

No. 795,725.

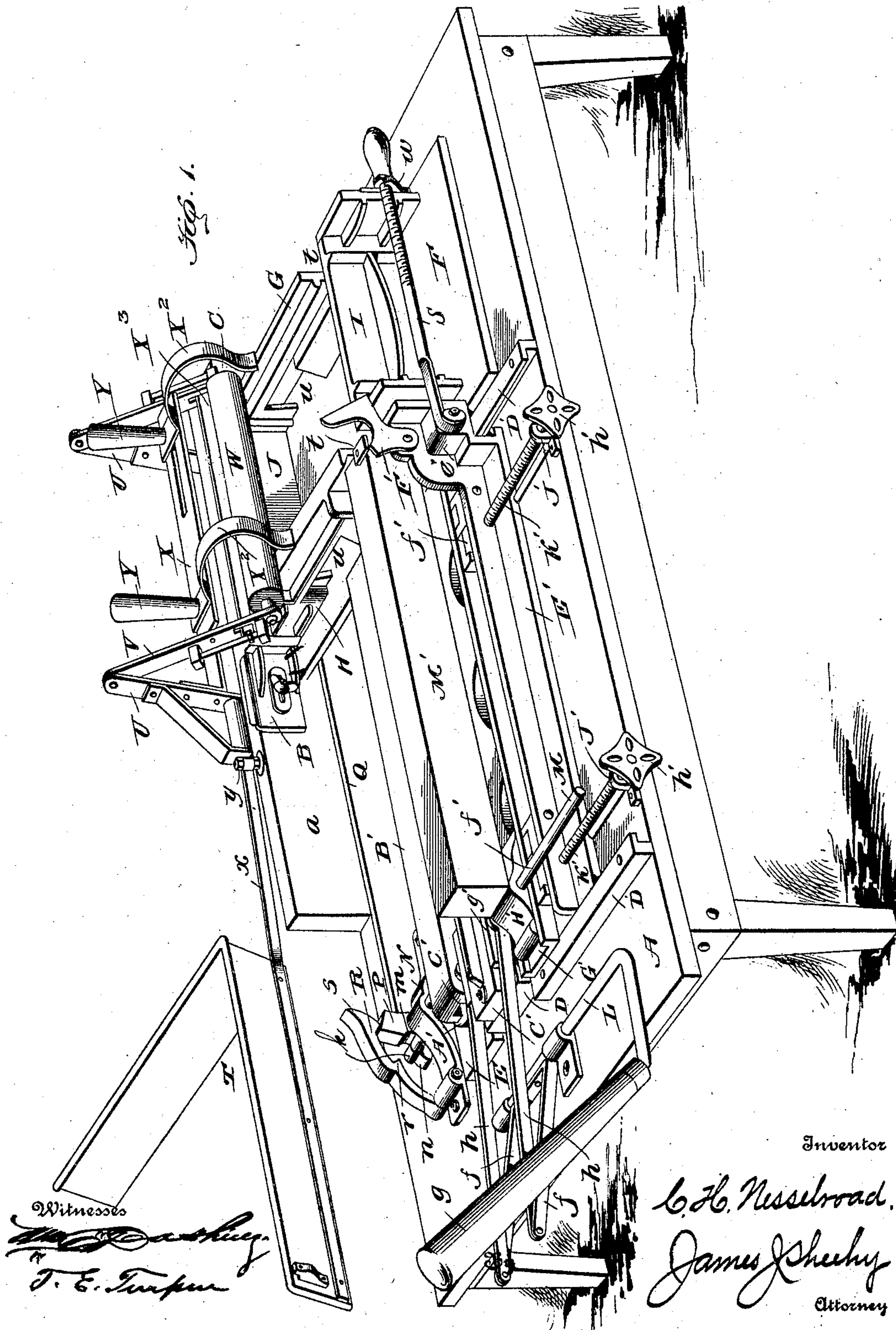
PATENTED JULY 25, 1905.

C. H. NESSELROAD.

MACHINE FOR MAKING PLASTIC BLOCKS.

APPLICATION FILED MAR. 31, 1905.

