

No. 695,748.

Patented Mar. 18, 1902.

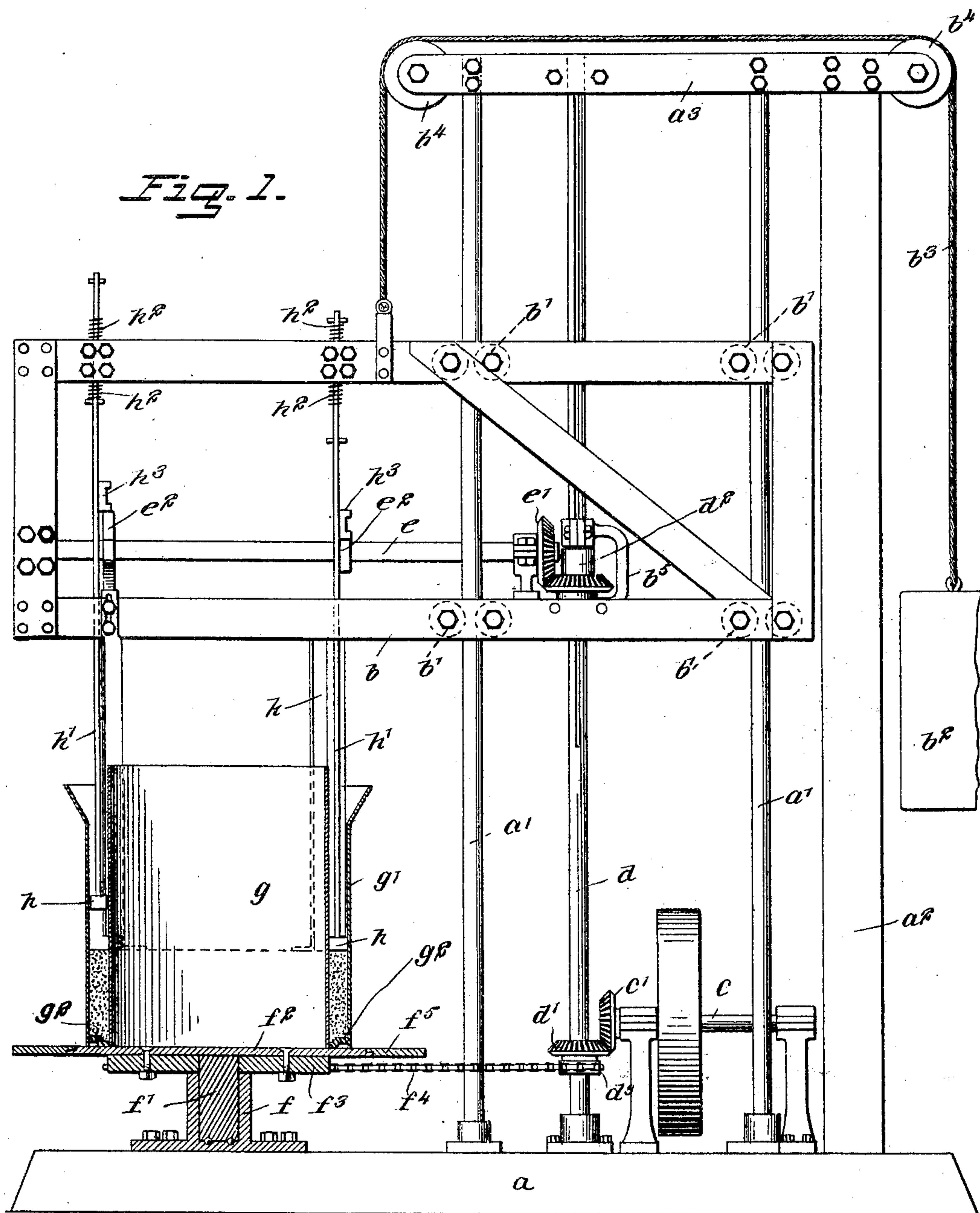
J. H. MARTIN & D. ORMAND.

MACHINE FOR MAKING PIPE.

(Application filed June 21, 1901.)

(No Model.)

