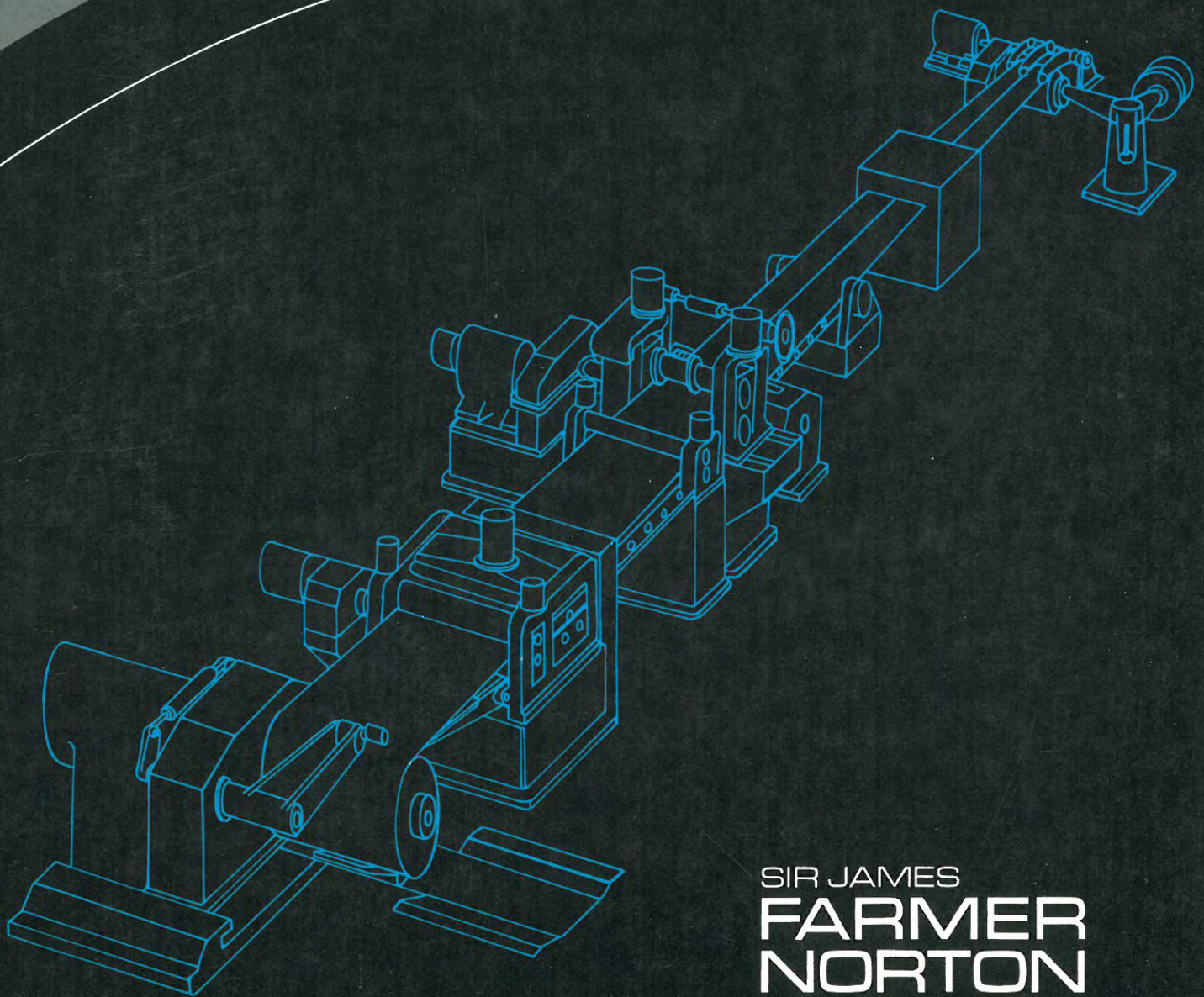


Slitters and Slitting Lines



SIR JAMES
**FARMER
NORTON**

SIR JAMES FARMER NORTON

For more than 125 years we have been manufacturers of machinery for the ferrous and non-ferrous trades, and we are taking this opportunity of giving you this list of our comprehensive range of machines.

Bar and Tube Making Plant

Single and multiple drawing Bar Drawbenches.
Single and multiple drawing Tube Drawbenches.
Continuous drawing Hydraulic Drawbenches.
Tube Bull Blocks.
Push Pointing Units.
Bar and Tube Straightening machinery.
Section Straightening machinery.
Stretch Straightening machinery.
Centreless Bar Turning Machines.
Continuous Drawing, Polishing and Cutting-off Machines.
Billet Peeling Machines.
Tube Reducing Mills.
Billet Piercing Machines.
Cold Pointing and Cropping Machines for flats and squares.
Hot and cold Rotary Swaging Machines.

Rolling Mills and Auxiliary Plant

2 High and 4 High Mills.
3 High Mills for Rods.
Double Duo Mills.
Sheet and Sheet Polishing Mills.
Slabbing and Breaking-down Mills.
Wire Flattening Mills.
Pull-through and Driven Slitters.
Edge Trimming Machines.
Flattening and Cutting-off Machines.
Levelling Machines.
Coilers and Decoilers.
Scrap Bundling and Scrap Chopping Machines.
Rod Coiling Machines.
Billet Shearing Machines.
Contour Correcting Machines for extruded sections.
Run-out Tables.
Bloom Burners.

Wire Drawing Machinery

Multiple Block Machines.
Single Block Machines.
Fine Wire Machines.
Bull Blocks.
Wet or Dry Machines (Slip or non-slip).
Gravity Blocks.
Concentric Block Wire Drawing Machines.
Pointing Rolls.
Straight Line Machines.
Copper Rod Machines.
Spoolers.
Winders for galvanizing plant (Horizontal and Vertical).
Mechanical Descaling Equipment.

