Petition for Declaratory Statement

(Agency Name)

DCAO5-DEC-281

(Petitioner)

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FILING AND ACKNOWLEDGEMENT
FILED, on this date, with the designated Agency Clerk, receipt of which is hereby acknowledged.
Miriam Snipes 12/30/05
Deputy Agency Clerk Date

We would like to Petition for Declaratory Statement in relation to Rule 9B 72, specifically under category (roofing) and sub category New Technology and Roof accessories.

Petition Description

Fastnet International produces protective netting for pitched roofs. The Fastnet System for Roof Protection is an after market product. The purpose of the Fastnet System for Roof Protection is to stop roof tiles and shingles being blown away in high winds; The Fastnet System is not designed to add structural strength to buildings.

The Fastnet System for Roof Protection has two main components the net and the tensioning system. The net used is Paranet; Paranet is manufactured from Parafil Rope and manufactured for Fastnet under licence by Linear Composites, formally ICI.

One application that Parafil Rope is presently used for is anchoring offshore oil rigs to the seabed off the Gulf coast of America. Under the Florida Building Code Chapter 26 (Plastic Performance Requirements), Linear Composites the manufacturers of Parafil rope have the following ASTM numbers; D635 (Flame propagation) and D2303-97 (Incline plane track test). The Paranet used for the Fastnet Roof Protection System is a 3mm diameter Parafil rope and has a nominal breaking load of 140 kg and is fire resistant, resistant to ultra violet light, withstands extreme variations in temperature and is resistant to most organic and inorganic acids and alkalis. Most importantly it is also able to retain tension throughout its service life of 20+ years. (Please refer to Parafil Ropes: Technical Notes).

The tensioning system used for Paranet is Gripple loop hangers; the Gripple has a UL (Underwriters Laboratories) subscription number 293466-001. (Please refer to the Gripple engineer's manual) or visit http://www.gripple.com .

The Fastnet System has been developed and tested over the past 15 years, Fastnet have invested in two independent tests the first by the BRE (Building Research Establishment) the second by Lancaster University (Product Development Department). The results of each test have shown that the Fastnet system will protect a roof from up to 155 mph winds, the equivalent to category five hurricanes. (Please refer to test reports).

The installation of Fastnet is designed to be a simple one there are four stages to the installation (please refer to the Installation guide).

LCL LINEAR COMPOSITES LIMITED

PARAFIL Rope

PARAFIL – Flame Retardant Sheath

PARAFIL ropes with a flame retardant polymeric sheath are designated Types A/X, F/X and G/X.

The designation 'X' indicates that the sheathing material for the particular PARAFIL is a halogen free cross linked polyolefin.

This compound has been formulated to have properties of flame retardancy, minimum smoke and toxic gas emission, non melting, anti-tracking and resistance to outdoor exposure. It is black in colour and is only slightly different in appearance and feel from the polymeric sheath used on PARAFIL A, F and G.

The material has the following properties:–

Flame propagation (ASTM D635)	Time of burning = 1 sec Rate of burning = self extinguishing Extent of burning = 5 mm
Resistance to tracking (Inclined plane track test essentially as ASTM 2303)	No permanent track established after 18 hours.

The full range of PARAFIL Types is as follows:–

CORE YARN	SHEATH			
	POLY-ETHYLENE	EVA CO-POLYMER	CROSS LINKED POLYOLEFIN	POLYESTER ELASTOMER
HIGH-TENACITY POLYESTER	TYPE A	TYPE A/C	TYPE A/X	TYPE A/H
ARAMID	TYPE F	TYPE F/C	TYPE F/X	TYLE F/H
HIGH MODULUS ARAMID	TYLE G	TYPE G/C	TYPE G/X	TYPE G/H

The tensile properties and rope diameters are unaffected by a change in the sheath material. Full details are contained in Technical Notes PF1 and PF2.

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PARAFIL Rope

BASIC PHYSICAL PROPERTIES

1 PARAFIL Types

PARAFIL ropes consist of a closely packed core of high strength synthetic fibres lying parallel to each other, and encased in a tough and durable polymeric sheath.

The parallel fibre structure ensures that PARAFIL ropes have high strength and modulus characteristics coupled with an excellent tension-tension fatigue performance and low creep.

There are three standard Types of PARAFIL, based on the type of fibre used. Each has the choice of three different polymeric sheaths. A flame retardant variety is also available. The product range is shown in Table 1.

TABLE 1
PARAFIL Types

Yarn	Sheath			
	Polyethylene	Polyethylene -EVA copolymer	Polyester elastomer	Flame retardant
Polyester	Type A	Type A/C	Type A/H	Type A/X
Standard modulus aramid	Type F	Type F/C	Type F/H	Type F/X
High modulus aramid	Type G	Type G/C	Type G/H	Type G/X

The specially formulated polyethylene sheath is most commonly used and is perfectly satisfactory for most purposes, but the polyethylene-EVA copolymer sheath is more flexible. Higher resistance to heat and abrasion can be obtained from the polyester elastomer.

The standard ranges of PARAFIL ropes are shown in tables 2 and 3; other sizes are available, as required.