2 Sheets—Sheet 1.



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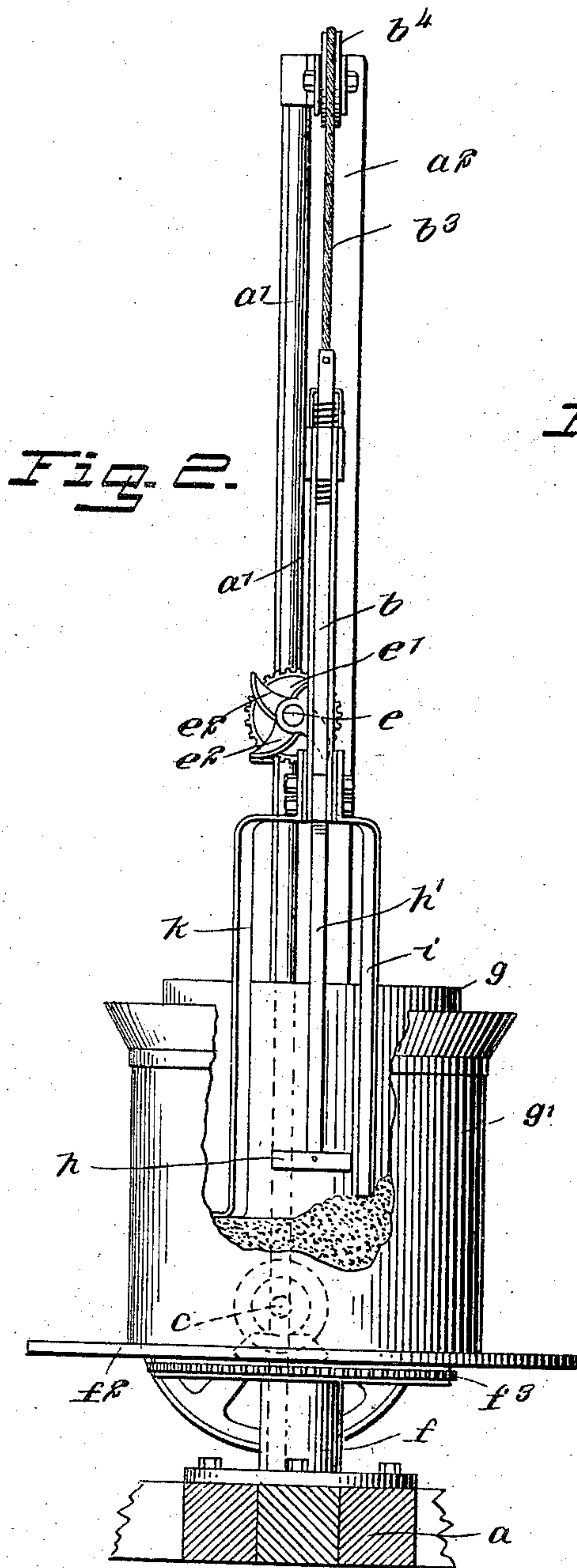
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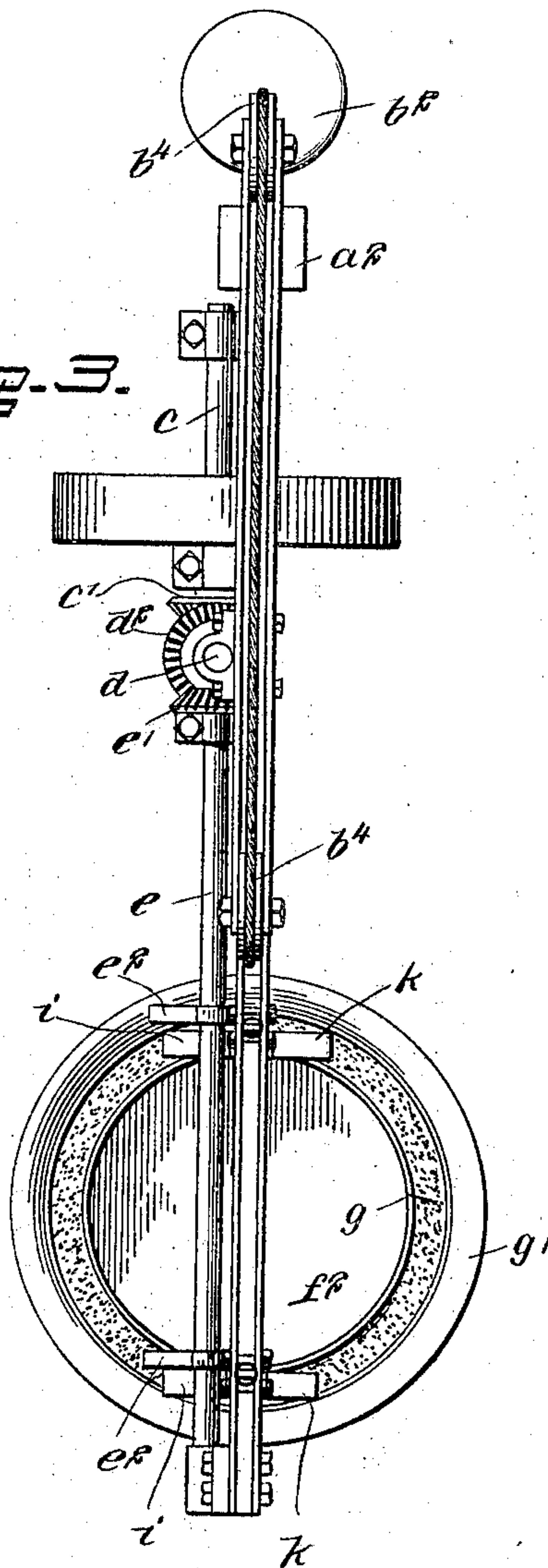
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*Fig. 3.*