6 SHEETS--SHEET 1.



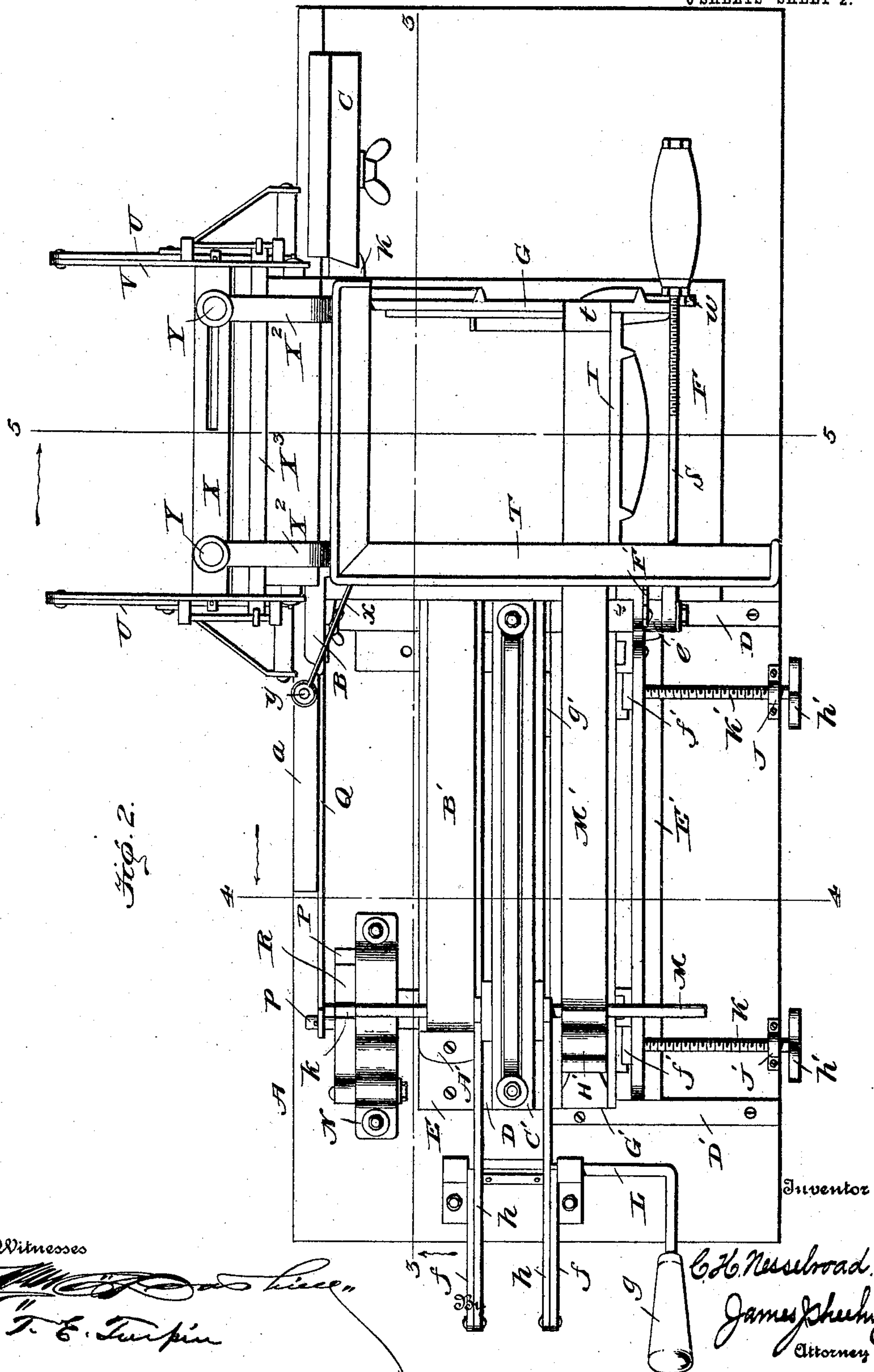
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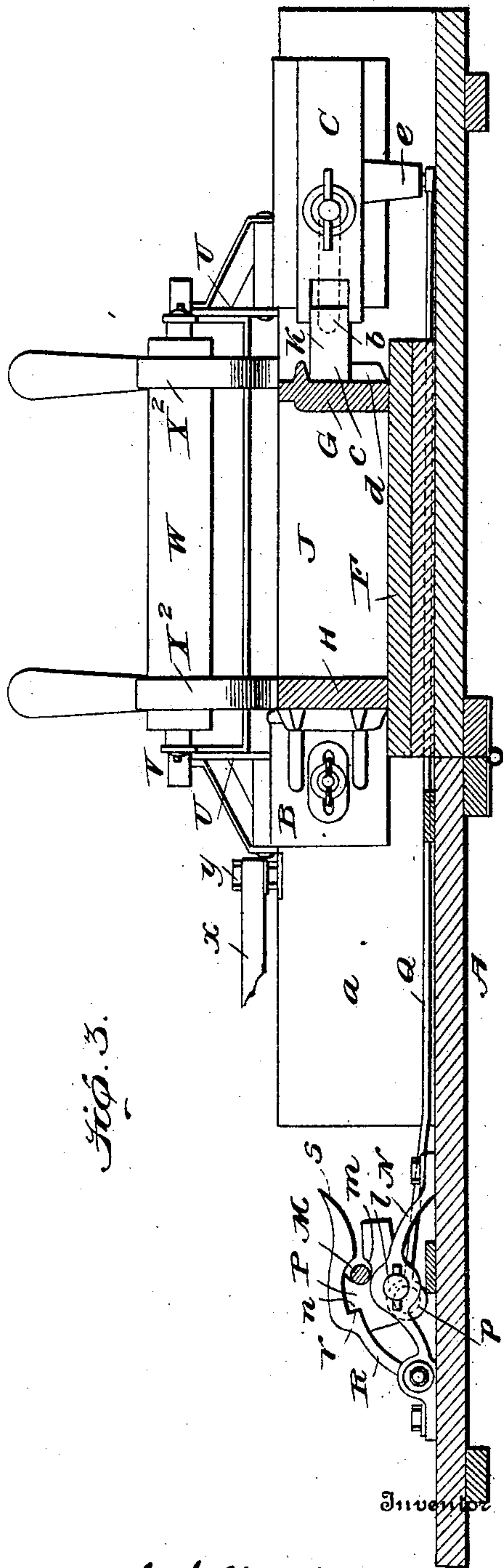
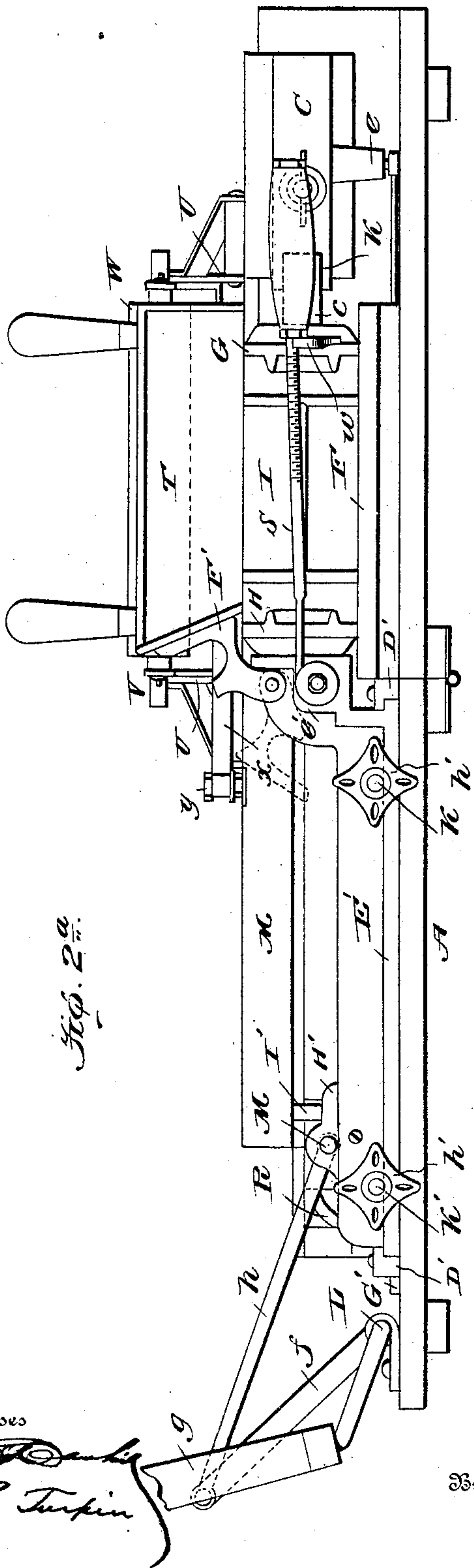


