

Description

Title of the Invention

FITTING-TYPE FOLDED-SHEET ROOFING MATERIAL

Technical Field

[0001]

The present invention relates to a metal fitting-type folded-sheet roofing material, and more particularly to a fitting-type folded-sheet roofing material which can realize roofing by easily and speedily connecting end parts of neighboring roofing materials to each other by seam joint forming, exhibits excellent external appearance and can impart the excellent strength to a seam joint part against a storm or the like.

Background Art

[0002]

As a roofing method applicable to a plant, a warehouse, a shop or the like, conventionally, there has been known a method where roof brackets are fixed to a roof bed (beams) at fixed intervals, and one metal folded-sheet roofing material provided with an inner-side seam fitting part formed on one side edge portion thereof in the widthwise direction and the other neighboring roofing material provided with an outer-side

seam fitting part (upper fitting) formed on the other side edge portion thereof in the widthwise direction are connected to each other by seam joint forming by means of the roof bracket, and these metal folded-sheet roofing materials are sequentially connected to each other thus completing roofing in a boltless state (fitting type) (patent documents 1, 2).
[0003]

As such a conventional fitting-type folded-sheet roofing material, there have been known a folded-sheet roofing material which adopts an angular seam joint where inner and outer fitting parts have an inverse L-shape (patent document 1), a folded-sheet roofing material which adopts a circular seam joint where inner and outer fitting parts have an approximately circular shape (patent document 2), and a folded-sheet roofing material which adopts a triangular seam joint where inner and outer fitting parts have a triangular shape.

[0004]

However, the roof sheet disclosed in patent document 1 has the following drawbacks. That is, when upward pressure is applied to a main plate part due to a gust of wind, a rotational moment caused by wind pressure or the like is applied to at least either one of the inner-side seam fitting part (inverse L-shape) and the outer-side seam fitting part so that the seam joint part is easily disengaged, or when a worker walks

on a roof so that a downward pressure is applied to the main plate part, a seam joint part is loosened or disengaged.

[0005]

Further, in the folded-sheet roof sheet disclosed in patent document 2, the structure of the inner-side and outer-side seam fitting parts which form a joint portion of roofing materials adopts the fitting structure having a circular cross section and hence, the folded-sheet roof sheet possesses the stable strength after fitting against negative pressure generated by a gust of wind or a pushing pressure generated by a stepping-on action of a worker or the like. However, seam joint formability is not enough and hence, there still remain drawbacks that positions where crest parts of the outer-side seam fitting parts are bent are liable to become irregular during seam joint forming, fastening strength is weak, and linearity is liable to be lost.

[0006]

When the bending positions of the outer seam joints are not fixed (for example, as shown in 11, a case where the pass center of the outer seam joint is offset to a right side from the center (Fig. 11(a)) or to a left side from the center (Fig. 11(b)), seam joint forming strength is lowered.

[0007]

Further, when the inner-side and outer-side seam fitting parts are formed of a triangular seam joint, seam joint forming

is easy, roofing materials are firmly connected with each other by fitting, and the inner-side and outer-side seam fitting parts possess stable strength against wind pressure after fitting. However, the structure has the following drawbacks. That is, a folding ridge (folding line) of a crest part of the outer-side seam fitting part is sharp and hence, it is difficult to make the roofing material conform to the distortion of the background or brackets (tight frames) of an existing roof whereby there have been drawbacks that the linearity and accuracy in shape of external appearance are poor.

[0008]

Further, the metal sheet has the tolerance of 0 to +7mm in a width of a original sheet, and the inner-side seam fitting part and the outer-side seam fitting part which are formed on both side edge portions of the metal sheet absorb the tolerance. Accordingly, there has been a case where shapes of the fitting parts are changed for every metal sheet so that the inner-side seam fitting part and the outer-side seam fitting part cannot be completely fitted to each other.

[0009]

In such a work for constructing fitting-type roofing materials, it is difficult to determine whether a seam joining fitting state is good or bad from the outside at the time of construction and hence, how the seam joint forming fitting structure of roof sheet, for example, shapes of the inner-side

and outer-side seam fitting parts should be designed is extremely important.

