

Hand-made Farm Fence ... #852



Drawings and Text by FENCER FRED

Manually Installing Hardware Into A Primary Industries Pastoral Management System ... #852



1.

About this book.

This book is aimed at becoming a resource for :-

Novice Fencers
Agriculture Students
Small-hold block owners
Large farm managers
Fencing supplies companies.

It is a step by step guide to construct a 'conventional' farm fence, designed to confine sheep and cattle.

This fence will also meet the requirements set down in the New Zealand Fencing Act, 1978 * 50 ... to be recognised as a legal boundary fence.



2.

We will only use manual tools ... so there are no easy or modern mechanical aids such as :-

Tractor mounted post rammers
No chainsaws
No staple guns
No cordless drills
No laser sights.

I shall be describing 'traditional' methods and skills, that I have acquired over 22 years of farm fencing.

These methods are practical, robust and efficient.



3.

Our fencing hardware will be those most commonly used in New Zealand.

They include H.4 ground treated pine for the strainers and posts

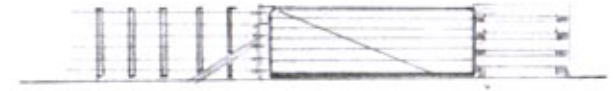
H.3 treated pine for the battens and false rails.

2.5 mm (12½ gauge) Galvanised, high tensile fencing wire.

One 3.66 metre (12 foot) pipe steel gate.

Galvanised and stainless steel staples.

Note: There is NO barbed wire.



4.

Concluding this book will be a brief biography of Fencer Fred.

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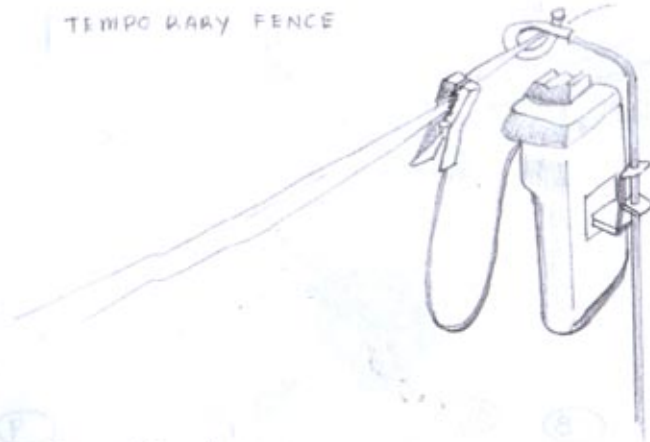
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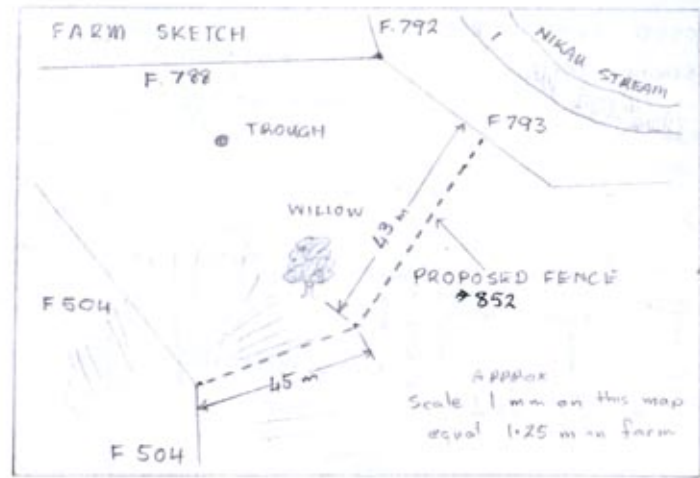
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TEMPORARY FENCE



Battery Powered Energizer Unit

5



6

A.1. Perhaps ... you

think that you need a fence, but to build a permanent fence will cost a lot of money ... do you really need that fence?

You might confirm your thoughts by building a TEMPORARY fence first.

(Refer Dia. 5. Temporary fence) Using a battery powered electric fence energizer unit, a few plastic standards, a few metres of electric tape ... and in a very short time (10-15 mins) you can build a temporary electric fence and TEST your thoughts.

The bonus doing this, is you will also confirm the best

location for your fence. You will also be able to observe your stock's reactions and their grazing patterns... plus... make accurate paddock size measurements.

Finally make provisional measurements that will enable reliable costings to be made, for the building of the PERMANENT fence.

A.2. Planning

Rule.1. Careful planning will always save money, labour and time.

Step.1. Locating

I suggest we start with a simple "Farm Sketch" (refer Dia. 6. Farm Sketch) Use A4 size paper and an approximate scale, sketch main features in the general location of the proposed fence.

These features may include :- buildings, stockyards, power-lines, large trees, streams, hills, ditches, tracks or rock outcrops.