REPRESENTATIVE

FURTHER DETAILS OF ANY OF THE ABOVE CAN BE SUPPLIED
ON REQUEST.

Slitters and Slitting Lines



Sir James Farmer Norton & Co Ltd have been designing and building slitting machines for over 40 years, initially for the strip finishing trades following final rolling but with the introduction of the wide sheet coil, from the primary mills, giving coil weights of 20 tonnes and over there has been in recent years the development of massive slitting lines.

These may comprise a coil loading system, Coil car and and Decoiler at the entry end, a Flattener, Threading tables, a Crop shear and edge guide system, Slitting machine, Recoiler with coil separator, Coil car, Unloader and a Scrap disposal system. For thin sheet work a differential tension system between the slitter and recoiler may be needed.

With a company working with narrow strip it is now possible to take advantage of the savings realized in the processing of flat rolled projects from wide strip. Thus the producer of tubes, cold rolled sections, strip for small pressings can purchase the wide coil and slit into the widths required for the particular process.

The same advantages will be available to a warehouse business enabling supplies of narrow strip to exact requirements being quickly produced.

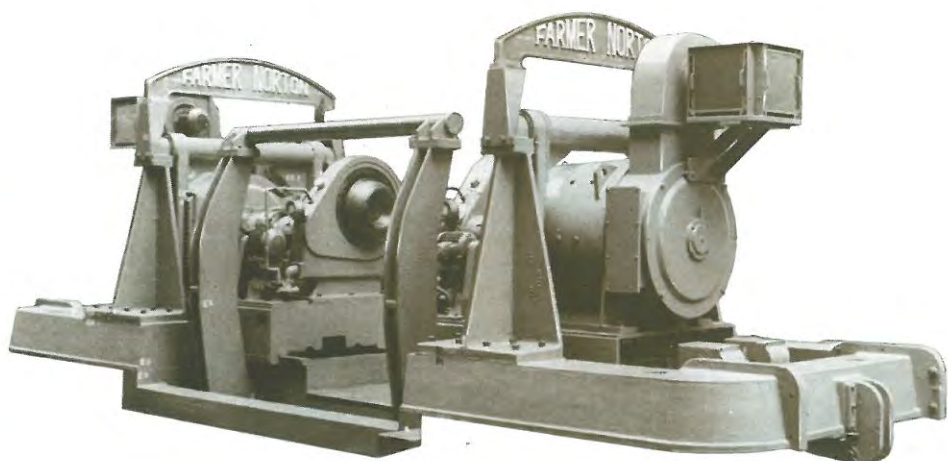
The composition of a slitting line depends on the type and output size of the product and since there may be 12 or more separate units in a complete line, each of which may have unique features, it follows that the complete line must be engineered and co-ordinated to the customer's particular needs. The following details show some typical unit details with possible variations mentioned on each.

Sir James Farmer Norton & Co Ltd

Adelphi Iron Works Salford
Manchester England M60 9HH
Telephone 061-832 5511
Telex 667492
Telegrams Agricola Manchester

Decoilers

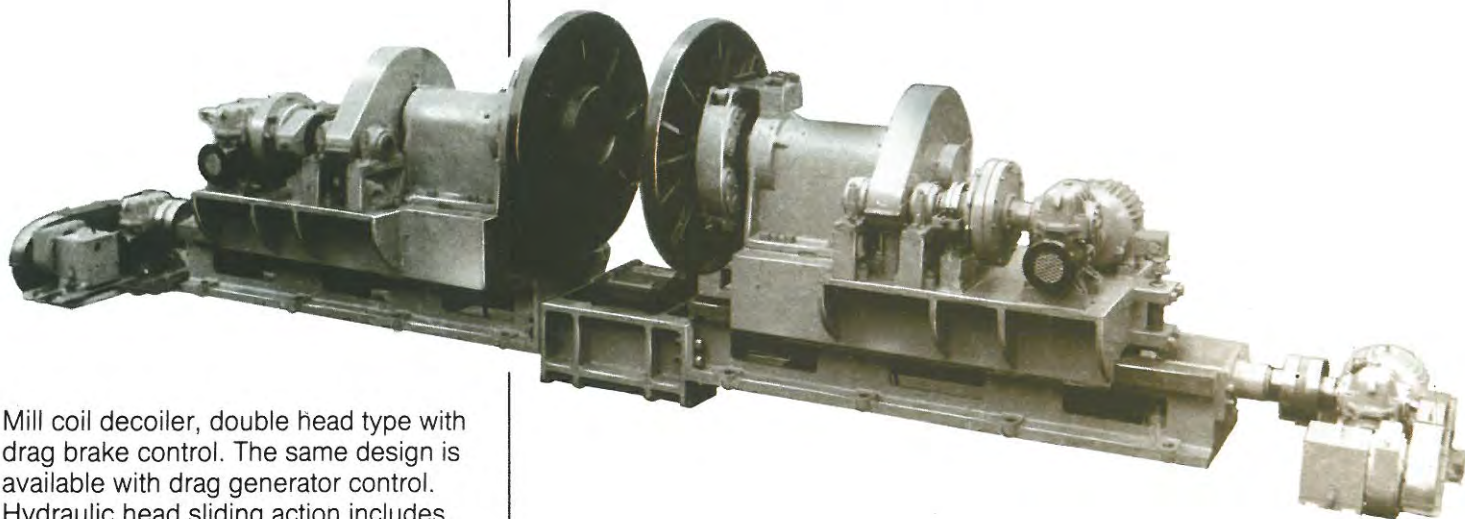
Mill coil decoiler with pendulum alignment and D.C. drag generator on slitting line running at 600 metres per minute.