TABLE 2
Basic Characteristics of Types A and A/C PARAFIL Ropes

Nominal diameter (mm)	Nominal breaking load in standard terminations (tonnes)	Nominal Diameter of fibre core (mm)	Cross sectional area of fibre in core (mm²)	Approx wt in air (kg/100m)	Estimated wt* in seawater (core flooded) (kg/100m)
4	0.3	3.0	5.19	1.2	—
7	0.5	3.7	7.97	3.7	0.05
8.5	1	5.3	15.94	5.4	0.2
11	2	7.5	31.88	9.4	0.5
13.5	3.5	10	55.8	14.5	2.1
17	5	12	79.7	22	2.1
20	7.5	15	119.6	30	4.6
22	10	17	159.4	37	5
27.5	15	22	239.1	56	7.5
31	20	24	318.8	73	9.3
36	30	29	478.2	99	13.4
47	50	39	797	165	25
53	60	42	956	215	32
64	100	58	1594	310	77
90	200	77	3188	622	143
99	250	86	3985	763	153
140	500	122	7970	1440	240

TABLE 3
Basic Characteristics of Types F and F/C, G and G/C PARAFIL Ropes

(Note Type G ropes have a higher elastic modulus than Type F ropes)

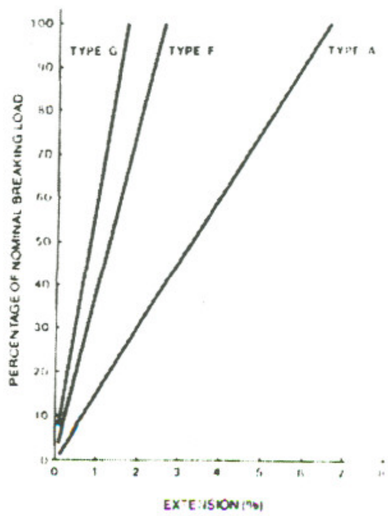
Nominal diameter (mm)	Nominal breaking load in standard terminations (tonnes)	Nominal diameter of fibre core (mm)	Cross sectional area of fibre in core (mm²)	Approx wt in air (kg/100m)	Estimated wt* in seawater (core flooded) (kg/100m)
4	0.75	3.0	4.8	1.2	—
7	1.5	4	7.64	3.7	0.13
8.5	3	5.4	15.28	5.4	0.34
11	6	7.6	30.55	9.1	0.8
13.5	10.5	10	53.47	14.9	2.6
17	15	12.5	76.38	21.5	3.7
20	22.5	15	114.6	30	5.8
22	30	17	152.8	37	7.2
27.5	45	21.5	268.8	60	7.5
31	60	24	305.5	72	8.2
36	90	29	458.3	100	16.0
47	150	39	763.8	170	29
53	180	43	916.5	220	38
85	460	68.5	2343	545	90
112	1000	101	5093	960	230
144	1500	124	7640	1570	270

NOTE * Since PARAFIL ropes consist of a closely packed core of cylindrical filaments there is always an air space amounting to 25-30% of the cross sectional area of the core. If the ropes are sealed to prevent the penetration of water then they will float. If the ropes are allowed to become completely saturated they will have this weight in seawater.

2 Tensile Properties

The load-extension curves are shown in Fig 1 and were obtained, after pretensioning to 60% Nominal Breaking Load and then relaxing for 1 hour, using a PARAFIL termination fitted to each end of the test length.

FIGURE 1
LOAD-EXTENSION CURVES OF TYPES A, F AND G PARAFIL



The tensile properties are given in Table 4 based on the cross sectional area of fibre in the core.

The tensile properties are determined solely by the type and quantity of fibre used in the core and are independent of sheath type.

TABLE 4
Tensile Stress and Elastic Modulus

Rope	Ultimate Tensile Stress	Elastic Modulus (Youngs)
Type A	6300 kg/cm² 0.6 kN/mm²	100,000 kg/cm² 9.8 kN/mm²
Type F	19,600 kg/cm² 1.9 kN/mm²	793,000 kg/cm² 77.7 kN/mm²
Type G	19,600 kg/cm² 1.9 kN/mm²	1,290,000 kg/mm² 126.5 kN/mm²

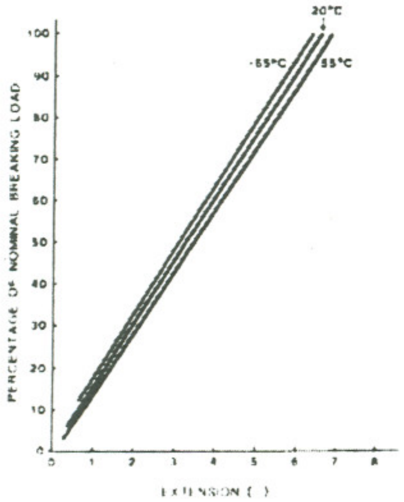
NOTE: All 'A' ropes have the same core and therefore the same tensile properties. This is also true for the 'F' and 'G' series of ropes

3 Effect of Temperature

Polyester fibres melt at about 260°C. Aramid fibres do not melt but decompose at around 460°C. It is important to differentiate between (1) the effect of exposing the fibre to high temperatures and testing at that temperature, and (2) the effect of exposing to high temperatures for periods of time but testing at normal temperatures.

PARAFIL based on aramid fibres has been tested at temperatures between −40°C and +80°C and shown to have no detectable change in properties. Moreover aramid fibres exposed to a temperature of 150°C for long periods of time show no detectable change in residual strength when tested at normal temperatures. Aramid fibres show a strength loss of only 5% after 20 hours' exposure at 200°C when tested at normal temperatures.

