VALENCIENNES.

HOWITT & SON,
Nottingham.

2ND EDITION

Valenciennes.

A PRACTICAL TREATISE ON
INDEPENDENT BAR DRAUGHTING.

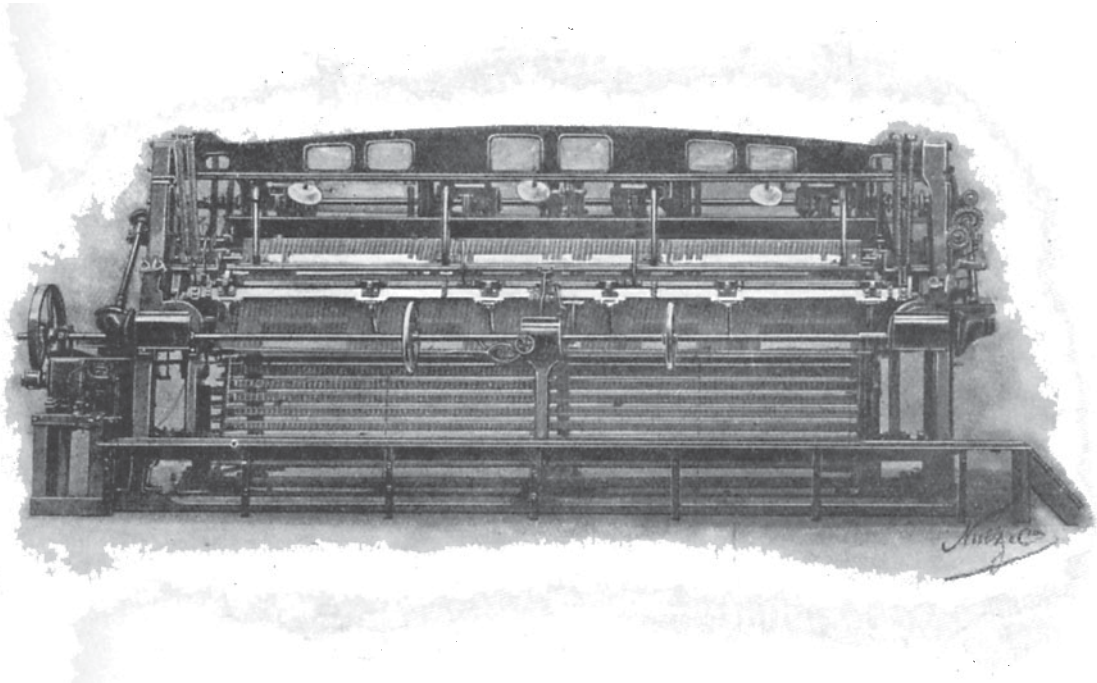
INDISPENSABLE TO MANUFACTURERS, DRAUGHTSMEN,
TWISTHANDS, DESIGNERS, ETC.

The Twisthand's School

AN ELEMENTARY PRACTICAL TREATISE.

INDISPENSABLE TO FUTURE TWISTHANDS,
DRAUGHTSMEN, MANUFACTURERS, ETC.

By
Henri Lemaire, Draughtsman,
Translated from the French by
George Ferguson, Lace Manufacturer.



VIEW OF A LEVERS MACHINE WITHOUT JACQUARD.

1911.

TRANSLATED FOR, AND PRINTED AND PUBLISHED BY
HOWITT & SON,
16 CLUMBER STREET, NOTTINGHAM.

VALENCIENNES.

About Twist.

We understand by twist, the passing of a thread from right to left, over or under another thread, whether it be a bobbin, thread or any other (1).

A thread passing under a bobbin thread to the right and falling back again to the left over the bobbin thread is called a right twist (Fig. 1).

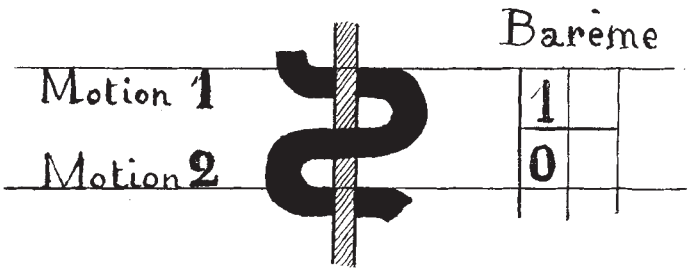


FIG. 1.

A thread passing under a bobbin thread to the left and going back again to the right passing over the bobbin thread is called a reverse twist (Fig. 2)

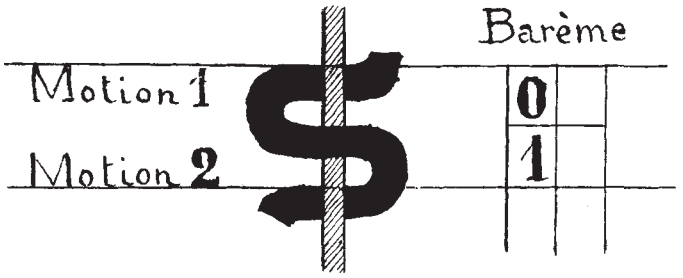


FIG. 2.

To make a twist with a thread passing from right to left or *vice versa*, requires two motions of the machine.

The figure **0** means **stop**, signifying a point of rest.

Let us take an eight carriage ; width either lace or insertion, the dead stop will be found between the eighth carriage and the first

(1) The question of a thread twisting with another thread, other than a bobbin thread, will be dealt with later on.

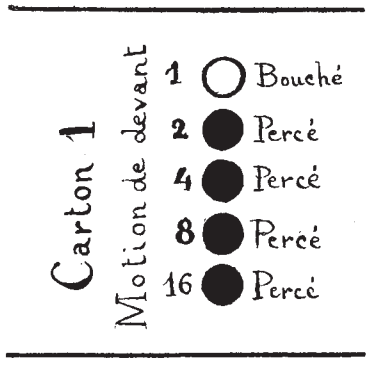


FIG. 3.

carriage ; in a word, the dead stop is always found between the beginning and end of a breadth, and thus forms the separation.

We will speak later about the dead stopping of the bars, which change according to the requirements of the work.

Our readers will understand that we cannot give at once a description of the work of the machine corresponding to our explanation, as this would only confuse them.

The Levers Machine having been imported into France by the English, nearly all the words generally used to designate principal parts and certain qualifications having reference to draughting are English words.

We will give later on a glossary of these terms with their French meanings.

We have described what a twist is, as we wish that an apprentice, draughtsman, twist-hand, or manufacturer, may himself twist a thread without having a previous knowledge of draughting.

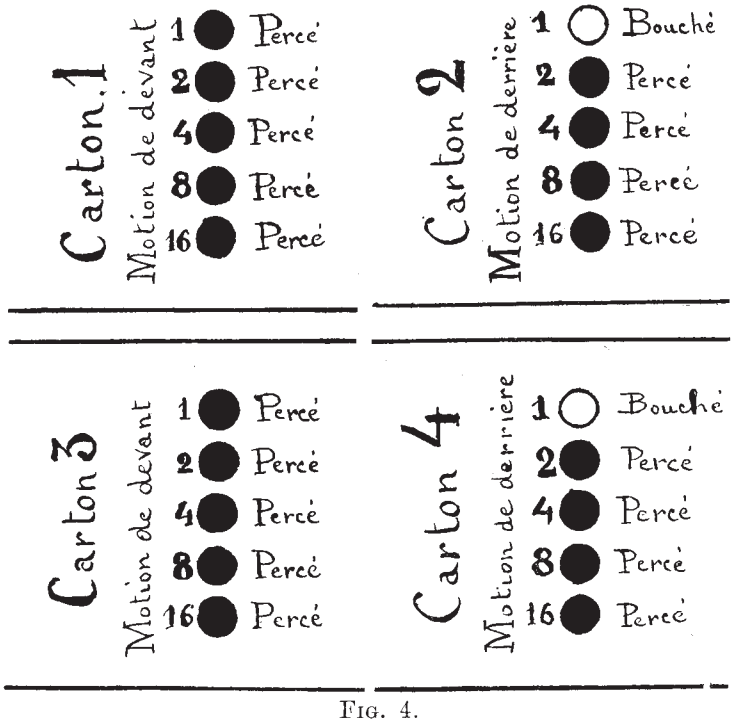


FIG. 4.

For this purpose we will suppose a machine ready for work (all threads in), any independent beam set out, and having a spring dropper jacquard.

Let us take No. 1 bar at No. 1 card or front motion, the one gait dropper is blank, this makes the bar go up one gait, and the thread entered in this bar thus passes under the bobbin thread.

By punching all the holes on No. 2 card, or back motion, the bar falls one gait.

And the thread passes over the bobbin thread, this is called *right twist* (Figs. 1 and 3).

To make a **reverse twist** we take for example four motions or cards.

At No. 1 card or front motion all the holes are punched, and the bar remains in its place at *Stop*.

At No. 2 card or back motion the first hole is blank, which makes the bar rise one gait and the thread passes over the bobbin.

At No. 3 card all the holes are punched, the bar falls back and the thread passes under the bobbin.

At No. 4 card the first hole is blank and the bar rises one gait and the thread passes over the bobbin (See Figs. 2 and 4).

Point (or gauge).

Lace machines, whatever their gauge are divided by inches.

The threads are wound on bobbins and the bobbins are placed in carriages working from front to back, these carriages are maintained in their backward and forward motions by blades cast in leads, called **comb leads.**

These comb leads measure two inches.

A quarter of the blades contained in this space represents the *gauge.*

A 9 point has 18 carriages per inch ; a 10 point 20, etc., etc., If we find 36 blades in a comb lead it is a 9 point ; 40 blades a 10 point ; 42 blades a $10\frac{1}{2}$ point, etc.

About Thread Breaking.

To avoid breaking threads we recommend as a general principle, to divide the bars or threads as much as possible, either for the fronts or nets, that is to say do not make No. 1 work with No. 2 but rather No. 1 with No. 9, No. 3 with No. 11, etc.

It sometimes happens that threads twisting together for a long time will break through as far apart as Nos. 1 and 25. In a case of this kind we must untwist one of these threads alternately. Two threads may work together but they should never be crossed by other threads.

The yarns generally used are right twist, it is therefore incontestable that if we untwist a thread for more than 10 motions it may break, and to avoid this we must not untwist too many motions at a time.

It will be seen in the work reproduced later on that we avoid untwisting the threads too much either in the fronts, lining threads, tikings, or nets, etc.

The bad quality of the yarn is also a frequent cause of thread breaking, either owing to its being linty or insufficiently twisted or more or less burnt in the preparatory processes.

Nets.

We now leave the simple twisting of one thread round another, to twist several threads round a bobbin thread, to make what is called the **foundation** or **net.**

Square Net called Valenciennes.

This net is composed of two threads and one bobbin thread or simply of one thread and one bobbin

Now suppose a machine ready for making net and set out 8 carriages wide (1),

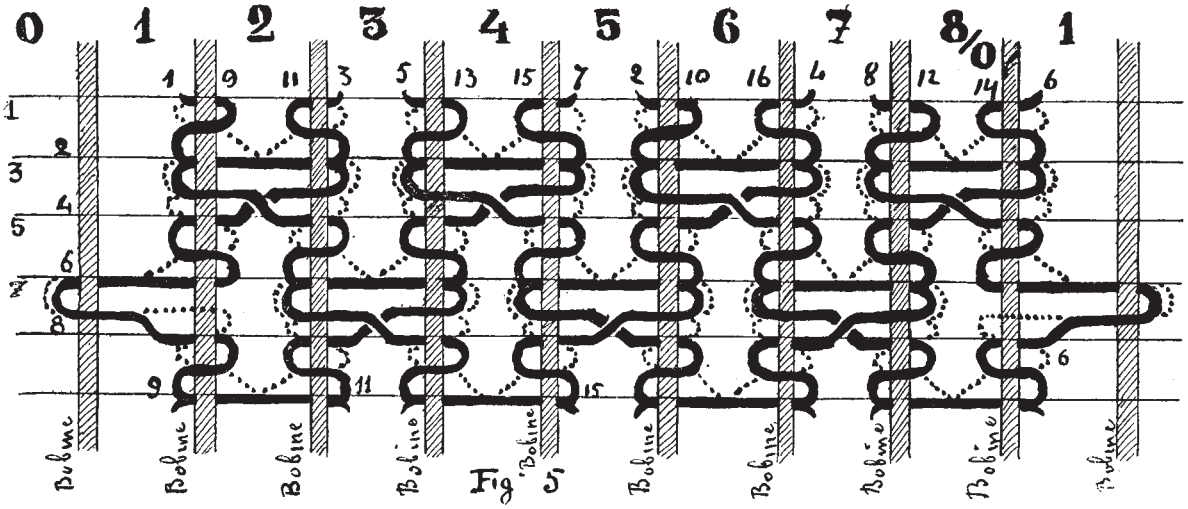


FIG. 5.

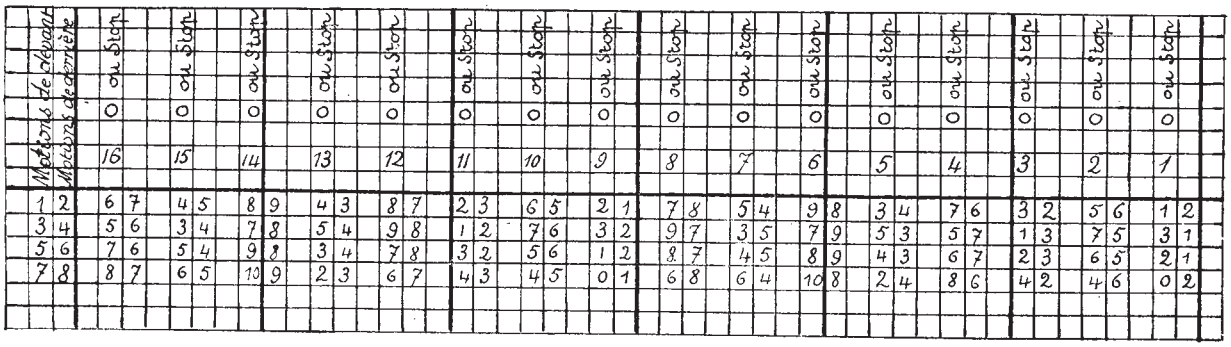


FIG. 6.

(1) It is usual in France to designate a width containing 8 carriages a 4 Hole. It is not the same in England, where a width is designated by the No. of carriages as 8 carriages wide, 16, etc.

that is to say with 8 carriages or bobbins we give herewith the work draughted (Fig. 5) and the reading off sheet at (Fig. 6).

See (Fig. 5) the bars 1 and 9 go up on the third motion and fall back on the fourth motion, and the bars 3 and 11 fall on the third motion and rise again on the fourth.

Owing to the Tension or weight given to these 4 beams causing one set to pull to the left and the other set to pull to the right the two bobbin threads are drawn together and form a front tie.

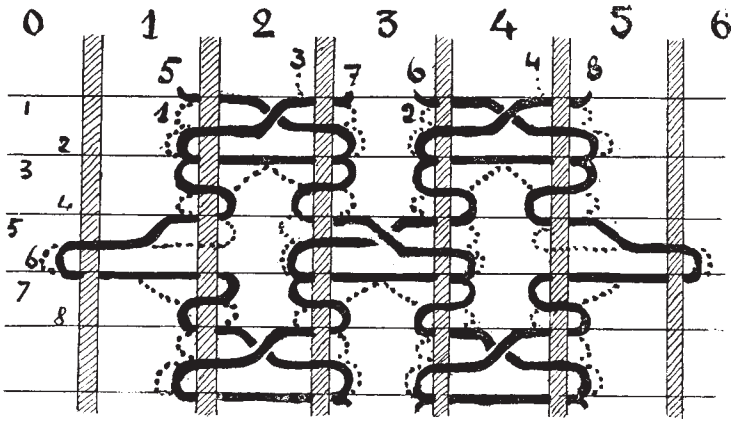


Fig. 7.

This net is an 8 motion square net and the threads are placed as follows,--the Odd Nos. at the bottom and the even Nos. at the top. This is done to avoid what is called cotting and also thread breaking.

The threads, instead of following each other as 1, 2, 3, from the first bobbin, are interposed as in (Fig. 5). Thus we work No. 1 with No. 9, No. 3 with No. 11, on the second bobbin, No. 5 with No. 13 on the third bobbin, etc.

