

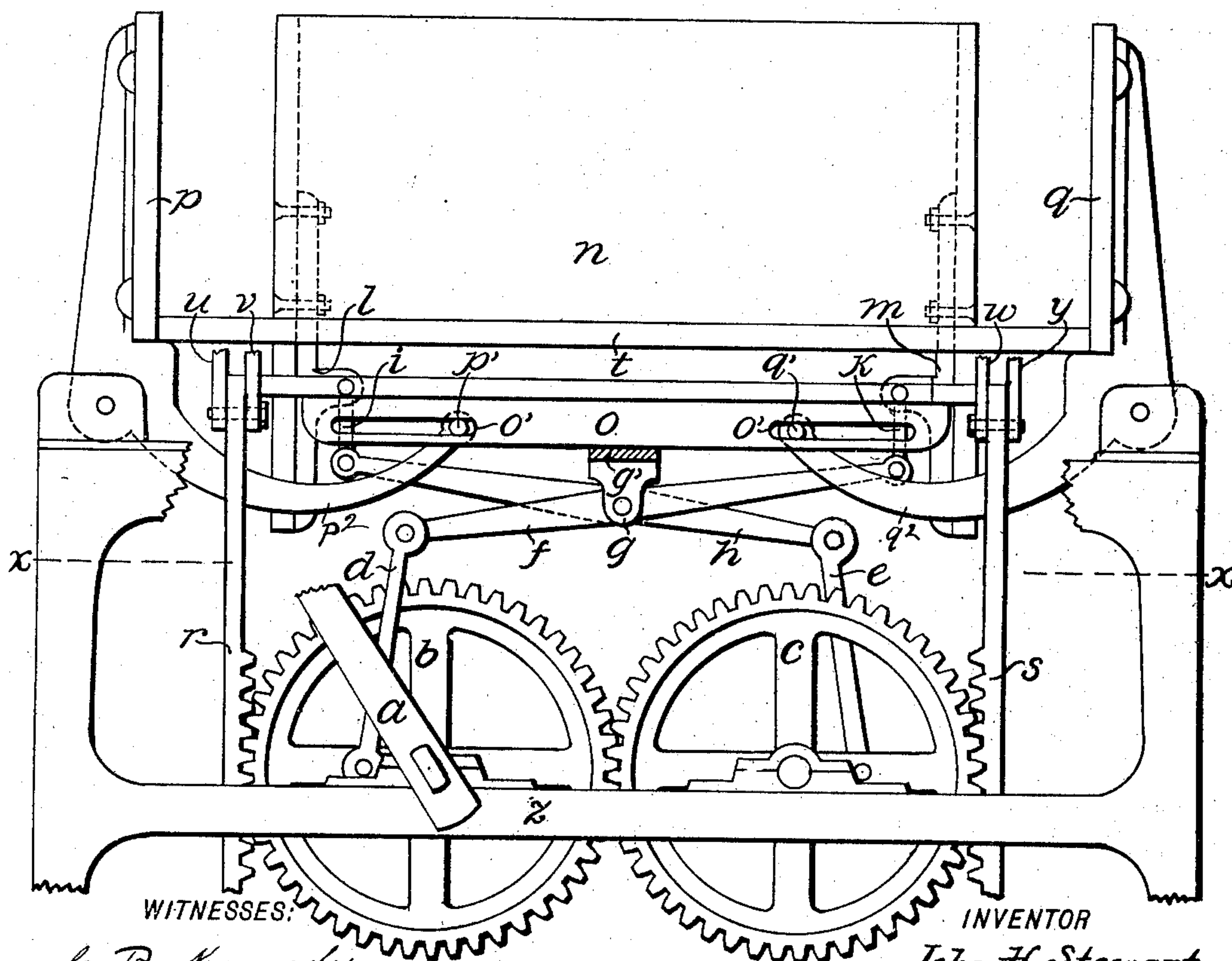