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# UNITED STATES PATENT OFFICE.

JOSEPH H. MARTIN AND DAVID ORMAND, OF RIVERSIDE, CALIFORNIA.

## MACHINE FOR MAKING PIPE.

SPECIFICATION forming part of Letters Patent No. 695,748, dated March 18, 1902.

Application filed June 21, 1901. Serial No. 65,456. (No model.)

*To all whom it may concern:*

Be it known that we, JOSEPH H. MARTIN and DAVID ORMAND, citizens of the United States, and residents of Riverside, in the county of Riverside and State of California, have invented a new and Improved Machine for Making Pipe, of which the following is a full, clear, and exact description.

This invention relates to an apparatus for making sectional pipe of plastic material—such, for example, as asphalt or cement, sand, and gravel—and it comprises certain novel means for packing the material in the mold, as will be hereinafter fully brought out.

This specification is a specific description of one form of the invention, while the claims are definitions of the actual scope thereof.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of the machine with parts in section. Fig. 2 is an enlarged elevation with parts broken away, and Fig. 3 is a plan view.

$a$  represents a suitable base on which are erected two vertical guide-bars  $a'$  and a standard  $a^2$ . The standard  $a^2$  and guide-bars  $a'$  support at their upper ends a cross-piece  $a^3$ , which rigidly connects together the parts  $a'$  and  $a^2$ . Sliding on the guide-bars  $a'$  is a frame  $b$ , which is provided with rollers  $b'$  or other suitable devices for guiding its vertical movement. This frame  $b$  is hung balanced on the guide-rods  $a'$  by means of a weight  $b^2$ , connected with the frame by a rope  $b^3$  and running over guide-sheaves  $b^4$ , carried by the cross-piece  $a^3$ .

$c$  indicates the drive-shaft of the machine, which is provided with a gear  $c'$ , meshing with a gear  $d'$  on a vertically-extending shaft  $d$ , which passes loosely through the frame  $b$  and has its upper end held by the cross-bar  $a^3$ . On this shaft  $d$  is splined a bevel-gear  $d^2$ , which is held on the frame  $b$  to turn, but not to move axially, by means of a yoke  $b^5$ . The gear  $d^2$  meshes with a gear  $e'$  on a horizontal shaft  $e$ , mounted to turn in and carried by the frame  $b$ . This shaft  $e$  carries two wiper-cams  $e^2$ , which drive the stamps, as will be hereinafter fully brought out.

$f$  indicates a box mounted on the base  $a$  and

carrying the stem  $f'$  of a table  $f^2$ , which table is thereby mounted to turn.

$f^3$  indicates a sprocket-wheel fastened to the bottom of the table and connected by a chain  $f^4$  with a sprocket-wheel  $d^3$  on the shaft  $d$ , thereby turning the table with the movement of the shaft  $e$ . The table  $f^2$  may, if desired, be provided with an annular extension  $f^5$ , which increases its size, as indicated in Fig. 1.