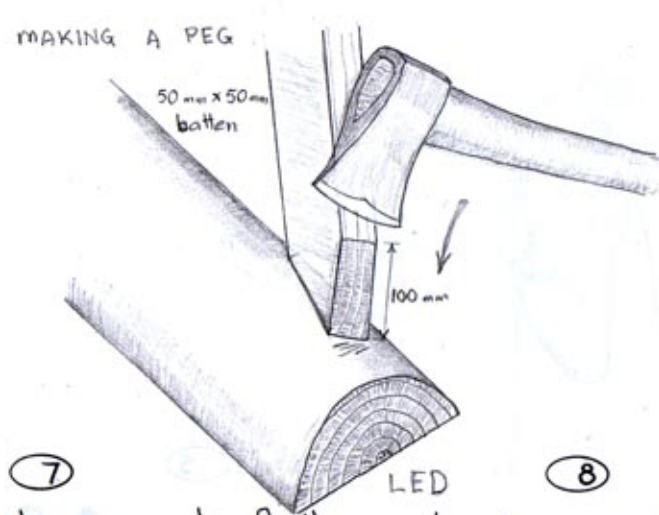
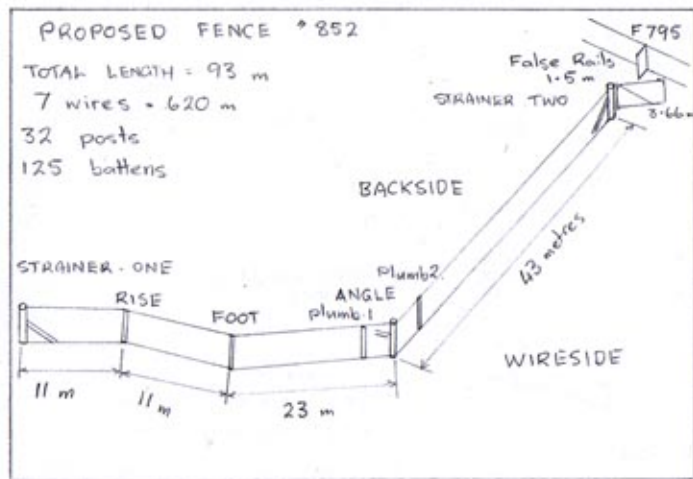
Step.2. Measuring Start with careful ground

measurements, using a metre wheel (Refer Dia 10, Page. 7.) is by far the easiest and quickest, but a measuring tape will do.

Do not rely on measurements made from AERIAL photographs particularly if your fence location is very hilly, as these photos do NOT give you TRUE ground-line measurements ... unless the land is virtually flat.

Step.3. Another Sketch Dia. 7 of proposed fence #852 on A4 paper showing the groundline measurements showing the distances between the strainers, rise, foot, angle and false rail posts.

5



Step 4. Peg the line.
Take your nice, sharp axe and make 9 pegs, one for each KEY post, as shown above in (Dia 7. Proposed Fence * 852)

Step 5. Making a peg.
(Refer Dia. 8. Making a peg.)
Use either old or new battens, cut across the grain of your batten on TWO sides only.
It is easier to control your cutting when you work at approx right angles to the battens growth rings or "grain".

By cutting TWO sides only, you will find it easier to

upright when it comes to hitting the peg squarely into the ground.

If you also remove a small triangular sod from the ground, the peg will PENETRATE easier.

Step 6. (Refer Dia. 9. Driving in)
Using the back of the axe head, hit the batten into the soil approx 200 mm deep, or until it is RIGID.

Step 7. How to peg.
Check the peg is VERTICAL and PLUMB, then continue to hit the peg down another 100 mm (if the soil permits this, without shattering the top of the batten with the

impact of the axe head.

Step 8. Where to peg.
The main purpose of these pegs are to identify DISTANCE and NOT too concerned about ALIGNMENT.

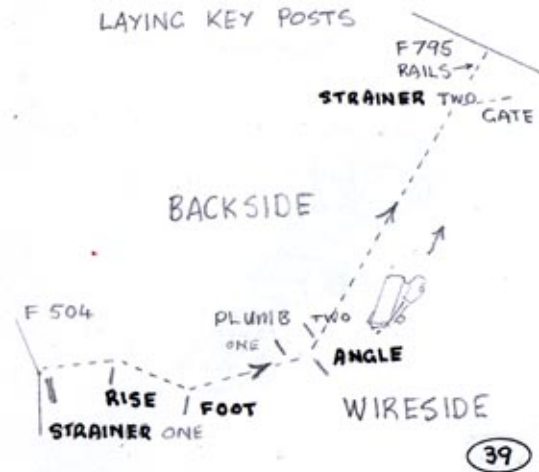
The temporary electric fence will show you where your angle, foot and rise pegs NEED to go.