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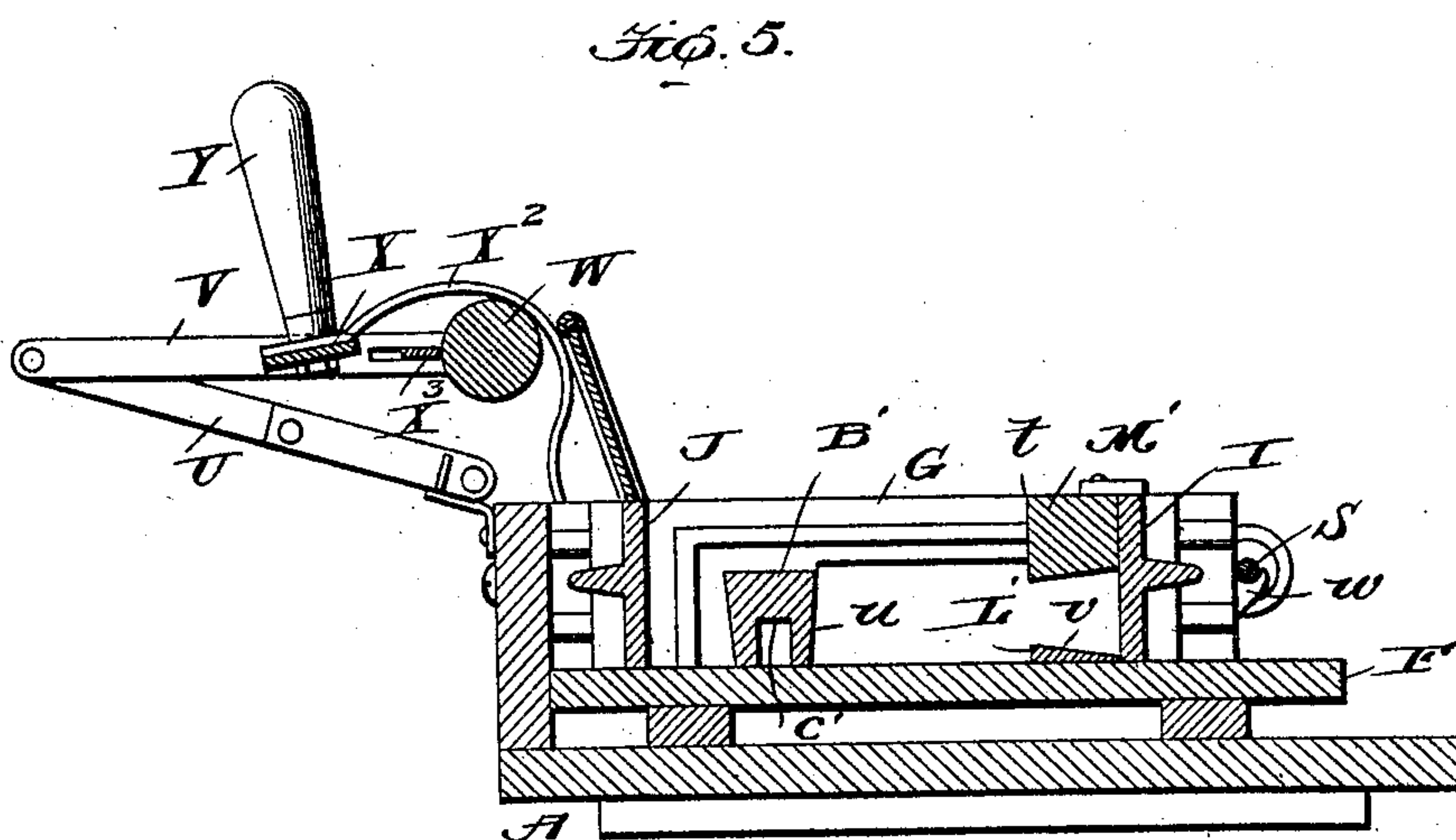
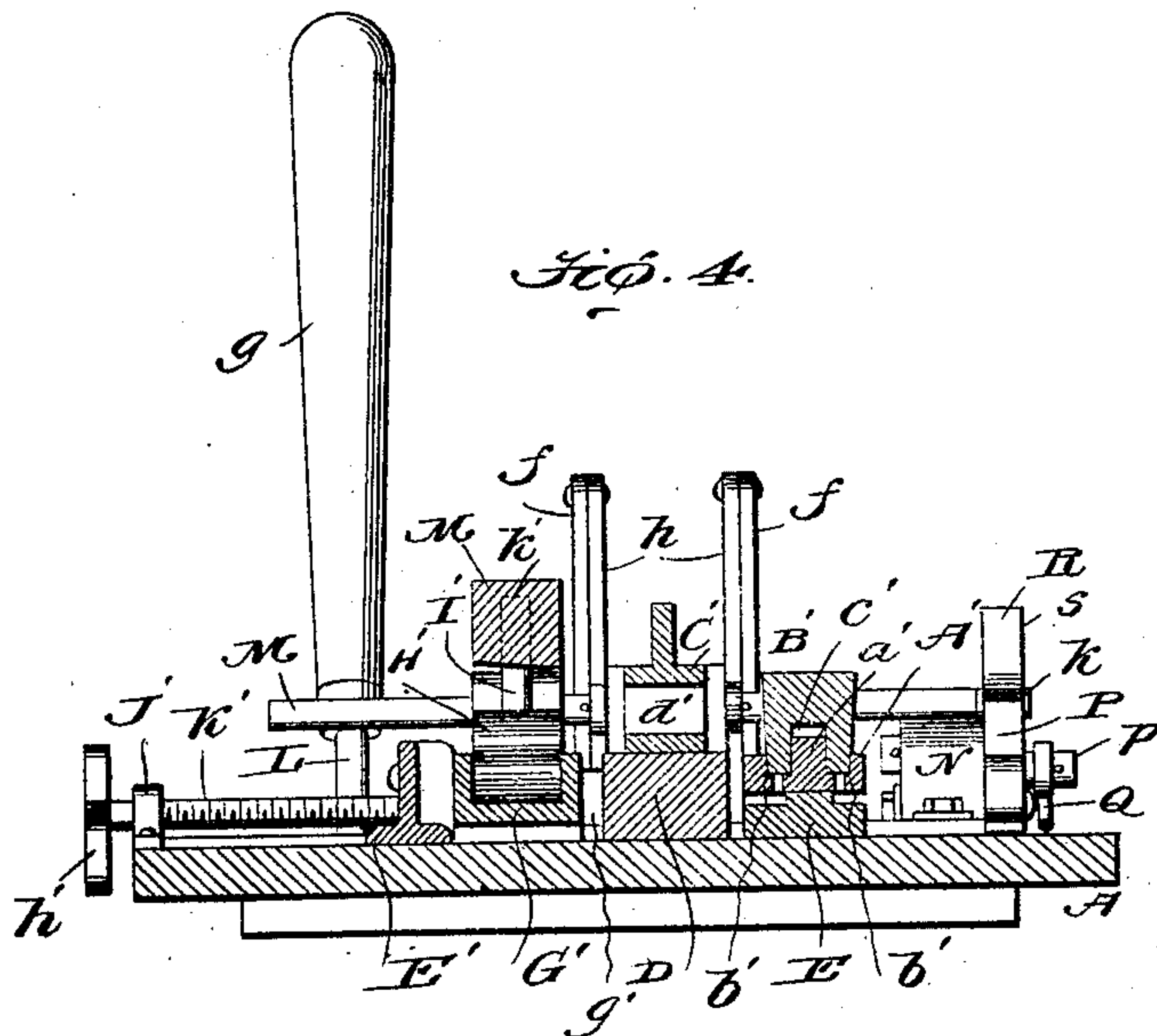
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6 SHEETS—SHEET 4.



