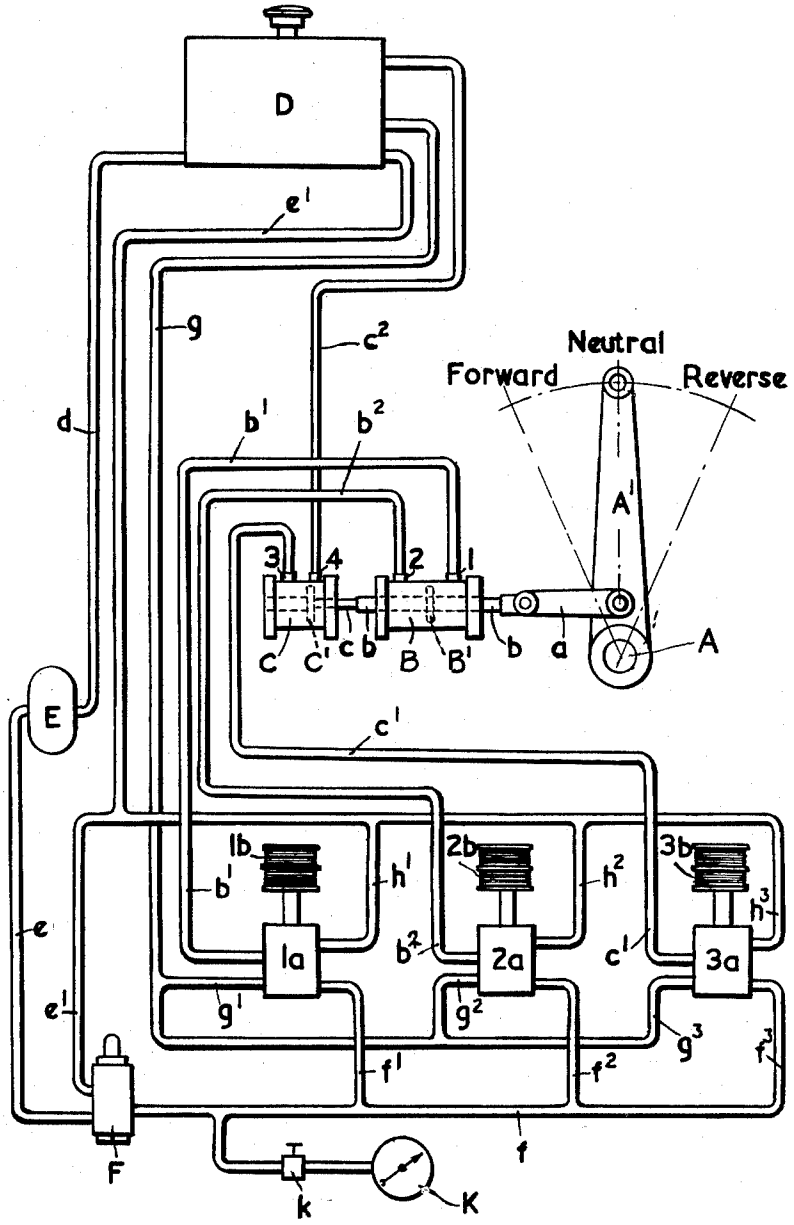
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MEANS FOR ACTUATING THE REVERSING MECHANISM OF WEAVING LOOMS

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MEANS FOR ACTUATING THE REVERSING MECHANISM OF WEAVING LOOMS

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2 Claims. (Cl. 121—38)

This invention relates to looms for weaving and more particularly to wide looms for weaving face to face double pile fabrics.

According to the invention the loom is driven from a non-reversing electric motor through a reversing gear permitting the loom to be driven in the forward direction either for the normal running of the loom or form inching and to be driven in the reverse direction for inching, the gear being controlled by hydraulic or pneumatic means.

The invention is illustrated in the accompanying diagram and will be described with reference thereto. This diagram shows a hydraulic control in which the controlling fluid is oil under suitable pressure and is the preferred form of control. It is to be understood however that other fluid could be used or that a pneumatic control using compressed air could be employed.

Referring to the diagram the shaft A of the gear unit which controls the forward, reverse or neutral positions of the gear, has secured to it an arm A^1 which is connected by the link *a* to the piston rod *b* of a hydraulic cylinder B. A second hydraulic cylinder C is arranged co-axially with the cylinder B and the piston rod *c* of this cylinder is adapted to abut against but is not directly connected to the opposite end of the rod *b* to that to which the link *a* is connected.