Prior art literature

Patent document

[0010]

Patent document 1: JP-A-2003-82820

Patent document 2: JP-U-54-18018

Summary of the Invention

Problems that the Invention is to Solve

[0011]

With respect to the above-mentioned prior art, the following drawbacks have been pointed out. The floating-off of a roofing material which is observed in a boltless construction roof which is the subject of the present invention, that is, the floating-off of the roofing material caused by wind pressure is liable to occur. The seam joint forming section is liable to be loosened or disengaged (patent document 1). There still remains a space for improvement with respect to seam joint formability (electrically-operated seam joint formability) and linearity of a ridge line, that is, the finish of the appearance of roofing (patent document 2). Further, the inner-side and outer-side seam fitting parts exhibit poor accuracy in shape or have little bending rigidity,

particularly low joining strength at parts where a bracket (tight frame) is not provided.

[0012]

Accordingly, it is an object of the present invention to provide a fitting-type folded-sheet roofing material having a high degree of seam joint forming (joining strength) which, in constructing the fitting-type folded-sheet roofing material, can enhance mutual support strength of an inner-side seam fitting part and an outer-side seam fitting part, can prevent a seam joint forming section from being loosened or disengaged even when negative pressure generated by a gust of wind is applied to a roofing material or pushing pressure generated by stepping on of a worker or the like is applied to a roofing material. It is also an object of the present invention to provide a fitting-type folded-sheet roofing material which possesses high accuracy in shapes of outer and inner-side seam fitting parts without being influenced by an error in a width of an original sheet for a metal sheet, exhibits excellent seam joint forming formability, exhibits a beautiful seam joint forming appearance shape, and can realize easy and speedy roofing.

Means for Solving the Problems

[0013]

To realize the above-mentioned objects by overcoming the

above-mentioned drawbacks that the prior art has, inventors of the present invention have made extensive studies, and have developed the present invention having the following constitution which forms the gist of the present invention. That is, the present invention discloses a fitting-type folded-sheet roofing material comprising: a base part which forms a widthwise center portion of a rectangular metal sheet; inclined side plate parts which are raised from both widthwise edges of the base part in respective oblique directions respectively; horizontal parts which extend in the horizontal direction from upper end portions of the inclined side plate parts respectively; and an inner-side seam fitting part and an outer-side seam fitting part which are formed upright on both free edge portions of the horizontal parts respectively, neighboring metal sheets being connected to each other by way of the inner-side and outer-side seam fitting parts, wherein

the outer-side seam fitting part comprises: a base-part-side leg part which is raised from an edge periphery of the horizontal part; a dome-shaped head part which is contiguously formed with an upper end portion of the base-part-side leg part; and a side-edge-part-side leg part which is formed in a seam joining fitting state at a position on an extension from the dome-shaped head part thus exhibiting an approximately mushroom-shaped cross section, and

the inner-side seam fitting part comprises: a leg part

which is raised from an edge periphery of the horizontal part; and a crest head part which is contiguously formed with an upper end portion of the leg part thus exhibiting an approximately umbrella-shaped cross section.

[0014]

In the above-mentioned roofing material of the present invention, the followings are provided as preferred means for solving the task.

In the outer-side seam fitting part, a folding line which is formed of a projecting ridge part having a different curvature is formed on a peak portion of the dome-shaped head part.

In the inner-side seam fitting part, a folded-back overlapped portion is formed on a non-leg-part side of the crest head part.

The base-part-side leg part of the outer-side seam fitting part and the leg part of the inner-side seam fitting part are formed so as to rise obliquely from the edge peripheries of the respective horizontal parts respectively.

One or a plurality of small stepped portions is/are formed on the inclined side plate in the height direction.

A large stepped portion which is indented toward a base part side is formed on the inclined side plate at a bending start position at a lower end of the inclined side plate adjacent to the base part.

A bulging recessed portion which is indented toward the base part side is formed on an upper end of the inclined side plate adjacent to the horizontal part.