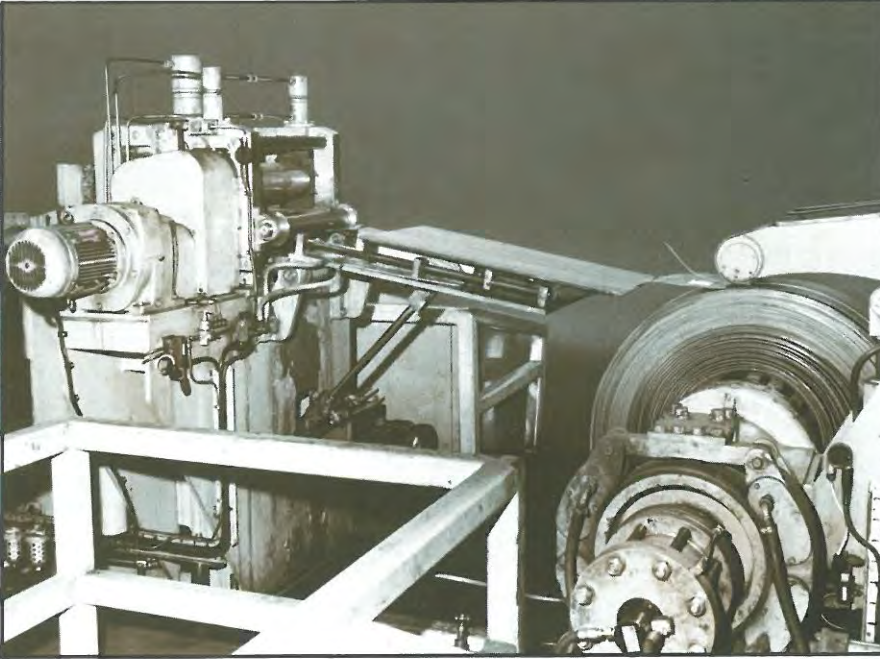
Single head decoiler with drag brake. This simple head also has a sliding base alignment control.



Mill coil decoiler, double head type with drag brake control. The same design is available with drag generator control. Hydraulic head sliding action includes automatic alignment control.

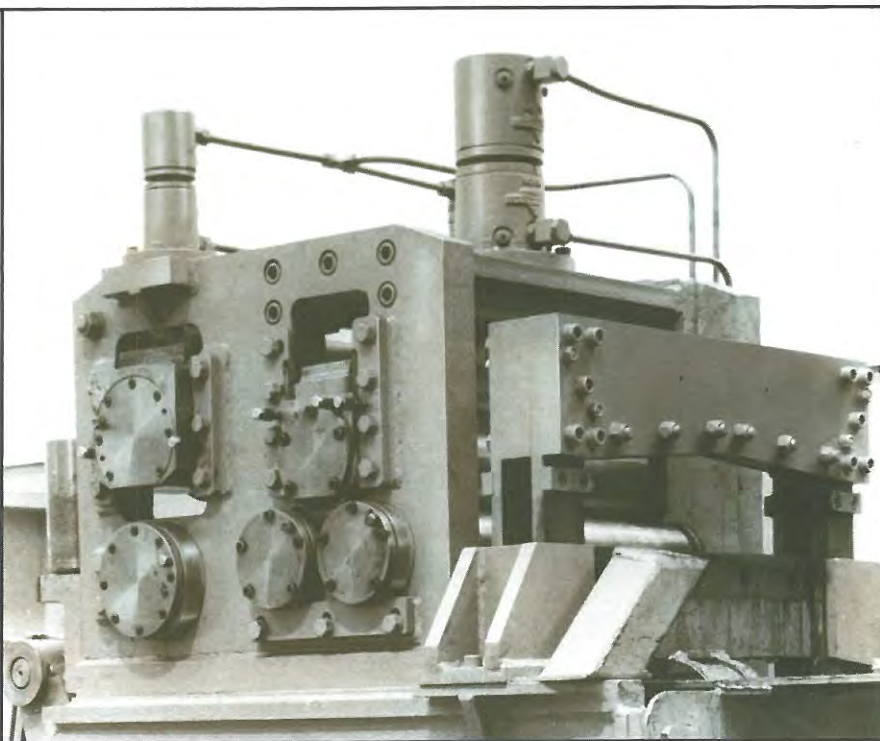


Coil Strippers and Debenders



To obtain a leading straight end on a tight coil of thick strip a 'spade' opener is used. This is a hard steel plate which is pressed by an air cylinder against the coil while the latter is rotated forwards. Besides the 'digging' motion the spade can also be raised or lowered to assist the action. Rotating the coil forward then feeds the straight end through pinch rolls until it enters the debender.

For thin gauge stock a multi-roll flattener is used.