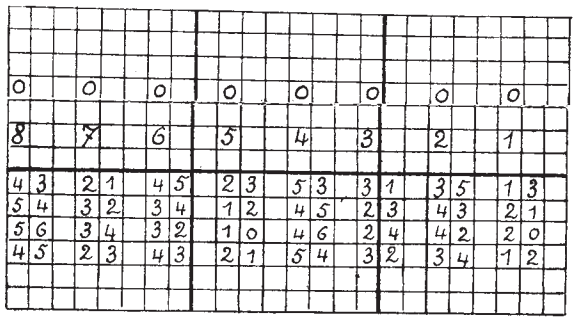


Fig. 8.

The threads work four motions right twist and four motions reverse.

No. 2 works with No. 10, No. 4 with 16, etc.

The threads, before being passed through the bars, are threaded through Sleys. We will give a description of these Sleys later on, and the method of threading them, viz.,--setting out a machine from the beginning.

Eight motion net is generally employed in common Valenciennes made at 20 inches to 22 inches per rack on the machine.

Valenciennes are calculated on a $12\frac{1}{2}$ yard basis which gives about 18 inch racks finished. As the piece looses about $\frac{1}{2}$ a yard in dressing; the lace is sold in 12 yard cuts (or cards).

A rack is composed of 1920 motions. 960 front and 960 back motions represent one rack.

The yarns generally used in an 8 motion article vary considerably according to the fineness of the goods the manufacturer wishes to produce, as with much finer yarns, such as 250/2 in the bobbins and 180/2 on the beams (1), a finer article can be made.

The 8 motion net is also made in another way, the tie being at back (See page 5, Fig. 7). The result is the same in both nets.

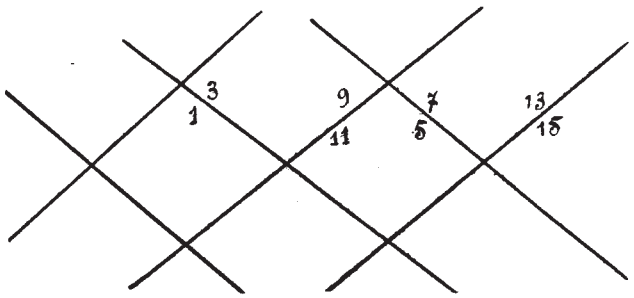


FIG. 9.

This method is applicable to all nets, either 10, 12, 16, or 20 motions, etc.

We insist on the importance of numbering the threads to make good net (As in Fig. 5).

A net numbered as in Fig. 9 would not be good ; it would certainly be net, but the ties would not be properly plaited.

In general the yarns used for 18 inch to 19 inch rack goods on a 9 point machine are as follows :--100/2 for nets, 60/2, or 80/2 for fronts, or bands, and 180/2 to 200/2 for bobbins.

To make good regular net it is indispensable that the bobbins should be what is called medium tight. Also the beam springs should all be alike, and the cords all one thickness, otherwise a correct weighting of the net is an impossibility.

10 Motion Net.

In Fig. 10 we give the cut of a 10 motion net, and in Fig. 11 the figure sheet for the same.

We always suppose that the bars are at stop and the threads disposed in the same way as for the 8 motion net (Fig. 7). We only show two holes of net on draught as we believe that this is sufficient to understand the work. The difference existing between the 8 motion and the 10 motion net, is that the latter has naturally more twist, also the ties are not alike, as the 10 motion is not divisible by front ties, and to

(1) We shall use the words beam, bar, or thread, indifferently, to indicate the work of the threads as the threads are put on beams threaded through sleys and then threaded through the bars.

enable us to put the same number of right and reverse twists between the ties, it is necessary to make a back tie (See Fig. 10, Card 8).

This net requires good yarns, because bars No. 3 and 7 have more reverse than right twist ; generally, No. 120/2 or 140/2 are used for nets, and 80/2 or 100/2 for fronts or bands and 180/2 to 200/2 for bobbin yarns.

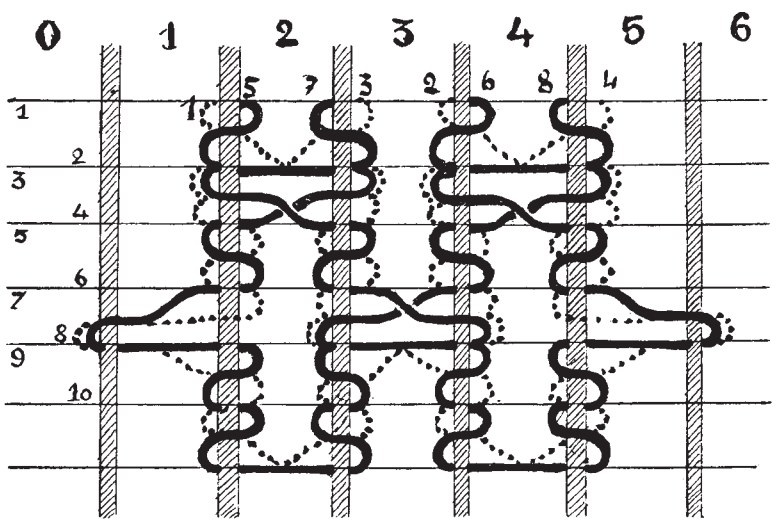


Fig. 10.

It is also possible to make 10 motion net with the ties as in the 8 motion net (Fig. 12). To do this we have to entwist.

We call entwisting leaving a thread in the same gait or carriage during several motions (Example Fig. 12,) cards 7 and 8, we leave the threads in same carriages where they were on 6 card.

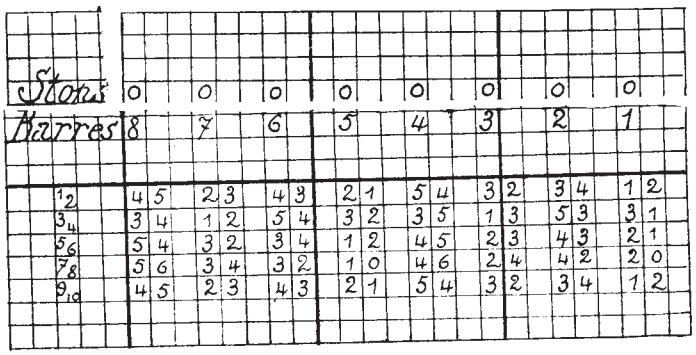


Fig. 11.

The take up of the points regulates the twists without having to hold off. The net has the same aspect also the advantage of twisting as many motions right as reverse. This prevents thread breaking. The 20 motion net is generally used in patterns of more complicated nature, for it is evident that the more motions there are in the net the more facilities with the draughtsman have for passing his threads in the mortifs that compose the pattern to which the 10 motion net is applied.

If we take 5 holes per centimetre as a standard for 9 or 10 point goods, the 10 motion gives 30 racks for a piece of 11 metres 50 or 38 centimetres per rack of 1920 motions (say 15 inch racks).

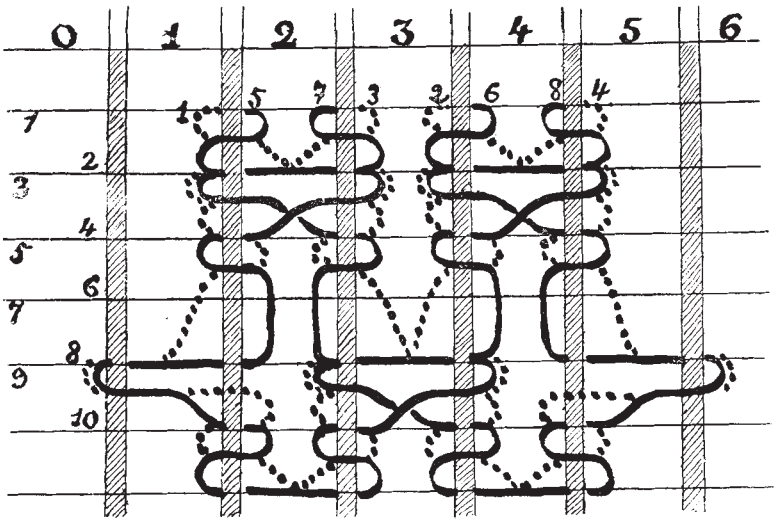


Fig. 12.

The quality varies infinitely according to the manufacturers interest in making the goods stiffer or slacker, that is to say, make the racks longer or shorter, or according to the fineness of the yarns used to make the goods.

We cannot too strongly recommend the apprentice to familiarise himself with the work or cut of the different nets, to learn them by heart as if they were a lesson, and especially to reproduce them on a small meshing frame with strings. This is indispensable to have a clear comprehension of independent bar work.

12 Motion Net.

The 12 motion net has naturally more twist than the 10 motion net, as we have 2 twists between each tie (see Fig. 13, draught, also Fig. 14 Figure Sheet).

This net has the same number of right twists as reverse. It is essential as much as possible, if we make a net thread (or any other) twist 6 motions reverse to make it twist 6 motions right immediately afterwards. By this method the yarn preserves its good qualities and strength, and the machine works better, as the yarns

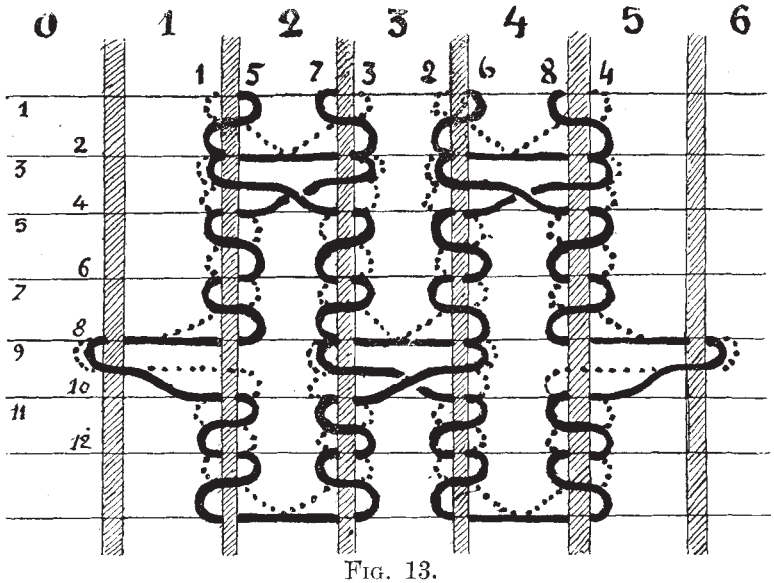


Fig. 13.

generally used are not always regular, it is important to compensate this defect by the greatest possible regularity in the work of the twists.

If we take five holes per centimetre as a standard for 9 or 10 points the quality for 12 motion net will be 32 centimetres (say $12\frac{1}{2}$ inches) per rack of 1920 motions.

It is usual to use the following yarns in these goods: 200/2 to 250/2 in the bobbins, 150/2 to 170/2 in the nets, and 80/2 to 100/2 in the fronts or bands.

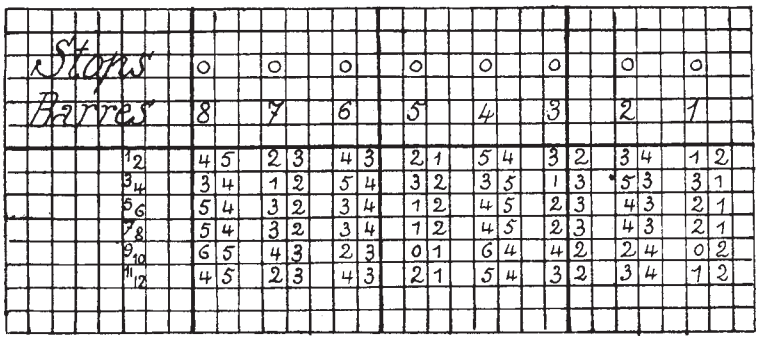
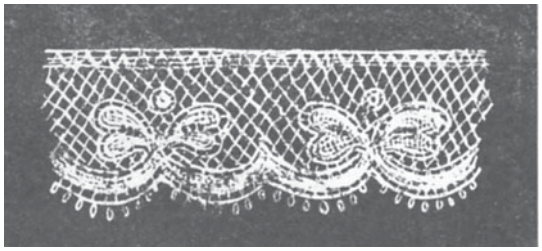


FIG. 14.

The 12 motion net is naturally used to make a finer article than the 10 motion, and allows the use of spots and motifs having more motions, and thereby gives the article a more lacy appearance.

For a twelve point article taking 6 holes per centimetre as a standard the yarns ordinarily used are as follows :--200 to 220 for nets, 200 for threads forming motifs and 280 for bobbins.

It will be understood that the wheel adapted to the worm is changed for each different quality as it is this wheel that regulates the quality of the work.



The pattern that we reproduce above can be made in passed Valenciennes.

14 Motion Net, 2 threads per bobbin.

The 14 motion net is similar to the 12 with regard to the number of twists (see Fig. 15 Draught, and Fig. 16 Sheet). So as to have the ties alike, that is, with all front ties though having 2 motions more than the 12 motion net, we prefer to untwist 2 motions (see cards 13 and 14).

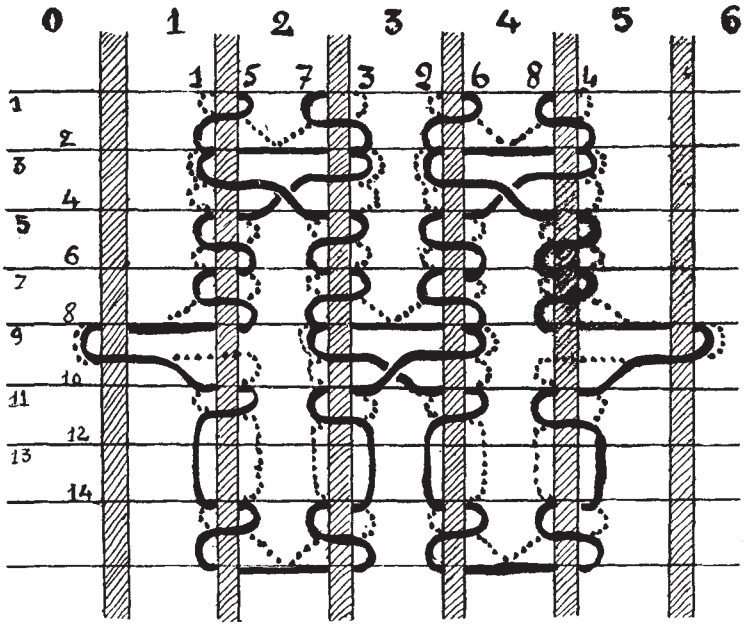


Fig. 15.

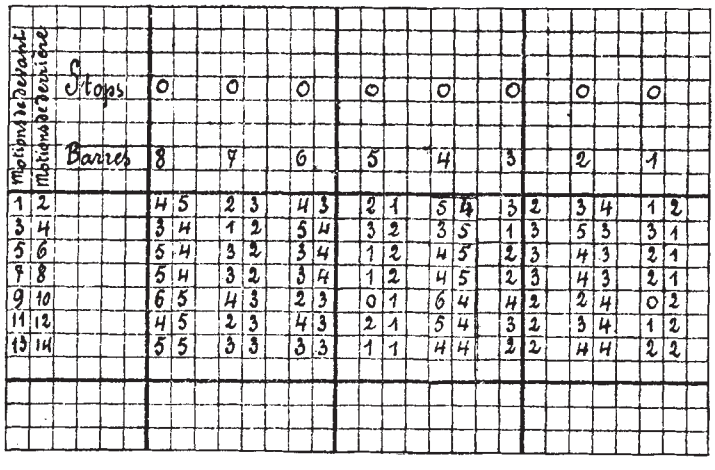


Fig. 16.

The points will regulate the work all the easier because the twists are all taken off on the same cards through the width of the pattern.

We say of the 14 motion compared with the 12 what we said of the 12 with regard to the 10, namely, that the more motions there are the more facilities we have for putting in motifs of a more complicated character with regard to motions.

The yarns used are the same as for 12 motions net.

Taking 5 holes per centimetre as a standard, the quality will be 0.274 $^{m}/_{m}$ per rack of 1920 motions (say $10\frac{3}{4}$ inches) or 42 racks for 11 metres 50 on the machine.

16 Motion Net.

In the 16 motions net, of which we give the draught (Fig. 17) and sheet (Fig. 18), the ties are separated by 2 twists as in the 14 motions. We put the same number of twists to obtain 5 holes per centimetre, if we put more twists the net would be irregular and would snirp.