Advantages of the Invention

[0015]

According to the present invention which adopts the above-mentioned constitutions, by adopting the seam joint forming fitting structure where the outer-side seam fitting part has a mushroom shape and the inner-side seam fitting part has an umbrella shape, even when pressure is applied to either a left or right side of a roof sheet due to a gust of wind, stepping on of a worker or the like, the inner-side seam fitting part and the outer-side seam fitting part impinge on each other at bulging portions formed on both left and right sides so that the rotation of the roof sheet is constrained. Accordingly, even when negative pressure caused by a gust of wind is applied to the roofing material or pushing pressure caused by stepping on of a worker is applied to the roofing material, there is no possibility that the roofing material is rotated so that a seam joining fitting state is easily loosened or disengaged thereby effectively preventing the intrusion of rain.

[0016]

Further, according to the roofing material of the present invention, by forming the folding line in advance on the peak

portion of the dome-shaped head part of the outer-side seam fitting part, seam joint forming (seam forming) can be easily performed, and the linearity (passing center) of the ridge line (ridge) is high so that the construction error attributed to the distortion of the background of a roof or a bracket (tight frame) can be easily absorbed and thereby the shape of the roofing appearance can be beautifully finished.

[0017]

Further, according to the present invention, joining strength of a seam joining fitting state by the inner-side and outer-side seam fitting parts is strong, and the inner-side seam fitting part is also provided with the folded-back overlapped portion and hence, the inner-side seam fitting part exhibits high accuracy in shape, and exhibits the excellent shape stability and fitting strength after seam joint forming.

[0018]

Further, according to the present invention, by inclining the raised side plate from the base part, a crest height from the base part of the roof sheet to the peak portion of the fitting part is increased and hence, bending rigidity of the roof sheet can be enhanced.

Brief Description of the Drawings

[0019]

Fig. 1 is a front view showing a fitting-type

folded-sheet roofing material according to one embodiment of the present invention;

Fig. 2 is an enlarged end view of inner-side and outer-side seam fitting parts of the above-mentioned roof material according to the above-mentioned embodiment after seam joint forming;

Fig. 3 is an enlarged end view showing one modification of the inner-side and outer-side seam fitting parts of the roof materials of the above-mentioned embodiment after seam joint forming;

Fig. 4 is a front view partially showing a state where the fitting-type folded-sheet roofing materials according to the embodiment of the present invention are mounted on a bracket (tight frame);

Fig. 5 is a front view showing a fitting-type folded-sheet roofing material according to still another embodiment of the present invention;

Fig. 6 is a front view showing a fitting-type folded-sheet roofing material according to still another embodiment of the present invention;

Fig. 7 is a front view showing a fitting-type folded-sheet roofing material according to still another embodiment of the present invention;

Fig. 8 is a front view showing a fitting-type folded-sheet roofing material according to still another

embodiment of the present invention;

Fig. 9 is a front view showing a fitting-type folded-sheet roofing material according to still another embodiment of the present invention;

Fig. 10 is a front view showing a fitting-type folded-sheet roofing material according to still another embodiment of the present invention; and

Fig. 11 is a front view showing a mode of a circular seam-type fitting-type folded-sheet roofing material which constitutes a prior art.

Mode for Carrying Out the Invention

[0020]

Hereinafter, the present invention is explained by taking a typical embodiment as an example.

A fitting-type folded-sheet roofing material according to one embodiment of the present invention shown in Fig. 1 is formed by bending a metal sheet having a rectangular shape into a waveform in the widthwise direction. In the fitting-type folded-sheet roofing material, a base part 1 is formed at a center portion of the rectangular metal sheet in the widthwise direction, inclined side plate parts 2, 2' are contiguously formed with the base part 1 in such a manner that the inclined side plate parts 2, 2' are raised obliquely in the upward direction by bending from both widthwise edges of the base part

1, horizontal parts 3, 3 are contiguously formed with the inclined side plate parts 2, 2' respectively in such a manner that the horizontal parts 3, 3 extend in the horizontal direction from upper end portions of the inclined side plate parts 2, 2', and an outer-seam-side fitting part 4 and an inner-seam-side fitting part 5 described in detail later are formed by bending on respective free ends of the horizontal parts 3, 3' respectively.

