

(No Model.)

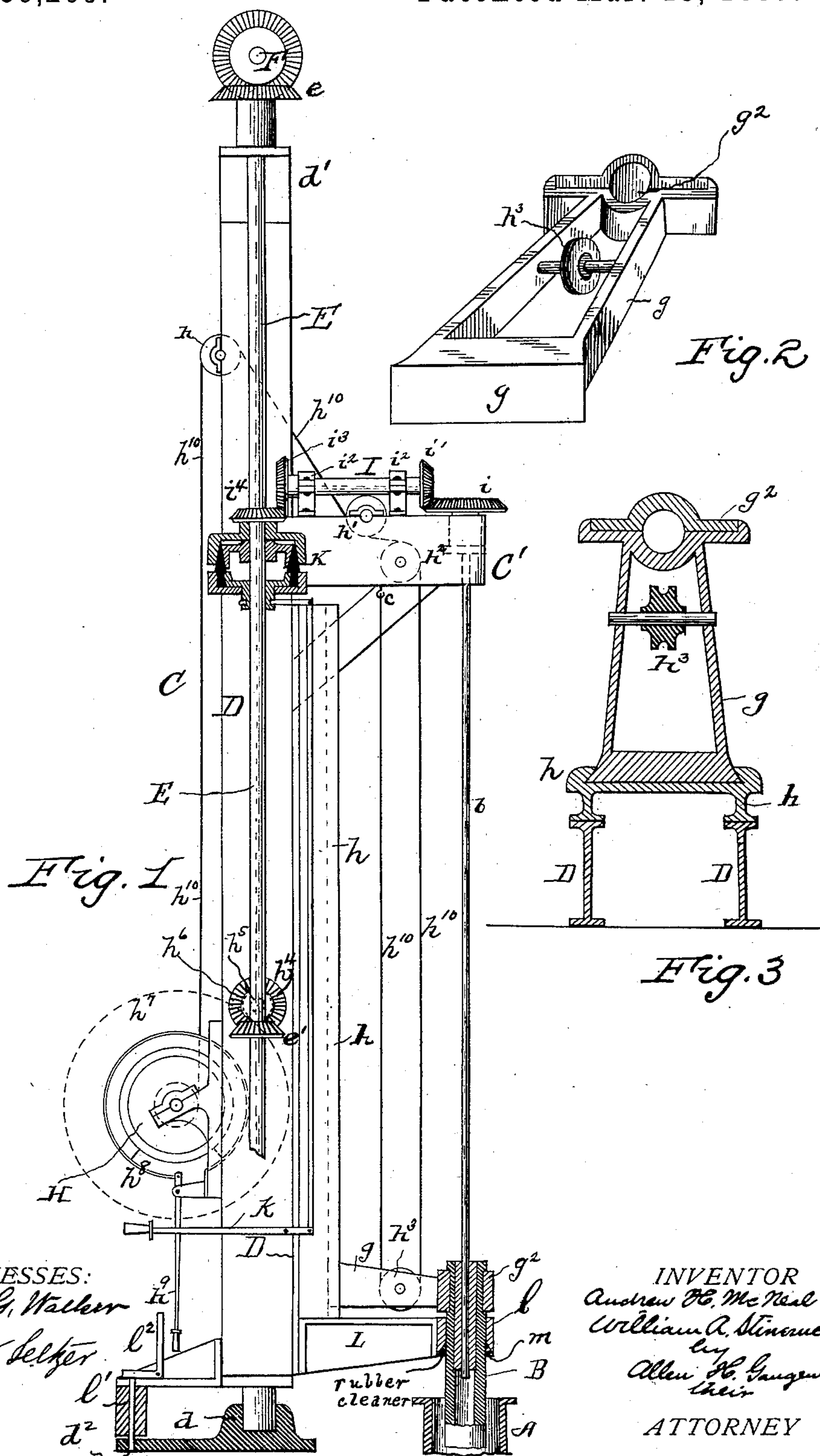
2 Sheets—Sheet 1.

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

PIPE MOLDING APPARATUS.

No. 359,269.

Patented Mar. 15, 1887.



WITNESSES:
De launcy G. Walker
George W. Selter

INVENTOR
Andrew H. McNeal &
William A. Stineruck
by
Allen H. Gungwer
their
ATTORNEY

(No Model.)