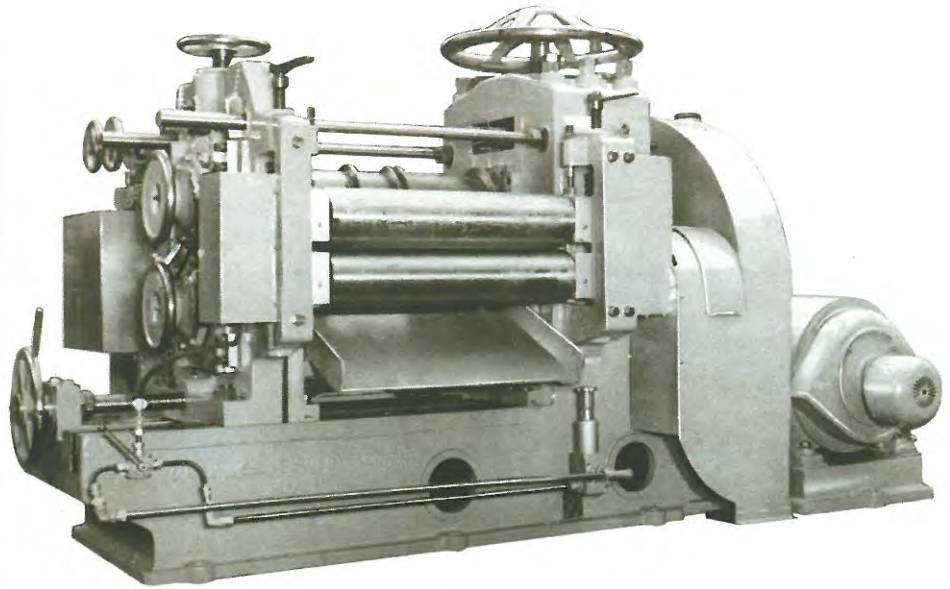


Crop Shears

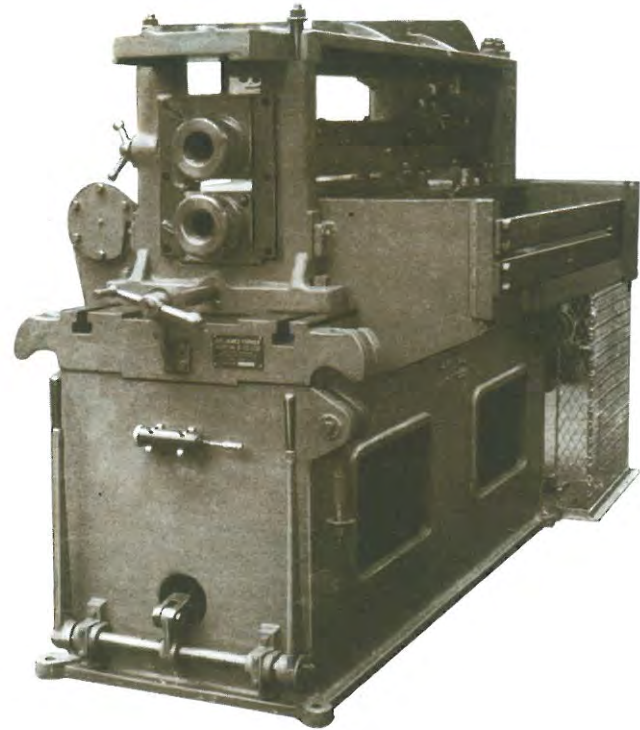
After debending a crop shear gives a prime square end for feeding to the slitter. The crop shear operates hydraulically by raising the bottom blade to the pass line and the top blade descends to cut.

Slitter Heads

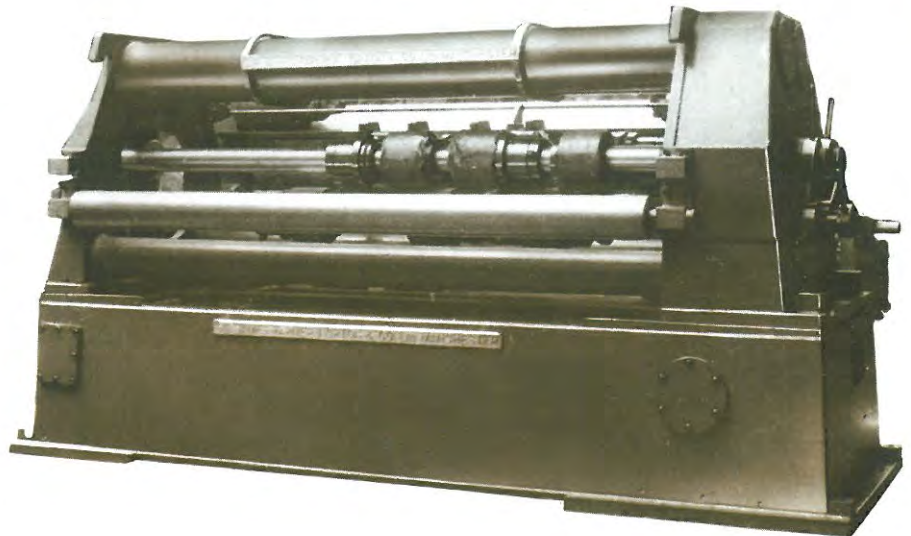
Typical mill coil slitter head for 6.35mm thick sheet. The tailstock withdraws endways for cutter changing. Inlet and exit pinch rolls are fitted with hydraulic balance. The unit can be run as 'driven cutter' or motor clutched out for 'pull through' working.