FIGURE 2
LOAD-EXTENSION CURVES OF TYPE A PARAFIL AT VARIOUS TEMPERATURES



The Breaking Load of PARAFIL based on Polyester has been found to be virtually unaffected when tested at temperatures between −65°C and +55°C but there are small changes in extension, as shown in Figure 2. Polyester fibres are not affected by long exposures at temperatures up to about 80-100°C, but if tested at these temperatures they will show a small reduction in strength.

If PARAFIL ropes are to be used at temperatures above about 80°C for long periods of time it is recommended that a polyester elastomer sheath be used.

4 Fire Resistance

Type A PARAFIL (and A/C and A/H) will burn if exposed to a flame. However the sheathing materials can be made flame retardant if required (see separate Technical Note).

Aramid fibres do not burn but decompose at around 460°C. As with Type A PARAFIL a flame retardant sheath can be supplied.

5 Resistance to Environmental Effects

5.1 Corrosion resistance

The ability of a rope to resist deterioration over long and continuous exposure to the environment is of prime importance. With this in mind PARAFIL ropes have been evolved from materials which not only possess a high degree of mechanical toughness but which are extemely inert chemically. For example the core and sheath components used in PARAFIL have outstanding resistance to the corrosive action of salt water, most inorganic salts and acids and many organic solvents.

> Example: Examination of Type A ropes recovered from seawater moorings after 10 years showed that the ropes were clean and in good condition. Tensile testing of both rope and individual core fibres revealed no significant decrease in strength.

Resistance to marine biological attack is extremely high and the smooth sheath inhibits the build up of marine growth.

5.2 Resistance to Sunlight

The black polyethylene and polyethylene copolymers used for sheathing PARAFIL ropes are especially formulated for maximum resistance to ultra violet degradation. For instance, exposure of the black polyethylene compounds to Florida sunlight for 20 years caused no significant degradation or embrittlement.

5.3 Icing

There is very poor adhesion between ice and the smooth water repellent surface of PARAFIL ropes. This was clearly demonstrated in tests carried out in the British Aircraft Corporation climatic chamber.

Trials on fishing vessels in Icelandic waters have shown that PARAFIL mast-stays freed themselves of ice when aided by the ships vibration transmitted through the rigging.

6 High Speed Loading

Type A PARAFIL ropes have been tested under conditions of high speed loading by The National Engineering Laboratories in UK. At a loading speed of 15.2 m/sec (50 ft/sec) on a 6m (20 ft) long sample, breaking loads 10-15% below nominal were recorded. The energy absorbed was measured as 2000 joules (1500 ft.lbf) per tonne of breaking load (note: for a 6 m length)

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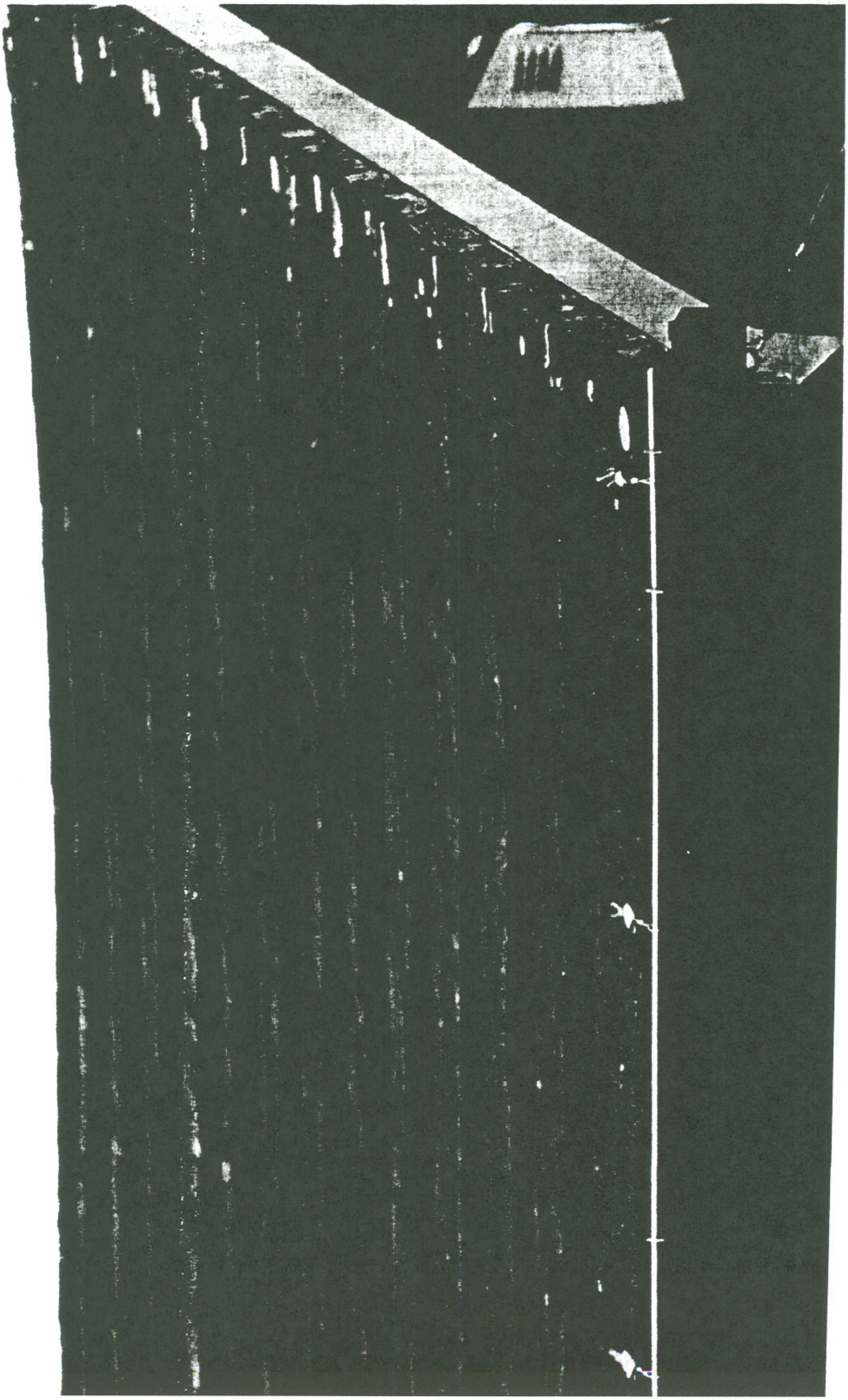