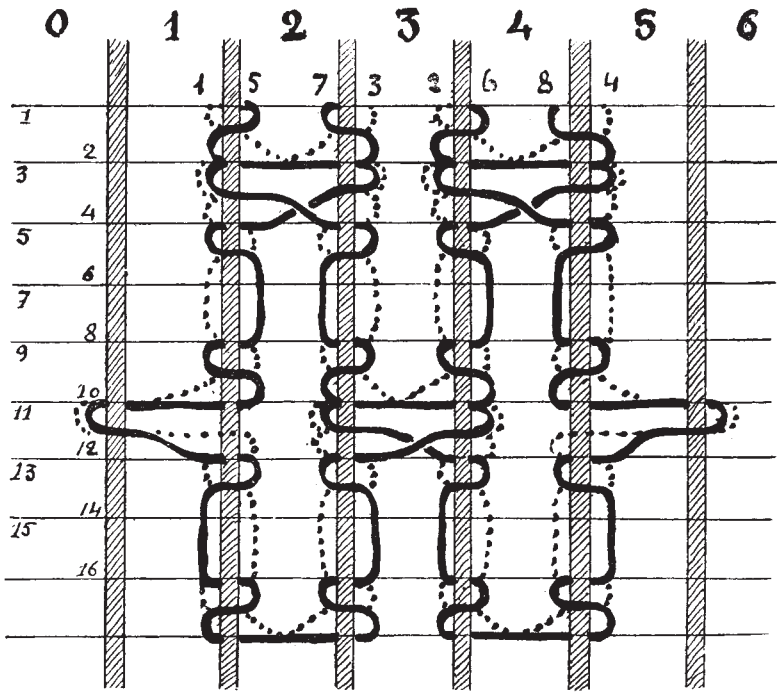


Fig. 17.

At 5 holes per centimetre the 16 motion net will give 24 centimetres per rack (say 9½ ins.) or 48 racks for 11 metres 50.

The yarns are about the same as those given for 12 and 14 motions for a 9 or 10 point article.

We call nets having a fixed number of motions, 8, 10, 12, 14, 16 motion nets, but we do not hesitate to say that there can be no fixed number of motions per hole, in the execution of a Valenciennes pattern.

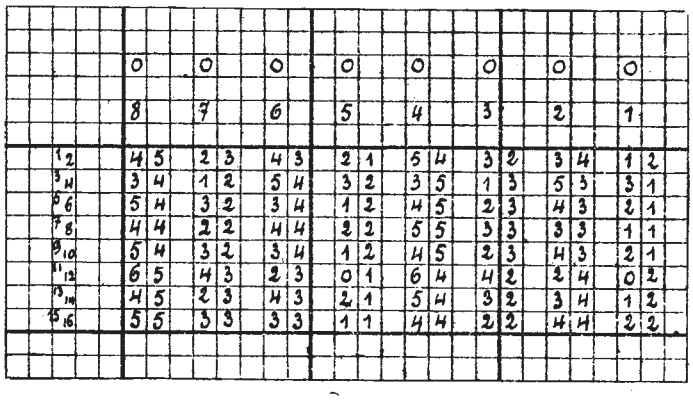


Fig. 18.

Let us take for example, a pattern (Fig. 19), composed of a front or band, surmounted by 2 leaves and a spot under. It is certain that, if at A and B we have to pass 12 clipped threads per leaf it will require as many motions as there are

threads to pass (this only applies to passed Valenciennes, not gimped).

Under these conditions the holes surmounting the motifs A and B will necessarily require more motions than those at C, but will not have more twist, the points regulating the work, with the help of the worm and wheel, applied to the work roller.

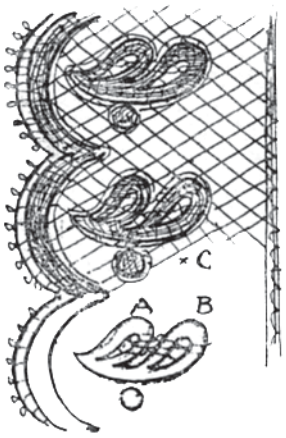
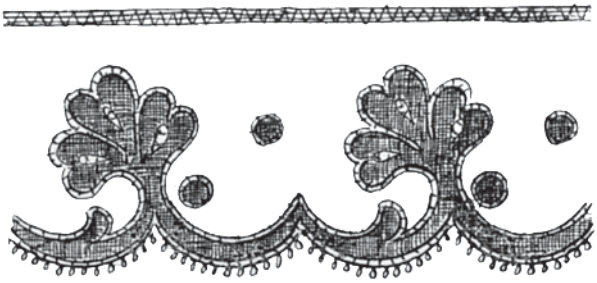


Fig. 19.

In giving Fig. 19 as an example we wish to make it clear that it is possible to have holes of 30, 20 and 16 motions in the same pattern. To regulate these holes we use what are called dead motions, by stopping the action of the worm and wheel at the places where there are most motions. Of course these dead motions are not necessary in regular nets of 16, 20 or 24 motions, as we never put more than 2 twists between each tie. The take up of the points regulating the work.

Naturally the more threads there are to be passed on the motifs the finer the yarns should be. For a 12 point article having 6 holes per centimetre. The yarns may be 200 to 220 for nets, 170 to 200 for motifs and 250 for bobbins; these are for 12, 14 or 16 motion nets.



The above figure represents a pattern suitable for a 9 point 6 motion enzor net.

6 Motion Net, 1 thread per bobbin.

6 motion net, 1 thread per bobbin is a square net, all right twist, and the ties are made by 2 loops, formed one after the other in the space of 2 motions (Fig. 20 and 21, sheet).

The set out is very simple as the ties do not require to be plaited. One can use number 2 or number 4 bar, or vice versa, as the tie remains the same whether we use a back or front thread, No. 1 bar on No. 2 card falling 2 *gaits* (1) makes 2, 0, which is called a *loop*.

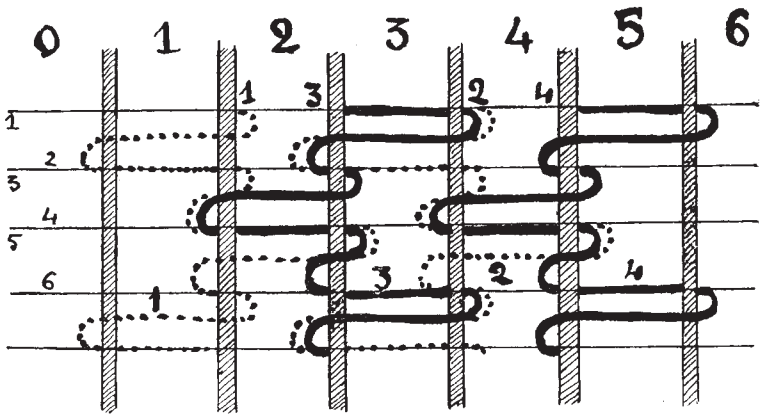


Fig. 20.

The word loop comes from goods called *loop laces*, an article little known in France.

Loop net can be made with 4 motions, 1 thread per bobbin, the thread rises every 4 motions.

The 6 motion net is used particularly in *gimped* Valenciennes ; also in passed Valenciennes. Its aspect is rather fine.

Taking 6 holes per centimetre as a base, the quality is 0.533 millimetres (say 21 inches) per rack of 1920 motions on a 9 or 10 point.

Yarns generally used are 120/2 for nets, 100/2 for gimps, 170/2 for bobbins, and 40/2 for lining threads.

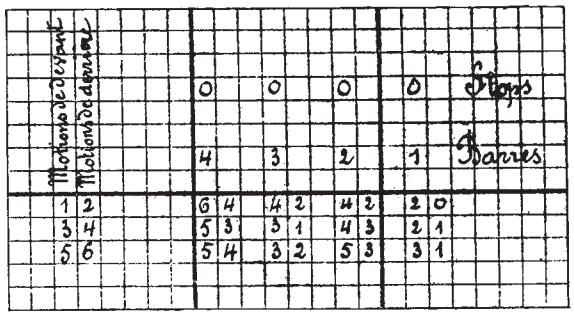


Fig. 21.

To obtain a good net it is essential to have the bobbins medium tight ; the beam springs must all be regular, the beam cords all one thickness, and the beam axle quite straight.

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(1) *Gait or carriage* have the same meanings, and signifies the space crossed by a thread.

8 Motion Net, 1 thread per bobbin.

The 8 motion net differs but slightly from the preceding one. One twist divides the ties on each side (see Fig. 22 and Fig. 23, sheet). It is used, as also the 6 motion net, in passed and gimped Valenciennes, and the quality is 32 racks per 11.50 metres for 9 and 10 point articles. The yarns used are 170/2 for nets, 100/2 for gimps, and 40/2 for thick threads.

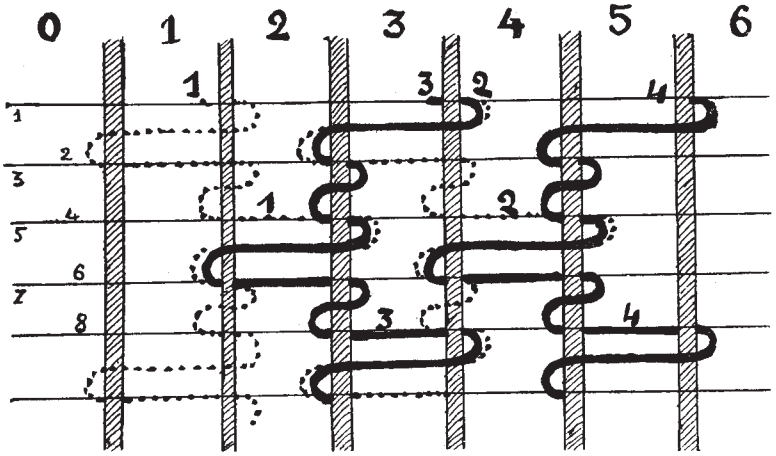


Fig. 22.

For ordinary Honiton braids the quality is 22 racks for 11.50 metres. The yarns are 80/2 for bands and fronts, and 200/2 for bobbins.

For 12 point Honiton braids that is to say finer gauge goods, the quality would be 28 to 30 racks for 11.50 metres and yarns all 150/2 for common qualities. This net is used as well as the 6 motion in Malines, an article which is lighter than Valenciennes. For a 14 point the quality would be 38 racks for 11.50 metres, yarns 220/2 for nets, 260/2 for bobbins, and 80/2 for lining threads.

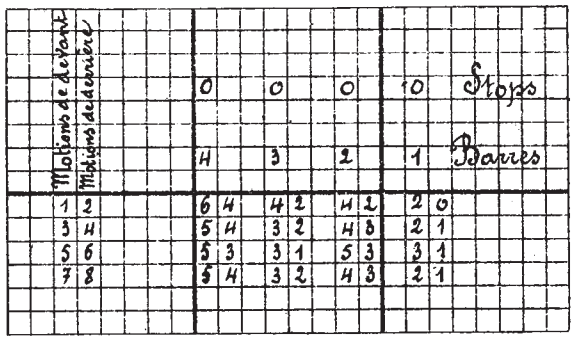


Fig. 23.

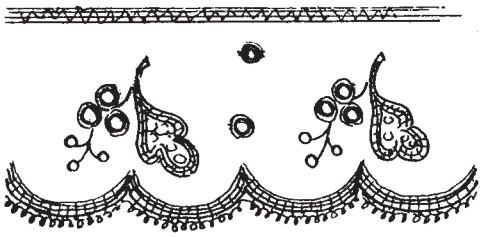


Fig. 24.

Fig. 24 represents a suitable pattern for 14 point Malines with 8 motion net.

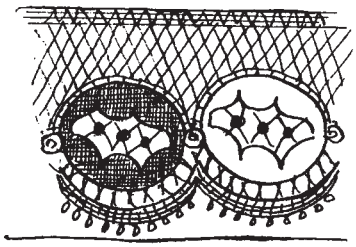


FIG. 25.

Fig. 25 represents a pattern that can be made on a 9 point with 8 motion net.

10 Motions Net, 1 thread per bobbin.

We give here a 10 motion net that only differs from the 8 motion net by $\frac{1}{2}$ a twist between the ties.

It is not generally used, the 8 motion net replacing it with advantage in gimped Valenciennes (Fig. 26, sheet, Fig. 27).

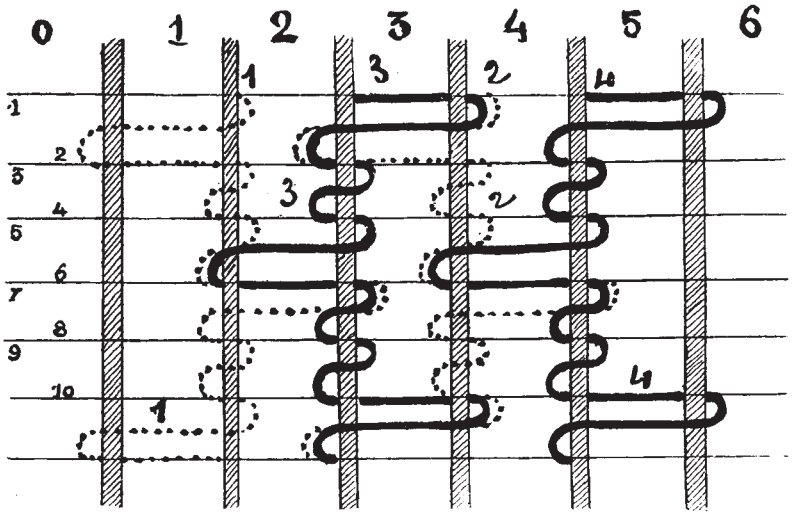


FIG. 26.

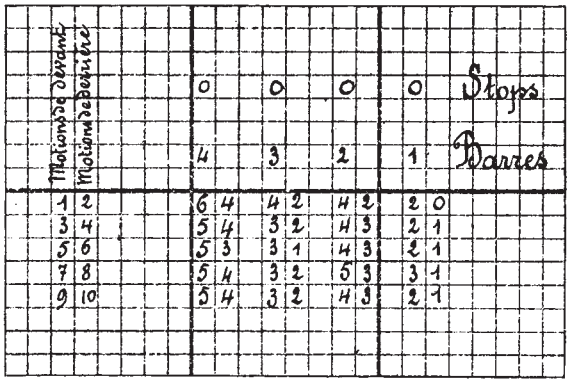


FIG. 27.

12 Motion Net, 1 thread per bobbin.

The 12 motion differs from the 10 motion net in that we have 2 twists between each tie (Fig. 28).

It is used in gimped Valenciennes for 9 or 10 points. The quality is 40 racks for 11.50 metres. The yarns used are 170/2 for nets, 120/2 for gimps, 40/2 for lining threads, and 200/2 for bobbins.

This net is also used in 12 points for gimped Valenciennes

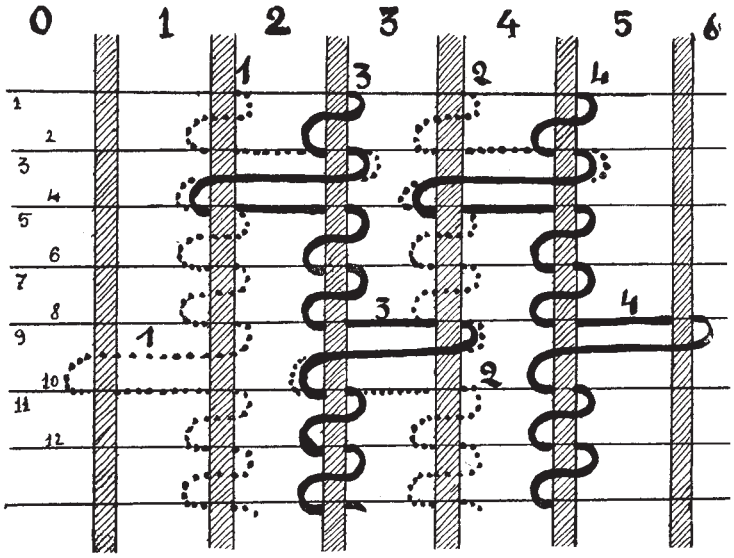


Fig. 28.