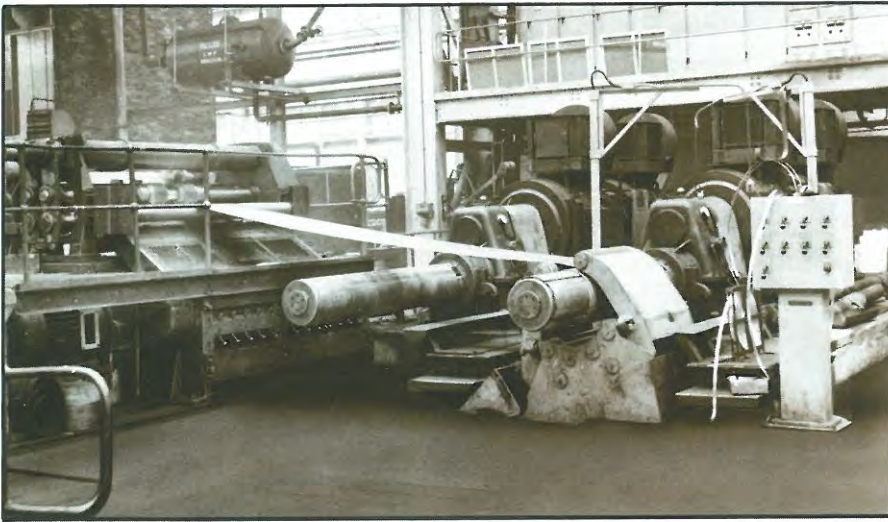
Slitter with removeable head for cutter changing away from line. This head designed for wide thin sheet with deflection bridge and arbor support jacks.



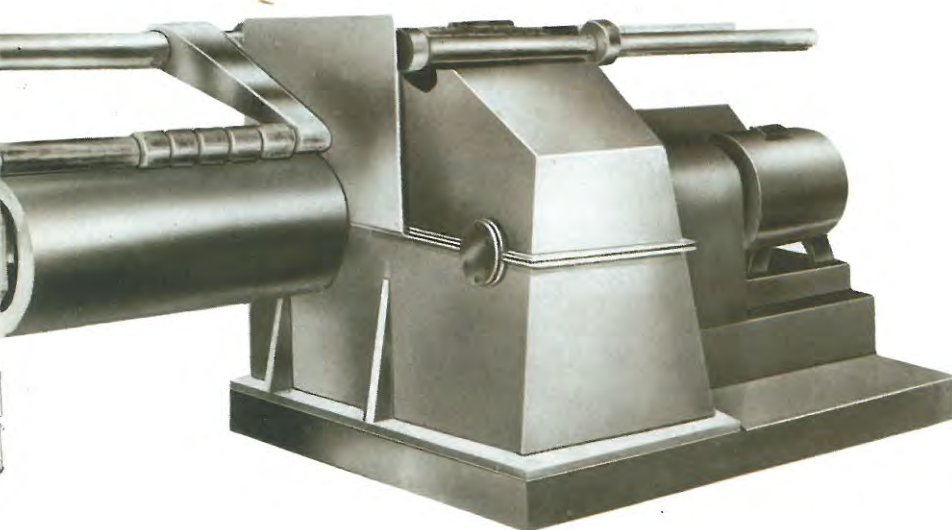
A high speed head for 'pull through' working. The cutters rotate freely on the shafts and the leading strip end is pushed through the cutters by pinch rolls.



Recoilers



The recoiler can be A.C. motor driven for 'pull through' lines where the line speed increases with the coil build up or D.C. motor drive for constant speed 'driven cutter' lines. For wide heavy coils the recoiling drum must be of very substantial construction with hydraulic expanding and collapsing operation.



To assist in keeping a tidy straight-edged coil, coil separators with thin rotating blades and pneumatic controlled arms are used.