"Andrew Croft"
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12/22/2005 04:29 AM

To <Raymond.Harquail@dca.state.fl.us>
cc
bcc
Subject RE: Petition for Declaratory Statement (Part2)

Dear Dennis,

Please find attached additional attachments.

Kind regards
Andrew Croft

From: Raymond.Harquail@dca.state.fl.us [mailto:Raymond.Harquail@dca.state.fl.us]
Sent: 14 December 2005 18:58
To: acroft@fastnetint.com
Subject:
Importance: High

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 Installation Guide.pdf img024.jpg img031.jpg img023.jpg

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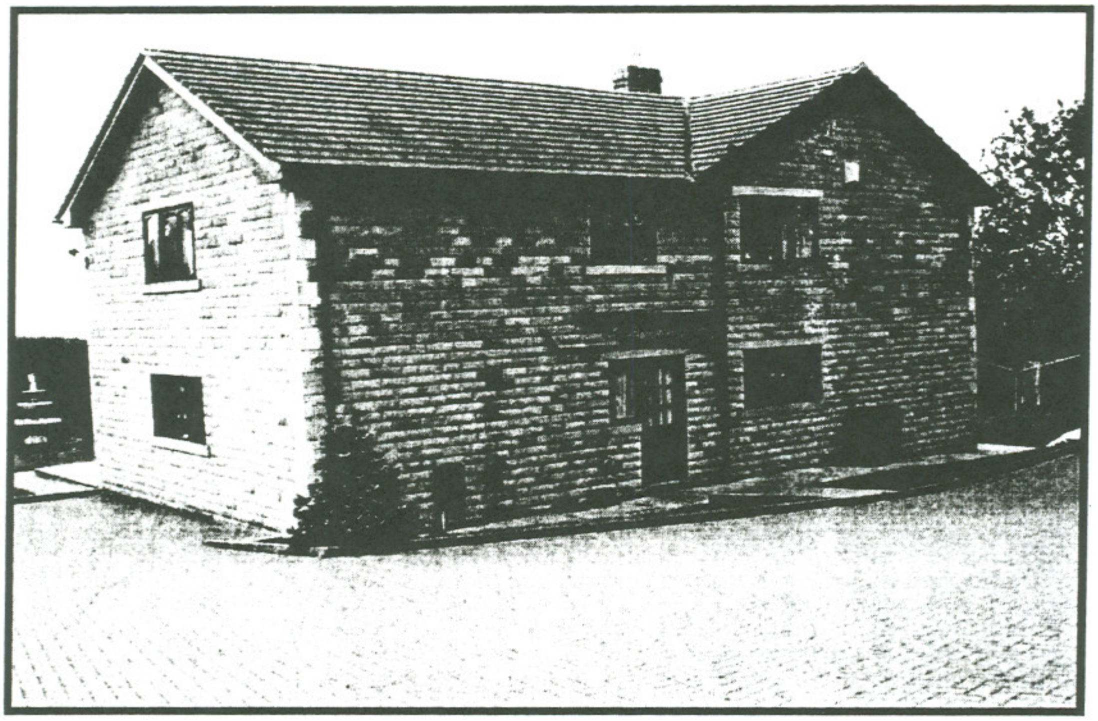
THE FASTNET SYSTEM FOR ROOF PROTECTION PREVENTS HURRICANE & TORNADO WIND DAMAGE

FASTNET
International



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FASTNET
Suppliers of Roof protection Apparatus
FASTNET Patent No: GB2 257 177

Introduction

The purpose of the Fastnet System for Roof Protection is to stop roof cladding being blown off roofing in high winds. The installation of Fastnet is designed to be simple. The following items are required;

- Paranet (protective net)
- Brackets + fixing Screws
- 12mm diameter Galvanised steel rods
- Collars (if required)
- No2 x 1 Metre long Gripple loop hangers
- Gripple tensioning tool

Stages of installation

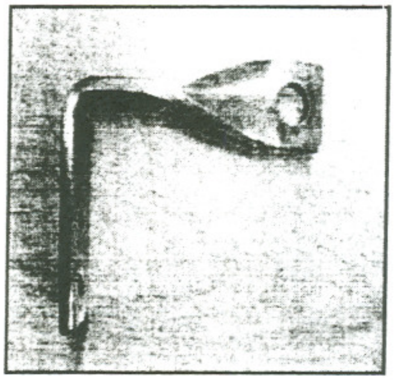
There are four stages in the installation procedure.