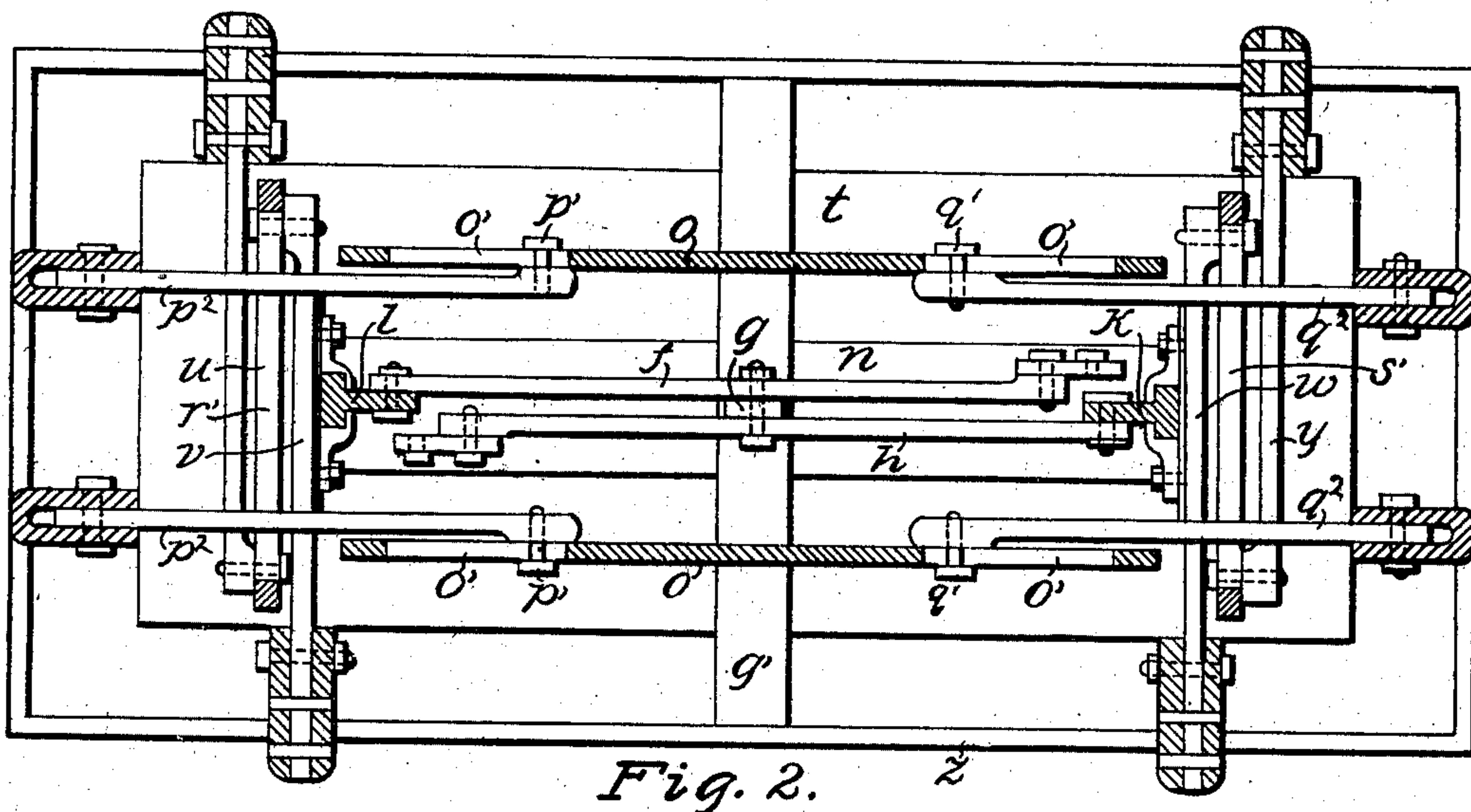
PATENTED SEPT. 1, 1903.