Dealing with Scrap Edges

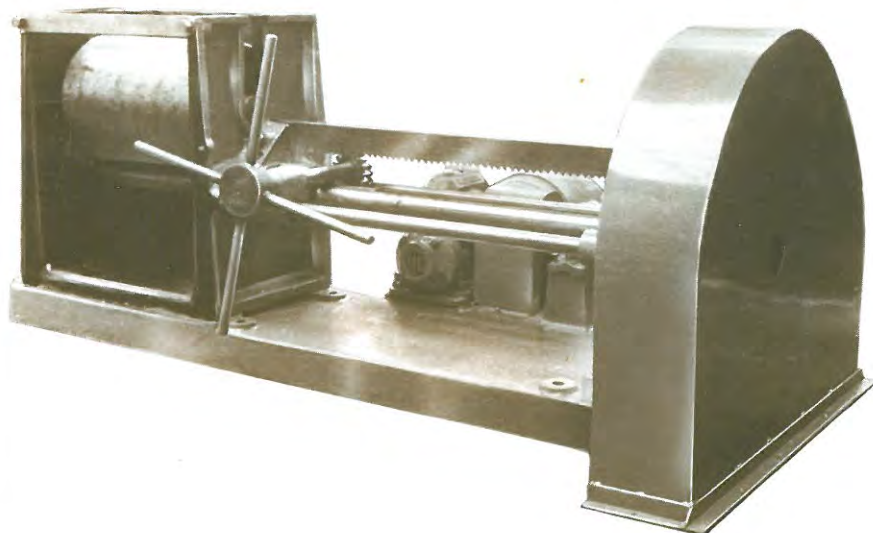
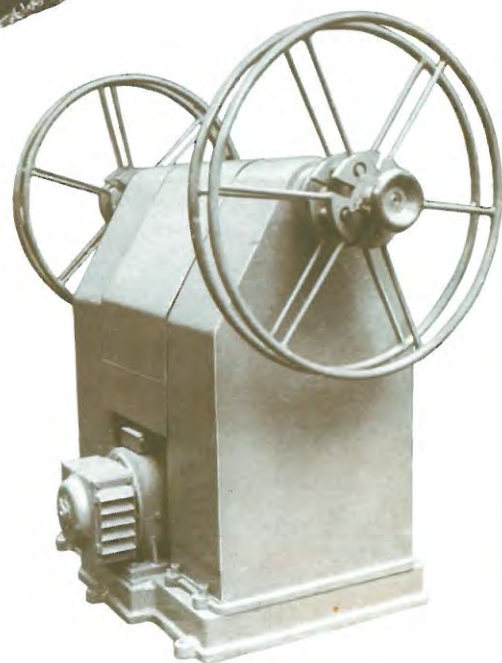
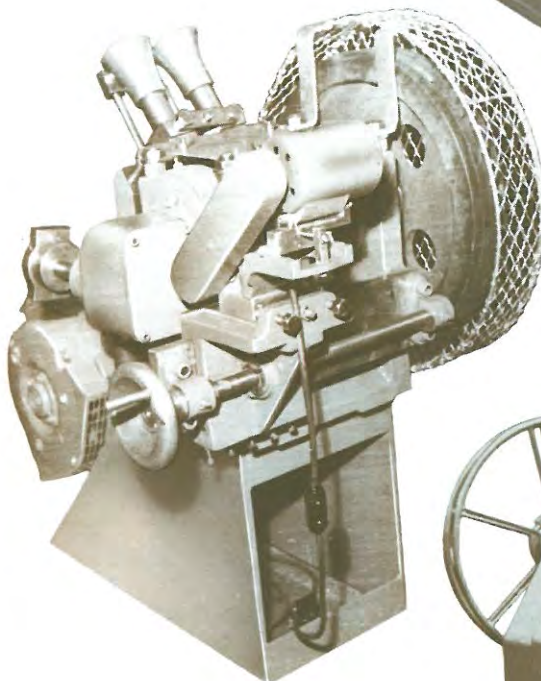
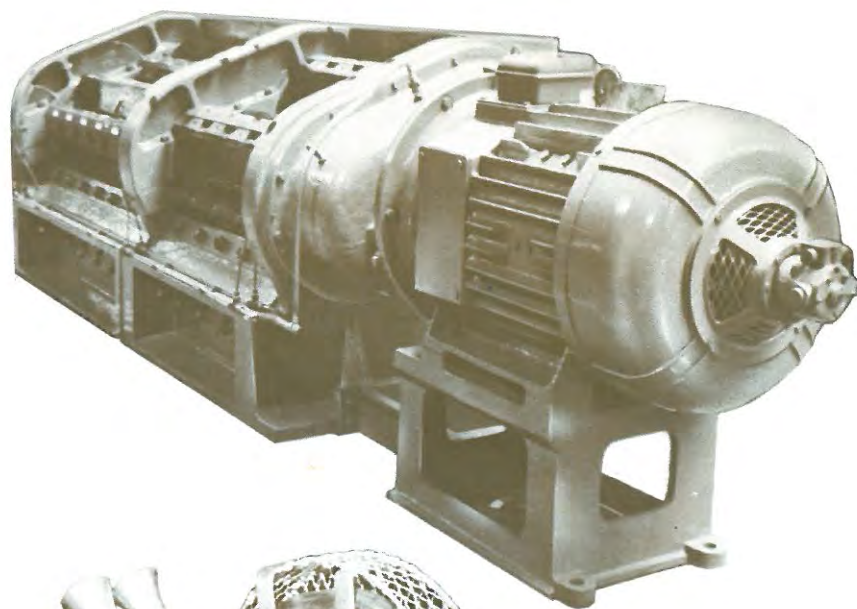
Farmer Norton have developed five different methods of scrap disposal necessitated by the various grades and conditions of the edges.

First there is the scrap chopper for thick mill edge steel and large coils.

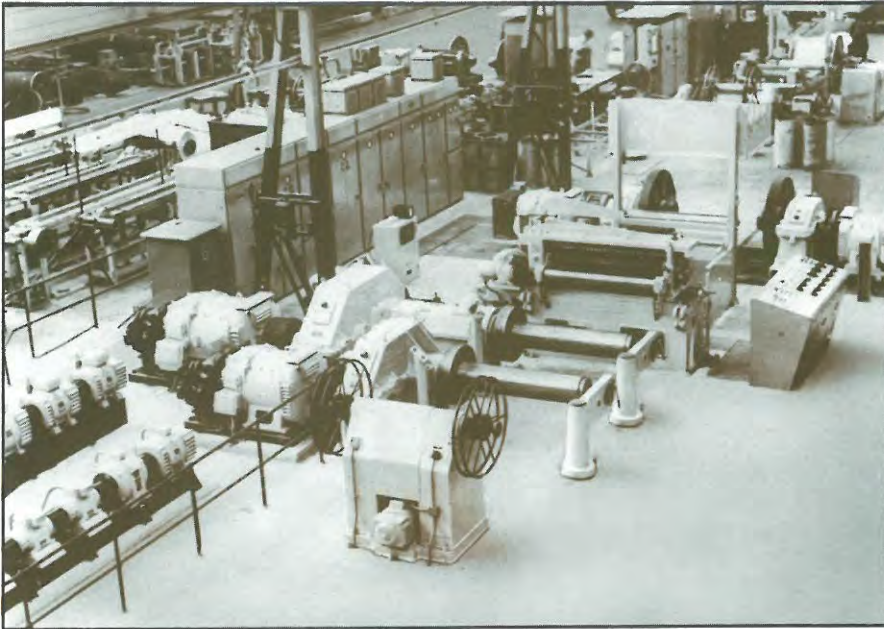
There is also a thin strip scrap chopper with reciprocating guides. For bad edges, such as certain non-ferrous materials, star cutters are mounted on the slitter cutter shafts.

Scrap winders of several various designs are available.

For small coil working a scrap baler is most economical and compacts the scrap into a convenient size of tidy cylindrical shape.