1. Preparation of roof area
2. Fixing of brackets, anchoring bar and Gripple Loop hangers
3. Applying the Paranet
4. Tensioning the net

Stage 1

All guttering should be removed from their holding brackets along the fascias of the roof. (*fig 1*)

(fig 1)



(fig 2)

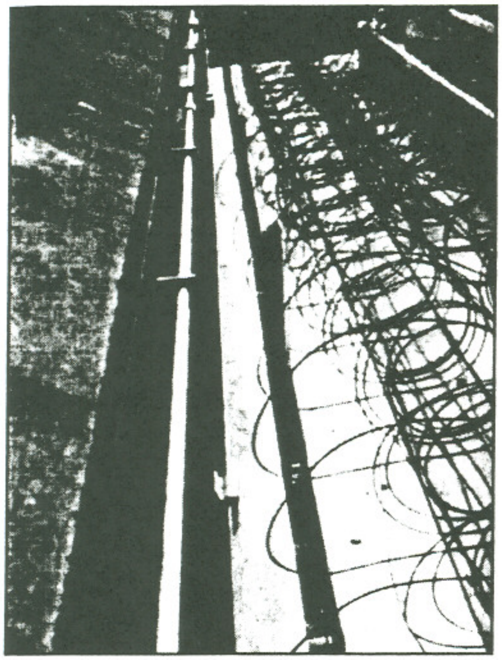
Once all guttering has been removed, locate the position of the roof truss ends.

Once the roof truss ends have been located, the L shaped anchoring bar brackets are secured by screwing through the fascias and into the roof truss ends. (*fig 2*) This process is continued around the roof.

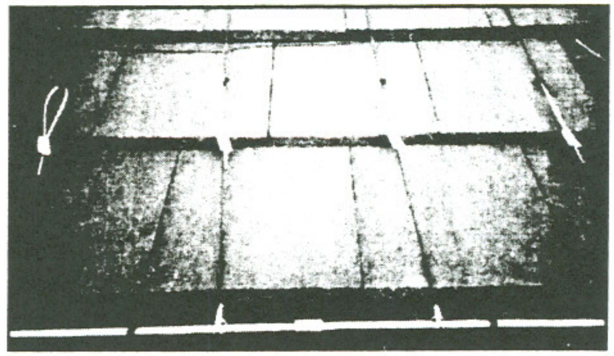
Remove all Ridge tiles and store for re-use.

Stage 2

Once all bracket are in place slide in the 12 mm diameter Galvanised steel bar along the entire length of the fascia (*fig 3*). For the purpose of connecting two length's of the 12 mm bar on longer roofs use collars to connect the two ends. (*fig 4*)

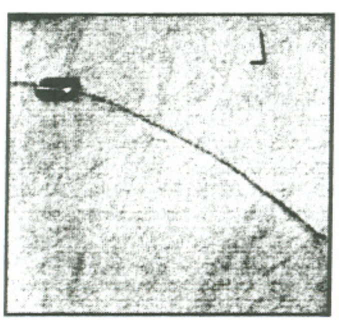


(*fig 3)*

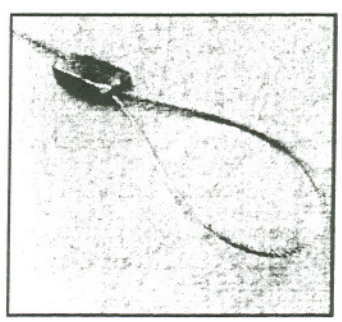


(*fig 4)*

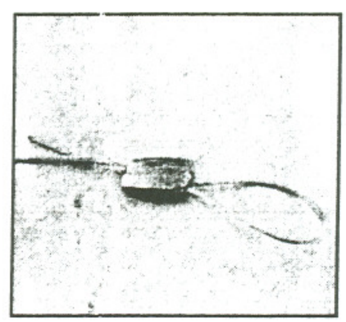
With all brackets in place take the No: 2 Gripple loop hangers and at one end you will have a fixed loop. Using the opposite end, loop the wire round the bar and back through the Gripple (*fig 5-7)*



(*fig 5)*



(*fig 6)*



(*fig 7)*

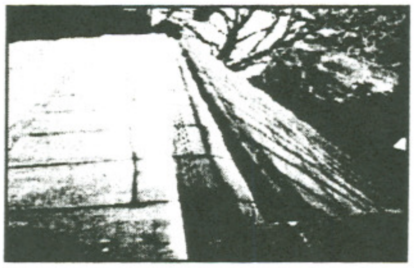
These should be placed at intervals of 300 mm along the length of the anchoring bar, please refer to (*fig 3*)

Stage 3

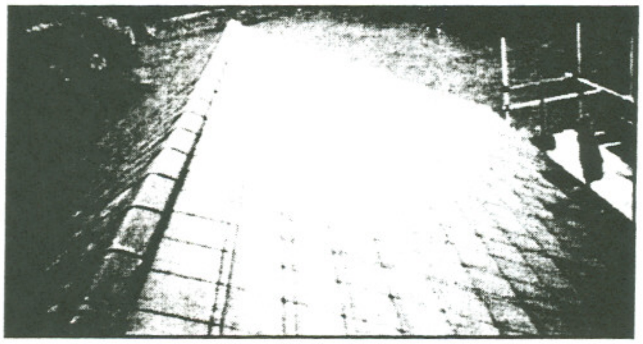
Ensure that all existing roof cladding is fixed securely prior to placing the Paranet in position. (*fig 8-9*).