Inventor

C. H. Nesselroad.

James Shuey

Attorney

Witnesses

[Signature]
D. E. Tappin

By

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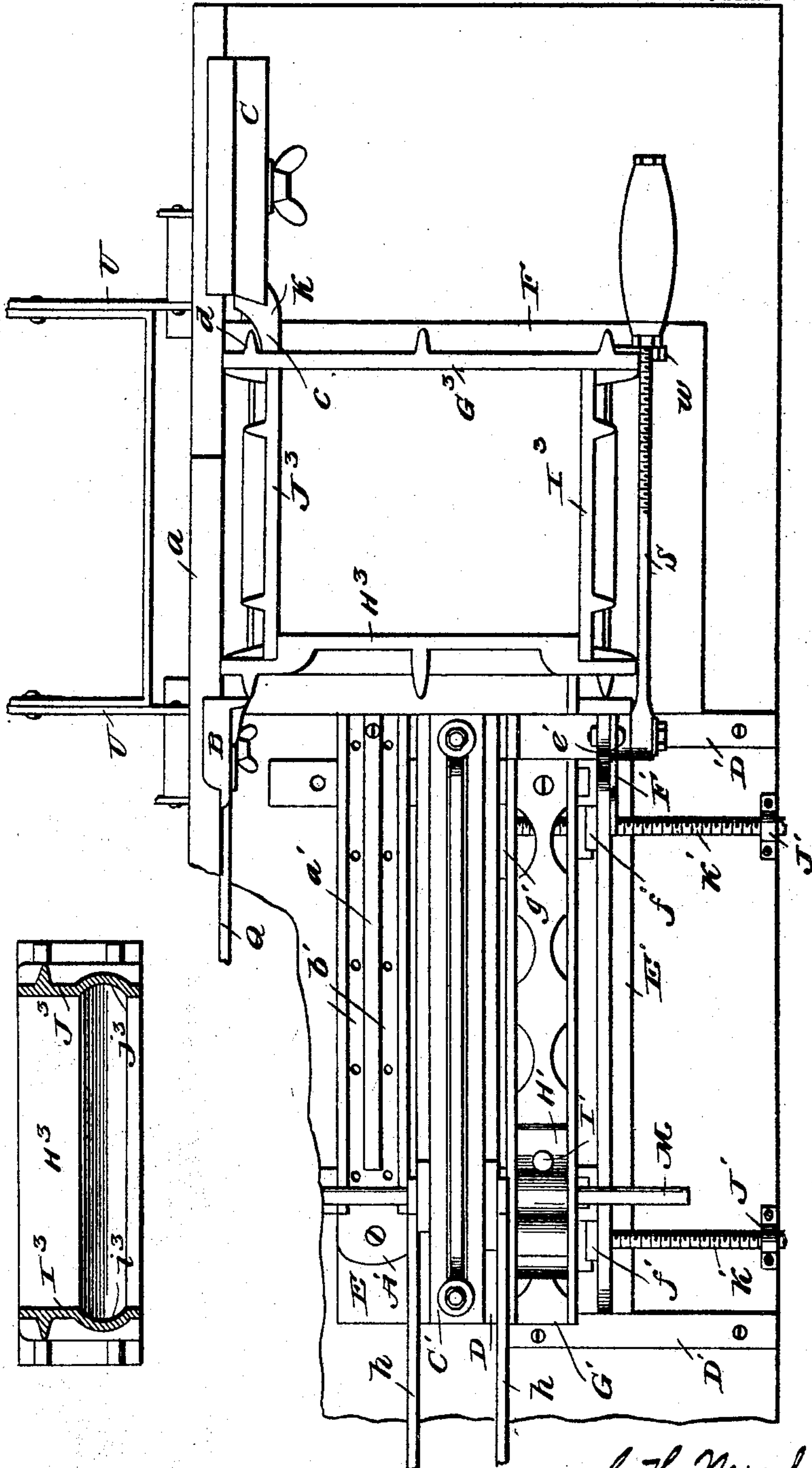
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6 SHEETS—SHEET 5.

Fig. 6.

Fig. 6^a.



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C. H. Nesselroad.

