an eye of substantially oval contour and having its other end hook-shaped, a flat wedge-shaped member extending through said eye and having a wider end of a cross section greater than the opening of said eye and having a narrower end of a cross section less than the cross section of said eye, and means connected to the narrower end of said wedge-shaped member and extending in a direction transverse to the longitudinal direction of said wedge-shaped member over a total length exceeding the maximum dimension of said eye opening thereby preventing said eye from slipping off from said wedge-shaped member over said narrower end, said hook-shaped end of said yoke member being adapted selectively partly to embrace said wedge-shaped member between said annular end and said eye and also being adapted to slip around said means at the narrower end of said wedge-shaped member for slipping off from said wedge-shaped member.

References Cited in the file of this patent

UNITED STATES PATENTS

621,491	Feeny	-----	Mar. 21, 1899
667,530	Johnson	-----	Feb. 5, 1901
926,087	Reuter	-----	June 22, 1909
1,727,038	Rousey	-----	Sept. 3, 1929
2,052,012	Beghetti	-----	Aug. 25, 1936

FOREIGN PATENTS

741,634	Great Britain	-----	Dec. 7, 1955
1,101,910	France	-----	Apr. 27, 1955