The Complete Line



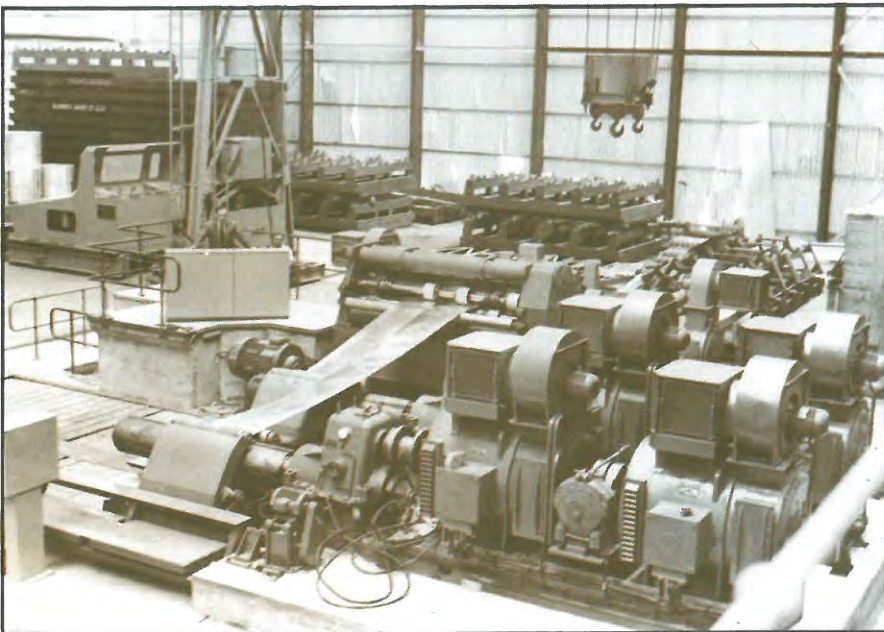
Farmer Norton engineer and build slitting lines for use with a wide range of flat products in steel strip, non-ferrous strip and also non-metallic materials.

The precise condition of the strip is taken into account by our engineers in making a proposal and the final design and supply of the line.

For example in steel lines account is taken as to whether the steel is hot or cold rolled, its hardness and finish and the tolerance of the finished widths.

In non-ferrous metals likewise a full knowledge of the various grades to be dealt with leads to a satisfactory selection of the correct equipment.

Besides the above factors it is also important to have a knowledge of the range of sizes, weights and rate of output required.

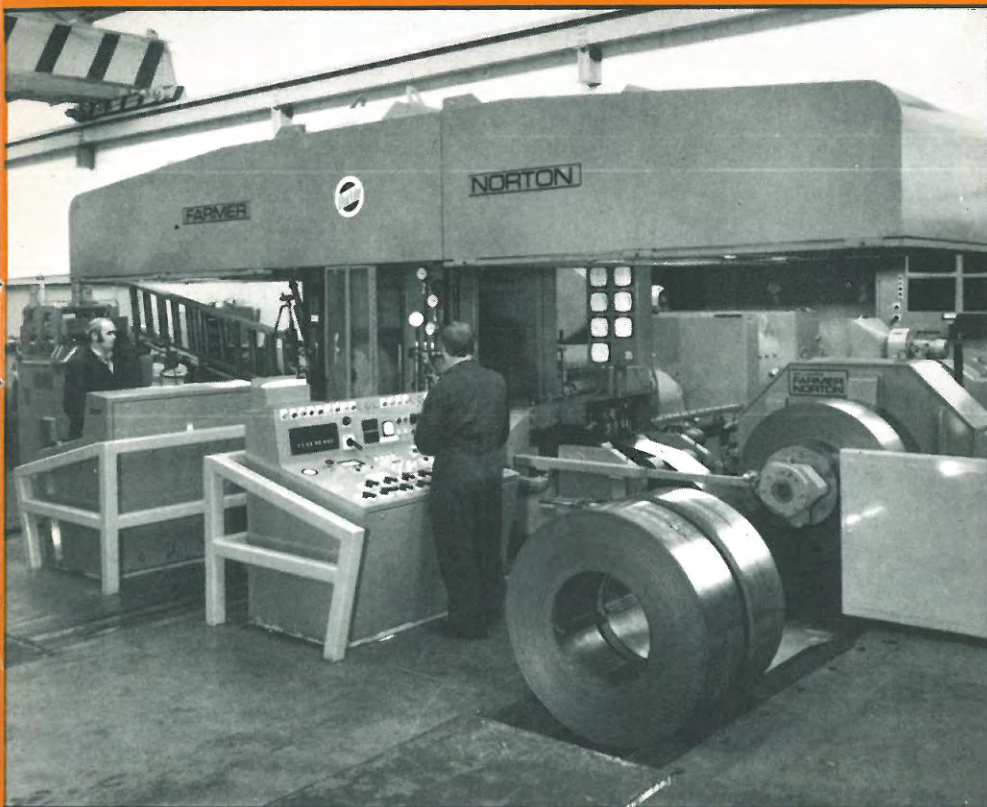


Standard Slitter Capacities

MODEL NUMBER	NEW CUTTER	REJECT CUTTER	STRIP WIDTH	THICKNESS IN MILLIMETRES														
				0.25	0.3	0.4	0.5	0.75	1.0	1.5	2.0	2.5	3	4	5	6		
100	110	90	300	21	21	19	17	13	8	6								
125	133	120	300	21	21	21	21	19	15	8	6							
			450	21	21	21	21	18	14	7	5							
			600	21	21	21	20	17	13	6	4							
150	162	145	450	21	21	21	21	19	15	8	7	5						
			600	21	21	21	21	18	14	7	5	4						
			750	21	21	21	19	16	12	5	4	3						
190	200	180	600		21	21	21	19	18	10	8	6	4					
			750			21	21	18	15	9	8	6	4					
			1200*				21	21	18	15	9	8	6	4				
			1500*					21	21	18	15	9	8	6	4			
216	230	200	750					21	20	17	14	10	7	5				
			1000					21	18	14	12	9	6	4				
			1250					18	16	12	10	7	4	3				
240	254	224	1000					21	20	18	14	10	8	6				
			1500					21	18	15	12	9	7	5				
			2000					20	17	14	11	8	6	4				
318	342	302	1000						21	19	15	12	9	6	4			
			1500						19	16	14	10	8	5	3			
			2000						18	15	12	9	7	5	3			
368	383	352	1000							21	20	17	13	10	8	6	4	
			1500							20	17	15	11	9	6	5	4	
			2000							21	18	14	10	8	6	4	3	