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Witnesses

[Signature]
T. E. Turpin

By

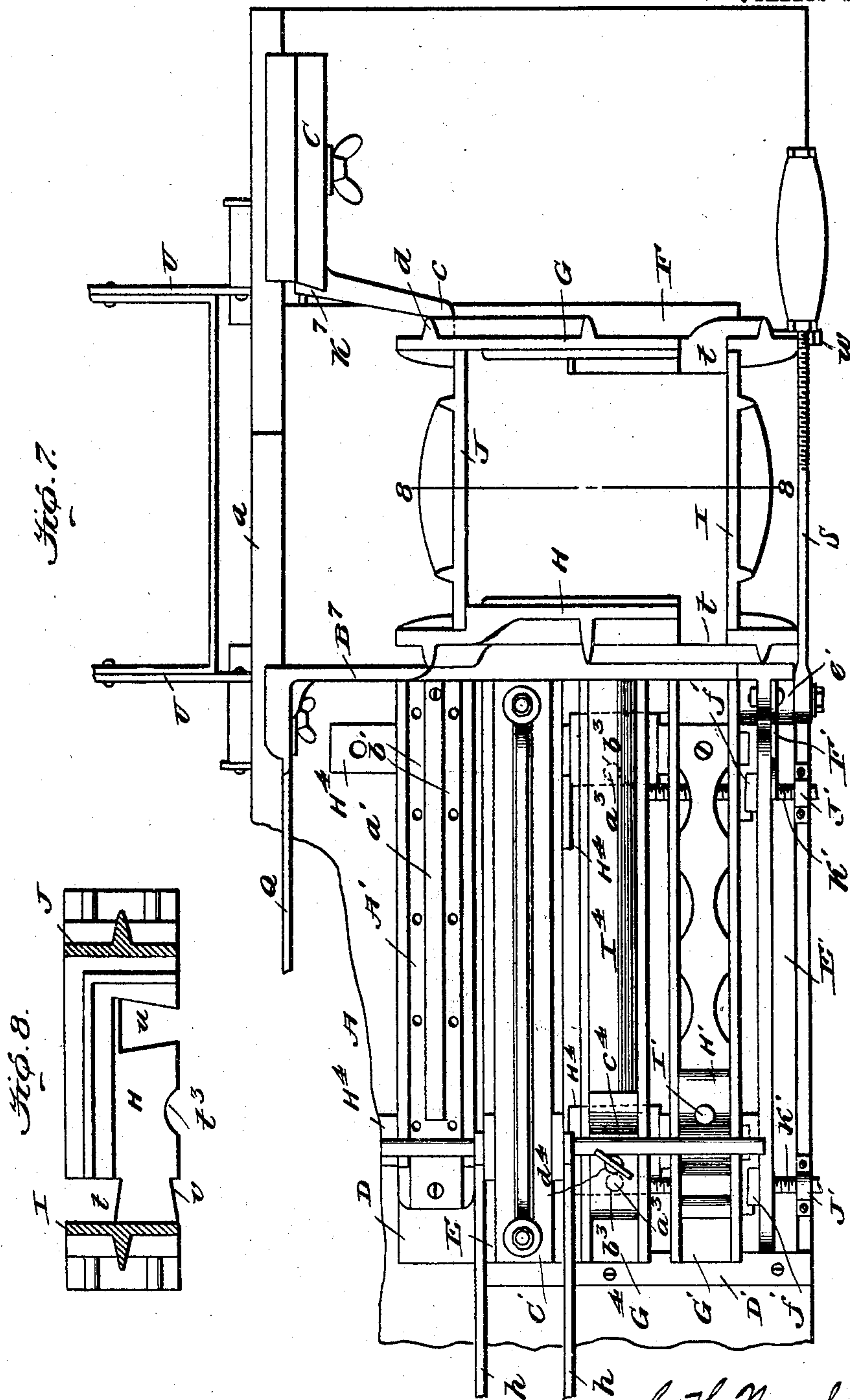
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6 SHEETS—SHEET 6.



Witnesses
T. E. Turpin
By

Inventor
C. H. Nesselroad.
James Shuchy
Attorney

UNITED STATES PATENT OFFICE.

CHARLES H. NESSELROAD, OF STUART, IOWA.

MACHINE FOR MAKING PLASTIC BLOCKS.

No. 795,725.

Specification of Letters Patent.

Patented July 25, 1905.

Application filed March 31, 1905. Serial No. 253,063.

To all whom it may concern:

Be it known that I, CHARLES H. NESSELROAD, a citizen of the United States, residing at Stuart, in the county of Guthrie and State of Iowa, have invented new and useful Improvements in Machines for Making Plastic Blocks, of which the following is a specification.

My invention pertains to machines for making building-blocks of concrete or other suitable plastic material, and it contemplates the provision of a simple, easily-operated, and highly-efficient machine designed more especially for the production of the several kinds of blocks which enter into the construction of a chimney or the like.

The invention will be fully understood from the following description and claims when taken in connection with the accompanying drawings, forming part of this specification, in which—

Figure 1 is a perspective view of the machine constituting the present and preferred embodiment of my invention with the hopper swung back out of the way and broken. Fig. 2 is a top plan view of the machine. Fig. 2^a is a front elevation of the same. Fig. 3 is a longitudinal vertical section taken in the plane indicated by the line 3 3 of Fig. 2 looking in the direction indicated by arrow. Fig. 4 is a transverse vertical section taken in the plane indicated by the line 4 4 of Fig. 2 looking toward the left. Fig. 5 is a transverse vertical section taken in the plane indicated by the line 5 5 of Fig. 2 looking toward the left and illustrating the elements for grooving a building-block as having entered the mold. Fig. 6 is a broken view in top plan, illustrating the machine as equipped with interchangeable parts, whereby it is adapted to form another kind of block. Fig. 6^a is a cross-section of the mold shown in Fig. 6. Fig. 7 is a view similar to Fig. 5, but illustrating the machine as equipped to form the other kind of block. Fig. 8 is a section of the mold shown in Fig. 7, taken in the plane indicated by the line 8 8 of Fig. 7.

