WEAVING.—No. XVI.

THE JACQUARD LOOM—continued.

The griffe is shown separately, and detached from the machine, in Fig. 135. In this figure the slide N fixed at the ends of the block E are shown. Fig. 136 is an end view of same, and Fig. 137 is a plan. In the latter figure the ends of the frame A A are shown in dotted lines with the groove into which the slides N N work. This plan is often used in Jacquards for hand looms, and is approved merely for its simplicity. Fig. 138 shows another plan in common use for hand-loom Jacquards also. In this case, the slide works upon round bars fixed into coming into contact with the hook or catch it still moves until the cylinder is turned. In Fig. 138 a "lantern" I is shown fixed on the end of the cylinder C, which is provided with four pins, which the hook catches in order to turn the cylinder. The action of the cylinder will be best seen in Figs. 140 to 143. In Fig. 140 the cylinder is shown when pressing the card against the needle-board and needles. In these diagrams the catches are shown upon a different principle to that shown in Figs. 139 and 131, where they are simply catches connected with a cord at their ends. The cord m is attached to the cylinder to reverse or "turn back," he pulls the handle.

spring fixed at the end of it, as shown. When the cylinder is being turned the catch V gives way in consequence of the spring, and then resumes its normal position, as shown. Now, it will be evident that in the case of the cylinder being placed in position, Fig. 141, the lower pin in the lantern would come into contact with the point of the catch V, and would, therefore, be turned "square on." V

The cylinder is kept in position by means of a presser B K, shown in the diagram, and this presser or as it is technically called the "hammer"—is forced down by means of the spiral spring as shown.

On referring to Fig. 129, the three cards represented show the way the cards are laid together. The large holes N N are for the purpose of fitting upon the pegs E E of the cylinder as shown in Figs. 130 and 131. (See page 467 of our last volume.) These pegs are made adjustable, for the slightest movement of the card would prevent its coming into exact position against the needle-board, therefore it requires very exact and sure means to press the cards against the needles correctly.

It will be noticed in Fig. 131 that the cards N' hang loosely, and do not touch the cylinder on the side next the needles. Thus there would be a great liability for the card to strike the needles out of their proper position. This is in power looms an important though simple matter, for the cards would

the ends of the machine, in the position of the slots or grooves shown at A A in Fig. 137. The plan shown in Fig. 138 is that generally used for power-loom Jacquards. In this instance the griffe E is made of cast iron, and the slide bars are firmly fixed into the ends as shown.

This plan is by far the most perfect and the best adapted for steady and rapid motion required in power-loom weaving.

The cylinder C, upon which the cards revolve, is supported or carried in a "batten" or frame B B, which is suspended on centre pins T T, Fig. 128. (See page 467 of our last volume). It has sufficient extent of vibratory motion to enable it to move the requisite distance from the needle-board δ of the machine, and after and it raises both the catches, thus throwing the bottom catch into contact with the lantern and reverting its motion. But for power-loom Jacquards the plan shown in Fig. 140 is preferred.

In this case the bottom catch raises the top one by means of the pin I, as shown by the dotted lines. Fig. 141 shows the cylinder thrown about half-way out, and Fig. 142 when it is turned a quarter of a revolution. Now it often happens that before the cylinder completes the turn, and stops on edge similar to the position shown in Fig. 141, that the edge of the cylinder would be brought into contact with the needle-board, and produce more or less damage. To prevent this from occurring an additional catch, V, is placed upon the same fulcrum as the lower catch J. This catch is held up by means of the be liable to stick upon the pegs, if forced against the needle-board wrongly, they would possibly get wound round the cylinder, and not only get torn or destroyed, but in their motion the needle would suffer. To avoid accidents of this kind flat springs are used, of just sufficient strength to hold the cards against the cylinder on both sides. The position of these springs is shown by the dotted lines in Figs. 141 and 142.

When not more than 100 or 500 cards are used, they are allowed to fall into a curved tin frame placed beneath the cylinder, but when larger numbers are used they are made to fold into a "forset" form. This is done by attaching a wire about 2 in. longer than the cards at the junction of about every 20 cards. The cards fall between two curved wires,
but the wires attached to the cards being longer than the cards themselves, the wires are bent as shown in the figure. Consequently the cards remain suspended and folded together in a very compact manner.

This will be observed in the drawing of the ordinary silk loom, Fig. 148. (See page 34.)

In Fig. 152 it may be mentioned, that the P.P. P. has been adapted to the purpose of the leashes shown at C, Fig. 115 (see page 337 of our last volume), and the hooks X are attached to the hooks shown at D in the same figure. In the case of the Jacquard machine, now described, means for working the couplings is provided, so that another place can be shown, as we shall hereafter find. But these additional hooks are by no means applied to all Jacquards, and they are in fact used only in the case of the mechanism described in that machine should be represented. Thus a glance at the cards Fig. 199 will show at the part N a consecutive order of arrangement, while the portion N is irregular. This arises from the fact that the part N forms the "ground" of the cloth, and the part N the outline or figure.