MACHINE FOR FORMING CONCRETE BUILDING BLOCKS.

APPLICATION FILED MAR. 28, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



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No. 737,881.

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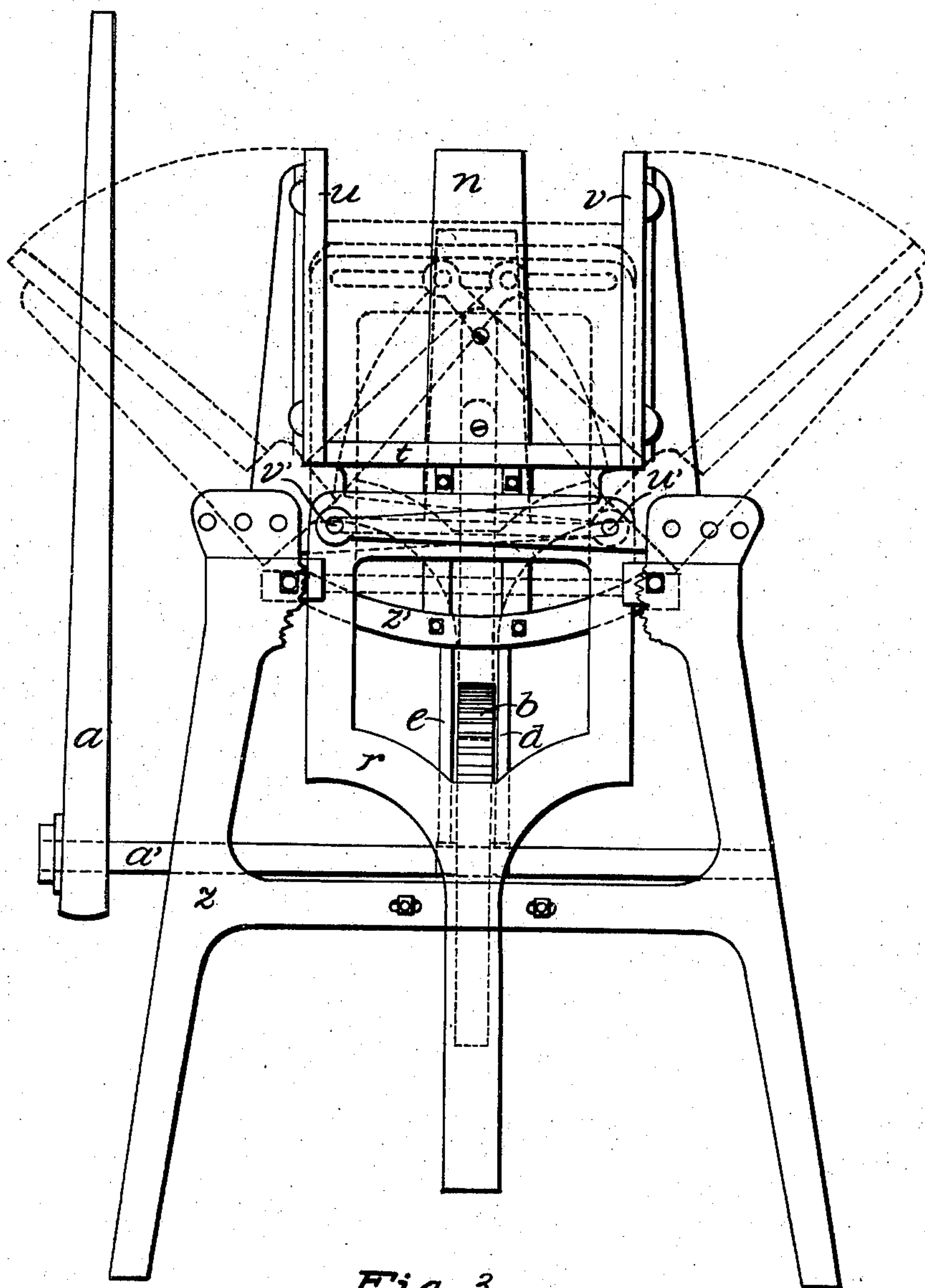


Fig. 3.

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MACHINE FOR FORMING CONCRETE BUILDING-BLOCKS.

SPECIFICATION forming part of Letters Patent No. 737,881, dated September 1, 1903.

Application filed March 28, 1903. Serial No. 149,952. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. STEWART, a citizen of the United States of America, and a resident of Waterloo, Blackhawk county, Iowa, have invented certain new and useful Improvements in Machines for Forming Concrete Building-Blocks, of which the following is a specification.

My invention relates to improvements in machines for making concrete building-blocks; and the object of my invention is to provide means for elevating the building-block, withdrawing the core therefrom, and dropping the side and end plates by a single manipulation, thus effecting a saving of labor, an economy of time, and increase of production. This object I effect by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of my said machine, the side plates being removed and parts broken away. Fig. 2 is a plan view of the under side of the machine as seen from a position indicated by the dotted line $x x$ in Fig. 1, parts being sectioned in order to better illustrate the details of the connections; and Fig. 3 is an end elevation of the machine, the end plates being removed.