Referring by letter to the said drawings, and more particularly to Figs. 1 to 5 thereof, A is the bed of my novel machine, which is designed to be arranged on a table or other support and is provided at its back edge with a longitudinal upwardly-extending wall *a*, having a longitudinal transverse slot *b*, and B is a shoulder or abutment arranged on the face of the wall *a* and connected thereto,

preferably through the medium of a bolt which extends through a slot in the plate of the shoulder or abutment and a wing-nut mounted on said bolt, as shown. C is a guide disposed on the face of the wall *a* and connected thereto, preferably through the bolt which extends through the slot *b* and a wing-nut mounted on the said bolt. D and E are longitudinal bars fixed on the bed A. F is a platen removably arranged on the bed with one of its longitudinal edges abutting against the inner ends of the bars D and E and its inner end abutting against the face of the wall *a*. G, H, I, and J are the separable sections of the mold of the machine, which sections are removably arranged on the platen F with the inner end of the section H bearing against the shoulder or abutment B. K is a catch arranged and movable in the guide C and having an inner portion *c* arranged to engage an exterior rib *d* on the mold-section G and also having a depending arm *e*. L is a transverse rock-shaft mounted at the end of the bed remote from the catch K and having crank-arms *f* and a hand-lever *g*. M is a transversely-arranged rod connected, through links *h*, to the arms *f* and bearing at one end an antifriction-roller *k*. N is a bearing fixed on the upper side of the bed A; P, a vertically-swinging lever having a lateral trunnion *l* journaled in the said bearing and also having a seat *m*, a shoulder *n*, and an arm *p*, extending laterally in the opposite direction with reference to the trunnion *l*; Q, a link connecting the arm *p* of the lever P and the depending arm *e* of the catch K and adjustably attached to the latter, and R is a vertically-swinging gravity-latch having a shoulder *r* complementary to the shoulder of the lever P and also having a forward beveled end *s* disposed above the forward portion of the said lever P.

With the sections of the mold positioned on the platform F, as described in the foregoing, it will be observed that when the shaft L is rocked toward the left the antifriction-roller *k* of the transverse rod M will first engage the beveled end *s* of the latch R, so as to disengage the shoulder *r* of said latch from the shoulder *n* of the lever P, and will then take into the seat *m* of the said lever and rock the same toward the left, and thereby through the link Q draw the inner end portion *c* of the catch K into engagement with the rib *d* of the mold-section G. This manipulation of the parts will obviously assure the mold-

sections being securely held between the shoulder B and the catch K and in proper relation and engagement with each other. To release the several mold-sections, as when the same are to be removed on the platen F in the manner hereinafter pointed out, the shaft L is rocked toward the right, when, as will be readily observed, the antifriction-roller on the rod M, acting against the forward portion of the lever P, will swing the said lever toward the right and effect a corresponding movement of the catch K, with the result that the catch will be disengaged from the rib *d* of mold-section G and the platen and mold released for removal. On the described movement of the rod M the shoulder *r* of the gravity-latch will drop behind the complementary shoulder *n* of the lever P, and in consequence the said lever P and the catch K will be locked against casual movement toward the left.

The sections G and H of the mold are each provided with an upper notch *t* and lower notches *u* and *v* to receive the groove-forming bars presently set forth, the corresponding notches of the two sections being in alignment, as shown, to assure the groove-forming bars entering the said notches when said bars are moved longitudinally of the machine. Said sections G and H are also provided with lugs complementary to lugs on the sections I and J, whereby the sections may be interlocked in proper relation, and the section G is further provided with a keeper *w*. This keeper, which is located at the forward end of the section, is designed to receive a vertically-swinging lever S, the purpose of which is to assist the shoulder B and the catch K in retaining the sections of the mold together and in proper relation to the working parts of the machine. When the said lever S is swung upwardly out of engagement with the keeper *w* and over toward the left, it will obviously in no way interfere with the before-described removal of the platen F and the several mold-sections from the bed A.

T is a hopper, which is preferably made up of an end portion and a side portion, disposed at right angles to each other, and is provided with an arm *x* extending from its corner. The said arm *x* is pivoted and designed to be adjusted vertically on a post *y*, rising from the wall *a*, and from this it follows that the hopper is free to be swung from a position over the mold to a position in rear of the said wall *a*, and vice versa.

U U are vertically-swinging arms pivoted to the wall *a*, so as to move in the direction of the width of the machine.

V is a frame pivoted to the upper ends of the arms U and carrying a roller W, of wood or other suitable material, and X is a rocking bar journaled in the frame V and provided with handles Y, one of which is preferably adjustable in the direction of the length of the

bar, so that it may be positioned to suit the convenience of the operator. When the hopper T is swung horizontally and backwardly from its position over the mold, the roller W may obviously be rolled forward and backward over and pressed down on the plastic material in the mold, so as to pack the material in the mold and assure the production of a solid block.

A', Fig. 4, is a longitudinal guide fixed on the bar E and having a longitudinal central rib *a'* and channels *b'* at opposite sides of said rib.

B' is a groove-forming bar which is pivotally mounted on the transverse rod M, is provided with a groove *c'* in its under side to receive the rib *a'*, and is of the same shape in cross-section as the outlines of the notches *u* in the mold-sections G and H.

C' is a bar arranged longitudinally upon and fixed to the bar D and having a longitudinal transversely-disposed slot *d'*.

D' D' are guide-bars fixed on the bed A at right angles to the longitudinal bar D and extending from said bar to the forward edge of the bed; E', a laterally-adjustable frame movable between the guide-bars D' and having a lateral arm *e'* at its right end; F', a vertically-swinging support adapted in the position shown by full lines in Fig. 2^a to rest against the comparatively long portion of the hopper T and hold said hopper against casual movement and in the position shown by dotted lines to permit of said hopper being swung back out of the way; G', a longitudinal channel-guide, which, together with the support F', is carried by and adjustable with the frame E'; H', a block mounted on the transverse rod M and movable in the guide G' and having an upwardly-extending pin I'; J' J', bearings fixed on the bed A; K' K', transverse screws journaled in the bearings J' and engaging nuts *f'* in frame E' and swiveled at their inner ends in wear-plates *g'* on the forward side of the bar D and having heads *h'* at their forward ends; L', a groove-forming bar of a shape in cross-section corresponding to the notches *v* in the mold-sections G and H, arranged in the channel-guide G' in advance of the slide-block H', and M' a groove-forming bar of a shape in cross-section corresponding to the notches *t* in the mold-sections G and H, arranged on and supported by the arm *e'* of the frame E' and having an aperture or socket *k'* removably receiving the pin I' of the slide-block H'.

