

C. W. ABERNETHY.
BRIDGE CLAMP.
APPLICATION FILED JUNE 27, 1912.

1,043,497.

Patented Nov. 5, 1912.

Fig. 1.

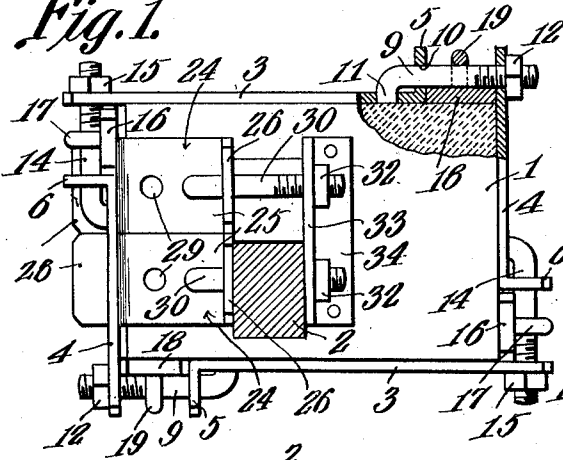


Fig. 2.

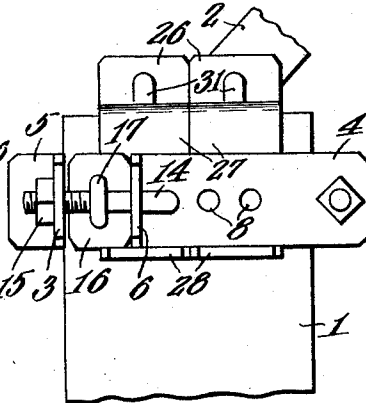


Fig. 3.

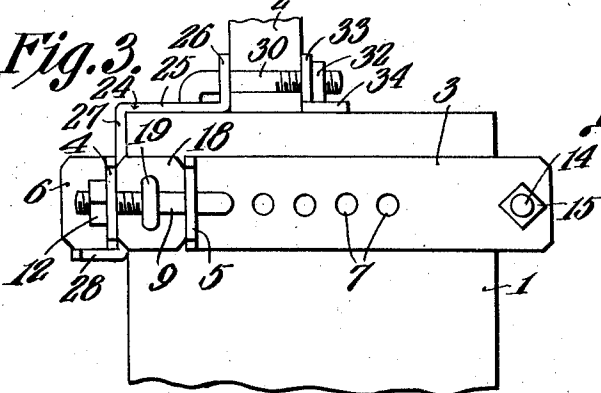


Fig. 8.

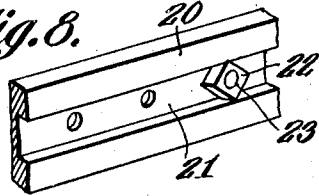


Fig. 4.

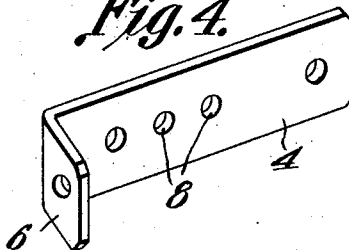


Fig. 5.

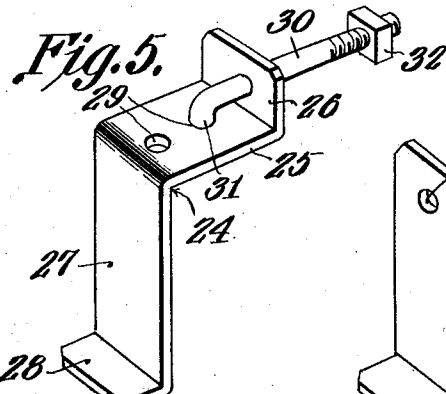
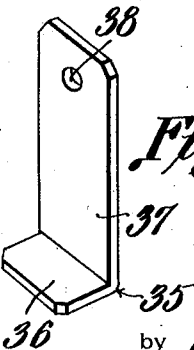


Fig. 6.



Fig. 7.



Witnesses

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COLEMAN WALLACE ABERNETHY, OF PIONEER MILLS, NORTH CAROLINA.

BRIDGE-CLAMP.

1,043,497.

Specification of Letters Patent.

Patented Nov. 5, 1912.

Application filed June 27, 1912. Serial No. 706,155.

To all whom it may concern:

Be it known that I, COLEMAN W. ABERNETHY, a citizen of the United States, residing at Pioneer Mills, in the county of Cabarrus and State of North Carolina, have invented a new and useful Bridge-Clamp, of which the following is a specification.