Having said that, we DO want our pegs to be reasonably straight (aligned) when you look from Strainer 1, down past the rise peg, past the foot peg... ending at the angle peg.

Step 9. Key post measurements.

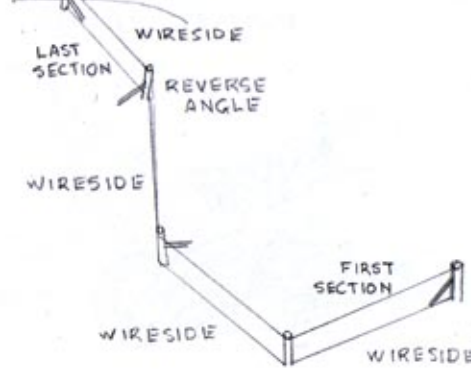
After you have completed your 9 pegs, use your metre wheel to measure between each peg and record their DISTANCES onto the A4 Proposed Fence * 852 sketch map. (Refer Dia. 7.)

LAYING KEY POSTS



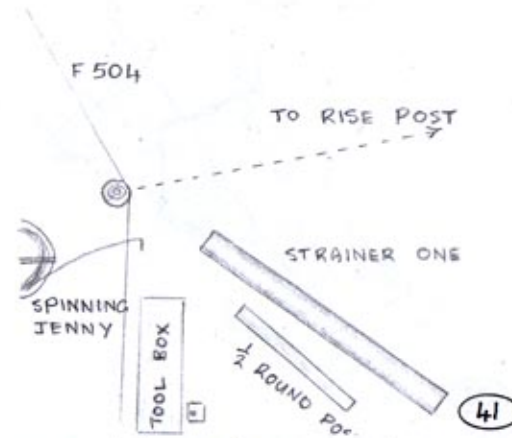
39

WIRESIDE ?



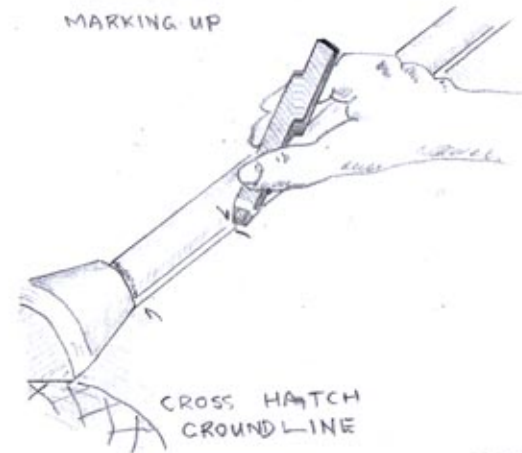
40

LAY OUT AT STRAINER ONE



41

MARKING UP



42

B.1. Laying Key posts.

(Refer Dia. 39 - Laying key posts)
This diagram is a simplified fence map, based on details we collected for our Page.6.
Dia.7. Proposed Fence *852.
Step.1.

This shows our pick-up laying the line on the "wireside" of the fence and the truck is going down hill, having started at strainer post One.
Step.2.

Your tools, water, spinning-jenny, all coils of wire, all staples and nails are dropped off first, along with strainer post One, a stay post, a half round post and the 3.6 metre alkathene post spacing gauge, at the top of the hill.

16.

HANDMADE FARM FENCE ... *852.
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Step.3.

A little back ground to deciding which side of a NEW fence is to be the WIRESIDE ?

As a general rule, the side of the fence which is expected to have the greatest stock-pressure, is the side that should be the wireside as this will present the "smoothest" fence face to the animals, because all the battens and posts will be on the BACKSIDE.

Also take into consideration ground contours, such as hills. The wireside is also generally the "TOPSIDE" of the hills slope.

However your wireside can

switch (Refer Dia.40)

This shows a reverse angle, where the second section of the fence could go either way, but the last section needs the wireside to CHANGE sides from that of the previous fence section.

For our fence *852, as you look from strainer *1, towards strainer *2, the righthand side will become our wireside ALL the way to strainer *2.

Step.4.

Drive slowly along our fence and drop off the remaining posts, gate and rails at the positions shown in Dia 39.

Rule.7. Always start laying and building your fences from

the strainer post that is at the highest elevation above sea level.

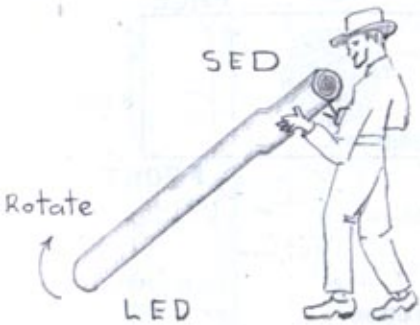
This is also the best location to set up the spinning jenny, as from this position, gravity will help you to pull the wires out.

