

C. A. FORSSELL.
 LOCKING PLATE FOR BOLT CONNECTIONS.
 APPLICATION FILED APR. 11, 1918.

1,289,147.

Patented Dec. 31, 1918.

Fig. 1.

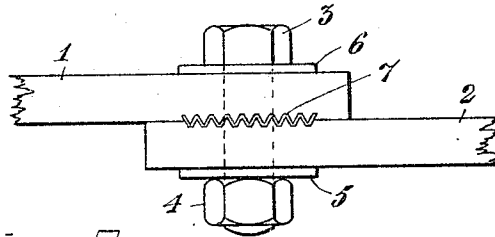


Fig. 2.

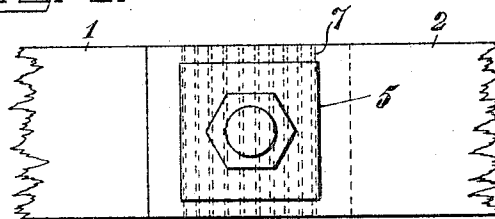


Fig. 3.

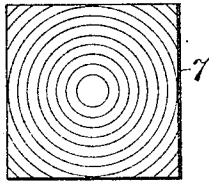


Fig. 4.

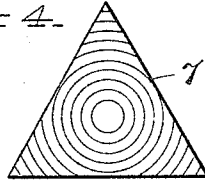


Fig. 5.

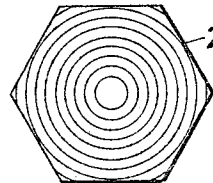
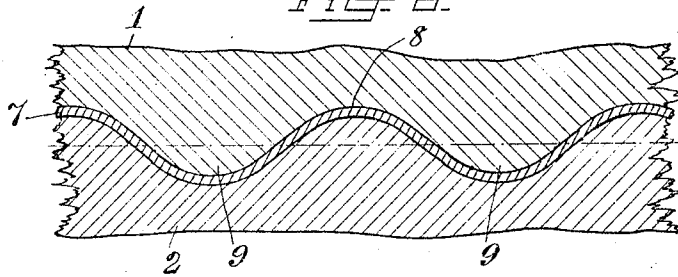


Fig. 6.



Inventor:

C. A. Forssell

by

H. R. Kerslake
 Attorney

UNITED STATES PATENT OFFICE.

CARL ABRAHAM FORSELL, OF STOCKHOLM, SWEDEN.

LOCKING-PLATE FOR BOLT CONNECTIONS.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CARL ABRAHAM FORSELL, professor, subject of the King of Sweden, residing at 29 Humlegårdsgatan, Stockholm, Sweden, have invented certain new and useful Improvements in Locking-Plates for Bolt Connections, of which the following is a specification.

My invention relates to certain improvements in locking plates for bolt-connections, wherein the plates are intended to be interposed between the wood beams around the bolt, in order to lock the beams together and to prevent slipping between them.

It has prior to my invention been proposed to interpose for said purpose between the beams plates of cast-iron, provided with projecting parts on both sides of the plate. Said projections lie, however, in some cases, just opposite to each other, whereby the plate when the beams are pressed together will damage the wood and thus weakens the connection. Besides, the manufacturing costs of said plate are very high. In other cases the projections have been displaced or set in relation to each other, whereby, however, the form of the projections has been such a one, that likewise the wood has been damaged in pressing the beams together, especially for the reason that the very thickness of the plate must be pressed into the wood.

My invention has for its object to remove said inconveniences and to produce a locking plate, being cheaper and at the same time stronger than the plates mentioned above. Besides, my improved locking plate does not in the least destroy the wood of the locked beams.

These objects are attained by providing the locking plate with projections or ribs, whereby the projections or ribs are of such a form and are set or displaced against each other at both sides of the plate that an undulating section is obtained. Said projections or ribs are hereby preferably formed by pressing out an iron plate or such like.

My invention will be further explained in reference to the annexed drawing, illustrating some embodiments of my improved locking plate.

Figure 1 is a side elevation of the plate, combined with a bolt-connection, Fig. 2 is a plan view of the same, while Figs. 3, 4 and 5

show some other embodiments of the plate. Fig. 6 is a transverse section of a part of Fig. 3 on an enlarged scale.

1 and 2 are the beams, 3 the bolt and 4 the nut, 5 and 6 are the washers and 7 the locking plate according to my invention. As shown in Fig. 1 the projections or ribs on the plate are of such a form and set or displaced against each other on both sides of the plate that an undulating section is obtained. Said projections are suitably formed by being pressed from a plate of iron or other suitable material.

The projections can also as shown in Figs. 3 and 4 be concentrically arranged about the hole for the bolt. The plate may be circular, triangular, quadrangular, rectangular or hexagonal, as shown in Figs. 3, 4 and 5, and may be of any other suitable form, especially such a one that in the manufacture no waste will arise.

By my improved plate a special advantage is obtained whereby the projections or ribs, when interposing the plate between two beams, and pressing the beams together, will not be flattened out. At the very beginning of the pressure, the projections press into the wood and a firm hold is attained between the wood and the plate. As the projections form their recesses or grooves in the wood at the beginning of the pressure, no flattening out of the plate can take place and a steady hold is attained in the lateral directions without necessitating a great total height of the locking plate. This is better illustrated in Fig. 6, wherein the displaced parts of the wood are sectioned. As best shown in Fig. 6 the thickness of the plates is less than the half of the total height of the undulated plate.

By this form of the plate the wood will not be damaged, as it, when being pressed by the top 8 of a wave, will be pressed to the sides and will penetrate the chambers 9 in the neighboring waves. Hereby a very rigid hold between the plate and the wood is obtained and as no injury is made to fibers of the wood, the connection will be a very rigid one.

What I claim is:—

1. The combination with a plurality of beams of fibrous material connected together, of a locking plate located between the beams and having alternate ridges and furrows on

each side of the plate, the furrows on one side of the plate being located in the ridges on the opposite side of the plate, and the ridges of said plate being pressed into the
5 abutting faces of the beams.

2. The combination with a plurality of beams of fibrous material connected together by a bolt, of a corrugated locking plate surrounding the bolt and located between said
10 beams, the thickness of the plate being less than one half the total height of the plate and the furrows on one side of the plate being located in the ridges of the other side of the plate, said corrugations being pressed
15 into the abutting faces of the beams.

3. In a combination according to claim 1, a corrugated locking plate formed of stamped sheet metal.

4. In a combination according to claim 1,

a locking plate having concentrically arranged corrugations.

5. In a combination according to claim 1, a corrugated locking plate of angular shape.

6. The combination with a plurality of fibrous beams connected together by a bolt, 25 of an angular shaped corrugated locking plate surrounding the bolt and arranged between the abutting faces of said beams, whereby when the beams are pressed together the corrugations of the locking plate 30 will be pressed into the abutting faces of the beams.

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

CARL ABRAHAM FORSSELL.

Witnesses:

MALTE KIERKEGAARD,
JACOB BAGGE.

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