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APPARATUS FOR MOULDING CONCRETE PIPES HAVING A CIRCUMFERENTIAL RECESS IN THE OUTER SPIGOT END SURFACE

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FIG.1

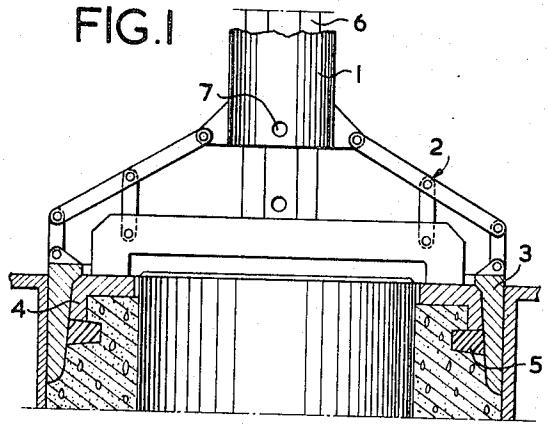


FIG.2

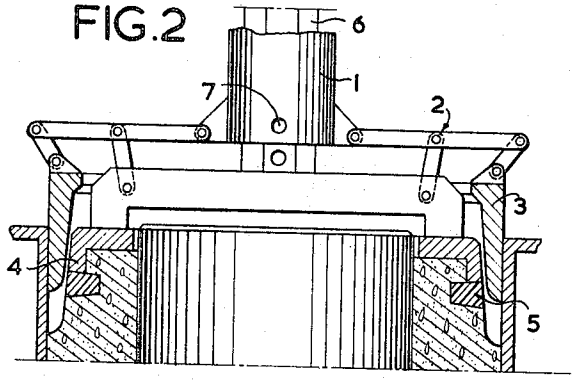
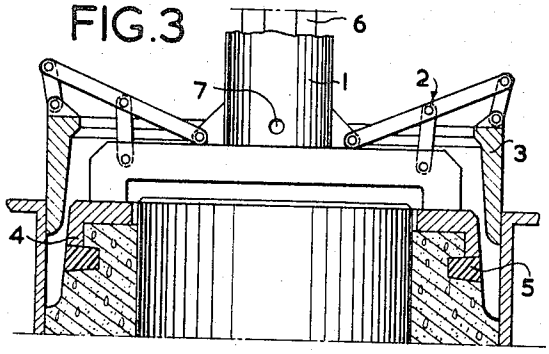


FIG.3



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APPARATUS FOR MOULDING CONCRETE PIPES HAVING A CIRCUMFERENTIAL RECESS IN THE OUTER SPIGOT END SURFACE

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3 Claims. (Cl. 25—39)

In some types of concrete pipes the spigot end shall be formed in its outer surface with a circumferential channel or recess which serves for accommodating and guiding a sealing ring to fill and seal the play between the spigot end of the pipe and the inner surface of the socket end, or the end corresponding thereto, of the adjoining pipe when the pipes are assembled to form a continuous string.

As long as pipes have been moulded with the socket end pointing upwardly in pipe moulding machines having a vibrating core, the provision of such channel or recess has not involved greater problems because the profile ring serving to form said channel or recess could be placed and retained inside the bottom ring which during the moulding process closes the lower end of the space or cavity between the outer mould and the core and moreover constitutes the outer boundary surface of the extreme portion of the spigot end of the pipe, and finally serves for supporting the moulded pipe during the subsequent setting after removal from the mould.

When the setting of the pipe has finished, the bottom ring can be removed and the inlaid profile ring, which is split at a point of its circumference, can be withdrawn over the end of the pipe.