Simply put... it is easier to work DOWNHILL, than it is to try and work UPHILL.

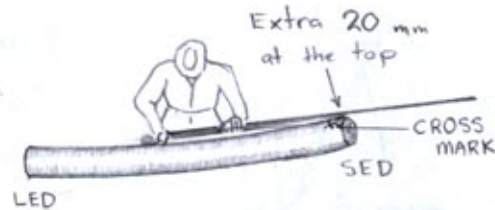
Step.5.

Drive back to strainer *1 and we are now ready to start our DIGGING of posts.

STRAIGHT FACE ?



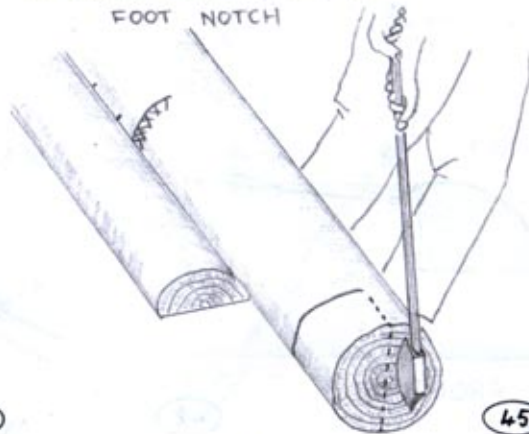
MARKING UP, EXAGGERATED BENT STRAINER.



NOTE: THE HOLLOW OF THE BEND IS AT THE TOP

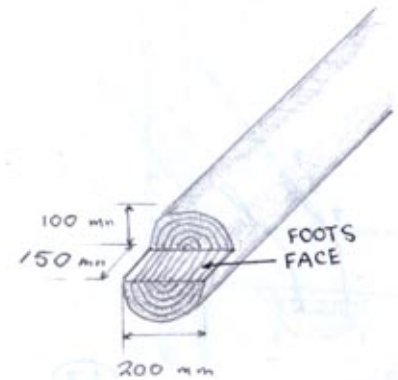
43 FOR STAY-POSTS ... IT GOES TO THE BOTTOM. 44

BREAKING OUT OF THE FOOT NOTCH



45

COMPLETED FOOT NOTCH



46

B.2. Strainer One

Rule. 8. Before you dig in any KEY post, check which is the wireside, in BOTH directions.

(Refer Page 16, Dia 41 - Layout Strainer*)

Step. 1. Marking up.

Stand your rammer against F.504 and have your carpenters pencil in your pocket... now pick up the strainer (Refer Dia 43) by its SMALLEST end (S.E.D)....

Step. 2.

... SIGHT down the length of the strainer, as you ROTATE its LARGE END (L.E.D) along the ground.

Find the strainers "straightest face" and mark this, with a clear pencilled cross, near the top of the strainer.

If the post has a BEND

in it, then you must mark the INSIDE of the bend (Refer Dia. 44 - Bent strainer) This is what we call the FACE of the strainer.

Step. 3.

(Refer P.16. Dia 42 - Marking up)

Lay the strainer down, with the "X" at the topside.

Now lay your rammer, with its flatside down and so you are facing the wire gauge marks, that are on the handle.

Step. 4.

Only while marking strainer-posts you ADD an extra 20mm to the ring mark indicating the top of our normal posts.

(Refer again to Dia. 44 - Marking up)

Start at the TOP and CAREFULLY mark the wire spacings with OPPOSING half arrow-heads, so your rammer

marks meet your POST marks TIP to TIP as in diagram 42.

V.I.P. Take care to match your spacing marks as PRECISELY as possible.



Step. 5.

Your GROUND-LINE mark is also different, to your wire spacing marks, because you make a CROSS-HATCH pattern for approx One third of the posts circumference... this helps in preventing you mistaking the ground mark for a wire mark, when you are working under pressure.

Step. 6.

(Refer. Dia 46 - Foot notch Dimensions)

To mark-up the foot notch, firstly mark half a ring

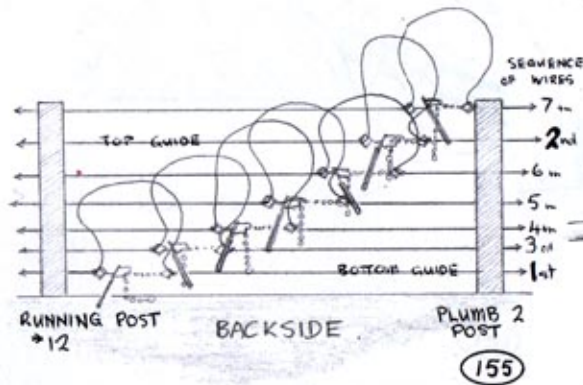
around the strainer post approx 150 mm, up from the strainers base.