The Paranet is supplied in 3.5 meter roll widths and it is necessary to lay each roll width side by side until the whole roof is covered. Each roll width of the Paranet is rolled out up and over the other side ensuring that the length of Paranet extends to the edge of the roof on either side. It may be necessary to trim the final width of Paranet laid to suit the dimensions of the roof.

(fig 8)



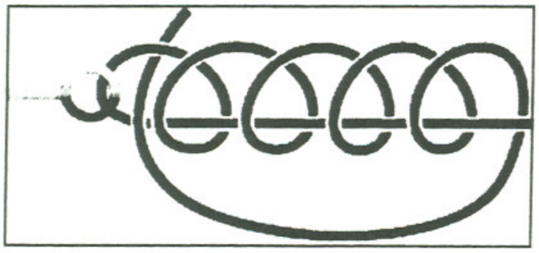
(fig 9)



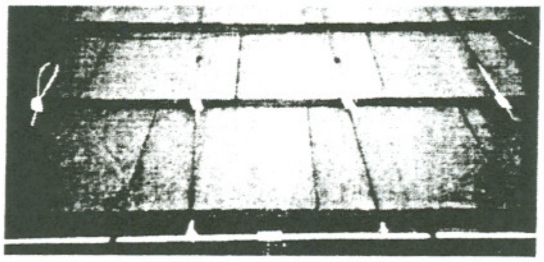
(fig 10 After tensioning)

Stage 4

Once the net is in position, the vertical ends of the net are attached to the fixed loop end of the Gripple by using a half blood knot, (this knot tightens the more pressure is exerted on it) (*fig 11-12*)



(fig 11)

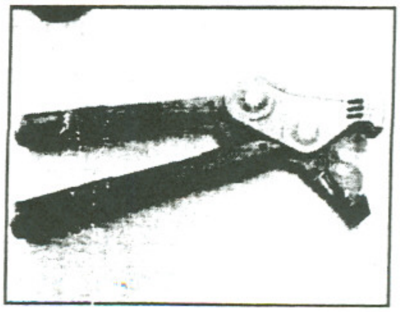


(fig 12)

Finally the Gripple wire loop hangers are tensioned using the gripple tensioning tool (*fig 13*) until the Paranet is tight to the roof.

The tension in the Paranet will be 50kg plus

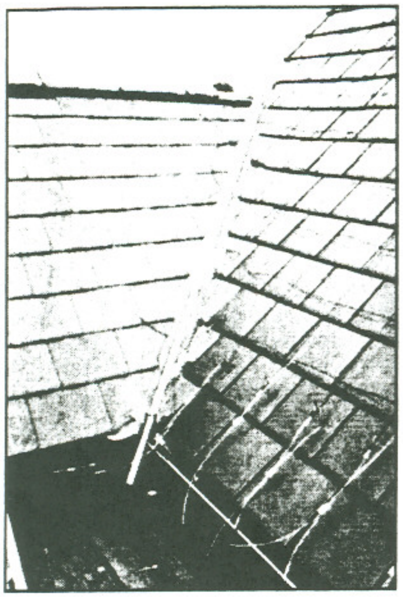
The ridge tiles are then re-fixed in position all guttering is also re-fixed in position. (*fig 10*)



(fig 13)

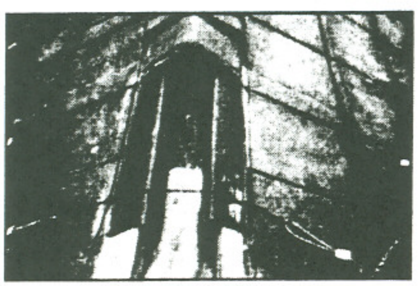
Hips and Valleys.

Hip and valleys will vary according to the detail and dimension of the roof involved. However for valleys in general, it is practical to fix a light galvanised steel chain in position along the valley detail and anchor the Paranet to the chain accordingly. Hips generally require close examination of the main structural detail forming the hip and a fixing method designed accordingly (*fig 14-16*)



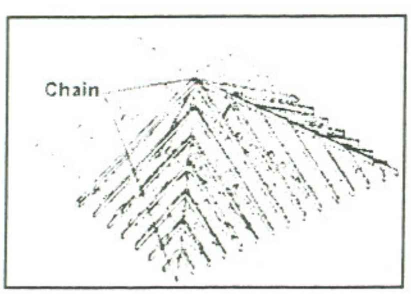
In this illustration we used a 1 inch square box section through the length of the valley, with holes drilled in for anchoring the Paranet.

(fig 14)