In the practical operation of the machine as thus far described the platen F and the mold-sections G, H, I, and J are positioned on the bed A and the lever S is swung toward the right into engagement with the keeper *w* on the mold-section G. The hopper T is then swung to a position over the mold, and the support F' is swung up against the outer side of the comparatively long portion of the mold.

Concrete or other plastic material is then shoveled or otherwise placed in the mold and tamped until the mold is entirely filled with a solid mass. The hopper is then swung back out of the way, the surplus portion of concrete or other plastic material is struck off the top of the mold through the medium of a straight-edge or the like, and the roller W is worked back and forth over the material until the solidity of the block is assured. The hand-lever *g* is then swung toward the right, when the catch K will be engaged with the rib *d* of the mold-section G in the manner and for the purpose before set forth in detail. The said movement of the hand-lever *g* toward the right will also operate to carry the groove-forming bar B' through the notches *u* in the mold-sections G and H and through the plastic material contained in the mold, the groove-forming bar L' through the notches *v* of the mold-sections G and H and the plastic material, and the groove-forming bar M' through the notches *t* in the sections G and H and the plastic material. After such movement of the bars B', L', and M' toward the right the lever *g* is swung toward the left, when, as will be readily observed, the bars B' and M' will be withdrawn from the mold and the block of material therein contained. The bar L', however, will be left on the platen F and in the mold, and from this it follows that precedent to again moving the lever *g* toward the right a second bar L' must be placed in the channel-guide G' and in advance of the slide-block H'. Subsequent to the described manipulation of the groove-forming bars relative to the mold and the mass of plastic material contained therein the platen with the mold and mass of material thereon is removed from the machine, and the mold-sections are removed from the block, which is then left to set. A second platen is then positioned on the bed A, the mold-sections are placed on said platen, and the lever S is thrown into engagement with the keeper *w*, after which the operation described is repeated.

It will be apparent from the foregoing that through the medium of my novel machine a building-block having the grooves mentioned may be expeditiously produced with the expenditure of but a minimum amount of effort; also, that by employing a plurality of the platens F and groove-forming bars L' the production of a number of blocks may be accomplished with despatch, each block as formed being left on its respective platen and over its respective bar L' until it is set. The introduction of the groove-forming bars into the material subsequent to the placing of the material in the mold contributes to the expeditious production of a block, particularly when one or more of the grooves is of dovetail or like form in cross-section. The plastic material displaced by the groove-forming bars is gathered and mixed with the original mass of

plastic material and in that way is utilized in the formation of blocks molded after the block from which it was displaced.

The devices X², attached to the rocking bar X, are scrapers which move in advance of the roller W and are designed to remove material from the upper edges of the mold-sections.

The adjustable bar X³, carried by the frame V, has for its purpose to remove plastic material from the periphery of the roller W and keep said roller clean and smooth.

As shown in Figs. 6 and 6^a, the machine is adapted to form blocks having tenons at opposite ends, mold-sections G³, H³, I³, and J³ being substituted for the mold-sections G, H, I, and J, the frame E' being adjusted toward the forward edge of the bed A sufficiently far to enable the lever S to clear the end of the mold-section H³ and seat in the keeper *w* of the section G³ and the groove-forming bars B', L', and M' being removed. In this latter adaptation of the machine rocking of the shaft L operates merely to position the catch K relative to the adjacent mold-section G³, so as to enable said catch to assist the lever S in retaining the mold-sections G³, H³, I³, and J³ in position. In said adaptation the hopper T and the roller W are used in the manners and for the purposes before set forth. The mold-sections I³ and J³ have concave grooves *i*³ *j*³ in their inner sides, Fig. 6^a, and from this it follows that the blocks molded in the mold formed by the sections G³, H³, I³, and J³ will have the before-mentioned tenons at their opposite ends.

As will be observed by reference to Fig. 8 of the drawings, the mold-sections G and H have rounded notches *t*³ in their lower edges. These notches *t*³ are for use when blocks having grooves in their inner sides to receive the rounded tenons of the before-mentioned blocks are to be formed.

After a grooved block is formed in the mold-sections G, H, I, and J with the assistance of the groove-forming bars B', L', and M' said bars B', L', and M' are removed, the laterally-adjustable frame E' is moved as far forward as possible, a longitudinal channel-guide G⁴, Fig. 7, is secured on pins *a*³ on arms H⁴ of the frame E' through pins *a*³ on said guide let into apertures *b*³ in the slide-rests, and a groove-forming bar I⁴ of a shape in cross-section corresponding to the notches *t*³ in the mold-sections is arranged in the guide G⁴. The said bar I⁴ has a shoulder *c*⁴ designed to rest at one side of the transverse rod M and a removable pin *d*⁴ disposed at the opposite side of said rod, and hence it will be observed that when the said rod M is moved toward the mold by the means before described the bar I⁴ will be moved through the notches *t*³ in the mold-sections and the block to form the mentioned grooves in the latter.

When the machine is to be used to form blocks having grooves in their inner sides,

the catch K', Fig. 7, is substituted for the catch K, Figs. 1 to 5, and a shoulder B', Fig. 7, is substituted for the shoulder B, Figs. 1 to 5, this in order that the mold-sections in the positions shown in Fig. 7 may be securely held against casual displacement.

To form the cap-blocks of the chimney, mold-sections are employed which differ from the sections G, H, I, and J only in size.

The vertical adjustment of the arm of the hopper T on its pivot post or pin permits of the hopper being positioned to suit the height of the mold-sections employed.

The present embodiment of my invention is designed more particularly for producing the blocks of the chimney disclosed in my contemporary application, filed January 11, 1905, Serial No. 240,600. It is obvious, however, that with slight modifications my improved machine may be used to advantage in the production of chimney and building blocks of other descriptions.

The term "groove-forming bar" as herein employed is intended to comprehend a bar for forming an aperture or other passage, and the term "notch" as herein employed in describing features of the mold is intended to comprehend an aperture or any other kind of passage.