The cylinder B has two ports **1** and **2**, one at one side and the other at the other side of the ram or piston B^1 and the cylinder C has similarly two ports **3** and **4** at opposite sides of its ram or piston C^1.

The extent of the movement of the piston or ram of the cylinder B is such that it will move the arm A^1 from the neutral position, i. e. the position shown in full lines in the diagram to either of the positions shown in broken lines and marked Forward and Reverse respectively.

The hydraulic circuit comprises a closed oil reservoir D connected by the line *d* to a pump E which is driven by the non-reversing motor driving the loom or by a separate motor and the pump E is connected by the line *e* to a by-pass relief valve F which is connected by the line e^1 back to the reservoir D.

The by-pass relief valve F is also connected by the line *f* and branches f^1, f^2 and f^3 therefrom to three valves 1^a, 2^a and 3^a which are connected by the lines b^1, b^2 and c^1 respectively to the ports **1** and **2** in the cylinder B and the port **3** in the cylinder C. The port **4** in the cylinder C is connected by the line c^2 to the oil reservoir D.

The valve 1^a, 2^a and 3^a are also connected by the line *g* through the branches g^1, g^2, g^3 to the reservoir D and by the branches h^1, h^2, h^3 to the line e^1 connecting the valve F to the reservoir. The line *f* is connected through a valve *k* to a pressure gauge K.

The valves 1^a, 2^a and 3^a are operated respectively by the solenoids 1^b, 2^b and 3^b. When all three solenoids are de-energised the pressurized oil will pass from the valves 1^a, 2^a and 3^a to the ports **1**, **2** and **3** in the cylinders B and C and the pistons in these cylinders and

the arm A^1 will consequently be positively held in the neutral position so that the loom is stopped.

For forward running of the loom the solenoids 2^b and 3^b are energised to move the valves 2^a and 3^a to remove the pressure from the ports **2** and **3** and connect these ports through the valves to the reservoir D thus allowing the pressure at port **1** to move the piston of cylinder B in the direction to bring the arm A^1 and shaft A into the position for forward running.

For reverse running the solenoids 1^b and 3^b are energised to move the valves 1^a and 3^a to remove the pressure from the ports **1** and **3** and connect these ports through these valves to the reservoir D thus allowing the pressure at port **2** to move the piston of cylinder B in the direction to bring the arm A^1 and the shaft A into the position for reverse running.

To return the arm A^1 and shaft A to neutral from the forward position, the solenoids 1^b and 2^b are energized to move the valves 1^a and 2^a to remove the pressure from the ports **1** and **2** and connect these ports through the valves to the reservoir D, pressure remaining on or being applied to the port **3**. The piston C^1 of the cylinder C is thus moved away from the forward position and this movement also moves the piston B^1 and the piston rod *b* of the cylinder B to bring the arm A^1 into the neutral position.

To return the arm A^1 and shaft A to the neutral from the reverse position, pressure is applied at the ports **1** and **3** and removed from port **2** so that the pistons B^1 and C^1 move towards one another until their ends abut in the neutral position shown in the drawing.

I claim:

1. In a weaving loom driven through a reversing gear the combination with the shaft which controls the position of the reversing gear of a front cylinder and a rear cylinder arranged in tandem, two pistons one in each cylinder, two piston rods one for each piston, arranged co-axially one behind the other and adapted to abut one against the other, means for connecting the piston rod of the front cylinder to said shaft, a source of fluid pressure, a valve connecting the front of the front cylinder to said source, a second valve connecting the rear of the front cylinder to said source, a third valve connecting the rear of the rear cylinder to the said source, means for controlling said valves, and a reservoir having means for connecting it to said parts of the cylinders when said parts thereof are disconnected from the source of fluid pressure to release fluid from said parts of the cylinders and thereby permit movement of the pistons to their desired positions.

2. In a weaving loom driven through a reversing gear the combination with the shaft which controls the position of the reversing gear of a front cylinder and a rear cylinder arranged in tandem, two pistons one in each cylinder, two piston rods one for each piston, arranged co-axially one behind the other and adapted to abut one against the other, means for connecting the piston rod of the front cylinder to said shaft, a source of fluid pressure, a valve connecting the front of the front cylinder to said source, a second valve connecting the rear of the front cylinder to said source, a third valve connecting the rear of the rear cylinder to the said source, three solenoids each controlling one of said valves and which when energised closes the valve to cut off the fluid pressure passing therethrough, and a reservoir which is connected to said parts of the cylinders when said parts thereof are disconnected from the source of fluid pressure to release fluid from said parts of the cylinders and thereby permit movement of the pistons to their desired positions.

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