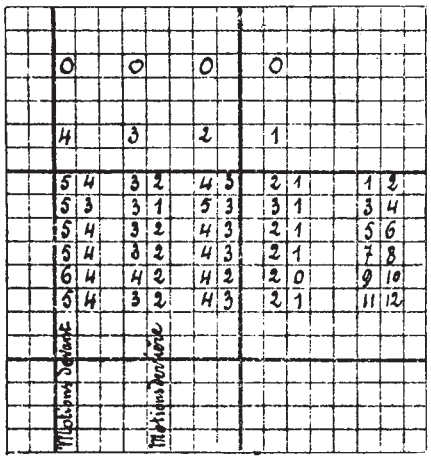
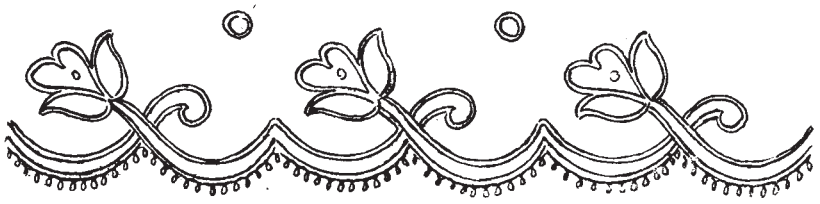
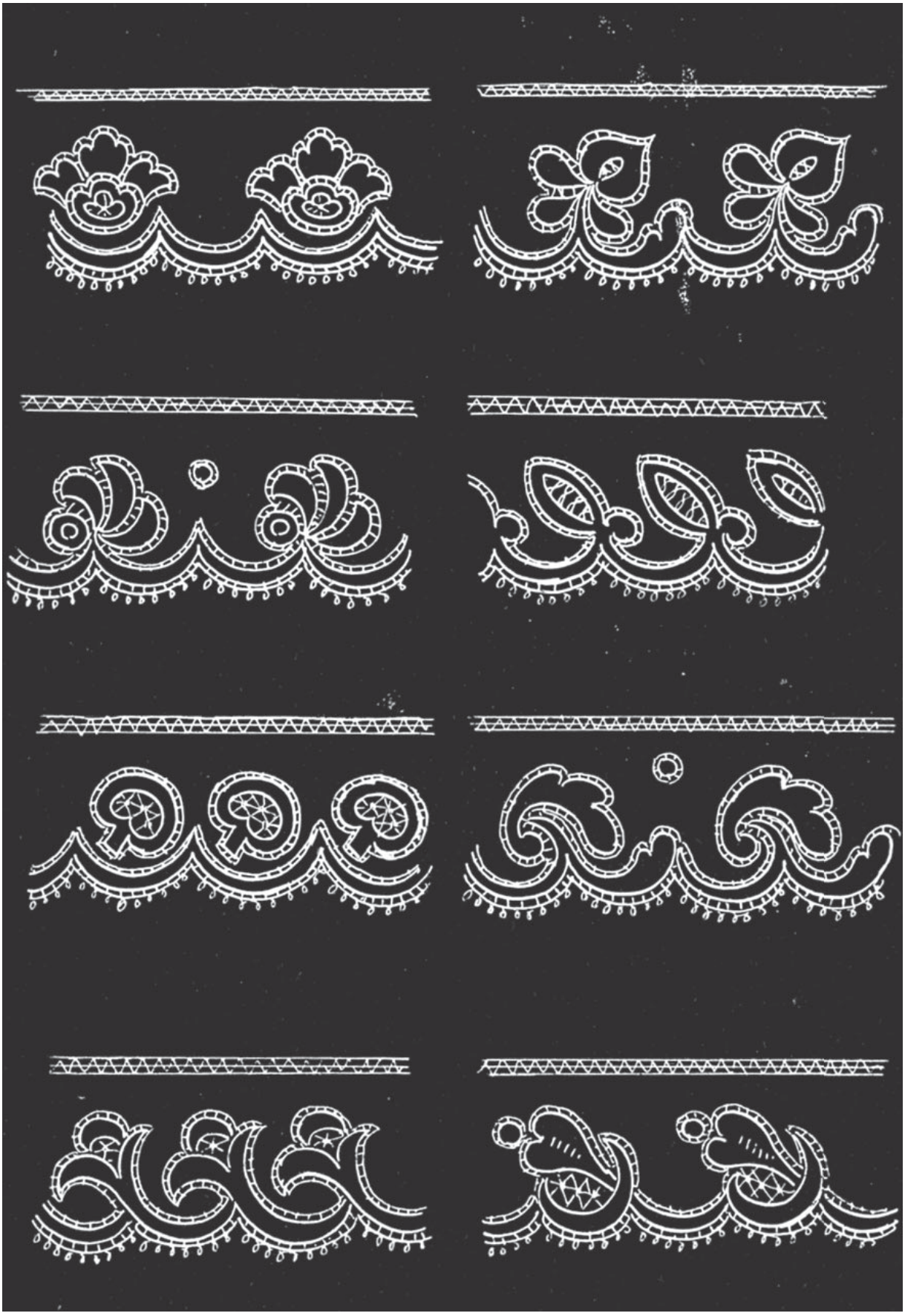


Fig. 29.

with 200/2 for nets, 170/2 for gimps, and 260/2 for bobbins. The quality is about 43 racks for 11.50 metres. With these yarns a passed band or front can be made. The net can also be used in 9 or 10 point braids, yarns 150/2 for nets, 80/2 for fronts, 200/2 or 250/2 for bobbins. The quality would be 48 racks for 11.50 metres.



The above figure represents a pattern that can be made with 12 motion net, 1 thread per bobbin upon a 12 point.



16 Motion Net, 1 thread per bobbin.

The 16 bobbin net is generally used for 14 or 15 point articles in gimped or passed Valenciennes, with passed and gimped fronts.

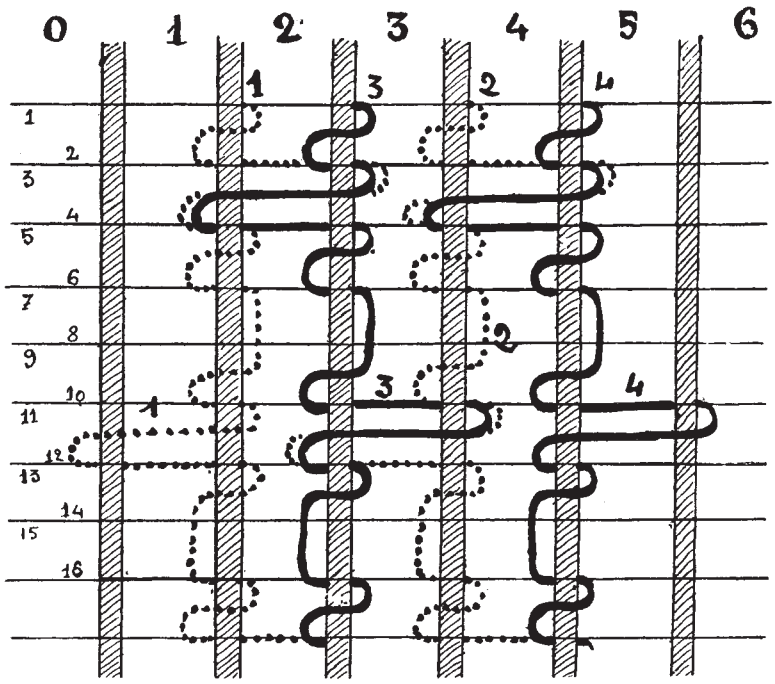


Fig. 30.

The yarns ordinarily used are 220/2 for nets, 170/2 for bands, and 300/2 for bobbins.

The quality is 72 racks for 11·50 metres, 2 twists between each tie, are sufficient to give a good regular net that will not snirp.

For 12 points the quality is 58 to 60 racks for 11·50 metres. For this gauge and quality the yarns are the same as for the 10 motion net and the clothing is finer.

This net is also made on 9 and 10 points.

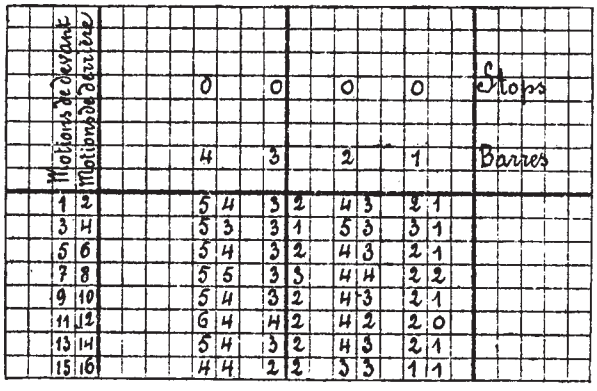


Fig. 31.

12 Motion Traverse Net.

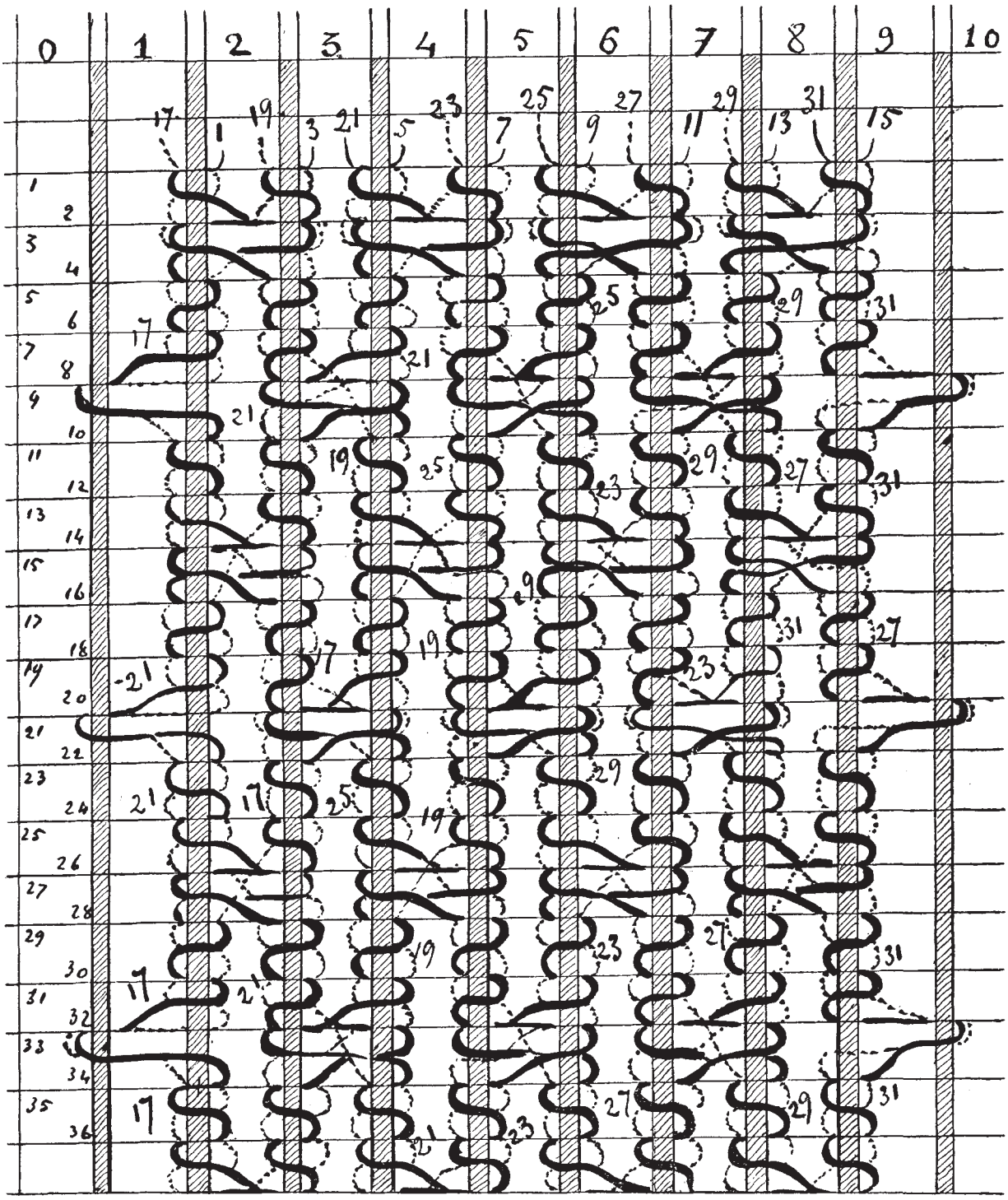


Fig. 32.

In the 12 motion net that we give (Fig. 32) we have also 2 threads per bobbin, and the top bars traverse, that is to say, rise and fall from carriage to carriage.

On the draught of this net we have shewn the top threads traversing from 0 to 6 and then returning. They can very well be made to rise higher, but we have not enough space to shew this. We think the example we have given is sufficient.

The threads twist as much right as reverse.

The net made in this way gives greater facilities for regulating the beams, and the aspect of the net is more regular, in a word, the square is more perfect, and thread breaking is practically nil. (Follow carefully the work of the figure sheets (Fig. 33).

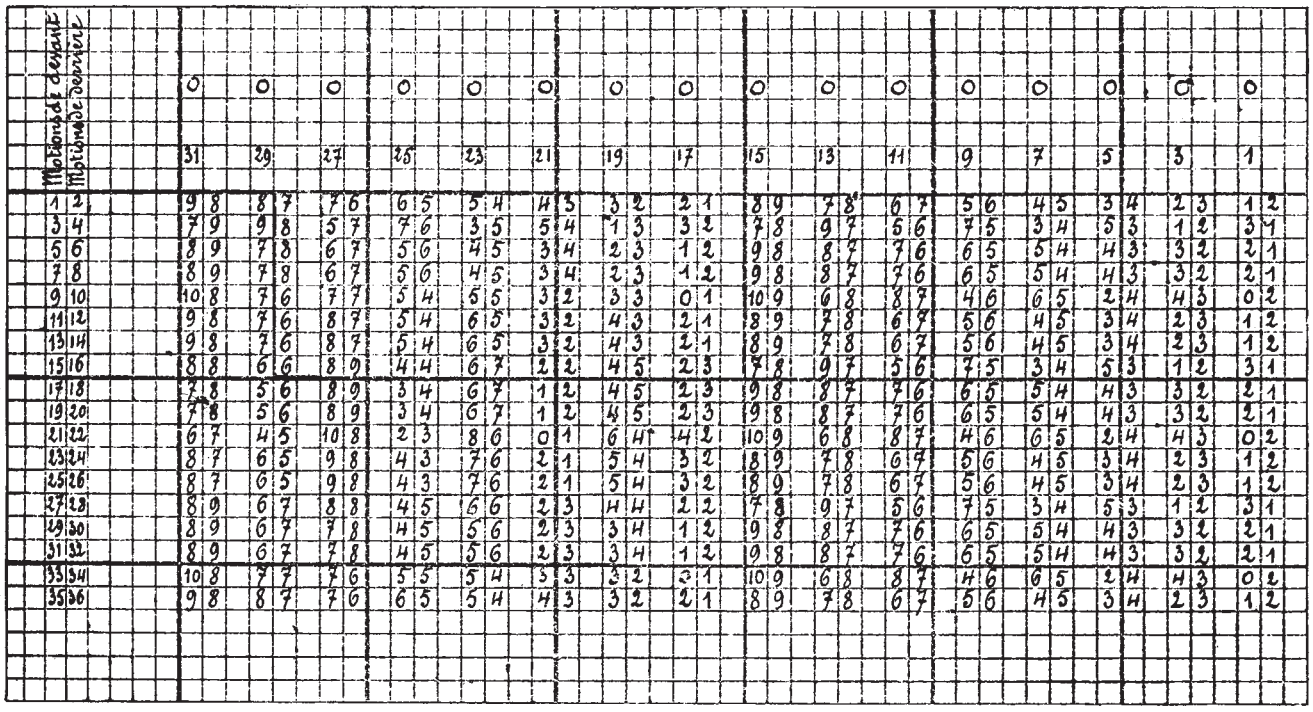


Fig. 33.

