

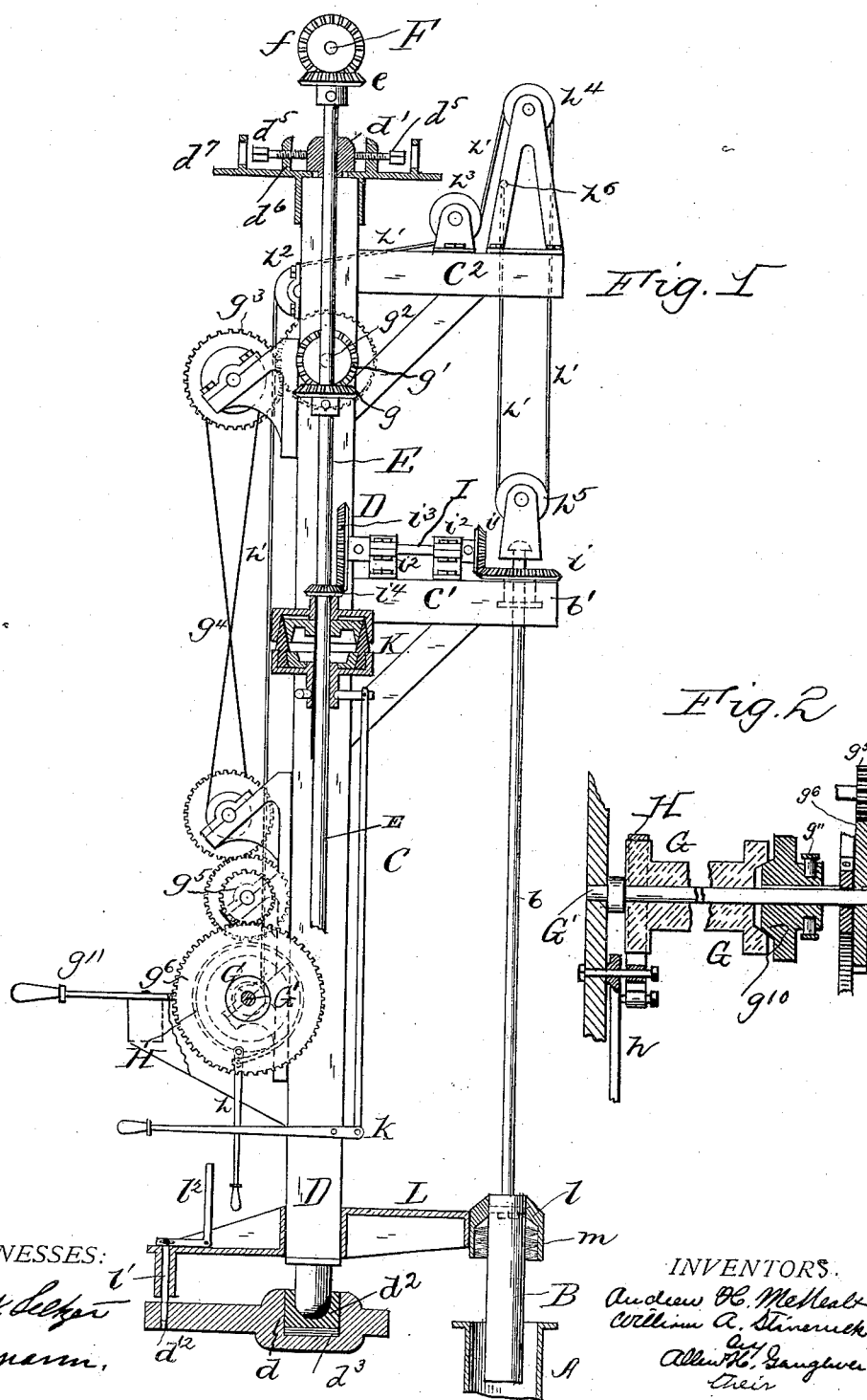
(No Model.)

A. H. McNEAL & W. A. STINERUCK.

PIPE MOLDING APPARATUS.

No. 383,534.

Patented May 29, 1888.



WITNESSES:

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PIPE-MOLDING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 383,534, dated May 29, 1888.

Application filed February 23, 1887. Serial No. 228,536. (No model.)

To all whom it may concern:

Be it known that we, ANDREW H. McNEAL and WILLIAM A. STINERUCK, both of Burlington, in the county of Burlington and State of New Jersey, have invented a new and valuable Improvement in Pipe-Molding Apparatus; and we do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon, in which—

Figure 1 is an elevation, partly sectional, of a machine for moving or operating the former of a molding apparatus for the manufacture of pipe embodying our improvements; and Fig. 2 is a detail sectional elevation showing a form of winding-drum and clutch and brake-band mechanism therefor.

Our invention has relation to molding apparatus for the manufacture of pipe of the form wherein a former is rotated within the flask to compress the sand into the requisite form and smoothness for receiving the core; and it has for its object to provide power mechanism for rotating the former and for raising it out of and lowering it into the flask.

Our invention accordingly consists of the combination, construction, and arrangement of parts for a power device for operating the former of a pipe-molding apparatus, as hereinafter described and claimed.

In the drawings, A represents the upper part of a stationary flask, and B the former, adapted to be preferably constructed and arranged for operation as fully described and shown in a pending application filed 29th day of January, 1886, and Serial No. 190,144, or otherwise constructed as desired, as we do not limit the driving apparatus to any particular kind of pipe-molding apparatus.