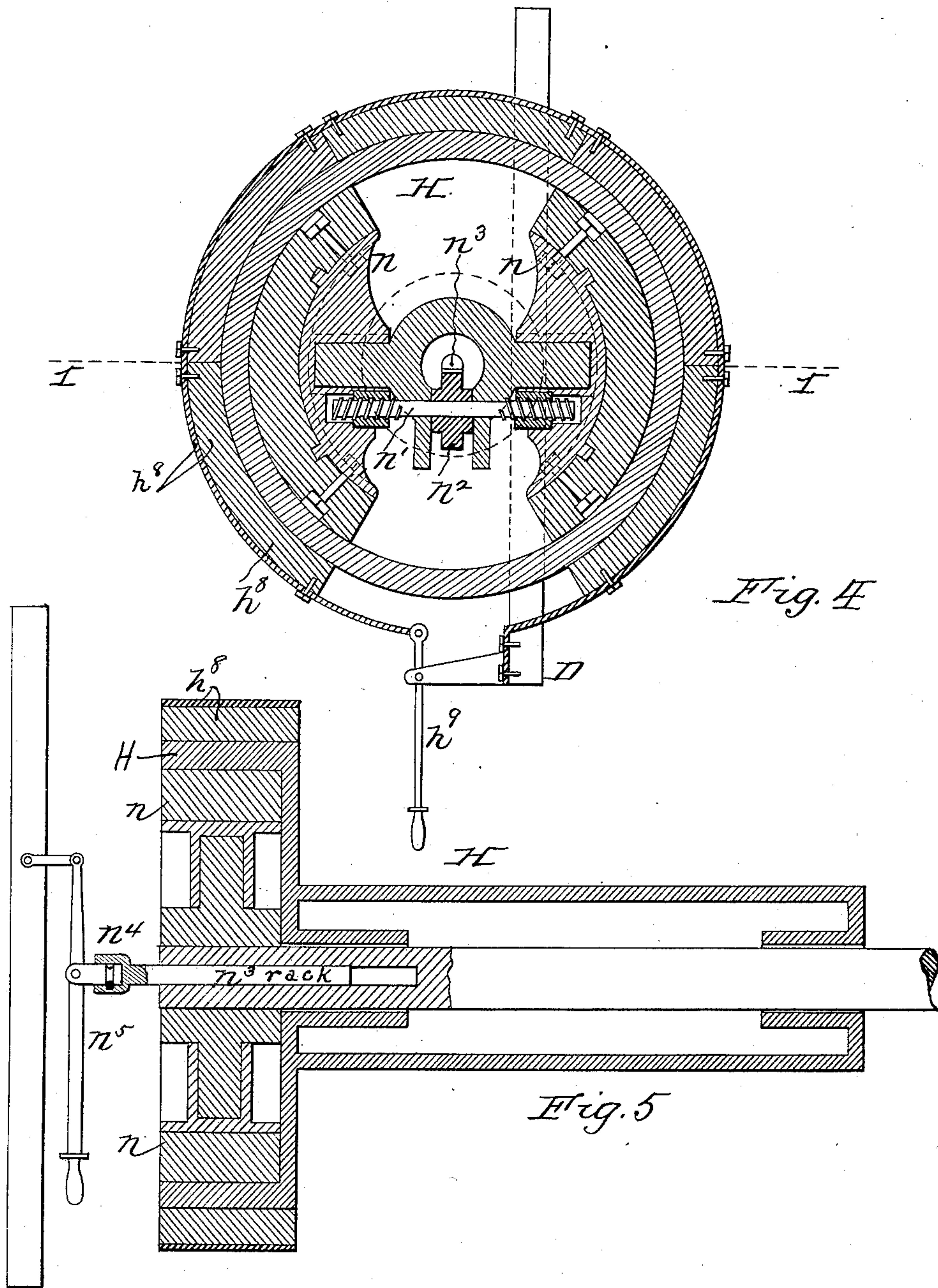
2 Sheets—Sheet 2.

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

PIPE MOLDING APPARATUS.

No. 359,269.

Patented Mar. 15, 1887.



WITNESSES:

J. H. Combs.
R. G. Amies

INVENTORS,

A. H. Mc Neal

W. A. Stineruck

By Allen H. Langewer
ATTORNEY

UNITED STATES PATENT OFFICE.