12 Motion Traverse Net (2nd Way).

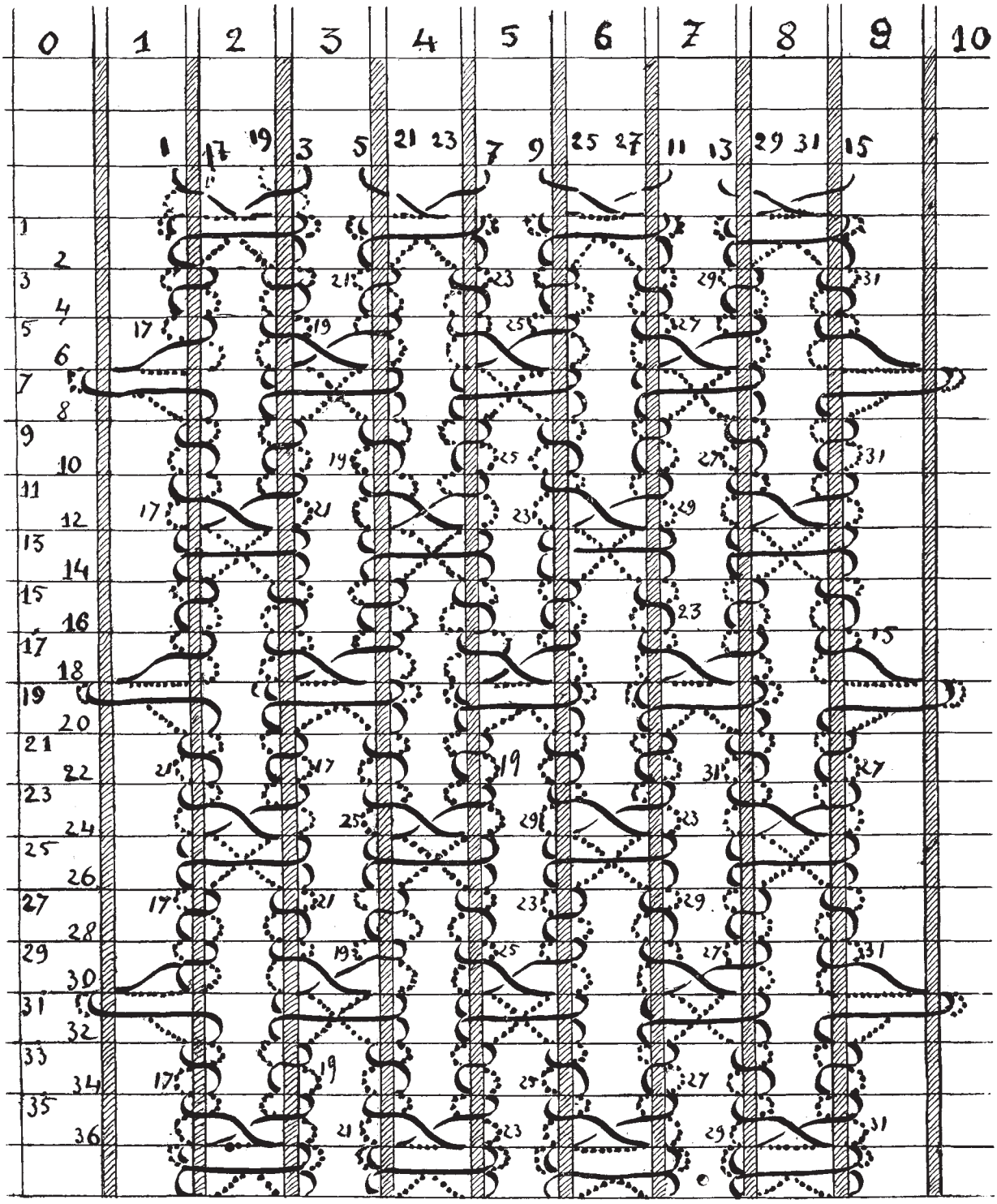


Fig. 31.

In Fig. 34 we reproduce a 12 motion net with front threads traversing also. The difference between this and the preceding net (Fig. 32) consists in that the threads instead of twisting right and reverse between each tie, always twist right in rising and reverse in falling.

This net has also a regular aspect, but it is more liable to thread breaking, and to avoid this it is necessary to use stronger yarns. (*Follow carefully the work of the figure sheet*, Fig. 33).

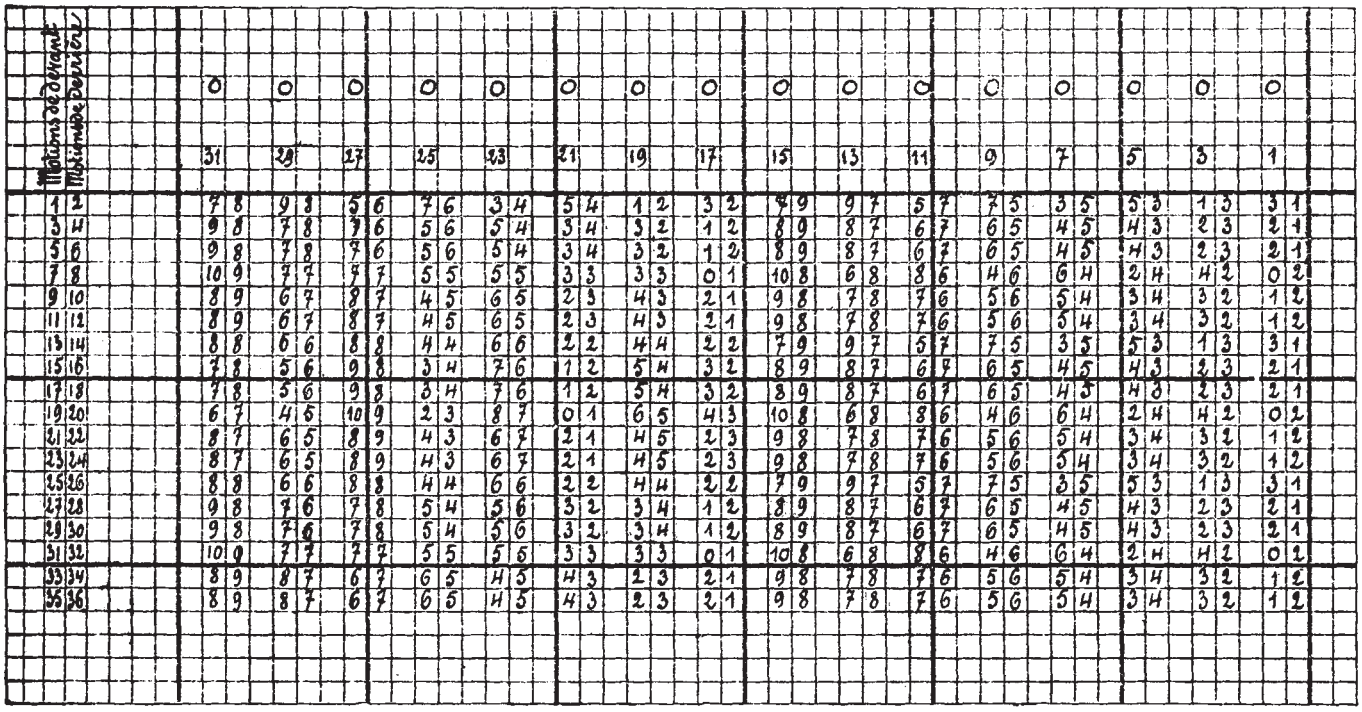


Fig. 35.

12 Motion round Net.

In Fig. 36 we give the work of 12 motion round net and figure sheet (Fig. 57).

This net is made with 2 threads per bobbin ; the front threads make the tiès and the others remain twisted on the bobbins.

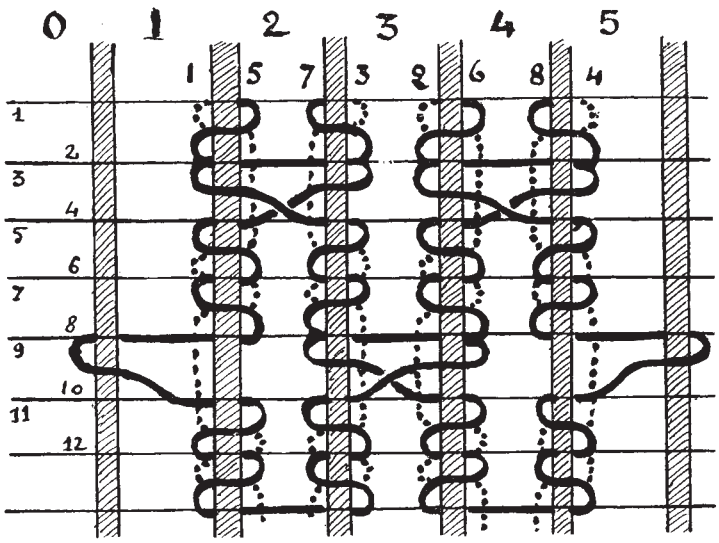


Fig. 36.

The bobbins are numbered as in Fig. 36 and should be sprung medium tight. (We do not give the cuts of 8 and 10 motion round Round hole net, as these do not give the required aspect, and are replaced by the net (called enzor net).

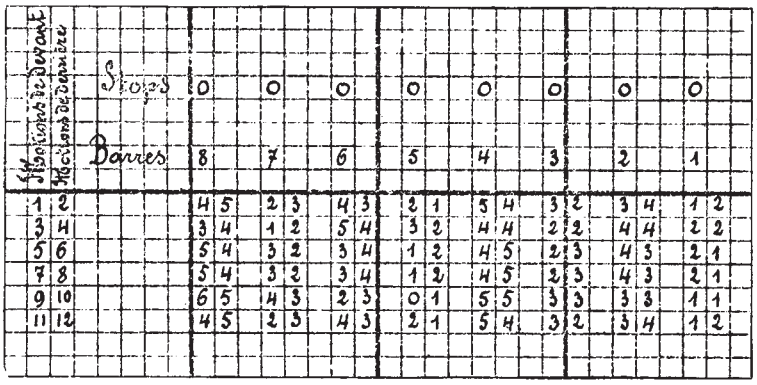
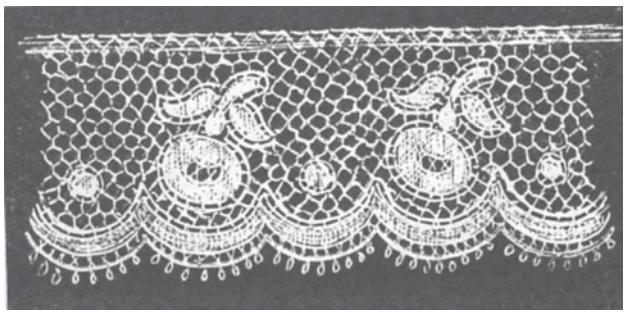


Fig. 37.

This net is used in Valenciennes with passed and gimped fronts. The yarns used are 80/2 or 100/2 for fronts, 140/2 for nets, and 120/2 for gimps for 9 or 10 points. The quality is 36 racks for 11·50 metres.

The adjoining pattern can be made in 12 motion round net on a 9 point.



20 Motion round Net.

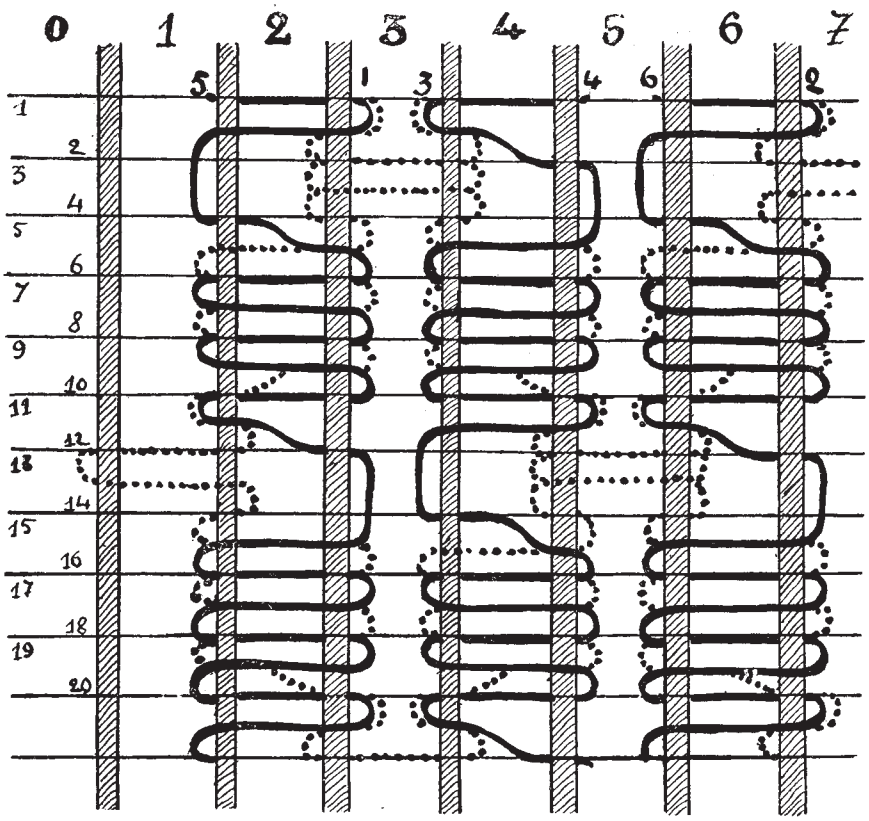


Fig. 38.

Fig. 38 represents a 20 motion round hole net. It is used in gimped Valenciennes, and can also be used in passed Valenciennes on a 12 point machine.

It is made with one thread per bobbin and it requires 4 bobbins to make one hole. The finished net has the aspect of 6 point net, the plait being composed of 2 threads and 2 bobbins is naturally thicker and its aspect is more lacy than 12 motion net made with 2 threads and a single bobbin on a 9 point machine.

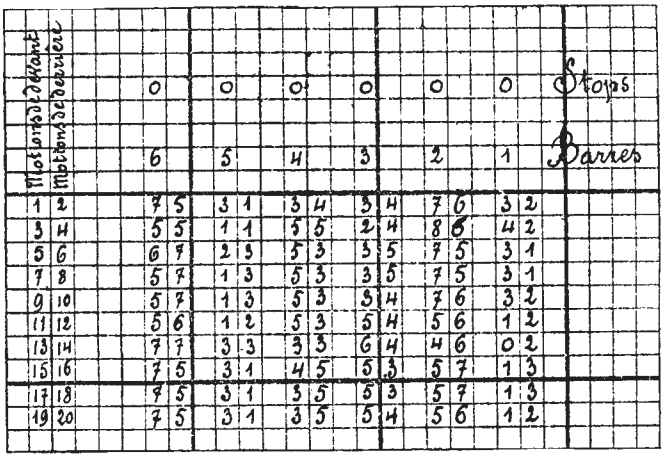


Fig. 39.

The ties are made

by the back bars. (See Fig. 38 and 39), giving the work of draught and sheet. The yarns used are 150/1 for nets and gimps, and 200/2 for bobbins.

The quality is about 52 racks for 11·50 metres.

This net can also be made on a 14 point machine with the same yarns.

Some manufacturers use 170/2 for the nets, fronts and bobbins. This gives the article a more lacy aspect.

Fig. 40 gives a design that can be draughted for the article described above.

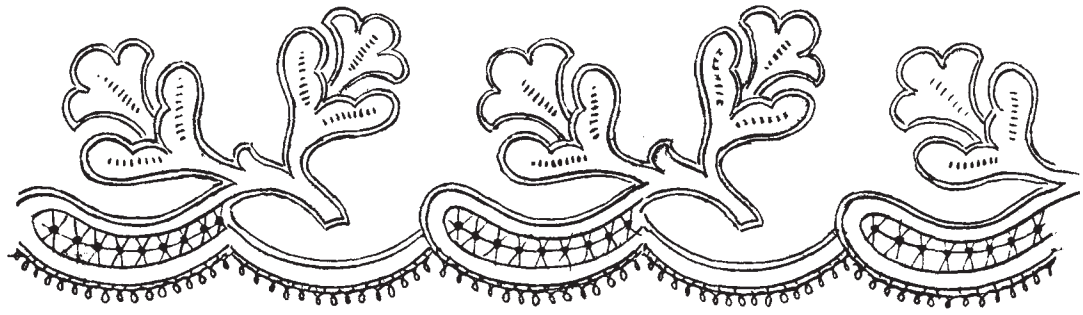


FIG. 40.

24 Motion Round Net.

The 24 motion round net differs from the preceding one, in that there is one more twist between each tie ; otherwise the work is the same. (See Fig. 41 and 42).

It is principally used in gimped Valenciennes, and also for passed Valenciennes.

It has the advantage of making the clothing effects more lacy.

For a 14 point, the yarns most generally used are 170/2 for nets, gimps and bobbins ; for a 12 point the yarns used are 150/2 for nets and gimps, and 200/2 for bobbins.

The bobbins should be sprung medium tight.

The quality is about 58 racks for 11·50 metres.