The device forming the subject-matter of this application is adapted to be employed for connecting the extremities of a bridge with the supporting piers or pillars, to the end that in time of flood, the bridge may not be washed away.

The object of the present invention is to provide novel means for connecting a bridge adjustably with a pillar engaging clamp, so that expansion and contraction in the bridge may not be interfered with, the bridge, however, being securely assembled with the clamp and with the pillar, so that the bridge can not be washed away.

With the foregoing and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

In the drawings,—Figure 1 shows the invention in top plan, parts being broken away; Fig. 2 is a side elevation; Fig. 3 is a side elevation, the view point in Fig. 3 being 90° remote from the view point in Fig. 2; Fig. 4 is a detail perspective of one of the clamp bars which cooperate to grip the pillar and to hold the bridge thereon; Fig. 5 is a perspective of one of the members which are slidably connected with the clamping frame, to permit the bridge to expand and to contract; Fig. 6 is a perspective of one of the spacing plates which are interposed between the connecting bolts of the clamping frame and the pillar; Fig. 7 is a perspective of a member which may be employed in the room of the structure shown in Fig. 4; and Fig. 8 is a detail perspective illustrating a slight modification in the clamp bars.

In the accompanying drawings, the numeral 1 indicates the pillar or sub-structure upon which the bridge is supported, and the numeral 2 indicates the shoe which ordinarily receives one of the diagonal struts and rests upon the pillar 1.

The pillar 1 is gripped circumferentially by an adjustable frame, which frame comprises primary clamp bars 3, parallel to each other, and angularly disposed secondary clamp bars 4 which are also parallel to each other. Each of the primary clamp bars 3 terminates in a rectangularly disposed head or flange 5, and each of the secondary clamp bars 4 terminates in a similar head or flange 6. In the primary clamp bars 3 there are a plurality of openings 7, there being similar openings 8 in the secondary clamp bars 4.

Securing members, preferably taking the form of bolts 9 are engaged with the primary clamp bars 3, the bolts 9 passing through openings 10 in the heads 5 of the primary clamp bars. The bolts 9 are provided with angular extensions 11 which may be engaged, for the purpose of adjustment, in any of the openings 7. The free, threaded ends of the bolts 9 pass through the extremities of the secondary clamp bars 4, and nuts 12, applied to the threaded ends of the bolts 9, bear against the outer faces of the bars 4. Similarly formed bolts 14 engage with the openings 8 of the secondary clamp bars 4 and pass through the heads 6 of the secondary clamp bars, the bolts 14 passing through the ends of the primary clamp bars 3. Nuts 15 are applied to the threaded ends of the bolts 14, the nuts 15 bearing against the outer faces of the primary clamp bars 3.

Spacing plates 16 are placed between the heads 6 of the bars 4 and the ends of the bars 3. The bolts 14 rest against the plates 16 and are surrounded closely by eyes 17 which project from the plates 16. Other spacing plates 18 are mounted between the heads 5 of the bars 3 and the ends of the bars 4, the plates 18 being provided with eyes 19 which surround the bolts 9 closely.

When the parts above described are mounted in place around the pillar 1, the spacing plates 16 are not in abutment with the heads 6 and with the ends of the primary clamp bars 3. Consequently, when the nuts 15 are rotated, the bolts 14 will draw upon the plates 4, the plates 4 engaging the bolts 9. The plates 3 will, therefore, be drawn toward each other, so as to clamp the pillar 1 closely.

The spacing plates 18, upon the other hand, bear against the heads 5 and against the ends of the bars 4, and when the nuts 12 are rotated, the bars 4 will not grip the pillar 1, one of the bars 4, shown at the left

hand end of Fig. 1, being maintained spaced from the pillar 1, for a purpose which will be set forth hereinafter. It is to be observed that the bolts 14 are supported by the plates 16, and consequently, when the nuts 12 are tightened, the angular ends of the bolts 14 will not be pulled out of the openings 8 in the bars 4. A similar observation holds true with respect to the plates 18 and the bolts 9. However, it is within the scope of the invention, as shown in Fig. 8 to fashion the members 3 and 4, as indicated at 20, there being in the inner face of each member 20, a longitudinal groove 21, adapted to receive nuts 22 which are threaded upon the angular ends 23 of the bolts, the grooves 21 permitting the inner faces of each frame-forming member to fit up closely against the pillar 1.