Now that it has been found most expedient, in the type of concrete pipe machines described, to mould concrete pipes with the socket end down, a great problem has arisen as to the formation of the channel or recess in the up-turned spigot end of the pipe due to the fact that said spigot end is finished by means of a pressure cover being introduced into the cavity between the core and the outer mould for exerting a downwardly directed pressure on the moulding mass therein and at the same time, on being rotated, smoothing the spigot end face of the pipe. It is directly comprehensible that a profile ring laid into the concrete mass which is soft and plastic at this stage of the process, will not be retained in its proper position during the pressing and smoothing operations without being secured some way or other inside the pressure cover, and will not remain in such position after it has been released from the pressure cover in order to allow the latter of being withdrawn from the pipe. Also when the profile ring has been completely released from its rigid connection with the pressure cover, the friction between the profile ring and the pressure cover and between the latter and the concrete mass will involve a great risk of the profile ring being moved along upwardly during the withdrawal of the pressure cover and possibly tearing off the edge of the concrete pipe lying over said recess.

These drawbacks can be eliminated by use of the apparatus of the present invention as defined in the appending claims. An embodiment of this apparatus is illustrated in the accompanying drawing, in which

FIG. 1 shows two interlocked annular members forming the pressure cover and guiding and retaining the inlaid profile ring during the first stage of the moulding of the spigot end of a concrete pipe,

FIG. 2 a following stage where the locking is released, and the outer annular member is being raised, whilst the inner annular member operates as a guide and abutment for the inlaid profile ring, and

FIG. 3 the two annular members locked together in another position during the final stage and ready for being raised clear of the concrete pipe.

1 is a hub ring which, on being actuated from a hydraulic cylinder, not shown, is capable of transferring vertical forces through a link system 2 to a pressure cover consisting of an outer annular member 3 and an inner annular member 4 and guiding and retaining a loose split profile ring 5 of plastic or another suitable material. A splined shaft 6 carrying the inner annular member 4 forms a guide for the hub ring 1 which can be displaced along the shaft 6 between two positions in which it can be locked by means of a locking pin 7 whereby the members 3 and 4 are at the same time locked with respect to one another via the link system 2.

By the use of this apparatus, the spigot end of the pipe being moulded can be shaped and smoothed by means of the pressure cover having its two members 3 and 4 locked in such position (FIG. 1) with respect to one another as to permit, during the first stage of the moulding of the spigot end, the inlaid profile ring 5 which exerts a pressure against the outer member 3 of the pressure cover and is retained by friction, of shaping the channel or recess without being displaced from its position with respect to the pressure cover, said ring being with the radially outer portion of its upper surface in engagement with the inner member of the pressure cover. In the second stage (FIG. 2) of the moulding of the spigot end, the two members 3 and 4 of the pressure cover are released from one another, and during the further pressing operation the link system 2 connecting the two members of said cover causes the outer member 3 to be raised whilst the inner member 4 rests on top of the concrete mass and operates as an abutment for the inlaid profile ring 5 so that its position in relation to the concrete pipe is not disturbed. In a third stage of the process (FIG. 3), the outer member 3 of the pressure cover is raised clear of the profile ring 5 and is in this position locked together with the inner member 4 of the pressure cover, in which mutual position said members can in conjunction be raised clear of the concrete pipe in the same manner as the heretofore known pressure covers. The profile ring 5 can then be removed from the set concrete pipe.

I claim:

1. An apparatus for molding concrete pipes having a circumferential recess in the outer spigot end surface, said apparatus comprising a profile ring forming a core for said recess; outer and inner mold parts defining between them an annular space; a pressure cover to close the spigot end of said space, said pressure cover comprising separate inner and outer annular members, said outer annular member completely surrounding said ring and said inner annular member, and said inner annular member forming an abutment for said ring in the operative positions of said members; and means to displace said outer annular member axially with respect to said inner annular member, so that said outer annular member can be displaced from its operative position while said inner annular member is retained in its operative position on the concrete mass, said means being adapated to form a rigid connection between said members for their simultaneous removal from between said mold parts.

2. The apparatus of claim 1, wherein said means comprises a shaft, a hub ring slidably mounted on said shaft,

a first set of links connecting said shaft to said inner annular member, a second set of links connected to said first set of links and being pivotally connected at their ends to said outer annular member and said hub ring respectively.

3. The apparatus of claim 2, further comprising means to lock said hub ring with respect to said shaft to form said rigid connection between said members.

References Cited

UNITED STATES PATENTS

2,871,541	2/1959	James	249—144 X
2,929,124	3/1960	James	249—100

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