

948,733.

Patented Feb. 8, 1910.

Fig. 1

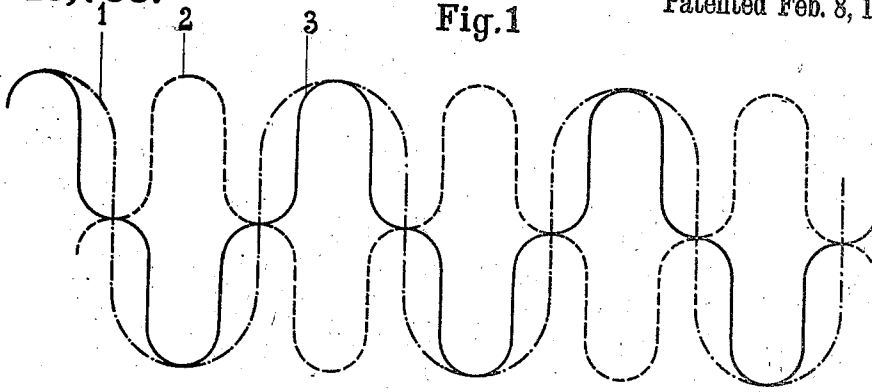


Fig. 2

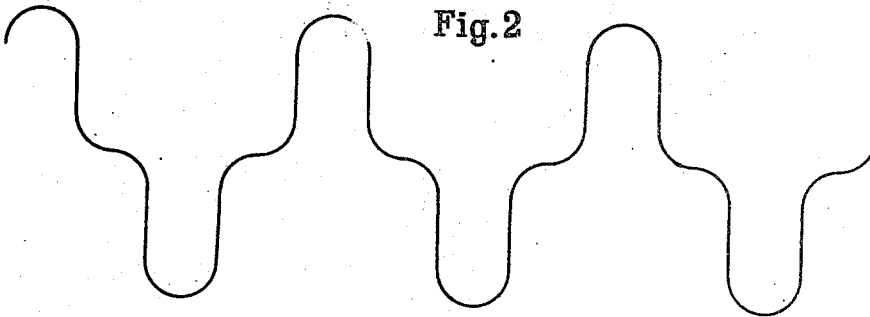


Fig. 3

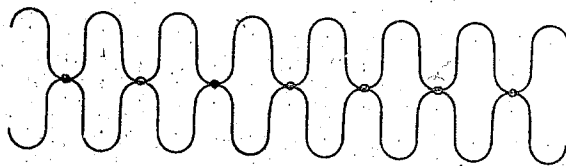
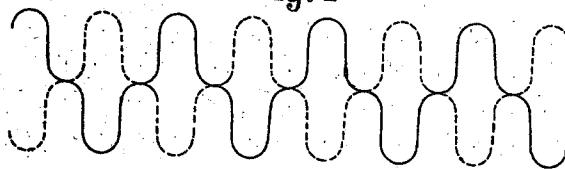


Fig. 4



Witnesses :

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UNITED STATES PATENT OFFICE.

KNUT KNUTSON, OF CHRISTIANIA, NORWAY.

DOUBLE-CORRUGATED SHEET-IRON.

948,733.

Specification of Letters Patent.

Patented Feb. 8, 1910.

Application filed December 7, 1908. Serial No. 466,306.

To all whom it may concern:

Be it known that I, KNUT KNUTSON, a citizen of the Norwegian Kingdom, and resident of Christiania, Norway, have invented an Improved Double-Corrugated Sheet-Iron, of which the following is a specification.

The subject of this invention is a new type of corrugated sheet iron, whose profile is such that the corrugations are bent up and down alternately. In this way the height of the profile is doubled and the moment of resistance is made 1.6 times as great as before, while the weight remains the same as that of sheet iron of the same number of

The accompanying drawing shows the profile of the new type of corrugated sheet iron.

Figures 1, 3 and 4; show the manner of developing the same from the old profile. Fig. 2 shows the profile of the new kind of sheet iron.

In the case of sheet iron made according to the chain dotted line in Fig. 1, the deeper the profile is made, the greater is the stress on the material at the top of the corrugation and in the wall of the corrugation, for which reason the high profiled sheets which are made at present, must be of considerable thickness.

A deep corrugation requires a sufficient thickness at the top of the corrugation in order to withstand the bending stress and not to be pressed flat, and it is also necessary for the vertical wall to be made thick in order to offer sufficient resistance to the transverse forces. This fact is recognized today in the manufacture of corrugated sheet iron, and the higher the profile the thicker are the sheets from which it is rolled.

If one compares curves 2 and 3 it is evident that the radii for both are equal while in curve 1 the radii are twice as large as in Figs. 2 and 3. The elastic strength is therefore twice as great in the profiles 2 and 3 as in profile 1. The S curve made in this way gives the vertical wall the stiffness necessary to absorb the transverse forces. It is impossible for the vertical wall to buckle, however thin, when this S spring is interposed.

The following example will illustrate the

difference in strength between the new and old types of sheet iron. If two standard corrugated sheets are fastened together so that the tops of the corrugations are symmetrical to the axis which is between both sheets, Fig. 3, then the moment of resistance becomes 3.2 times that of a single sheet. The weight however has been doubled. If one imagines the alternate upper and lower corrugations removed Fig. 4, the profile shown in Fig. 2 is obtained. The moment of resistance of this new profile is exactly half that of the former (Fig. 3) and therefore 1.6 times as great as the old type of corrugated sheet iron, while the weight remains the same. In other words the old type of corrugated sheet iron did not give a maximum moment of resistance while the new type does. This type of sheet iron can be used for other purposes than the old sort, for instance for floors and ceilings.

Owing to the increased strength greater spans can be used and the supports need be fewer.

The new sheet iron requires less filling material as there are not so many corrugations. This new kind of sheet iron is very suitable for unsupported roofs of buildings and similar purposes.

Having fully described my invention, what I claim and desire to secure by Letters Patent is:—

1. Sheet iron doubly corrugated, that is to say, the sheet being provided with corrugations projecting alternately from opposite sides thereof, the bases of the said corrugations being united on a double reverse curve, substantially as described and shown.

2. Sheet iron doubly corrugated, that is to say, the sheet being provided with corrugations projecting alternately from opposite sides thereof, the bases of the said corrugations being united on curves of any desired shape, substantially as described and shown.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

KNUT KNUTSON.

Witnesses:

OLOF BUCK,
M. ALGER.