Next is to draw a line across the base so that it is at RIGHT ANGLES to the strainers FACE... or if you prefer to think of it, as where we marked our "X" at the top and where we have already marked our wire spacings.

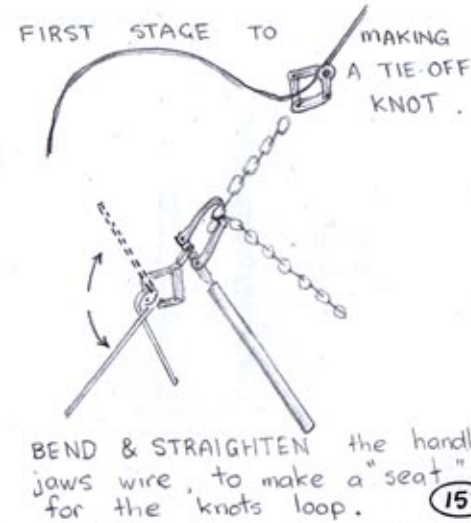
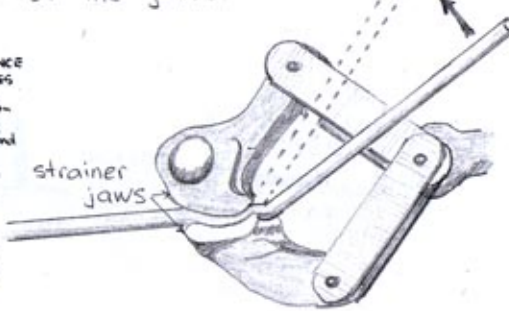
Finally we draw a line up the post on each side, to meet the half circle mark.

That completes marking-up of our strainer post *1.

DIAGONAL SETTING OF CHAIN WIRE STRAINERS



BEND ALL WIRES ... to be **INLINE** with the CURVE of the jaws.



STRAINER ONE WIRE KNOT



D.I. Set-up for the wire-strainers.

f) Avoid KINKS in your wire particularly while pulling the wires out ... if one occurs, cut or snap the wire and make a #8 joining knot as shown P.50. Dia 165.A & 165.B.

After completing the digging in of our running posts and we are happy with our gauging of the ground-line ... we are now ready to do our wire work.

step.1. Safety...safety...safety. High tensile wire requires respect and caution ... without those the wire will HURT you.

- Wear safety goggles
- Wear good quality working leather gloves that FIT your hand and fingers.

Practice :-

- Working on the BACKSIDE of the fence
- Work where TWO posts on each side of you are STAPLED
- NEVER rush wire work

Step.2. (Refer Dia 155 & 156 - Setting...) We are straining up our wires at the approx MIDDLE of our fence, which lies between Plumb-post #2 and Running-post #12.

As shown, we will SET our chain-wire strainers up so they will form a DIAGONAL line ... starting near the base of post #12 and ENDING near the TOP of Plumb. post #2.

This will keep the strainer handles jaws FREE of DANGLING chains and wire tails.

which makes the tying off knot alot easier to complete as theres nothing to "catch" your hand when doing each knots wire "wrap arounds".

Note: Most chain wire strainers are designed for RIGHT handed fencers to OPERATE with the HANDLE on your LEFT handside, when its fitted to the wire. You can use the handle on your rightside ... BUT it is more DIFFICULT.

By having the handle on the left you can SEE and FIT the wire into its JAWS (see Dia 156. Bend wire inline with the jaws curve) while at the SAME time, you can BEND the wire away from you, so it will FIT the jaws and NOT SLIDE ALONG the wire, as you crank the wire strainers up to tension the wire.

Step.3. Check for KINKS.

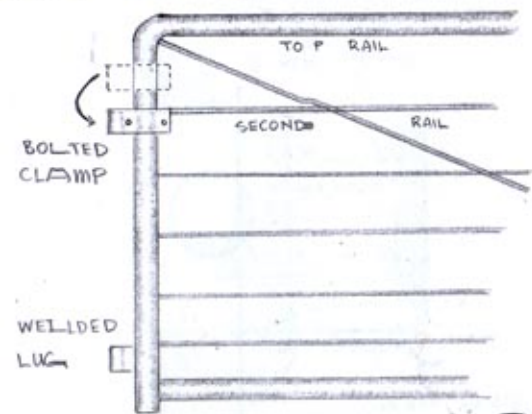
Because we have strained and released our TWO guide wires, to MOVE our strainers from near the angle post to its new location be CAREFUL, when you pull the slack out of the wire and first fit the wirestrainer.

Take up just enough pressure to straighten the wire up, then ...