ANDREW H. McNEAL AND WILLIAM A. STINERUCK, OF BURLINGTON, N. J.

PIPE-MOLDING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 359,269, dated March 15, 1887.

Application filed January 29, 1886. Serial No. 190,144. (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 Machines; 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.

Figure 1 is an elevation, partly sectional, of a machine for operating the former of a pipe-molding apparatus embodying our improvements, the clutch mechanism, with operating-lever for the winding-drum, being removed. Fig. 2 is a perspective of a detail part of the machine. Fig. 3 is a horizontal section of same and part of the main or vertical frame of the machine. Fig. 4 is a transverse section, drawn to an enlarged scale, showing more plainly the clutch and the brake mechanism for the winding-drum; and Fig. 5 is a section on line 1 1, Fig. 4.

Our invention has relation to molding apparatus for the manufacture of pipe, of the form wherein a former having a pressing-face on its periphery and rotated within the flask is rotated to compress the sand within the requisite form 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, and suitable guides to keep it in position while it is raised or lowered.

Our invention accordingly consists of the combination, construction, and arrangement of parts, as hereinafter described and claimed.

In the drawings, A represents the upper part of a stationary flask, and B the former constructed and arranged with a pressing face or faces on its periphery; or it may be otherwise constructed, as desired, as we do not limit our improvements to any particular kind of pipe-molding apparatus.

C indicates the power mechanism, composed, essentially, of an upright frame, D, of any suitable kind, having, if desired, a step or other 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.

Upon one side of frame D, near its bottom, is suitably affixed a bracket, L, having at its outer end a bearing, *l*, for the former B, and upon the opposite side of said frame is a dog, *l'*, with operating-lever *l''*, for engagement with openings *d''* in the step-bearing *d*, to lock the frame or crane D in a fixed position. Within the bearing *l*, preferably at its bottom, is a circular or other brush or rubber, *m*, for cleaning the former B as it is raised and lowered from and into the flask A. If desired, however, the brush *m* may be otherwise suitably placed in relation to former B.

Above the bracket L is a vertically-sliding frame, *g*, adapted to guides *h*, secured to or forming part of the frame D, (see more plainly Figs. 2 and 3,) and on the outer end of frame *g* is a bearing or support, *g'*, for the upper end of the former B, and at or near the middle of the frame *g* is a sheave or pulley, *h'*. The former B is connected, as shown, or otherwise, as desired, to a shaft or rod, *b*; or said former and shaft may be integral, to rotate together, and be raised or lowered when necessary.

The rod *b* has an upper bearing in a jib, platform, or bracket, C', and is provided at its upper end with a bevel-wheel, *i*, which is in gear with another like wheel, *i'*, upon a counter-shaft, I, suitably mounted in bearings affixed to bracket C', and shaft I in turn is in gear, by means of a bevel-wheel, *i''*, with a like wheel, *i'''*, splined upon a shaft, E, having a friction or other clutch mechanism, K, provided with operating-lever *k*, suitably pivoted to the frame D.

The shaft E is the driving-shaft for the machine, and has at its upper end a bevel-wheel, *e*, meshing with a like wheel upon shaft F, from which power is transmitted to shaft E. It has at any suitable point below clutch K a bevel-wheel, *e'*, which meshes with a like wheel, *h'*, upon a counter-shaft, *h''*, provided with a gear-wheel, *h'''*, which meshes with a like wheel, *h''''*, upon a shaft of a winding-drum, H. The drum is more plainly shown in Figs. 4 and 5. It is loose on said shaft, and is provided with any suitable form of spring or other brake-band, *h''''''*. In the drawings one end of the latter is secured to one extremity of a lever, *h''''''''*, and the other to the frame D.

The drum H is preferably formed at one end with an enlarged head, around the outside or

periphery of which the brake-band h^8 is applied to brake or stop the drum, as hereinafter described. Within said drum-head is arranged a suitable form of clutch having operating mechanism for engaging the drum with its shaft and disengaging the same.