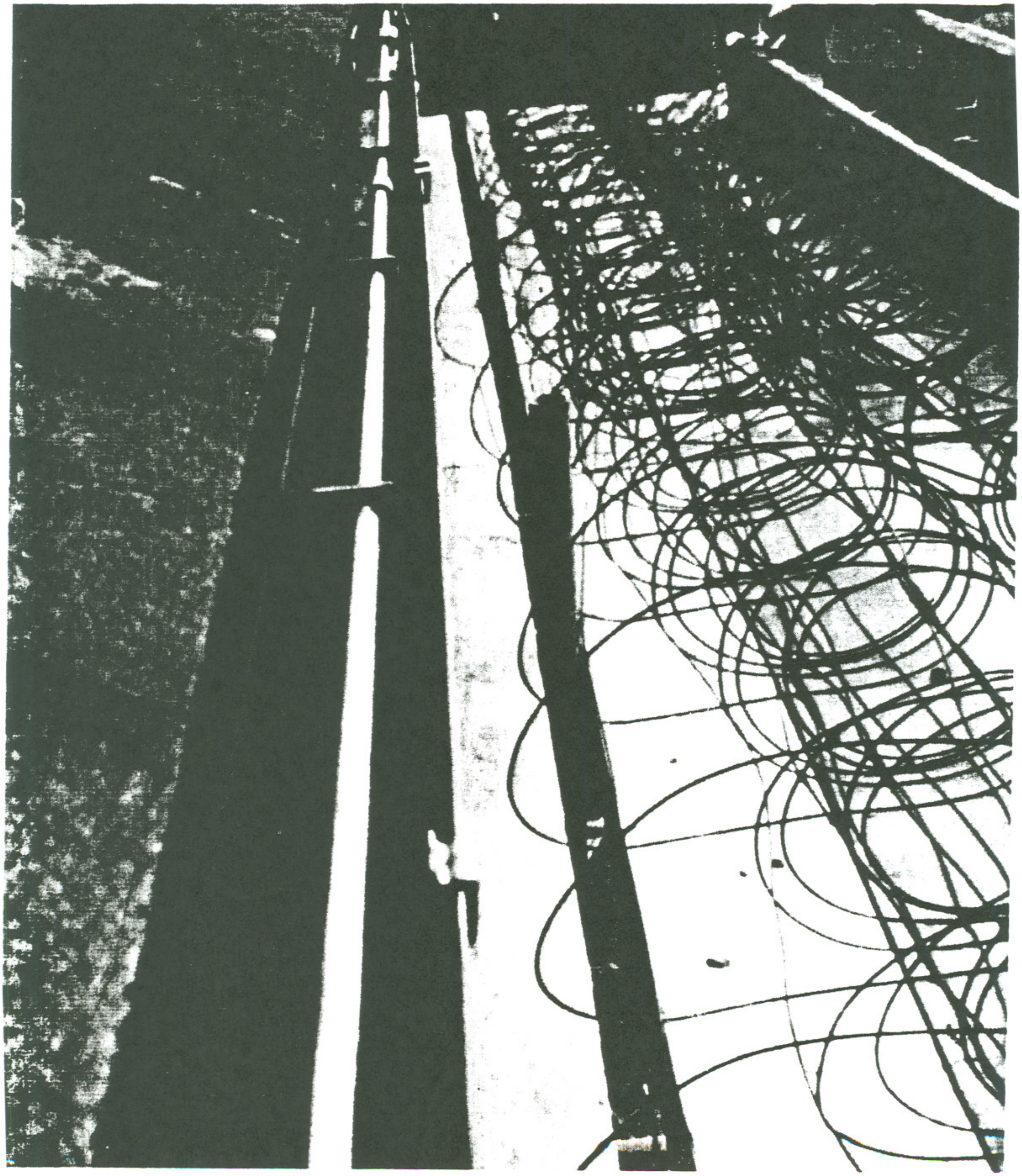


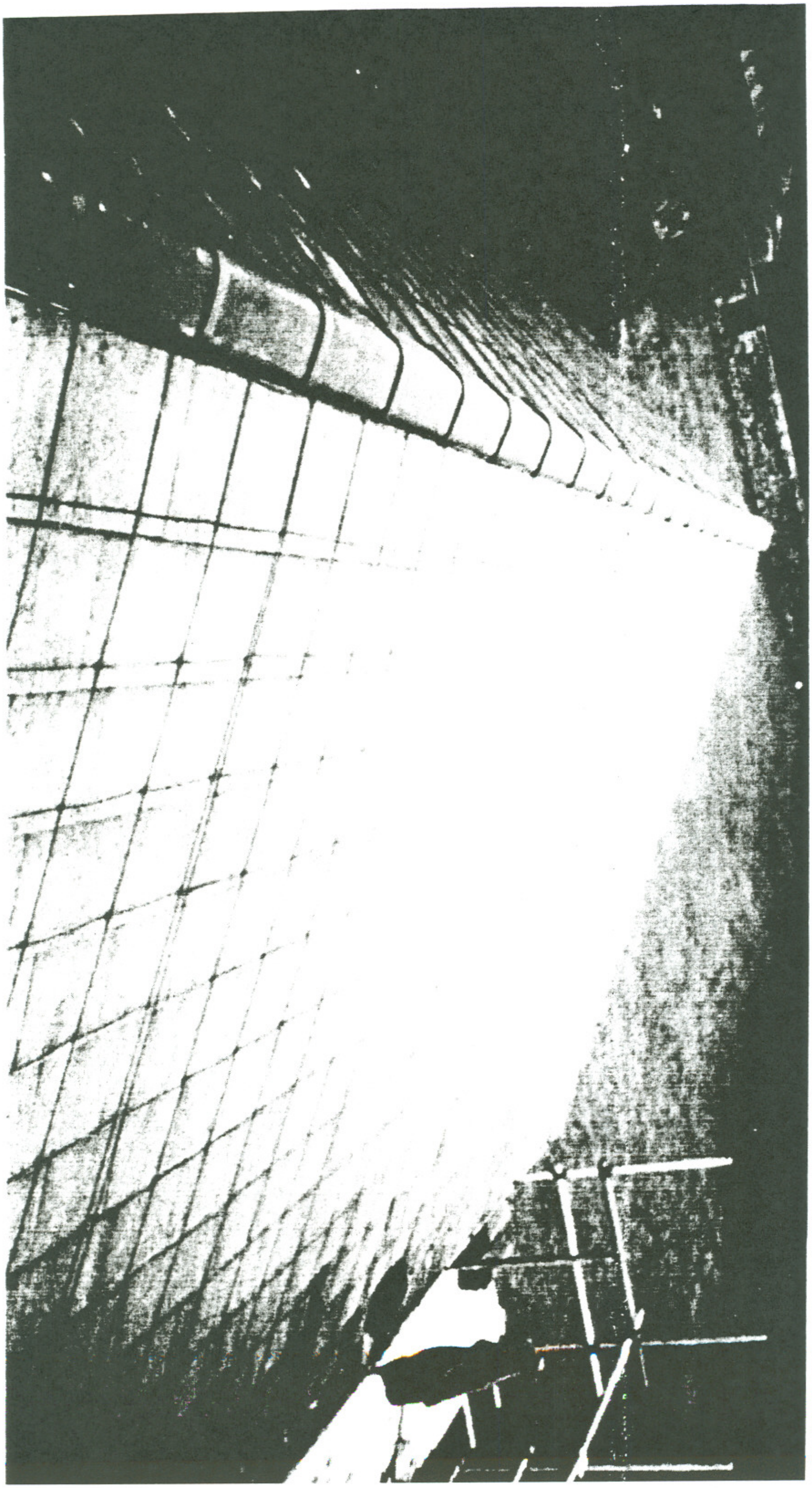
In this illustration you can see the chain running down the valley and the vertical ends connection to the Gripple.