Walk along the fence to make sure that a wire loop has NOT been pulled into a KINK ... if it has, remember the #8 knot?

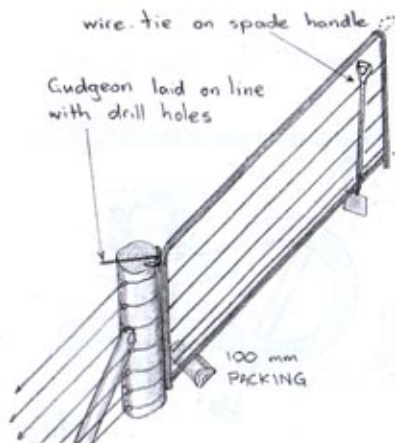
Once checked, then you can pull-up enough pressure, so that you see NO SAGGING of the wire BETWEEN our KEYPOSTS of strainer.1, ris e, foot, plumb.1, angle, plumb.2 and strainer.2.

MOWE TOP CLAMP POSITION



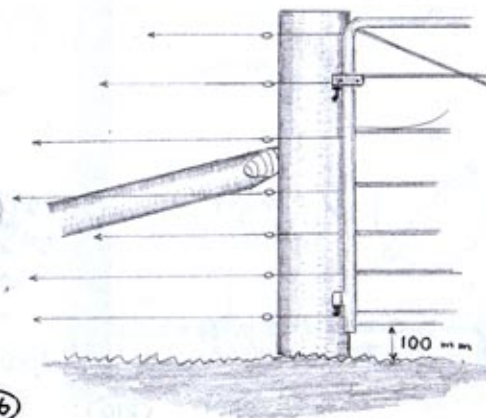
(205)

TEMPORARY LEVELING



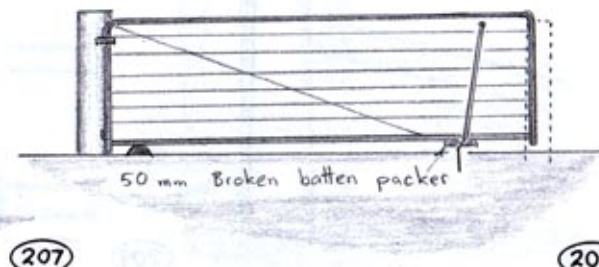
(206)

GROUND CLEARANCE



(207)

LIFTED LATCH END, TO MITIGATE "GATE-DROP"



(208)

F.1. Gate preparations.

After you have battened your fence, the fence will be well and truly SETTLED... so we can now set about and swing our gate.

Step.1. (Refer Dia. 205 - Clamp position) Check the position of our steel gates TOP clamp... if it is BOLTED between the second and TOP rail, then we MUST move it down, so it clamps ONTO the BOTTOMSIDE of the second rail, as shown.

This relocation of the CLAMP ensures the LONG-TERM successful function of the gate, by PREVENTING any SLIPPING or the round steel clamp, around

the round steel pipe frame.

Also the clamp is NOW effectively TRAPPED between the second rail and the SEAT of our, soon to be installed TOP lock through gudgeon.

Step.2 (Refer Dia. 206 - Temporary Gate leveling)

Set the gate up as shown, with a flatside down, length of half round post acting as a PACKER near the strainer end of the gate... while at the other end, stand your SPADE into the ground, so it is EDGE on to the gate and TIE the spade handle, with one of our high tensile wire coils, soft wire ties... so our gate is

LEVEL and PLUMB and a minimum of 100 mm space between the ground and the gates bottom rail, as shown in Diagram 207.

Step.3. (Refer Dia. 208 Bias for 'drop') By adding 30-50 mm packing between the spade-head and the LATCH-END of our gate we ALTER our top gudgeons DRILLING position by 5-10 mm from its original gate LEVELED position.

We must do this because ALL gates will actually DROP at the latch-end from their sighted level position... WHEN they are HUNG on their gudgeons.

Hence we create this BIAS

by packing to get our TRUE top gudgeons DRILLING position, as shown in Diagram. 209... exaggerated to highlight this CRITICAL step.

Step.4. The COMPLEX bit. We are going to take in THREE different inter-connected aspects to achieve our Two key nail gudgeon drill hole MARKERS being LOCATED so their:-

- i) Height - from the ground is set.
- ii) Drilling angle - is aligned with the wires.
- iii) Bias plumb line is set for drilling.

4.a) (Refer Dia. 211 - Swinging Spacing) This 25-40 mm space

F.1. GATE PREPARATIONS.
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63.