Similar letters refer to similar parts throughout the several views.

In the machines which are in use several manipulations are necessary in order to operate them in the forming of one building-block, and as it is desirable that such operation should be effected by one motion I have succeeded in inventing a construction which attains that object.

A frame z sustains the parts of my machine and affords a support for a movable bottom plate t , the latter having a rectangular opening for the reception of a reciprocating core n . The bottom plate when the side and end plates are closed together rests upon projections of said plates, but is arranged so as to be moved vertically upward when contacted by the cross-bars of the reciprocating racks r and s . These racks are reciprocated by means of power applied to the lever a , attached to the shaft a' of a spur gear-wheel b , whose teeth intermesh with those of a like gear-wheel c and both intermeshing, respectively, with the teeth of said racks. The tapering core n

is reciprocated vertically by means of the toggle action shown, the connections between the pivots in the prolongations l and m and the crank-pins of the gear-wheels b and c being the cranks d and e , the medially-pivoted cross-rods f and h , and the toggles i and k . The cross-rods f and h are both pivoted in a hanger g , attached to a cross-bar g' of the frame z . The end plates p and q are pivoted at their lower parts in the frame z and have curved inwardly-extending arms p^2 and q^2 , provided with studs p' and q' , respectively, which enter and are adapted to slide within slots o' in the hangers o of the cross-bars of the racks r and s . The side plates u and v are likewise pivoted to the frame and also have inwardly-extending arms, provided with studs u' and v' , arranged to slide in slots in the end cross-bars of the racks r and s . The arms w and y are similarly pivoted.

This machine is operated by a single manipulation of the hand-lever a . The partial revolution thus imparted to the gearing causes the intermediate levers and toggles to simultaneously lower the tapering core and the side and end plates, and when the cross-bars of the racks have ascended to the distance necessary to be passed to allow them to contact with the movable bottom plate said bottom plate is vertically elevated, carrying with it the molded building-block. Thence the building-block may be transferred to a car or other means of transport, which is situated at the same level as the elevated bottom plate t . A reverse movement of the lever a in like manner then causes the elevating of the core and the side and end plates and the lowering into place of the bottom plate. It will be seen that the withdrawal of the core and lowering of the side and end plates is partially effected before the cross-bars of the racks have ascended to and commence to elevate the bottom plate. This arrangement of the parts insures an easier separation from the block and less liability to damage than if the disengagement and elevation of the block were simultaneous.

On account of the facility with which the block is handled and economy of time resulting from the fact that the machine is actuated by a single movement of the hand-lever more material may be consumed and greater output

obtained than could be the case with machines which require a greater amount of manipulation and adjustment.

Having described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a machine for forming concrete building-blocks, the combination with a mold having swinging sides and ends, a reciprocating core, a vertically-reciprocating bottom plate having an opening for the core, and mechanism connecting and operating the core, the swinging sides and ends and the bottom plate by a single movement, substantially as shown and described.

2. In a machine for forming concrete building-blocks, the combination with a mold having swinging sides, a reciprocating core, a reciprocating bottom plate, and mechanism for operating by a single movement the movable core, sides and bottom plate to withdraw or release the same from the formed building-block, said mechanism operating to slightly withdraw the core and release the sides before elevating the bottom plate, substantially as shown and described.

3. In a machine for forming concrete building-blocks, the combination with a bed-frame, of swinging sides and ends hinged thereto, a

vertically - reciprocating bottom plate, a reciprocating core passing through the bottom plate, means for simultaneously releasing the sides and ends and lowering the core, and means for vertically reciprocating the bottom plate, all having suitable connections and supports adapted to operate the machine by a single movement, substantially as shown and described.

4. In a machine for forming hollow concrete building-blocks, the combination with a bed-frame, of movable sides and ends hinged thereto, a vertically - reciprocating bottom plate, a vertically-reciprocating tapering core passing through the bottom plate, racks for elevating the bottom plate, gear-wheels intermeshing with each other and with the racks, and levers intermediate between said gear-wheels and the side and end plates and the core for reciprocating said core and elevating or lowering said side and end plates, all having suitable connections and supports, substantially as shown and described.

Signed at Waterloo, Iowa, this 24th day of March, 1903.

JOHN H. STEWART.

Witnesses:

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