C indicates the power mechanism, composed, essentially, of a suitable frame, D, having, if desired, a step-bearing, d , and an upper bearing, d' , so that it can be rotated around or about a circular row of flasks or serve as a crane. To prevent wear upon the part d , a removable plug, d^2 , is provided. This plug has a depression in its upper face for the bearing of the frame D. As the bottom of the de-

pression becomes worn, the plug can be raised by inserting plates d^3 between its bottom and the part d . This will obviate the necessity of replacing the plug d^2 whenever it becomes slightly worn. The upper bearing, d' , is adjustably held in place to maintain due alignment of frame D by set-screws d^5 in lugs d^6 on frame, jib, or bracket d' . Upon this frame is affixed a driving-shaft, E, preferably in a vertical position, as indicated, having at its top or elsewhere a bevel-wheel, e , which is in gear with a like wheel, f , on a power-shaft, F. Shaft E is in gear with a winding-drum, G, by means of bevel-gears g g' , counter-shaft g^2 , gearing g^3 , and belt-connection g^4 , with a train of gearing, g^5 , meshing with the gear-wheel g^6 on the shaft of the winding-drum G. The shafts upon which the different gears are mounted have their bearings in suitable brackets or bearings located as shown, or otherwise arranged to accomplish the results hereinafter described.

The winding-drum G is loose on shaft G' , and has at one end a large annular flange or collar, around which is a friction or brake band, H, suitably secured to an operating-lever, h , pivoted to the frame of the machine, as desired. Upon shaft G' is a movable clutch-section, g^{10} . Said clutch engages with the end of drum G, as shown, and has an operating-lever, g^{11} , suitably pivoted to the framework of the machine. Said parts may, however, be otherwise constructed and arranged as desired, as such construction and arrangement in itself forms no part of our invention. The chain is first led upwardly over pulleys h^2 , h^3 , and h^4 , affixed to frame D, as desired, and thence downwardly under pulley or snatch block h^5 , the frame for which is connected to a rod, b , attached to or forming a continuation of former B. After passing under block h^5 , the chain or rope is again passed upwardly and connected at a suitable height, as shown at h^6 , to any part of frame D. The rod b has an upper bearing, b' , in a bracket, jib, or platform, C' , on the frame D; and C' is another like bracket, jib, or platform for supporting the bearings or frames for the pulleys h^3 h^4 .

Splined upon rod b , and having its bearing on platform C' , is a bevel gear-wheel, i , which meshes with a like wheel, i' , on a shaft, I, supported in bearings i^2 on platform C' . Shaft I

is provided with another bevel-wheel, i^3 , which meshes with a like wheel, i^1 , splined or loose on driving-shaft E, and which is provided with any suitable form of friction-clutch, K, as shown, having a clutch or operating lever, k , suitably pivoted to the frame D. Near the bottom of the latter is a bracket, L, having at one end a bearing, l , for the top of the former B, and at the other a dog, l' , with operating-lever l'' , for engagement with openings d'' in step-bearing d , to lock the frame D in a fixed position. Within the bearing l , or otherwise, is affixed a circular brush or rubber, m , for cleaning the former B as it is raised from or lowered into the mold.

The operation is as follows: When the winding-drum clutch mechanism is out of engagement with the winding-drum, the latter is not in gear with the driving-shaft E, and the gearing $g^6 g^5 g^4 g^3 g^2 g^1$ rotate without turning the said drum. If the former B is then in an elevated position, its gravity causes it to unwind the rope or chain from drum G, and it descends into the flask, as indicated in the drawings, the rate of speed of its descent being controlled or regulated by manipulating the brake-band H through the medium of its operating or pressure lever h . When the clutch K is depressed, the shaft I is out of gear with the shaft E, and the former B and the rod b do not rotate; but by elevating clutch K the gear-wheels $i^1 i^2$ are engaged with one another to put the shaft I and rod b , with its former B, into gear with driving-shaft E to rotate former B in flask A. By gradually applying the pressure to clutch K the power is correspondingly applied to rod b and former B to make it rotate evenly at a varying speed in proportion to that of the driving-shaft E. When the former B is rotated or the mold in the flask is fully formed, the clutch K is depressed, disengaging the rod b from the gearing between it and the driving-shaft E, and the winding-drum G is clutched to its shaft to put it into gear with shaft E, whereupon the

power of driving-shaft E is communicated to drum G, to rotate it and coil up the rope or chain h' thereon and raise the former B out of the mold.

What we claim is—

1. The combination of a crane or pivoted rotary frame, D, having near its bottom a fixed bracket, L, having a bearing for the upper end of a former, B, of a pipe-molding machine, fixed bracket C' on said crane, having gear-wheel i , through which slides and with which rotates former extension-rod b , a snatch-block, h^6 , swiveled on the upper end of rod b , rope or chain h' , connecting snatch-block h^5 to a winding-drum, G, for elevating and lowering rod b and former B, driving mechanism engaging with wheel i and with drum G, and actuating devices for controlling the operation of the driving mechanism, substantially as set forth.

2. The combination of frame or crane D, former B, having extension or rod b , a driving shaft, a counter-shaft in gear with rod b , having clutch mechanism for engaging the counter-shaft with the driving-shaft to rotate former B, a snatch-block, h^6 , secured to the upper end of rod b , a winding-drum, a chain or rope connection between the snatch-block and drum, and devices for controlling the operation of the driving mechanism, substantially as set forth.

3. The crane D, having step-bearing d , provided with cup or socket d^2 and disks d^3 , and upper bearing, d' , having set screws d^5 , in combination with former B and actuating devices for rotating and for raising and lowering said former, substantially as set forth.

In testimony that we claim the above we have hereunto subscribed our names in the presence of two witnesses.

ANDREW H. McNEAL.
WILLIAM A. STINERUCK.

Witnesses:

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WM. T. SULLIVAN.