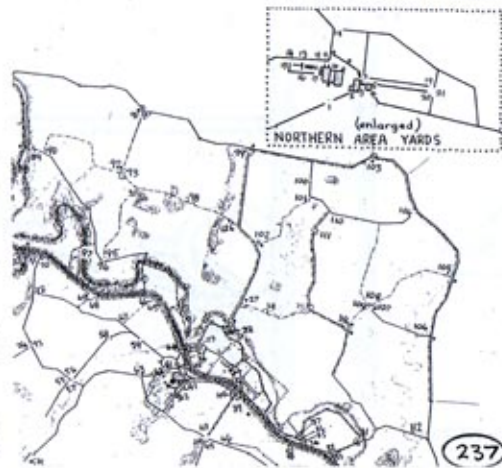
G.I. Background

Why is this fence numbered 852? ... it represents a Strain Registration Number, that is the foundation to a HOLISTIC farm fence management system, that I call a "FENCING REGISTER"

For people unfamiliar with farm fencing, I want to clarify what "STRAIN" means in context to fence identification.

Most people would look at a farms PADDOCK and ASSUME ONE SIDE of a paddock equates to ONE FENCE...

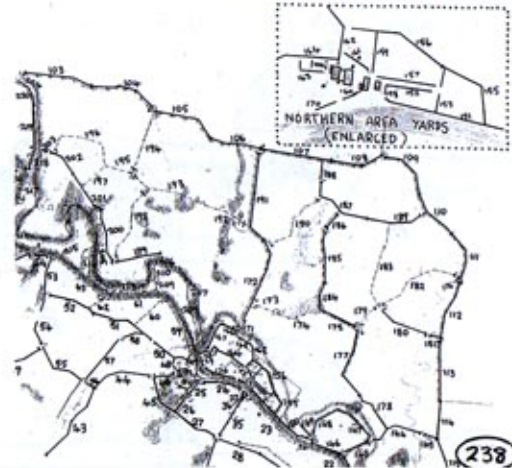
...this is **NOT** ALWAYS TRUE.



On any LARGE size farms, paddocks can be ONE, to ONE HUNDRED hectares, which means each side of a paddock may VARY in LENGTH, from a FEW metres up to possible SEVERAL HUNDREDS of metres.

Therefore to FENCE that SIDE, with a fence may require several STRAINS of fencing to SECURE a paddock side.

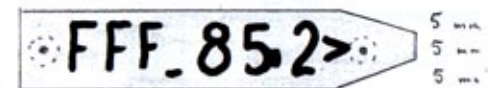
Also EACH of these strains, may have been BUILT in different YEARS, using different MATERIALS and by different FENCERS... each bringing their INDIVIDUAL techniques and skills to their work.



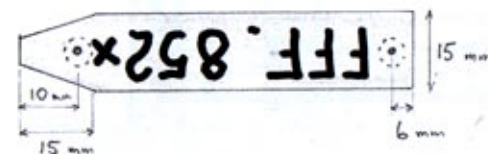
Hence geography, materials, work skills and the AGE, all contribute to the STRAIN/ FENCES **INTEGRITY** and **ASSET VALUES**.

To successfully manage this very significant farm asset... often third most important after land and stock, and well AHEAD of buildings (if its not a DAIRY farm) and machinery... you firstly need to KNOW exactly what you HAVE and WHERE it is and what CONDITION it currently is in and finally PLAN for its replacement.

Hence I TAG each strain, I work on and encourage farmers to tag ALL strains to begin their own coded



75 mm



"FENCING REGISTER"

This system includes TAGGING all GATEWAYS and stockyards.

From each strain and gateway survey records, many programs can be built... all of which enhance and encourage **LONG TERM** maintenance and development **PLANS**. (Ref: Dias-236-238. Farm Maps)

In my opinion all these sheets of numbers and NOTES are BEST used in GRAPHIC form, of farm **MAPS**... of which, I will show and explain a few examples made up from two East Coast, sheep and beef hill country farms.