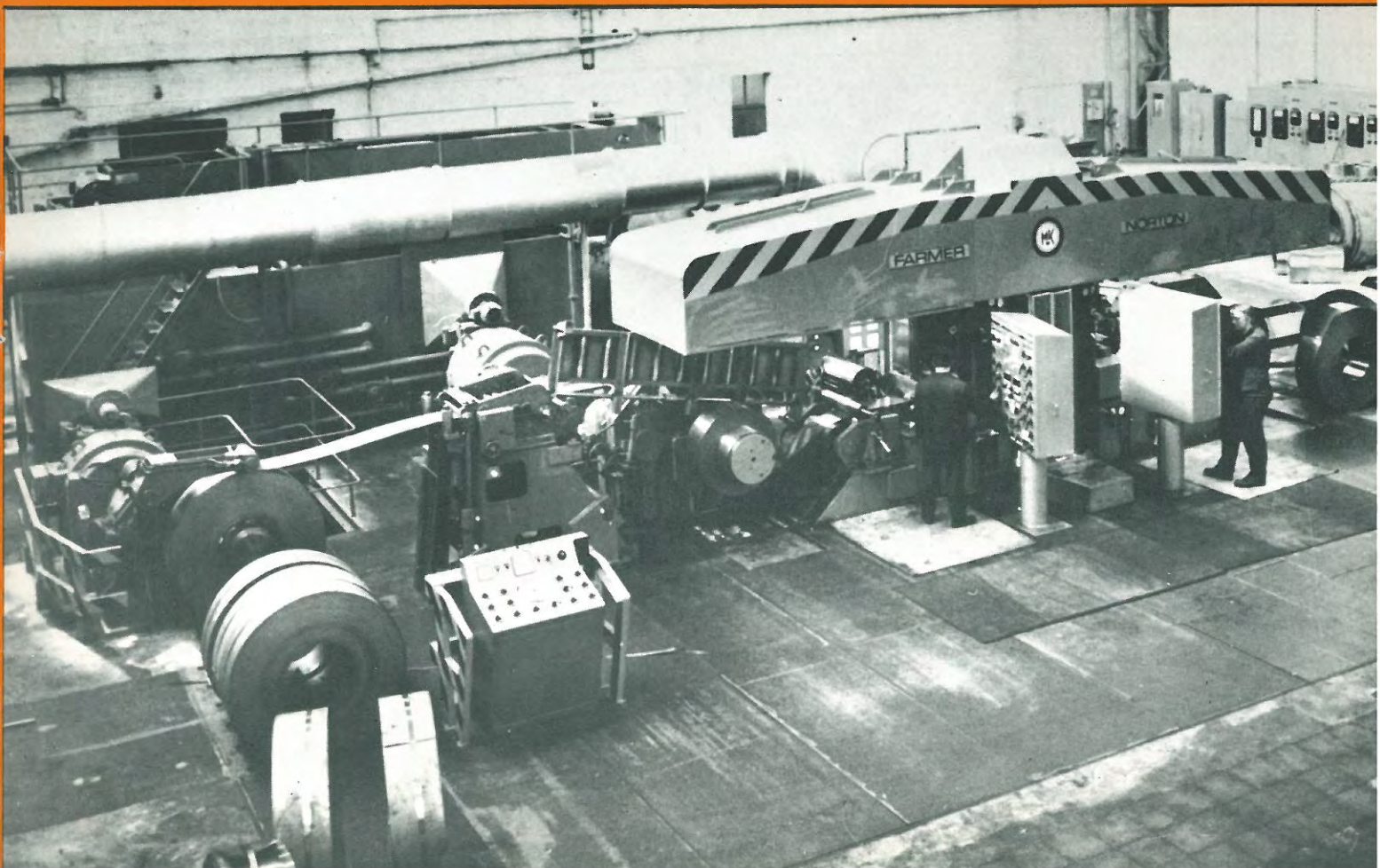
N₁ = NUMBER OF CUTS INCLUDING TRIMS (NORMALLY LIMITED TO 21)

* Lines developed for aluminium with deflection bridge.
 Capacities based on shearing low carbon steel of 32Kgs/mm² shear stress.
 For other materials the number of cuts (N₂) = N₁ × 32 ÷ shear stress.
 Equivalent model, in N₁ cuts, for N₂ material = N₂ × shear stress ÷ 32
 Example: model for 5 cuts in 1.5 material at shear stress '54' at 450 wide
 N₁ = 5 × 54 ÷ 32 = 8.44 ∴ model 190 would be selected.



Two High Speed Hydraulic Controlled Reversing Mills for accurate rolling of steel strip to a tolerance better than ± 5 microns after three passes.

▲ Ductile Steels Ltd. Willenhall England ▼ M.U.K. Langenberg West Germany





Sir James Farmer Norton & Co Ltd
Adelphi Iron Works Salford
Manchester England M60 9HH
Telephone 061-832 5511
Telex 667492
Telegrams Agricola Manchester