Previous to describing the action of the machine upon the warp, we have given in Fig. 148 a reproduction of a hand-loom, such as is used in Spitalfields, and other figured silk-weaving districts. It will be observed the mechanism occupies the position of the ordinary loom, and in fact, it has simply replaced the draw loom apparatus. It was first placed in this position by Varley, and the length of the wire which is inserted in the draw loom, is the same as in the Jacquard mechanism, and the self-acting motion for pressing the card upon the needles is shown in the drawing at No. 15 or 16 B.W.G., and the hooks of Nos. 14 and 18. Formerly the Jacquard machine straightened the wire from the ring or coil, the wire-drawer now supplying it in a much more perfect manner, the straight length cut as required.

The needles are placed about 2 in. apart. The holes in the spring box, &c., are very truly drilled by means of almost self-acting drilling machines, and the holes are then carefully chiseled, and are not allowed to be by any means, a simple and ingenious tool which insure them to be exactly of a size, and taken altogether, with the thread-twisting machine forms a wonderfully compact and perfect machine.

There are several matters concerning the working of the Jacquard that we have purposely left unmentioned until the machine itself was described. Let it be supposed that the griffe be raised without any hooks upon it, and that another griffe be raised, the wires are not pushed back, the inclined plane of the griffe bars will strike against the face of the hook and force it back, the wires will be separated in the two adjacent points of the hooks. Then upon raising the griffe it carries the hooks up with it. Upon lowering the griffe, the hooks that were not pushed back shall act upon the bars of the hook, and slowly land upon the frame, while the hooks that have landed upon the bottom board, consequently the weight upon the hooks adds to their friction, and they require a greater force to push them off the bars. The greatest perfection would be if the griffe could be allowed to drop to its full extent before the cylinder was pressed against the needles, for it would save much wear of the needles and the cards also. But to accomplish this two motions are required, viz., a rotary motion, by a cam, or crank to raise the griffe, and another cam upon the shaft to press the cylinder; by this means the objection is obviated.

This plan has for some time past been adopted in power loom Jacquards, as we shall hereafter show. Fig. 197 (to the right hand page) at k, one of the brasses, into which the cylinder works, is shown. It is held in the slot made in the cylinder, and the head, as shown in the figure, is fixed by the large screw which runs through, and the little screw that holds the nut to which the brass is attached. (See page 347 of our last volume.)

The cylinder is placed or taken from the batten by the griffe. Fig. 198 shows in the dotted lines how the position of the brasses, and the adjusting screws to regulate their height. The screw which runs through the small brass at k, upon which the batten is supported, affords the means of adjustment in a lateral direction. The hammer is held small into the top of the brass, and the small pin at the end of a notch in the hammer bar when the cylinder is removed, otherwise the hammer would be forced out of the frame by the spring.

Jacquard machines have various names applied to them, such as "machining," "engine," "figger," &c., as pressive of its noise when working), &c. They are also modified in a number of ways, but we have shown the system of working the machine, these modifications will be easily understood.

PARLIAMENTARY PRIVATE BUSINESS.

IN THREE PHASES.

THE COMMITTEE OF THE BILL.

The fact that one side of a story is very convincing until you hear the other, is frequently exemplified in the committee of a railway Bill, as the following example will testify.

The counsel for one of the petitioners has been upon hearing the other, become uninterested in the Bill by every argument which its ingenuity and experience can suggest. He has enlarged upon the hardships of the property involved, the seriously injured by it, the local interests involved, and the character of the Bill as a great social blessing, and the counsel for the petitioner, who had been a prominent speaker against the Bill, by every argument which its ingenuity and experience can suggest. He has enlarged upon the hardships of the property involved, the seriously injured by it, the local interests involved, and the character of the Bill as a great social blessing, and the counsel for the petitioner, who had been a prominent speaker against the Bill, was left as uninterested as he had been interested.

When the case for the promoters has been concluded it is open to all parties who have heard the evidence, to present their views in a manner which is not open to the promoters. The committee, therefore, has the duty of considering the evidence of each party, and of deciding upon the course which it is to pursue. It is not the function of the committee to pass judgment upon the evidence, but to consider the evidence in the light of the principles laid down by the law. It is not the function of the committee to pass judgment upon the evidence, but to consider the evidence in the light of the principles laid down by the law.

Chairman:—"Now let us understand (to the opposition counsel), you say they want to get your stage station against your will?"

Opponent:—"We say the power is applied for by your friends are of an aggressive and undignified character.

Chairman:—"You I know all about that; but what do you want to avoid is their taking your station?"

Opponent:—"We oppose to the Bill generally."

Chairman:—"But cannot you propose some clause to stay their proceedings?"

Opponent:—"If the committee pass the Bill we shall withdraw, and reserve our opposition until the second reading of the Bill. The chair man gets by his well-intentioned motion."

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HAND-LOOM WEAVING: SPITALFIELDS SILK LOOM.

(For Description, see Page 21.)