I have entered into a detailed description of the construction and relative arrangement of the parts comprised in the present and preferred embodiment of my invention in order to impart a full, clear, and exact understanding of the said embodiment. I do not desire, however, to be understood as confining myself to the said specific construction and relative arrangement of parts, as such changes or modifications may be made in practice as fairly fall within the scope of my invention as claimed.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a machine for making building-blocks and the like, the combination with a mold comprising interlocked sections and having passages in opposite sections, an abutment affording a bearing for the mold, a catch disposed at the opposite side of the mold, with reference to the abutment, and arranged to engage the mold, a bar alined with the passages in the mold-sections, and means common to the catch and the bar for engaging the former with the mold and positioning the latter in the mold.

2. In a machine for making building-blocks of plastic material, the combination of a bed, a mold thereon, arms pivoted to the bed and arranged to swing vertically, a frame pivoted to said arm and carrying a roller and a bar for removing surplus plastic material from the roller, and a rocking bar journaled in the frame and carrying handles and scrapers, the

latter being arranged to remove surplus plastic material from the upper edges of the mold.

3. In a machine for making building-blocks and the like of plastic material, the combination with a mold having notches in the opposite edges of opposite walls, a groove-forming bar guided in alinement with one pair of notches, a follower arranged back of the said bar, reciprocatory groove-forming bars alined with the other pairs of notches in the mold-walls, and a common means for reciprocating the latter bars and the follower.

4. In a machine for making building-blocks and the like of plastic material, the combination with a mold having notches in opposite walls, a groove-forming bar guided in alinement with one pair of notches, a follower arranged back of the said bar, a reciprocatory groove-forming bar alined with another pair of notches in the mold-walls, and a connection between the latter bar and the follower whereby the same move together.

5. In a machine for making building-blocks and the like of plastic material, the combination with a mold having notches in the upper edges of opposite walls, and also having notches in the lower edges of said walls, longitudinal, reciprocatory, groove-forming bars alined with notches in the upper edges and lower edges, respectively, of the mold-walls, a bar guided in alinement with the other notches in the lower edges of the mold-wall, a follower arranged back of the said bar, a connection between the reciprocatory bars and the follower, and a common means for reciprocating the bars and the follower.

6. In a machine for making building-blocks and the like of plastic material, the combination with a mold having notches in the upper edges of opposite walls, and also having notches in the lower edges of said walls; of longitudinally-disposed guides coincident with the said notches in the walls of the mold, reciprocatory, groove-forming bars alined with notches in the mold-walls and arranged in two of said guides, a groove-forming bar arranged in the third guide, a follower arranged in the third guide back of the latter bar, a transverse rod extending through the reciprocatory bars and the follower and connecting the same, a lever, and a connection intermediate said lever and the transverse rod.

7. In a machine for making building-blocks and the like, the combination with a mold having notches in opposite walls; of an end-wise-movable, groove-forming bar alined with the notches in the walls of the mold, a catch for engaging the mold, and means common to the groove-forming bar and the catch for positioning the former in the mold and engaging the latter with the mold.

8. In a machine for making building-blocks and the like of plastic material, the combination with a mold having notches in opposite

walls; of an endwise-movable, groove-forming bar alined with notches in the walls of the mold, a catch for engaging the mold, a lever connected with said catch, a latch, for holding said lever against casual movement, a transverse rod for positioning the groove-forming bar in the mold, disengaging the latch from the lever and throwing the lever to adjust the catch, relative to the mold, and means connected with the said transverse rod for moving the same toward and from the mold.

9. In a machine for making building-blocks and the like of plastic material, the combination with a mold having notches in opposite walls; of an endwise-movable, groove-forming bar alined with notches in the walls of the mold, a reciprocatory catch for engaging the mold, a vertically-swinging lever having a seat and a shoulder, a connection between said lever and the reciprocatory catch, a gravity-latch having a shoulder complementary to the shoulder of said lever and a beveled end, a transverse rod for positioning the bar in the mold and arranged to take into the seat of the lever and to disengage the gravity-latch from and move said lever, and means for moving said rod toward and from the mold.

10. In a machine for making building-blocks and the like of plastic material, the combination with a mold having notches in opposite walls, of an endwise-movable, groove-forming bar alined with notches in the walls of the mold, a follower back of said bar, reciprocatory groove-forming bars, a catch for engaging the mold, a lever connected with said catch, a latch for holding said lever against casual movement, a transverse rod connecting the follower and the reciprocatory bars and arranged to disengage the latch from the lever and throw the lever to adjust the catch, and means connected with said rod for moving the same toward and from the mold.

11. In a machine for making building-blocks and the like of plastic material, the combination with a sectional mold having notches in opposite walls, and also having a keeper on

one wall; of a bed, an abutment connected to the bed and affording a bearing for the mold, a catch disposed at the opposite side of the mold, with reference to the abutment, means common to the groove-forming bar and the catch for positioning the former in the mold and engaging the latter with the mold, and a lever connected with the bed and arranged to be swung into and out of engagement with the keeper of the mold.

12. In a machine for making building-blocks of plastic material, the combination of a bed, a mold thereon, a swinging frame connected with the bed, means carried by said frame for pressing the plastic material down into the mold, and means also carried by said frame for removing surplus plastic material from the edges of the mold.

13. In a machine for making building-blocks of plastic material, the combination of a bed, a mold thereon, a hopper pivoted to the bed and movable on and off the mold, arms pivoted to the bed and arranged to swing vertically, a frame pivoted to said arm and carrying a roller and a bar for removing surplus plastic material from the roller, and a rocking bar journaled in the frame and carrying handles and scrapers, the latter being arranged to remove surplus plastic material from the upper edges of the mold.

14. In a machine for making building-blocks of plastic material, the combination with a mold having notches in opposite walls, a bed supporting said mold, a frame arranged on the bed and provided with a guide, a groove-forming bar arranged in said guide of the frame and adapted to be positioned in the notches of the mold, and means for adjusting the frame laterally and adjustably fixing the same relative to the mold and the bed.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

CHARLES H. NESSELROAD.

Witnesses:

WILLIAM J. MILLER,
LUTHER NESSELROAD.