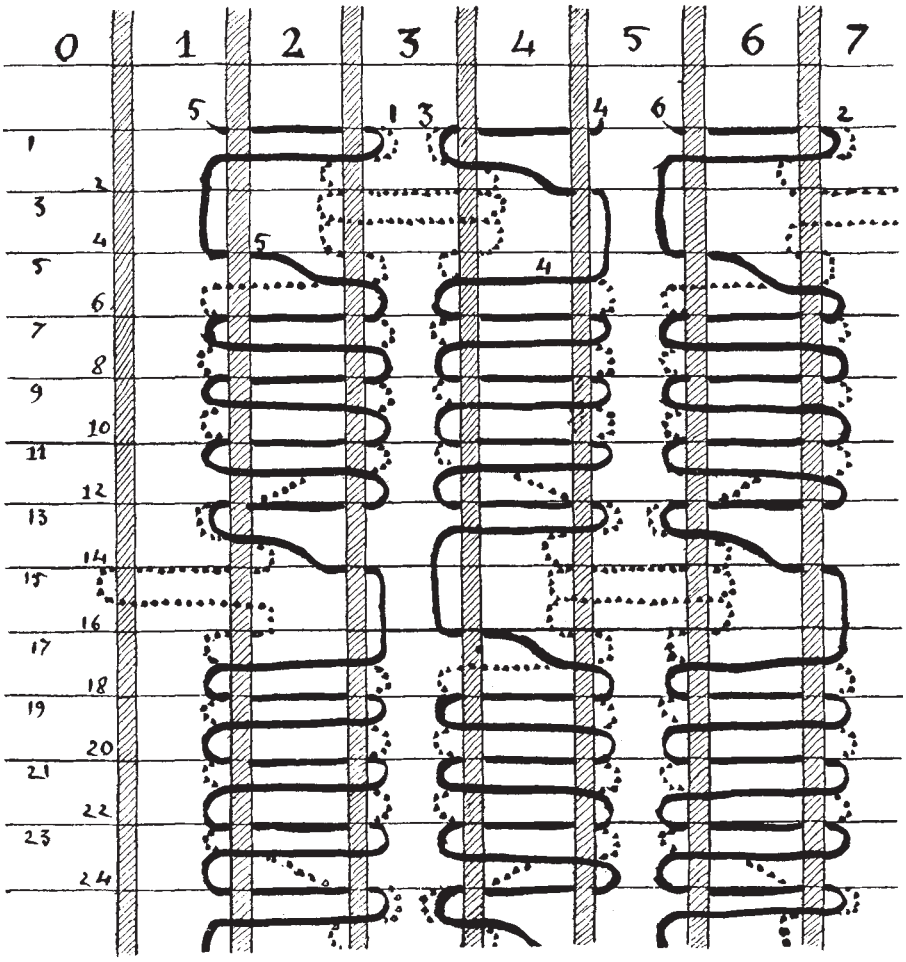

0
1
2
3
4
5
6
7

FIG. 41.

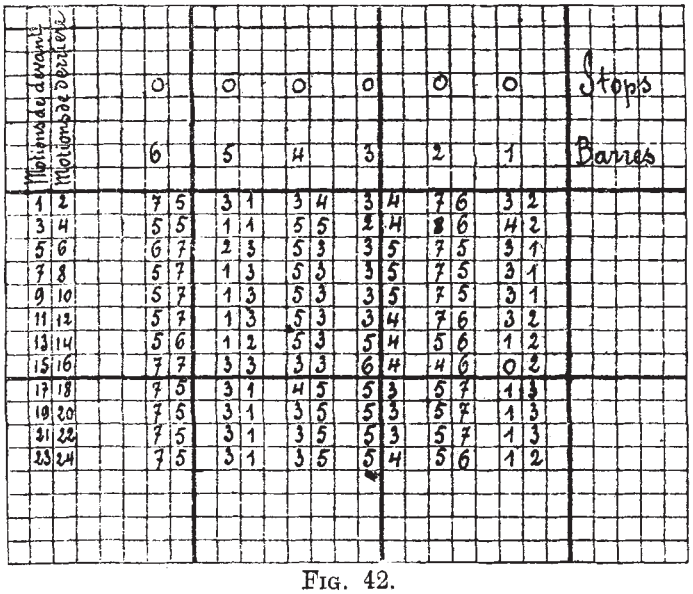

Mouvement d'avant
Mouvement de derrière
Stops
Barres

FIG. 42.

6 Motion Enzor Net.

This net has an hexagonal shape, that is to say is 6 sided (Fig. 42 and 44).

Because of its nearly round shape it is used in gimped Valenciennes with gimped fronts, especially with passed fronts, thus imitating the round hole article, but in common qualities. It is made with 2 threads per bobbin.

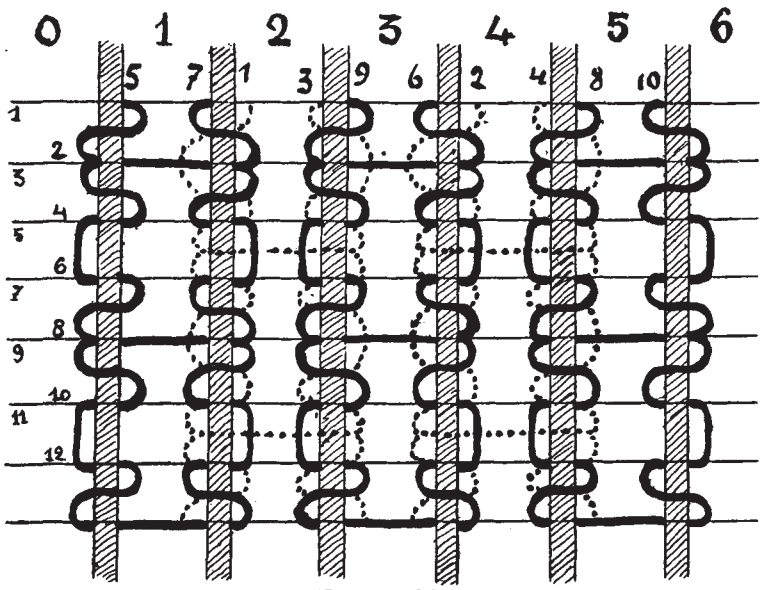


FIG. 42 bis.

This net is one of the best nets employed in silk and cotton goods. It is easy to make with a Warp but difficult with independent beams.

Its work is very regular as can be seen at Fig. 42 (bis).

The tie joining the 2 bobbins is made by one thread rising and another falling on the same motion, either for a front or back tie.

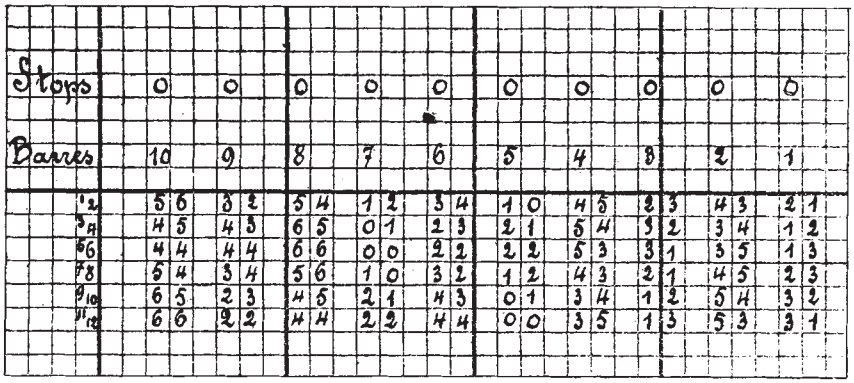


FIG. 43.

After each rise or fall the thread twists half right and half reverse in an absolutely regular manner.

The threads cross over in each hole of 6 motions. It requires 12 motions to bring them back to the starting point and re-commence their (work Figs. 42 bis and 43).

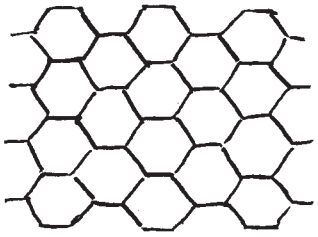


Fig. 44.

The set out is made with 2 back threads in one hole, and 2 front threads in the other.

The net would not be good if we used 1 and 3 in the first hole and 5 and 7 in the second.

The yarns used for 6 motion net in gimped Valenciennes with a passed front, 9 point machine, are 120/2 for nets and gimps, 80/2 for fronts and 170/2 or 200/2 for bobbins.

Generally speaking, this article is made without clips, the net threads gimp in the motifs.

The quality is 55 centimetres per rack, in gimped Valenciennes with gimped fronts. The yarns are 120/2 for nets and gimps, and 170/2 or 200/2 for bobbins.

For 65 centimetre quality 9 point machine the yarns required are 100/2 for nets, 80/2 for passed fronts, and 200/2 for bobbins.

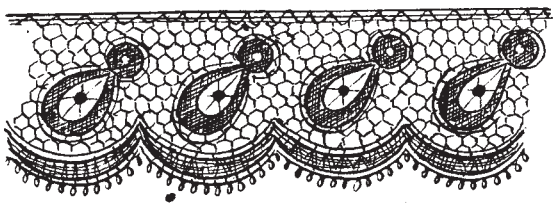


Fig. 45.

For 75 centimetre quality the yarns are 80/2 for nets and passed fronts, and 170/2 for bobbins.

Fig. 44 gives the aspect of enzor net on an enlarged scale.

Fig. 45 represents a design suitable for 6 motion net with passed front.

Fig. 46 represents a big 6 bobbin spot on 6 motion enzor net.

Fig. 46 (bis) represents a 4 bobbin spot.

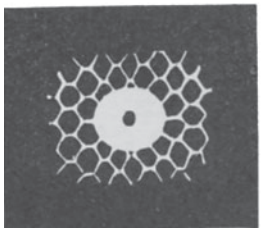


Fig. 46.

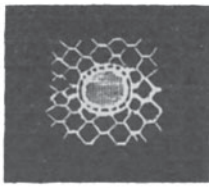


Fig. 46 Bis.

8 Motion Enzor Net.

The 8 motion enzor net only differs from the 6 motion, by the motions added to it, which, however, do not twist.

The twists are equalised by the take up of the points, without the help of the worm, and wheel (dead motions), as the twists are all taken off, on the same motion.

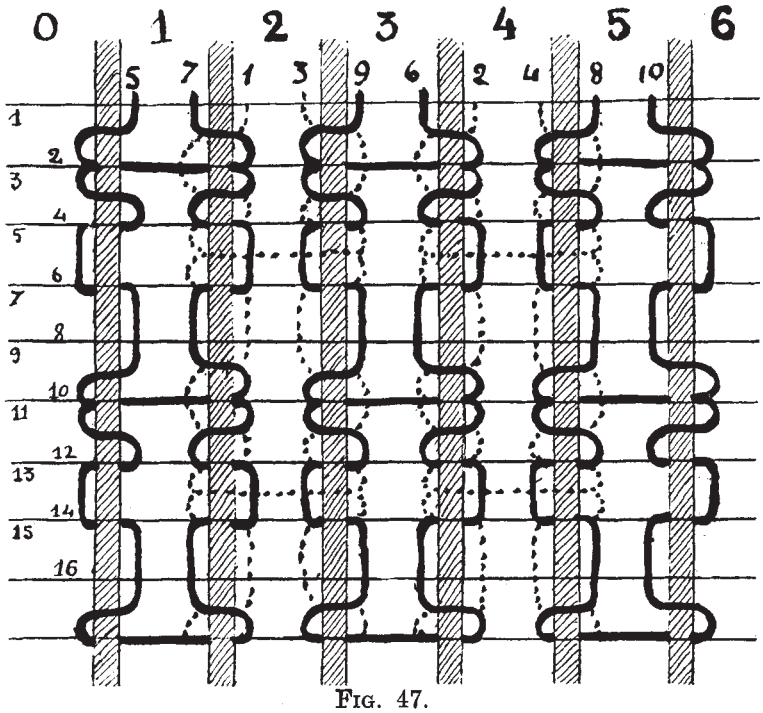


Fig. 47.

This net is used for gimped Valenciennes, with gimped front, and especially with passed fronts. It allows the draughtsmen to use Patterns with more clothing than with the 6 motion net.

Many draughtsmen prefer to use the 8 motion net, as it allows them to make their fronts with more facility.

The quality for a 9 point, is 43 centimetres per rack.

The yarns are 120/2 for nets, 80/2 for passed fronts, and 170/2 or 200/2 for bobbins.

For gimped Valenciennes with gimped fronts, the yarns are 120/2 for nets and gimps, and 170/2 or 200/2 for bobbins.

Stops	0	0	0	0	0	0	0	0	0
Barres	10	9	8	7	6	5	4	3	2	1
12	5 6	3 2	5 4	1 2	3 4	1 0	4 5	2 3	4 3	2 1
14	4 5	4 3	6 5	0 1	2 3	2 1	5 4	3 2	3 4	1 2
16	4 4	4 4	6 6	0 0	2 2	2 2	5 3	3 1	3 5	1 3
18	5 5	3 3	5 5	1 1	3 3	1 1	4 4	2 2	4 4	2 2
20	5 4	3 4	5 6	1 0	3 2	1 2	4 3	2 1	4 5	2 3
22	6 5	2 3	4 5	2 1	4 3	0 1	3 4	1 2	5 4	3 2
24	6 6	2 2	4 4	2 2	4 4	0 0	3 5	1 3	5 3	3 1
26	5 5	3 3	5 5	1 1	3 3	1 1	4 4	2 2	4 4	2 2

Fig. 48.

10 Motion Enzor Net.

The 10 motion Enzor net differs from the 8 motions by one twist more each side of the tie. Though we may lay ourselves open to a charge of reiteration, naturally the more twist there is in a net the more body there will be in it and the clothing will appear finer.

The quality for a 9 point is 384 millimetres per rack (say 15 inches.)

The yarns are 120/2 for nets, 80/2 for passed fronts, and 170/2 or 200/2 for bobbins.

At this quality, to obtain a fine clothing, it is necessary to use a front and back gimp ; do not double the gimps.

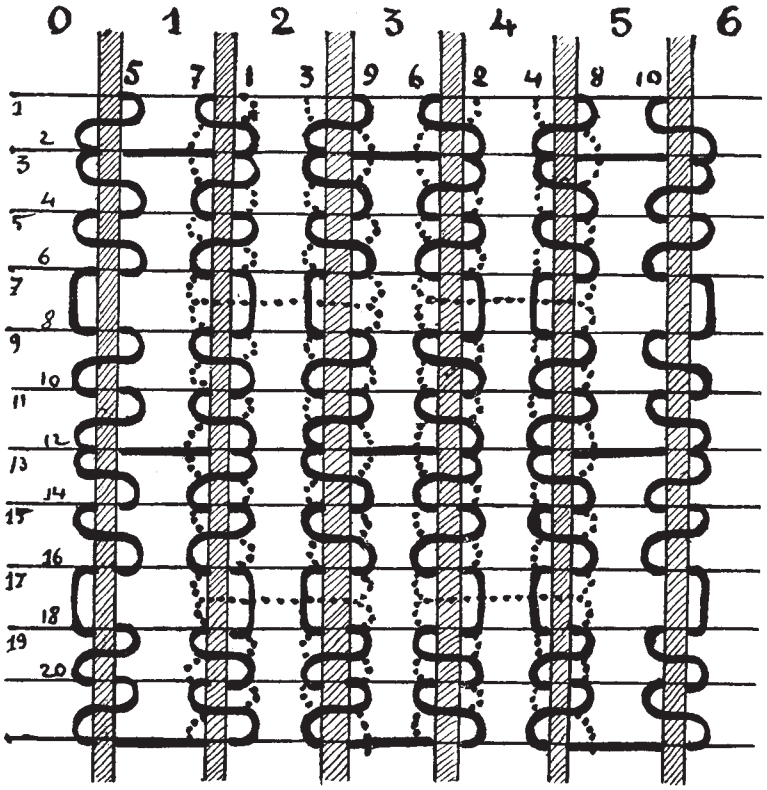


Fig. 49.

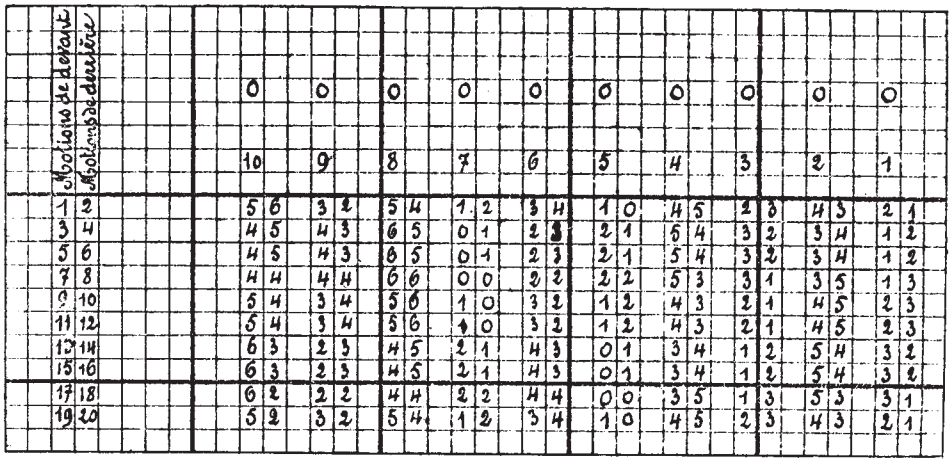


Fig. 50.