GLOSSARY

	PAGE	PART	Nº	STEP	TEXT Nº	Word / Phrase	Meaning
1	25	B	11		26	Angle	The post at which a fence changes direction
2	59	E	3		40	Battening	The process of stapling battens onto a fence
3	46	C	5		36	Benching	Trimming-off a small 'bulge' of ground, to make a smooth groundline
4	18	B	3	2	18	Breaking-out	When you trim, pre-cut wood sections out of its original post
5	43	C	1	3	46	Closing-down	Reducing successive post spacing measurements or battens
6	1				1	Conventional	Fence built with posts, wires and battens and permantly tied-off
7	45	C	4		35	Creeping	Gradual change in a posts alignment to the guide wires, while ramming
8	17	B	2	5	15	Cross-hatch	Criss-cross pattern of lines marking the posts groundline.
9	23	B	7	3	45	Cross-up	A lower 'ring' of wire on a coil, crosses the lead out wire
10	22	B	6	4	23	Crown	Top brow or curve on a rise or hill
11	10	A	7	2	42	Domes	Convex (bulge outwards) surface on the head of a new hammer
12	17	B	2	2	14	Face	The surface of contact, to give correct alignment or to take load pressure
13	63	F	1	3	44	Gate-drop	The latch end of a gate drops from its sighted mark when put on its gudgeons
14	6	A	2	5	3	Grain	The pattern of a tree annual growth rings
15	7	A	3	3	41	Ground-treated	Chemical preservative (H.4) protects wood from bacteria attacks.
16	10	A	7	2	8	Heads	The rounded end of a staple
17	18	B	3	5	19	Hollow	The difference between the edge of a 'T foot' block and the post
18	8	A	4	1	6	Internal	A fence on a property that is NOT a part of its legal boundaries
19	20	B	5	3.a	21	Kick-back	Deliberate leaning back of a post against the pull of fence wires
20	14	A	9		11	Lay	Process of spreading fencing materials along the planned fence line
21	25	B	12	2	28	L.E.D	Large End Diameter
22	51	D	2	3	43	Lifting	When a post moves upwards from its original rammed position
23	51	D	2	2	41	Load	Pressure exerted from strained up fencing wires
24	50	D	1	11	38	Number 8 knot	Two wire ends, looped and threaded through each other in opposing directions
25	11	A	7	3	9	Pitch	The angle measured between the spade head and the line of the handle
26	6	A	2	7	4	Plumb	When something is VERTICAL or inline, with the pull of gravity
27	30	B	16	5	31	Seated	The stay end is correctly bottomed out into the top of the stay notch
28	25	B	12	1	27	S.E.D	Small End Diameter
29	52	D	2	5	39	Settling-down	Compaction of the ground, under the load from strained-up fence wires

GLOSSARY

	PAGE	PART	Nº	STEP	TEXT Nº	Word / Phrase	Meaning
30	26	B	12	5	29	Skew	Nails hit in on an angle from the side
31	28	B	14	8	46	Slice	Taking a thin layer from the surface of the grounds stayblocks face
32	33	B	20	2	33	Slide-staple	A staple on its flat, behind a fence wire to reduce friction
33	20	B	5	1	22	Sod	a spade or shovel size piece of earth, cut out of the ground
34	16	B	1	3	34	Stock-pressure	The side of a fence where stock will be most likely to be grazing or walking
35	12	A	7	3	10	Straight edge	Using the metre long level, as a ruler of straight lines.
36	17	B	2	2	13	Straightest face	Comparative assessment of a post to find the side to staple the wires
37	29	B	16	2	37	Square to	When at right angles, 90°, to a reference line
38	23	B	8		25	Tack	To hit a nail or staple in enough to hold, but easily removed later
39	18	B	3		16	T foot	Foot block wired at right angles to the base of a post
40	18	B	3	5	20	Tighten	Tensioning of the wires, holding a 'T foot' to a post
41	16	B	1	3	12	Topside	The side of a fence which is upper most on sloping ground
42	1				2	Traditional	Knowledge passed on from previous generation of fencers
43	7	A	3	3	5	Treated	Chemical preserving timber
44	18	B	3		17	Twisting	The turning of a post because of off-centred strained up wires
45	28	B	14	7	30	V.I.P	Very Important Point
46	9	A	6		7	Winding down	Slowing down in the pace of work
47	22	B	7	3	24	Wire rings	Single circle of wire on a coil of fencing wire
48	31	B	18	1	32	Wire side	The side of a fence that the wires are stapled onto the posts.

Fencer Fred is a pen name for Stephen D Aspden, who was born into a family of nine children at Wairoa, a small town on the East Coast of New Zealand's North Island in 1952.

He grew up being active in sports to avoid working in the family's car-wrecking and repair business. Around fourteen years of age he began farm fencing and has never really stopped, even during the eight years he spent teaching at primary schools.

From back country East Coast pumice soiled hills, through Waipukurau's rolling country and up to the peat-lands of the Waikato, Fencer Fred learned his craft at building conventional, electric, rail fences and assisted in the construction of many sheep, dairy and cattle yards.

Enriching his fencing knowledge were the observations made on the numerous visits to Australia, America and Canada.

Having increasing anxiety at seeing two generations not having the opportunity, or the inclination, to learn farm fencing on the "one-to-one" basis as he had done, and discovering there are very few resources for the teaching of fencing ... he felt compelled to bring his two life's experiences together ... hence this first book, in what he hopes will become a series.

Other titles he plans to write are:

Hand-Made Electric Farm Fence ... #952
Fencer Fred Fixes Your Farm Fences
Stock Yards and Load-Out Ramps for Small Farms



ISBN 0-476-01064-0



PRINTED BY **terau** CREATIVE DESIGN & PRINT

First printed February 2005