[0021]

The roofing materials according to this embodiment are used for constructing roofing by a boltless construction method as follows. The roofing materials of this embodiment are joined to each other one after another by fitting the outer-side seam fitting part 4 of the other roof sheet on the inner-side seam fitting part 5 of one roof sheet from above by way of a bracket (tight frame) described later thus connecting the neighboring roof materials to each other in the widthwise direction one after another. A shape and the structure of the roof sheet of this embodiment are explained mainly based on a cross-sectional shape of the roofing material.

[0022]

The characteristic constitution of the roofing material of this embodiment lies in the cross-sectional shapes of the outer-side seam fitting part 4 and the inner-side seam fitting

part 5, and the fitting structure of these seam fitting parts at the time of seam joint forming. Firstly, the outer-side seam fitting part 4 is explained. As shown in Fig. 2, the outer-side seam fitting part 4 is positioned at the free end portion of the horizontal part 3 which extends from the inclined side plate part 2 of the roof, and is formed by contiguously connecting a right leg part 4a which constitutes a base-part-side leg part and is raised approximately upright in a state before seam joint forming is performed, a dome-shaped head portion 4b which is contiguously formed with an upper end portion of the right leg part 4a, and a left leg part 4c which constitutes an edge-side leg part and extends along a leg part 5a of the inner-side seam fitting part 5 on extension of the head portion 4b after seam joint forming. The outer-side seam fitting part 4 exhibits an approximately mushroom-shaped cross-sectional shape, and covers the inner-side seam fitting part 5 in such a manner that the outer-side seam fitting part 4 surrounds the whole inner-side seam fitting part 5. Here, a portion (portion corresponding to 4d in Fig. 3, for example) which has a curvature different from curvature of other portions (having a radius of curvature smaller than radii of curvature of other portions) and functions as a start point of bending may be formed on a peak portion of the dome-shaped head portion 4b in such a manner that the portion is smoothly connected with other portions (having larger radii of

curvature) on both sides of the portion in the widthwise direction.

[0023]

On the other hand, as shown in Fig. 2, the inner-side seam fitting part 5 is positioned at the free end of the horizontal part 3' extending from the inclined side plate part 2' and is constituted of the leg part 5a which is raised approximately upright and a crest head portion 5b which is contiguously formed with an upper end portion of the leg part 5a and exhibits an approximately umbrella-shaped cross-sectional shape as a whole.

[0024]

According to the roofing material of this embodiment, as shown in Fig. 2, by covering the inner-side seam fitting part 5 with the outer-side seam fitting part 4 and, thereafter, by pushing down the left leg part 4c of the outer-side seam fitting part 4 to a position indicated by a solid line from a position indicated by a dotted line, and by fastening the leg part 5a of the inner-side seam fitting part 5 positioned inside the outer-side seam fitting part 4 with the left leg part 4c, the strong seam joint forming can be acquired.

[0025]

That is, according to this embodiment, even when negative pressure generated by a gust of wind or the like is applied to either one of the left and right sides of the roof sheet

in the direction indicated by arrows in the drawing or a push force is applied to either one of the left and right sides of the roof sheet in the direction indicated by arrows in the drawing due to a stepping-on action of a worker or the like, left and right bulging portions 4e, 4e' formed on lower ends of the dome-shaped head portion 4b of the outer-side seam fitting part 4 and left and right bulging portions 5d, 5d' formed on lower ends of the crest head portion 5b of the inner-side seam fitting part 5 impinge on each other so that the rotation of the roof sheet is constrained whereby it is possible to prevent the fitting from being loosened or disengaged.