The invention further includes a clamping member, denoted generally by the numeral 24 and shown in Fig. 5. In practice, two of the clamping members 24 are ordinarily provided. Each clamping member 24 includes an arm 25 provided with an upright flange 26, and an arm 27 provided with a horizontal flange 28. The arms 25 lie along the top of the pillar 1 and the arms 27 extend along one side of the pillar, the flanges 28 being engaged beneath one of the bars 4. Since, as hereinbefore set forth, one of the bars 4 is spaced apart from the pillar 1, the clamps 24 may slide upon the pillar 1, to permit the bridge to expand and to contract. However, since the flanges 28 are engaged beneath one of the members 4, the bridge cannot be washed away, as will be appreciated readily when the manner of connecting the bridge with the members 24 is more clearly understood.

In the arm 25 of each clamping member a plurality of openings 29 are formed, in any of which openings 29 may be engaged the angular end 31 of a bolt 30 which passes through the flange 26. Nuts 32 are mounted upon the threaded ends of the bolts 30, the nuts 32 bearing against the outer faces of auxiliary clamp plates 33 through which the bolts 30 pass. The shoe 2 is bound between the flanges 26 and the auxiliary clamp plate 33, by the action of the nuts 32.

It will be seen from the foregoing that, although an expansion in the bridge is provided for, due to the slidable mounting of the clamps 24, the bridge cannot be washed down stream, because the flanges 28 are hooked beneath one of the members 4. As a further means for holding the bridge in place, a stop plate 34 may be secured to the upper face of the pillar 1, the stop plate being adapted to bear against the downstream side of the shoe 2, as is most clearly shown in Fig. 3.

At times it is desirable to dispose the bridge shoe 2 close to the up-stream face of

the pillar 1, and under such circumstances, the laterally projecting arm 25 of the member 24 is undesirable. To meet this demand, the member 35, shown in Fig. 7, may be employed, the member 35 having at its lower end a flange 36 adapted to hook beneath one of the bars 4, the member 35 including an upright arm 37 adapted to lie along the upstream, side face of the pillar 1, there being an opening 38 in the arm 37, through which opening the bolt 30 may be passed. At this point it may be stated that it is within the scope of the invention to fashion the arm 25 as shown in Fig. 8, so as to permit a nut to be threaded upon the end 31 of the bolt 30.

Generally considered, the device herein disclosed affords a convenient and inexpensive means for connecting a bridge with a supporting structure, in such a manner that the bridge cannot be washed away, in time of freshet, the expansion and contraction of the bridge being in no wise interfered with.

It will be seen, referring particularly to Fig. 1, that the frame which includes the members 3 and 4 serves to surround the pillar or pier and to prevent the same from splitting at its top.

Having thus described the invention, what is claimed is:—

1. Mechanism for anchoring a bridge, comprising an expansible frame adapted to be clamped about a sub-structure; a slidably mounted member having an angular extension engaged beneath a portion of the frame; and means for connecting said member with a portion of a bridge.

2. Mechanism for anchoring a bridge, comprising an expansible frame adapted to be clamped about a sub-structure; a slidably mounted member having a projection engaged beneath a portion of the frame; an auxiliary clamp; and means for connecting the clamp with said member to engage between them, a portion of a bridge.

3. Mechanism for anchoring a bridge, comprising a frame including angularly disposed members; a securing element connecting the members; a spacing plate interposed between the ends of the members and having an eye surrounding the securing element; and bridge-engaging means slidable upon one of said members and having an element engaging said member against withdrawal.

4. Mechanism for anchoring a bridge, comprising a frame including angularly disposed members; one of which is provided with a projecting head; a securing element engaged with the head and with the end of an adjoining member; a spacing plate interposed between the head and the end of the adjoining member, the spacing plate having an eye surrounding the securing element;

and bridge-engaging means slidably connected with one of said members.

- 5 5. Mechanism for anchoring a bridge, comprising a frame including angularly disposed members, one of which is provided with an outstanding head; a bolt extended through the head and through the end of an adjoining member, the bolt having a hooked portion engaged in an opening in the head-
10 carrying member; a spacing plate interposed between the head and the end of the adjoining member, the plate having an eye surrounding the bolt; and bridge-engaging means slidably connected with one member.
15 6. Mechanism for anchoring a bridge, comprising a frame including angularly disposed members; securing elements connecting the members; plates interposed be-

tween said members and having eyes engaging the securing elements, certain of the 20 members having movement independently of the plates to permit the said members to grip a sub-structure, others of the members being engageable by the plates to space one of said other members from the sub-struc- 25 ture; and bridge-holding means slidably engaged with that member which is spaced from the sub-structure.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses. 30

COLEMAN WALLACE ABERNETHY.

Witnesses:

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J. B. McALLISTER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."