$g$  and  $g'$  indicate, respectively, the inner and outer sections of the mold, which mold-sections are circular tubes fitted one within the other and spaced apart. In the bottom of this mold is placed a collar  $g^2$ , which owing to its form, as illustrated, gives a bevel or gear form to the ends of the pipe-sections, thus enabling them to be matched together with a tight joint.

$h$  indicates the stamps or rammers, which are arranged to force the plastic material down into the mold. These are carried on stems  $h'$ , said stems passing upward loosely through suitable guides in the frame  $b$  and being provided with springs  $h^2$  at their upper ends, which springs enliven the movements of the stamps, as will be understood. Each stem  $h'$  is provided with a block  $h^3$ , on which blocks bear the cams  $e^2$ , and as the shaft  $e$  turns, driving the cams, the stems  $h'$  are raised and lowered, thus permitting the stamps  $h$  to operate within the mold. In advance of each stamp  $h$  is carried a leveler-arm  $i$ , these arms being supported by the frame  $b$  and projecting down into the mold, so as to level out the plastic material as it is thrown thereinto. Behind each stamp  $h$  is arranged a trailer  $k$ , which trailers are fastened to the frame  $b$  and have laterally-turned lower ends running on the upper surface of the asphalt or concrete when pressed by the stamps. These trailers serve to gage the elevation of the frame  $b$ —that is to say, as the length of the pipe-section in the mold grows greater the trailers are pushed upward, and in their upward movement they carry with them the frame  $b$ . This keeps the stamps always at the proper elevation with respect to the upper end of the pipe-section.

In the operation of the machine the shaft  $c$  being driven and the asphalt or concrete being fed suitably into the space between the



mold-sections the table  $f^2$  will be turned steadily around, carrying with it the mold, and upon the operation of the stamps the asphalt or concrete will be tamped down into the mold.

5 The levelers  $i$  will act to spread the asphalt or concrete out to the level desired, and as the level of the asphalt or concrete rises in the mold the trailers  $k$  are steadily pushed upward, thus raising the frame. But little  
10 pressure is required to raise the frame, since this is accurately counterbalanced by the weight  $b^2$ . When the asphalt or concrete has reached the top of the mold, the mold-sections may be removed, and after the removal  
15 of the pipe-section thus formed the construction of a new pipe-section may be begun.

Various changes in the form, proportions, and minor details of our invention may be resorted to without departing from the spirit  
20 and scope of our invention. Hence we consider ourselves entitled to all such variations as may lie within the scope of our claims.

Having thus described our invention, we claim as new and desire to secure by Letters  
25 Patent—

1. The combination of a mold, a stamp, means carrying and operating the stamp, said means and the mold being relatively movable in parallel planes, and the means carrying  
30 the stamp being movable toward and from the mold, and a trailer connected with said means for carrying the stamp and projected into the mold to engage the material molded, for the purpose specified.

35 2. The combination of a mold, a stamp working therein, means for carrying and driving the stamp, said means being movable toward and from the mold, and a trailer connected with said means and projected into the mold,  
40 for the purpose specified.

3. The combination of a movable mold, a stamp working therein, means carrying and operating the stamp, said means being mov-

able toward and from the mold, and a trailer connected with said means and projected into  
45 the mold.

4. The combination of an annular revoluble mold, a stamp working therein, means for carrying and driving the stamp, and a trailer attached to said means and extending into  
50 the mold to move the stamp-carrying means away from the mold as the volume of the material therein increases.

5. The combination of an annular revoluble mold, a stamp working therein, means for  
55 carrying and driving the stamp, a leveler carried by the stamp-carrying means and located in advance of the stamp, and a trailer fastened to the stamp-carrying means and extending into the mold behind the stamp.  
60

6. The combination of a revoluble table, a mold mounted thereon, a stamp working in the mold, a frame carrying the stamp, and movable toward and from the mold, and a trailer attached to the frame and extending  
65 into the mold.

7. The combination of an annular revoluble mold, a stamp working therein, and a leveler extending into the mold ahead of the stamp.  
70

8. The combination of a movable mold, a stamp working therein, means carrying and operating the stamp, said means being movable toward and from the mold, a counterbalance for said means, and a trailer connect-  
75 ed with said means and projecting into the mold.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

JOSEPH H. MARTIN.  
DAVID ORMAND.

Witnesses:

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G. C. DENNIS.