[0026]

Here, the inner-side seam fitting part 5 includes a folded-back overlapping portion 5c which is formed by bending, wherein the folded-back overlapping portion 5c is folded back and overlapped to a lower surface of a non-leg-portion side, that is, a free end portion side. Due to such a constitution, the crest head portion 5b can be reinforced. Accordingly, the deformation of the inner-side seam fitting part 5 at the time of seam joint forming can be suppressed and hence, the inner-side seam fitting part 5 can enhance the accuracy in shape. Further, since the tolerance (error) in original sheet width can be absorbed by the folded-back overlapping portion 5c, the inner-side seam fitting part 5 can always maintain the same

shape whereby the inner-side seam fitting part 5 and the outer-side seam fitting part 4 can be firmly connected to each other by fitting engagement. In forming the folded-back overlapping portion 5c, besides the constitution where the folded-back overlapping portion 5c is folded back to a lower surface side of the inner-side seam fitting part 5 as shown in Fig. 2, the folded-back overlapping portion 5c may be folded back to an upper surface side of the inner-side seam fitting part 5.

[0027]

Further, it is preferable that the horizontal parts 3, 3' are inclined slightly (for example, approximately 1 to 10°) downward toward the base part 1 side. This constitution can prevent the intrusion of water into the seam joint portion formed of the inner-side seam fitting part 5 and the outer-side seam fitting part 4.

[0028]

Next, Fig. 3 shows one modification of the outer-side seam fitting part 4 and the inner-side seam fitting part 5 of the above-mentioned embodiment. This modification is characterized in that both a right leg part 4a' and a left leg part 4c' are raised obliquely from the horizontal part 3 in the outer-side seam fitting part 4, while a leg part 5a' which is contiguously connected with a horizontal part 3' is raised obliquely in the inner-side seam fitting part 5.

Due to such a constitution, it is possible to reduce widths of portions of the sheet necessary for forming the outer-side seam fitting part 4 and the inner-side seam fitting part 5 compared with the roofing material shown in Fig. 2 where the leg parts are formed so as to be raised approximately upright. Accordingly, crest heights of the roofing material from the base part 1 to peak portions of the fitting parts 4, 5 can be increased by an amount corresponding to the reduced widths of the sheet and hence, rigidity and strength of the whole roofing material against bending can be enhanced.

[0029]

Further, on a peak portion of the dome-shaped head portion 4b of the outer-side seam fitting part 4, a folding line 4d formed of a portion having a curvature different from curvatures of other portions (having a radius of curvature smaller than radii of curvature of other portions), that is, formed of a projecting ridge portion which functions as a start point of bending is apparently formed. By providing such a folding line 4d, a position of the outer-side seam fitting part 4 where bending is started at the time of seam joint forming is more apparently specified thus facilitating the formation of the outer-side seam fitting part 4 and, at the same time, there is no irregularities in the ridge line (ridge) and hence, the linearity is easily maintained. Further, even when there exist irregularities in a roof bed (beam material) or a bracket

(tight frame) thus generating slight positional displacement of the outer-side seam fitting part 4, it is possible to make the displacement of the passing center inconspicuous and hence, the roofing appearance can be beautifully finished.

[0030]

Further, in the same manner as the case shown in Fig. 2, with respect to the outer-side seam fitting part 4 and the inner-side seam fitting part 5, by covering the inner-side seam fitting part 5 with the outer-side seam fitting part 4 and, thereafter, by pushing down the left leg part 4c' of the outer-side seam fitting part 4 to a position indicated by a solid line from a position indicated by a dotted line in the drawing thus fastening the leg part 5a of the inner-side seam fitting part 5 positioned inside the outer-side seam fitting part 4 with the left leg part 4c', the strong seam joint forming can be acquired.

[0031]

In the roofing material of this embodiment, basically, as shown in Fig. 1, one or a plurality of small stepped portions 2a, 2b, 2a', 2b' are formed on the inclined side plate parts 2, 2' which substantially support the outer-side seam fitting part 4 and the inner-side seam fitting part 5, and bulging recessed portions 2c, 2c' which are indented on a base part 1 side, that is, so-called "jaws" are formed on upper end portions of the inclined side plate parts 2, 2' adjacent to

the horizontal parts 3, 3'. As described hereinafter, these bulging recessed portions 2c, 2c' function so as to be engaged with pawls 7, 7' which are raised by cutting from side plates of the bracket (tight frame) 6.

