PATENT SPECIFICATION

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COMPLETE SPECIFICATION

Improvements in or relating to Hydraulic Extrusion Presses for producing Coated Electrode Wires

We, HOLDING INTERCITO S.A., a Company duly incorporated under the laws of Panama, of 230, Birchstrasse, Zurich-Oerlikon, Switzerland, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The present invention relates to hydraulic presses for the production of coated electrode wires. In known presses of the kind in which the pressure cylinder and the mass extruding cylinder are arranged coaxially and have a common piston rod, and in which the core wire is fed to the extruding nozzle through the common piston rod, a pre-formed mass plug is inserted into the extruding cylinder in front of the extruding piston which is then pressed out of the nozzle of the extruding cylinder together with the wire. The mass can thereby only be fed into the extruding cylinder after the piston has completed the pressing stroke and the stroke for feeding which considerably affects the output of the machine.

With such presses most troubles occur at the extruding nozzle, either due to the wire having a part of increased thickness or due to clogging by the coating mass. With the described known presses the front part of the extruding cylinder must be removed in this case, which causes a considerable delay.

An object of the present invention is to avoid or minimize these disadvantages. The press in accordance with the invention is characterized in that the mass extruding cylinder has a cover part adapted for rotation in a longitudinal direction and arranged at the end which is remote from the pressure cylinder, whereby feeding of the mass extruding cylinder from the front side is possible, and that the rotatable cover is fitted with a wire guide opening and a mass extruding nozzle, which are disposed in an exchangeable screw-threaded sleeve.

For a better understanding of the invention, and to show how the same may be carried into effect, reference will now be made to the accompanying drawing, in which:—

Figure 1 is a partial section of the pressure cylinder and the mass extruding cylinder;

Figure 2 is a cross-section through the forward end of the mass extruding cylinder and the parts of the rotatable cover;

Figure 3 is a section of the articulated connection between the rotatable cover and a part of the mass extruding cylinder along the line I—I in Figure 2;

Figure 4 is a section along the line II—II in Figure 1.

The pressure cylinder 1 and the mass extruding cylinder 2 each have a connecting flange 1b and 2b, between which a plate 3 may be arranged. The two cylinders are fastened together by means of bolts 4. A sealing ring 5 is screwed into the rear end of the pressure cylinder in which the guide tube 6 of the wires 7 is arranged. The guide tube 6 passes through the hollow piston rod 8 which carries the pressure piston 8a and the extruding piston 9. The guide tube 6 extends to the projection 10 of the mass extruding tunnel 12, Figure 2. The tubes 13 and 14 are connected to the pressure cylinder 1 and lead the pressure fluid to each side of the pressure piston 8a. The plate 3 serves as a cover for the pressure cylinder and contains stuffing boxes not shown in the drawing for sealing the piston rod bore. The pressure fluid tube 14 leads into the plate 3. The use of the plate 3 as a cover for the pressure cylinder makes the production of the press easier and cheaper. One part of the extruding cylinder 2 is fitted with openings 2d through which the piston can be reached from the outside and cleaned if necessary. For introducing the mass plug the piston 9 is only withdrawn for such a distance that it still extends into the closed part of the cylinder 2. At the free end of the

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mass extruding cylinder a flange ring 16 is fastened by means of screws 17. The flange ring has hinge eyes 33 in which the pin 32 is rotatably arranged. Between the eyes 33 the pin 32 carries the eyes 30, Figure 3, of the ring 29 in which the cover cap 20 is rotatably disposed and laterally held by the threaded ring 29a in order to be able to be rotated about the pin 32 for opening and closing. For locking the cover cap 20 in the closed position the cap and the flange ring 16 are fitted with a thread 18 and 19 respectively. The thread of both parts can be divided, for instance, by six grooves into six sections of approximately 30° width, so that the threaded parts of the flange ring 16 can engage the grooves 20a of the cap 20. On rotating the cap 20, the threaded parts of the two parts will engage and the cover cap will be screwed into the flange ring. As the cover cap 20 is rotatable in a longitudinal direction about the pin 32, the connecting region of the two parts must be of conical shape. In the present example it is shown as spherical. The cover cap 20 carries the extruding funnel 12 in which the wire guide ring 21 and the exchangeable screw-threaded sleeve 22 are arranged. The latter carries another ring 24 with the mass extruding nozzle 24a. The ring 24 is fastened to the sleeve 22 by means of the nut 25. The extruding funnel 12 and the sleeve 22 are fitted with corresponding openings 26, 27 which are arranged symmetrically to the wire axis and through which the mass is pressed to the nozzle of the ring 24.

For rotating the cover cap 20, a worm gear segment 35 is fastened to the cap by means of screws 34, the segment 35 meshing with a worm 31 keyed on to the pin 32 which also carries a hand lever 36. The latter is fitted with a plunger 38 which is pressed into a recess of the disk 40 by the spring 39. The disk 40 is fastened to one of the axes 33 by means of screws 42.

The operation of the press is as follows:—

When the extruding cylinder is closed the lever 36 is in the position which is shown in Figure 1. When the lever 36 is rotated as indicated by the arrow the cap 20 is first rotated through about 30° about its axis by the worm 31 and the worm wheel segment 35. The threaded parts of the cap are thus brought out of engagement with the threaded parts of the flange ring 16. After the lever 36 has rotated through the angle α the worm wheel segment 35 cannot rotate further since it rests against the ring 29a. On further moving the lever 36, the cover cap is thus rotated about the pin 32 into the open position shown by broken lines in Figure 2. Now a mass plug can be inserted after the withdrawing of the piston 9 into the extruding cylinder 2 whereby a loss of time is avoided. The mass plug can consist of one piece and need only have a bore which is slightly larger than the diameter of the wire guide tube 6. The cover cap 20 is then rotated back against the flange ring 16 by the lever 36 and, on further rotating the lever, the cap is rotated about its axis and screwed into the flange ring 16.

What we claim is:—

1. Hydraulic press for producing coated electrode rods in which the pressure cylinder and the extruding cylinder are arranged coaxially and have a common piston rod, and in which the core wire is fed through the bore of the common piston rod, characterised in that the mass extruding cylinder has a cover part adapted for rotation in a longitudinal direction and arranged at the end which is remote from the pressure cylinder, whereby feeding of the mass extruding cylinder from the front side is possible, and that the rotatable cover is fitted with a wire guide ring and a mass extruding nozzle which are disposed in an exchangeable screw-threaded sleeve.

2. Hydraulic press in accordance with claim 1, characterised in that the mass extruding cylinder is fitted with lateral openings in a part which is adjacent to the pressure cylinder

3. Hydraulic press in accordance with claim 1, characterised in that the pressure cylinder and the mass extruding cylinder are directly connected by means of flanges.

4. Hydraulic press in accordance with claim 1, characterised in that the cover of the pressure cylinder is arranged between the connecting flanges of the two cylinders.

5. A hydraulic press substantially as hereinbefore described with reference to and as illustrated in the accompanying drawing.

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I certify this, including the Drawing forming part thereof, to be a True Copy of the Specification as accepted on the 27th day of OCT, 1953.

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