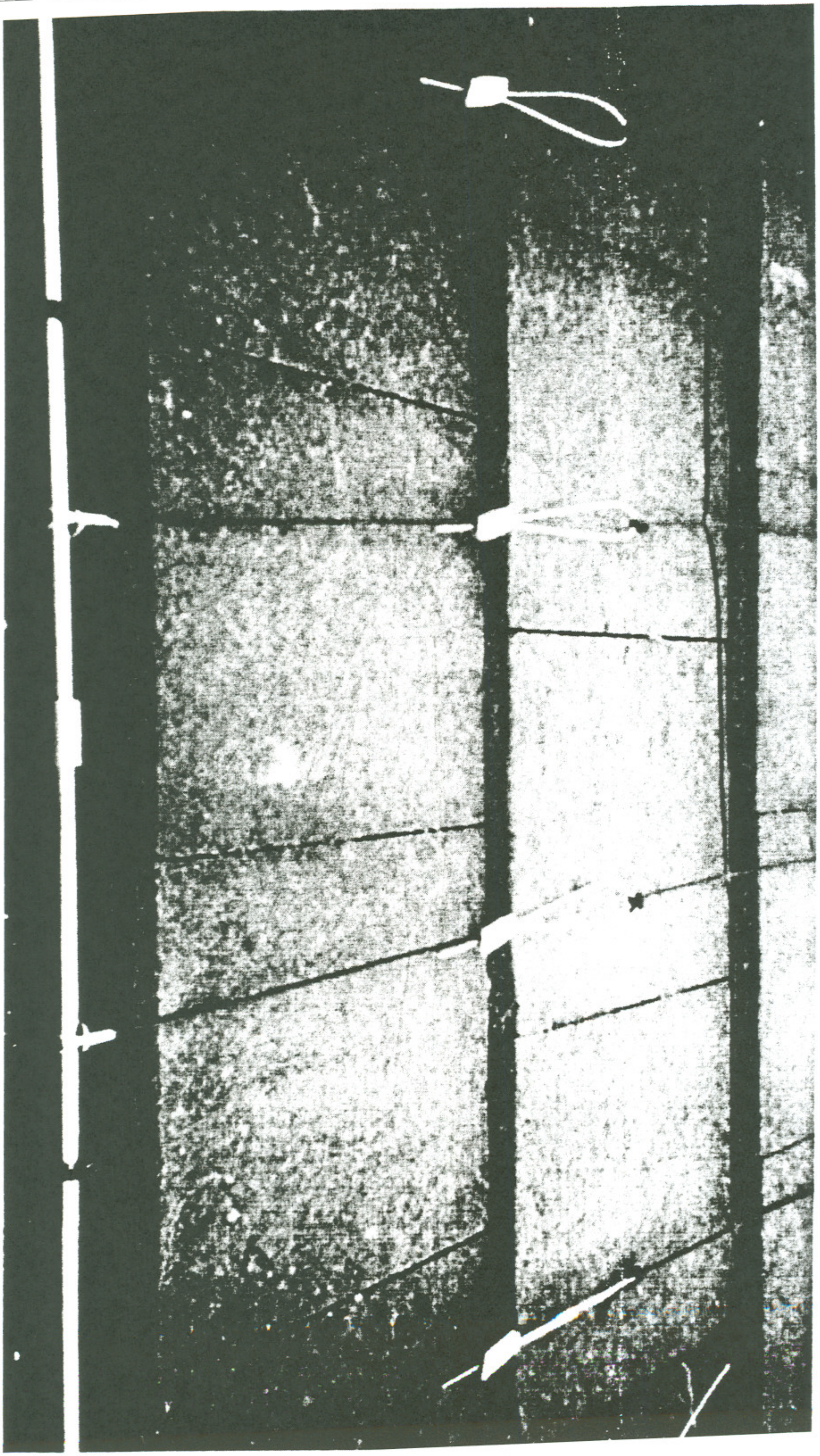
(fig 15)



(fig 16)





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