[0032]

Fig. 4 shows a state where the roofing materials of this embodiment are mounted on the bracket (tight frame) 6 which is fixed to the roof bed. As can be clearly understood from the drawing, the roofing materials are mounted on the bracket (tight frame) 6 by way of the pawls 7, 7' which are formed in a projecting manner on upper portions of both side surfaces of the bracket (tight frame) 6. Here, the roofing materials are mounted on the bracket (tight frame) 6 such that the base part 1 of the roofing material is dropped on a bottom portion of the bracket (tight frame) 6 and, at the same time, the pawls 7, 7' are engaged with the bulging recessed portions 2c, 2c' which are formed on upper ends of the inclined side plate parts 2, 2' adjacent to the horizontal parts 3, 3'.

[0033]

Then, the outer-side seam fitting part 4 of the roofing material which is constructed next is fitted on the inner-side seam fitting part 5 of the roofing material which is mounted in advance in the above-mentioned manner such that the outer-side seam fitting part 4 covers the inner-side seam fitting part 5 from above. Thereafter, as shown in Fig. 2 or

Fig. 3, the right leg part 4a and the left leg part 4c of the outer-side seam fitting part 4 are subject to the seam joint forming by an electric seam processing machine (seamer) not shown in the drawing. Accordingly, the outer-side seam fitting part 4 and the inner-side seam fitting part 5 are brought into a state where the outer-side seam fitting part 4 and the inner-side seam fitting part 5 are firmly fitted with each other as indicated by a solid line in Fig. 2 or Fig. 3.

[0034]

In the modification shown in Fig. 3, the right leg part 4a' and the left leg part 4c' of the outer-side seam fitting part 4 and the leg part 5a' of the inner-side seam fitting part 5 are formed so as to be raised obliquely. Accordingly, when a metal sheet having a fixed original width (762mm, for example) is used, an amount of the sheet material for forming the leg part is small compared with a roofing material where a leg part of the fitting part is raised approximately upright. Accordingly, a crest height to peak portions of the fitting parts can be increased and hence, rigidity and strength of the whole roofing material against bending can be enhanced.

[0035]

Besides the above-mentioned embodiments, the present invention includes embodiments shown in Fig. 5 to Fig. 10 with respect to the combination of the outer-side seam fitting part 4, the inner-side seam fitting part 5 and the inclined side

plate parts 2, 2'. Among these embodiments, the embodiment shown in Fig. 5 is an example of a roofing material where the outer-side seam fitting part 4 and the inner-side seam fitting part 5 shown in Fig. 2 are provided to the roofing material, and a shape of the inclined side plate part 2, 2' includes one small stepped portion and a bulging recessed portion 2c, 2c' which is indented on a base part 1 side at an upper end portion of the inclined side plate part 2, 2' adjacent to the horizontal part 3, 3'.

[0036]

The embodiment shown in Fig. 6 is an example of a roofing material where a shape of the inclined side plate part 2, 2' includes two small stepped portions and a bulging recessed portion 2c, 2c' which is indented on a base part 1 side at an upper end portion of the inclined side plate part 2, 2' adjacent to the horizontal part 3, 3' and, at the same time, the shape of the inclined side plate part 2, 2' also includes a large stepped portion 2d, 2d' which is indented on the base part 1 side at a bending start position at a lower end of the inclined side plate part 2, 2' adjacent to the base part 1. The embodiment shown in Fig. 7 is an example of a roofing material where the outer-side seam fitting part 4 and the inner-side seam fitting part 5, in the example shown in Fig. 6, have the structure shown in Fig. 3 where the leg parts 4a', 4c' of the outer-side seam fitting part 4 and a leg part 5a' of the

inner-side seam fitting part 5 are inclined.