14 Motion Enzor Net.

We only give here the draught of this net, which only differs from the preceding one by the number of twists between the ties.

It is very little used and can under certain circumstances, imitate round hole net on a 9 point and will give a finer quality than either the 8 or 10 motions.

The quality is 44 racks for 11·50 metres. The yarns are 140/2 for net and gimps, and 200/2 for bobbins.

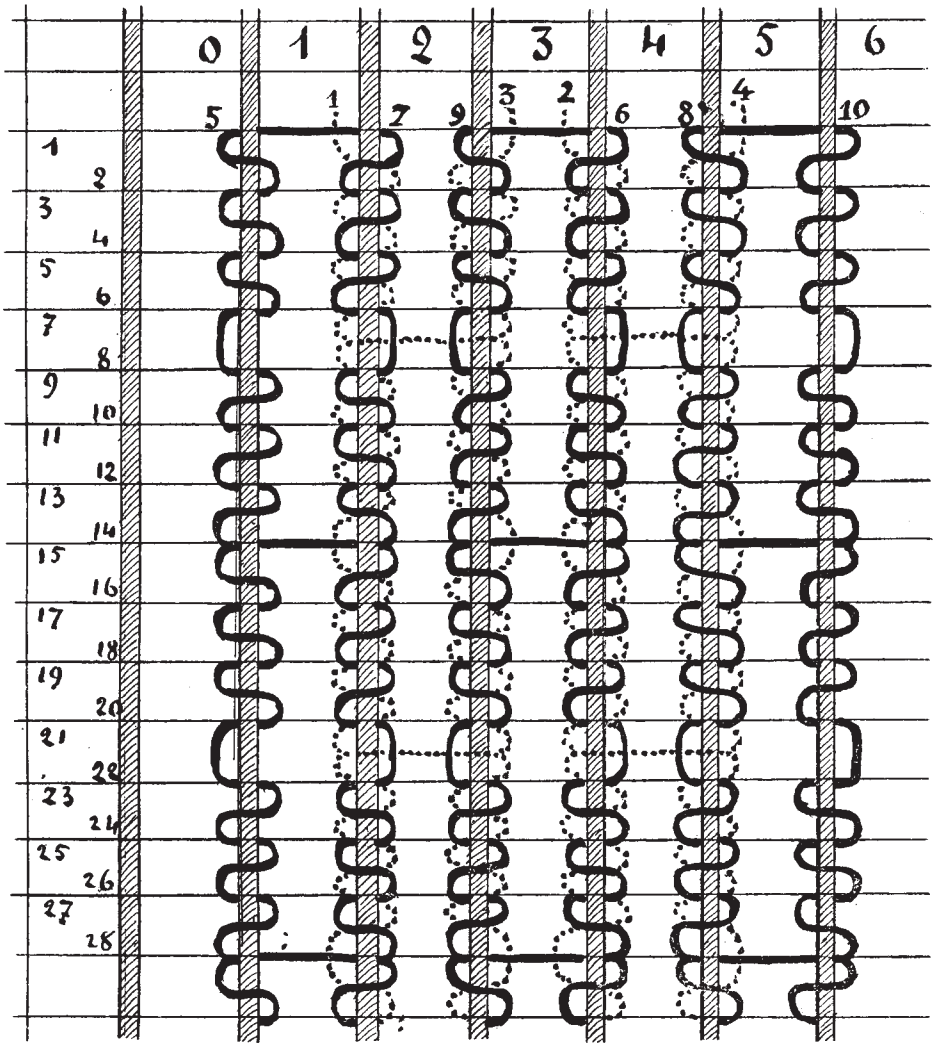


Fig. 51.

Fronts.

In *Valenciennes* we call fronts the base of the pattern, which is composed in the lowest part by purls falling to *stop*, then corders nipping the purls; above these, threads called band threads, that lie straight owing to the tension of the beams on which they are placed.

The importance of the front is very great, in fact, we may say it is of capital importance in the composition of a pattern, as it is the principal dart, and gives the character peculiar to *Valenciennes*.

In the following pages we give about 20 different fronts, with and without crosses, scalloped and gimped fronts, etc., etc.

We begin with an 8 motion front (Fig. 52 and sheet Fig. 53).

It is composed of purl No. 1 corder, No. 3, and 8, band threads 5, 9, 15, 19, and 7, 11, 17, 21, and a thread No. 25, which we call a drag or scallop lining thread, which, with No. 23 helps to make the net, and they go down and catch bobbins No. 3 and 4 on No. 8 card, and rise again on No. 1 card, bringing bobbins No. 3 and 4 up to bobbins No. 5 and 6.

Purl bar No. 1, after having made a right twist on cards 1 and 2, passes under bobbins 2, 3 and 4, then falls back to *stop*, or blank, on cards 4 and 5, passing over the said bobbins, rises again on card 6 to fall back again.

This take up of bobbins by the purl, is to draw bobbins 3 and 4 to bobbin 2.

These bobbins should be medium slack, that is to say the spring should not press too much on the bobbin, so as to allow the thread to leave the bobbin easily.

In Fig. 54, the movements of the bobbins is shown in red. The bobbins are helped in this work by the band threads, being rather heavily weighted, pulling on these bobbins.

8 Motion Front.

We will now endeavour to make clear the work of the band threads represented in Fig. 52.

Let us say at once that the No. of 8 threads we have adopted, is merely to serve as an example. Bands may contain from 6 or 8, to 30 or more, the number of threads to be passed depending on the thickness of the yarns used.

To pass the 8 threads, shewn in black and red (Fig. 52), it is absolutely essential that their set out, and consequently, their numbering should be as shewn in (Fig. 54), representing the threads passed in Fig. 52.

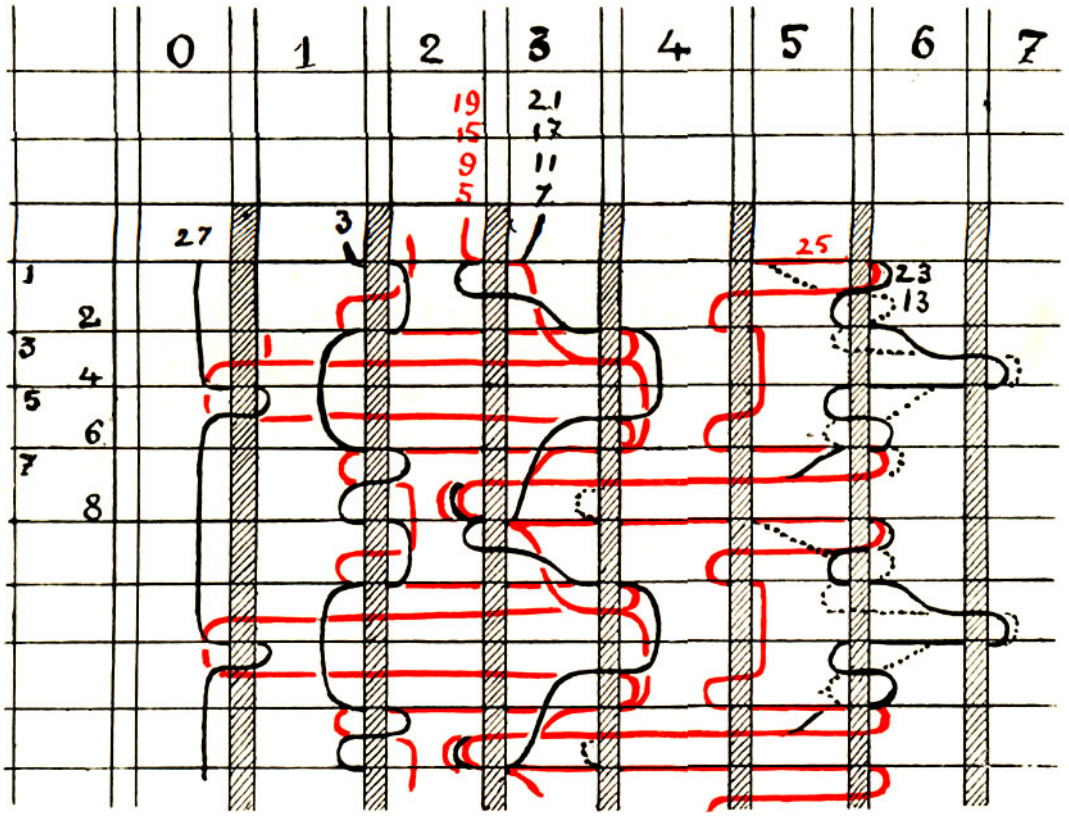


FIG. 52.

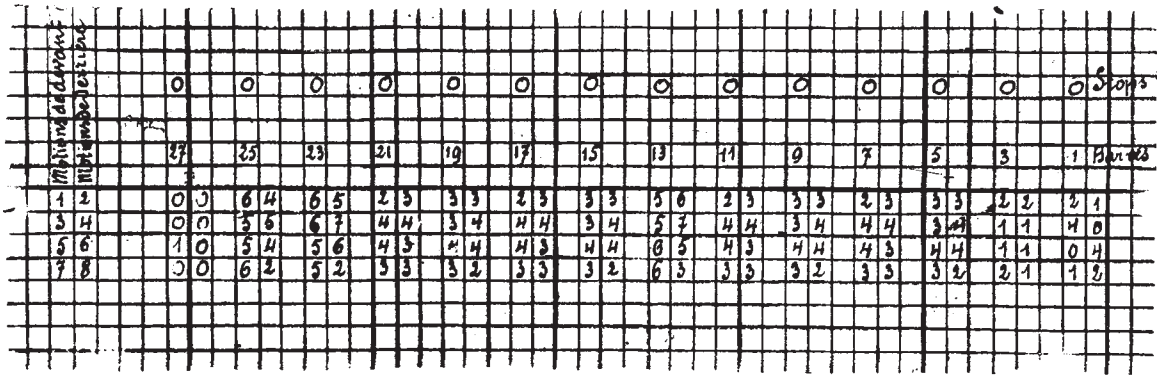


FIG. 53.

We divide our 8 threads into two series, alternating from 4 to 4 in numbers, the first, No. 5 at the bottom, should be at the back of all the others. The threads 5, 9, 15 and 19 do the same work.

The second series, commencing with 7, 11, 17 and 21, also do the same work.

In the unavoidably narrow space in which these threads are placed, passing in the interval of one motion the ones from the others, these threads interlace themselves through the two bobbins, and then resume

the vertical position because of the heavy tension on the beam spring.

As we cannot show the exact position of the threads on the draught (Fig. 52), and being desirous that the pupil should thoroughly understand the work, we have meshed it with strings and drawn it (Fig. 55), thus showing the work described above (Fig. 52 and 53).

The pupil may do the work himself on a meshing frame, and thus reconstitute the draught. The purl should always be at the back of the band threads and the drag, which falls and takes the bobbin through, should always be a front thread. This enables the front to be made with less motions.

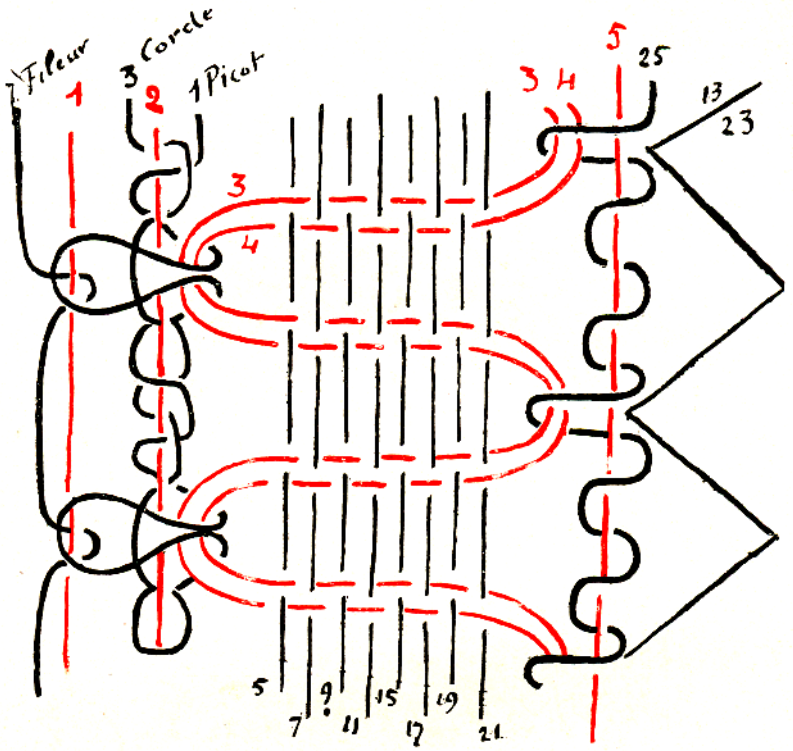


Fig. 54.

We repeat once more that it is impossible to pass the threads properly if they are not placed in the order indicated.

Fig. 56 has the same aspect and gives the same result in the finished lace as the ones described in Figs. 52, 53, 54 and 55. But we have changed the set out which is numbered and works in the order indicated. We also put this on the meshing frame, and with the help of strings, we pass each thread, motion by motion (Fig. 57). As will be seen, it takes 24 motions to produce the same work as the one executed by passing the threads in series, consequently this method of numbering is bad

Our readers will realise the full importance of this economy which enables us to make a slacker article while retaining the same aspect. With the other method of numbering the front cannot be made with 8 motions ; it is also necessary to throw off the first and last threads of a band when the number of motions will allow it because, after a few racks, the band bobbins become tight and make a bad front, by throwing off

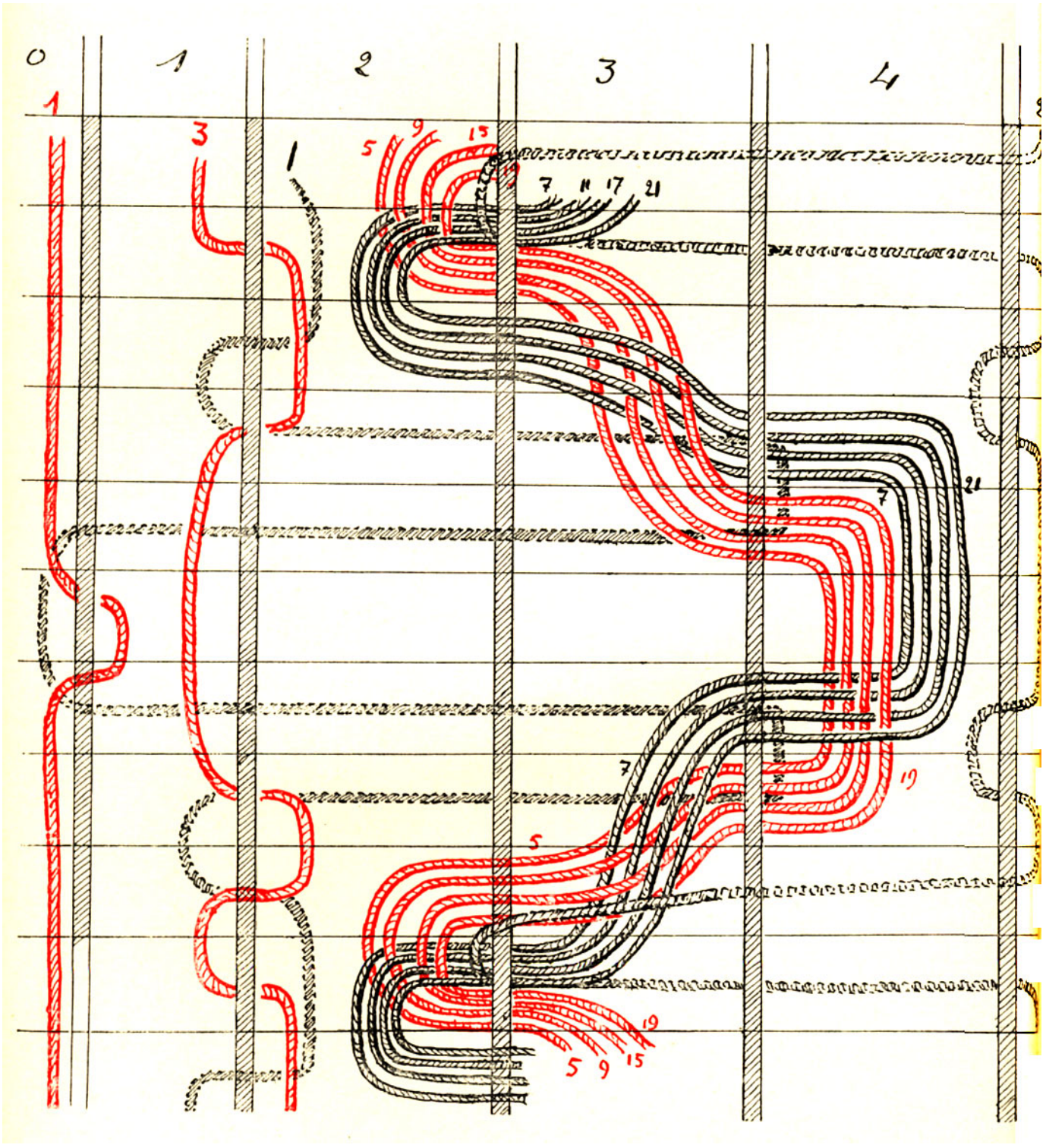


Fig. 55

these threads and putting weight on the beams. The band is made regular. We show, in Fig. 57, the threads 21 and 25 throwing off.