In Figs. 4 and 5 a form of clutch is shown having shoes n connected by a right-and-left screw, n' , provided with a gear-wheel, n^2 , which engages with a rack-bar, n^3 , sliding in an axial opening in the drum-shaft, at one end of the same, and which has a swivel-connection, n^4 , with an operating-lever, n^5 , suitably pivoted to the frame D, or a fixture thereon. By suitably moving the lever n^5 the clutch-shoes n are thrown into engagement with and disengaged from the drum H or its head, to either clutch the drum with its shaft, so that they will rotate together, or unclutch it from its shaft, so that the latter rotates independently of the drum, the brake-shoes n being secured to and rotating with said shaft.

From the winding-drum H a rope or chain, h^{10} , is conducted over a pulley, h , having its bearings near the upper part of frame D, thence under and over pulleys h' h^2 , respectively, journaled in bracket C', then down and around sheave h^3 on sliding bracket g , and thence upwardly to and secured on a hook, c , or other fixture on the bracket C', so that when the drum H is by its clutch mechanism thrown into engagement with the shaft E the drum is revolved and winds up the cord or chain h^{10} to elevate bracket g and raise the former B from the flask A; and when the clutch mechanism is released from the drum it is free or loose upon its shaft, and the gravity of the bracket g and the former B then acts to unwind the chain or rope h^{10} from the drum to effect an automatic descent of the bracket g and the former B toward flask A, the rate of speed of the descent of former B as it enters the flask being regulated as desired by manipulating the brake h^8 of the drum H.

The operation of the machine as a whole is substantially as follows: When the flask A is ready for the former B, the clutch mechanism for the drum H is released and the former B is free to descend into the flask. The clutch K is then applied to engage the shaft E with counter-shaft I, for rotating the former B within the flask. By gradually applying the pressure to the clutch K power is correspondingly applied or communicated to the former B, to cause it to rotate evenly at a varying speed in proportion to that of the driving-shaft E.

When the mold in the flask is fully formed, the clutch K is released, and the shaft E is thrown out of gear with the shaft I to stop the rotation of the former B in the mold. The clutch mechanism of the drum H is then applied to cause it to wind up the rope or chain h^{10} to raise the former B from the mold. The bracket g being also raised, it serves to maintain the former in due alignment with the center line of the mold as the ascent is made, and

thereby preserve the configuration or pattern in the mold.

What we claim is—

1. The combination of the frame D, having the bearing C', sliding bracket g^2 , bracket L, having bearing l , rod b , former B, and actuating devices for rotating the rod b and former B and for raising and lowering the bracket g and said former, substantially as set forth.

2. The combination of the frame D, having bearing C', sliding bracket g^2 , bracket L, having bearing l , brush m in the bearing l , rod b , former B, and actuating devices for rotating the rod b and former B and for raising and lowering the bracket g and said former, substantially as set forth.

3. In a power appliance for a former of a pipe-molding machine, the combination of frame D, bracket L, having bearing l , bearing C' on frame D, rod b , and mechanism for rotating said rod and for raising and lowering it, substantially as set forth.

4. The combination of the frame D, bracket L, having bearing l , rod b , having former B, a driving-shaft, gearing interposed between the rod b and the driving-shaft, a clutch mechanism on the latter for engagement with said gearing, a winding-drum, a clutch for the latter, and gearing interposed between the driving and drum shafts, substantially as and for the purpose set forth.

5. The combination of the frame D, having bearing C', bracket L, having bearing l , rod b , shaft E, gearing interposed between said rod and shaft, a clutch for said gearing, a winding-drum having a chain-connection with rod b , a clutch for said drum, and gearing interposed between its shaft and the driving-shaft, substantially as and for the purpose set forth.

6. The frame D, rod b , having its bearings on said frame, sliding bracket g , chain or rope connection h^{10} between bracket g and a winding-drum, H, clutch mechanism for the drum, a driving-shaft, gearing interposed between said shaft and drum, and gearing interposed between said rod b and the driving-shaft, and a clutch mechanism for said gearing, substantially as shown and described.

7. The combination of frame D, sliding bracket g , carrying the former B, shaft b , driving-shaft E, actuating mechanism between said shafts, and a clutch mechanism on shaft E for throwing said actuating mechanism into and out of gear with the shaft E, winding-drum H, having a rope or chain connected to bracket g , actuating mechanism between shaft E and winding-drum, and a clutch or brake mechanism for the latter, 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:

ALLEN H. GANGEWER,

DANL. P. NAYLOR.