[0037]

Fig. 8 shows an example of a roofing material where stepped portions are not formed on the inclined side plate parts 2, 2' at all. Fig. 9 shows an example where a bulging recessed portion is not formed on the inclined side plate parts 2, 2' but a large stepped portion 2d, 2d' and one small stepped portion are formed on the inclined side plate parts 2, 2' at bending start positions at lower ends of the inclined side plate parts 2, 2' adjacent to the base part 1. Fig. 10 shows an example of a roofing material where the outer-side seam fitting part 4 and the inner-side seam fitting part 5 shown in Fig. 3 in which the leg parts 4a', 4c', 5a' are inclined are arranged on the inclined side plate parts 2, 2' shown in Fig. 9.

Industrial Applicability

[0038]

The roofing material according to the present invention is applicable as roofing materials for ordinary residences, schools, garages, factories, warehouses, shops, assembly halls, gymnasiums and the like.

Description of Reference Numerals and Signs

[0039]

1: base part

2, 2': inclined side plate part
2a, 2a', 2b, 2b': small stepped portion
2c, 2c': bulging recessed portion
2d, 2d': large stepped portion
3, 3': horizontal part
4: outer-side seam fitting part
4a, 4a': right leg part
4b: dome-shaped head portion 4b
4c, 4c': left leg part
4d: folding line
4e, 4e': bulging portion
5: inner-side seam fitting part
5a, 5a': leg part
5b: crest head portion
5c: folded-back overlapping portion
5d, 5d': bulging portions
6: bracket (tight frame)
7, 7': pawls

Claims

[Claim 1]

A fitting-type folded-sheet roofing material comprising: a base part which forms a widthwise center portion of a rectangular metal sheet; inclined side plate parts which are raised from both widthwise edges of the base part in respective oblique directions respectively; horizontal parts which extend in the horizontal direction from upper end portions of the inclined side plate parts respectively; and an inner-side seam fitting part and an outer-side seam fitting part which are formed upright on free edge portions of the horizontal parts respectively, neighboring metal sheets being connected to each other by way of the inner-side and outer-side seam fitting parts, wherein

the outer-side seam fitting part comprises: a base-part-side leg part which is raised from an edge periphery of the horizontal part; a dome-shaped head part which is contiguously formed with an upper end portion of the base-part-side leg part; and a side-edge-part-side leg part which is formed in a seam joining fitting state at a position on an extension from the dome-shaped head part thus exhibiting an approximately mushroom-shaped cross section, and

the inner-side seam fitting part comprises: a leg part which is raised from an edge periphery of the horizontal part; and a crest head part which is contiguously formed with an upper

end portion of the leg part thus exhibiting an approximately umbrella-shaped cross section.

[Claim 2]

A fitting-type folded-sheet roofing material according to claim 1, wherein in the outer-side seam fitting part, a folding line which is formed of a projecting ridge part having a different curvature is formed on a peak portion of the dome-shaped head part.

[Claim 3]

A fitting-type folded-sheet roofing material according to claim 1 or 2, wherein in the inner-side seam fitting part, a folded-back overlapped portion is formed on a non-leg-part side of the crest head part.

[Claim 4]

A fitting-type folded-sheet roofing material according to any one of claims 1 to 3, wherein the base-part-side leg part of the outer-side seam fitting part and the leg part of the inner-side seam fitting part are formed so as to rise obliquely from the edge peripheries of the respective horizontal parts respectively.

[Claim 5]

A fitting-type folded-sheet roofing material according to any one of claims 1 to 4, wherein one or a plurality of small stepped portions are formed on the inclined side plate in the height direction.

[Claim 6]

A fitting-type folded-sheet roofing material according to any one of claims 1 to 5, wherein a large stepped portion which is indented toward a base part side is formed on the inclined side plate at a bending start position at a lower end of the inclined side plate adjacent to the base part.

[Claim 7]

A fitting-type folded-sheet roofing material according to any one of claims 1 to 6, wherein a bulging recessed portion which is indented toward the base part side is formed on an upper end of the inclined side plate adjacent to the horizontal part.