We council the pupil to always reproduce on the meshing frame the work that we explain.

We will give them a practical method of easily reproducing one of these works.

Let us take, for example (Fig. 54). Take a frame 16 x 16 inches, on the top and bottom of which we place at 1¼ inch intervals two nails near enough together to hold a rather thick piece of string knotted at one end.

At each of these two nails we place a coloured thread, representing the number of bobbins shewn (Fig. 54), and by their side strings destined to reproduce the work of the threads which we throw over the top of the frame.

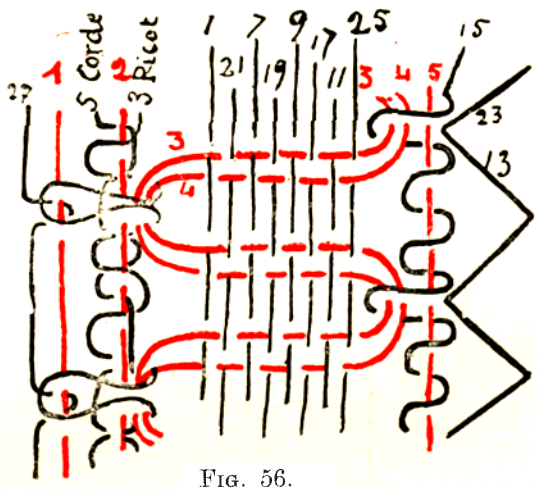


Fig. 56.

Now, placing the frame flat on a table, we take the bobbins 3 and 4, marked in red on our pattern or sketch, and reproduce their zig-zag movements on the table, holding out the curves with pins. We then pass our threads one by one over and under the bobbins as indicated. The same with the threads making purl corder, etc.

When all this is done, the pupil will pull the 8 band threads tightly to the bottom of the frame and fasten them there, while the bobbins 3 and 4 are loose. He will then only have to push forward the whole work with the fingers to have an exact aspect of the tissue considerably magnified.

Being familiarised with the handling of the strings, the pupil will quickly reproduce on his frame the work of the draught instead of the work of the sketch, and thus understand the lessons we are now giving.

Aspect of an 8 motion Front representing Figs. 54 and 56

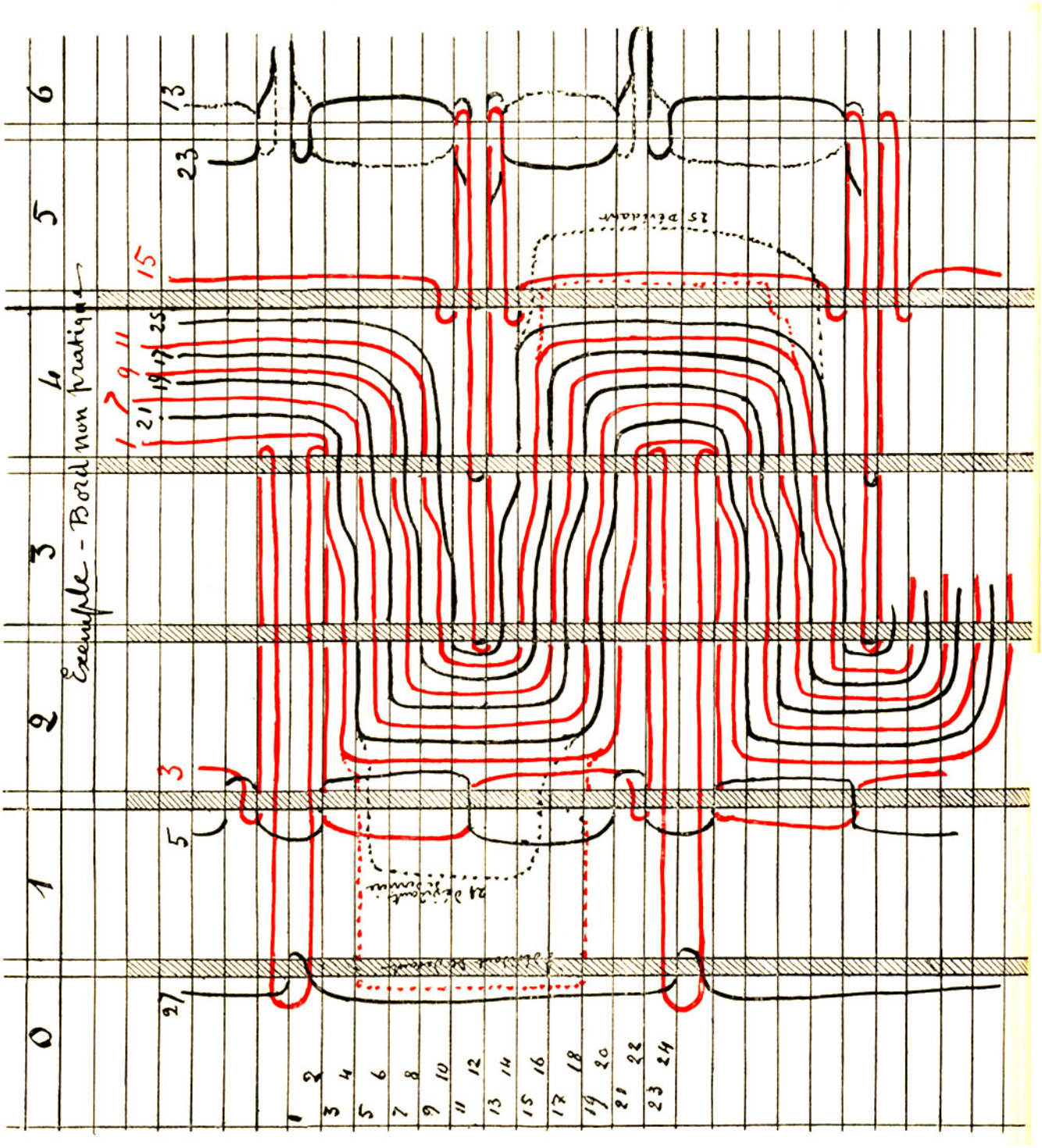

Exemple - Bord non tricoté
6
5
4
3
2
1
0
13
23
15
25
21
11
9
1
3
5
27
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

Fig. 57.

10 Motion Front.

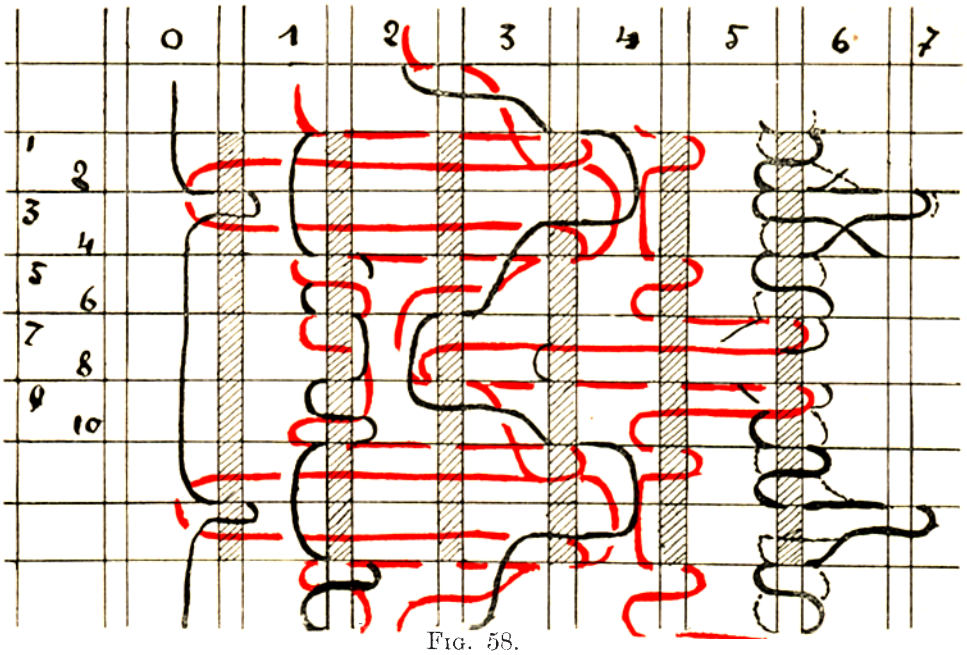


Fig. 58.

The 10 motion front represented by Fig. 58 as an example, gives the same aspect when finished as the 8 motion.

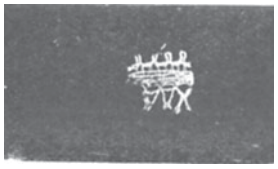
The threads are numbered in the same manner.

The 2 motions added to the front allow the 2 threads at the top and bottom to throw off.

The article made with this front is naturally stiffer than that made with the 8 motion.

The regulating of the bobbins for all fronts in general should be as under :

1st, called separation bobbin, very tight.
2nd, called purl bobbin, tight.
3rd, called band bobbin, medium slack.
4th, called band bobbin, medium slack.
5th, called ticking bobbin, medium tight.
6th, called net bobbin, medium tight.



Aspect of a 10 motion Front.

12 Motion Front.

In Fig. 59 we give the draught of a 12 motion front having the same aspect when finished as the 8 and 10 motion fronts, the numbering being the same.

This front is naturally used to make a stiffer article.

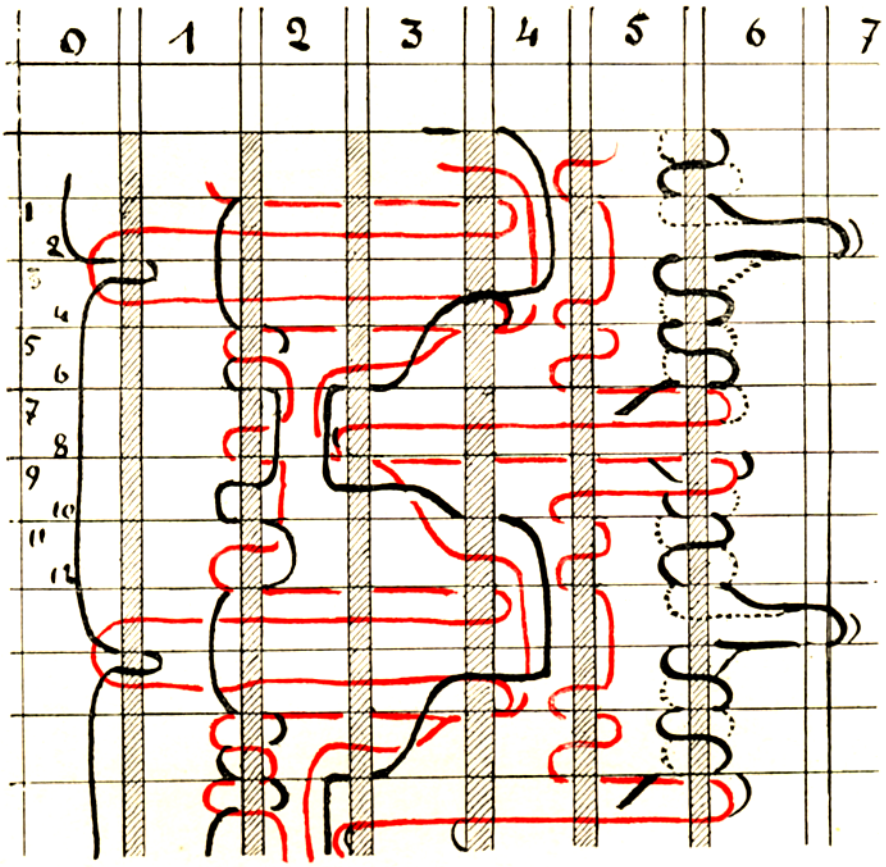


Fig. 59.

We do not give the quality of the fronts as they in general follow the quality of the nets that we have already given.

Aspect of a 12 Motion Front.

10 Motion Front.

In the 10 motion front represented in Fig. 60 we have numbered our threads in a different way to the preceding fronts, that is to say the front threads work in the bottom of the front, and the back threads work in the top of the front. The work of the threads is the same and the result identical in the finished lace.

The front beams always have more tension or weight than the net beams.

They therefore require stronger springs, as also the purls, corders, and lacers.

It is better to put the beam cord twice round the collar of the beam to facilitate the weighting.

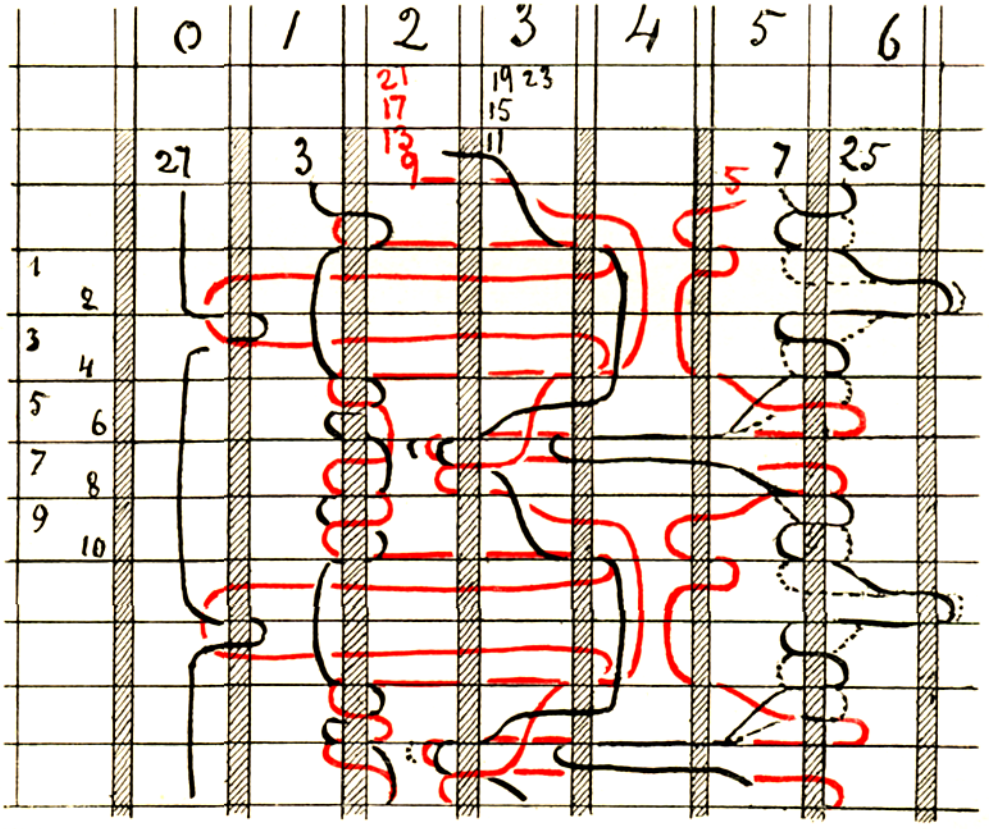


Fig. 60.

Fig. 61 is the sketch of Fig. 60, and Fig. 62 is the figure sheet.