

F. H. RICHARDS.

MECHANISM FOR MAKING TYPOGRAPHIC FORMS.

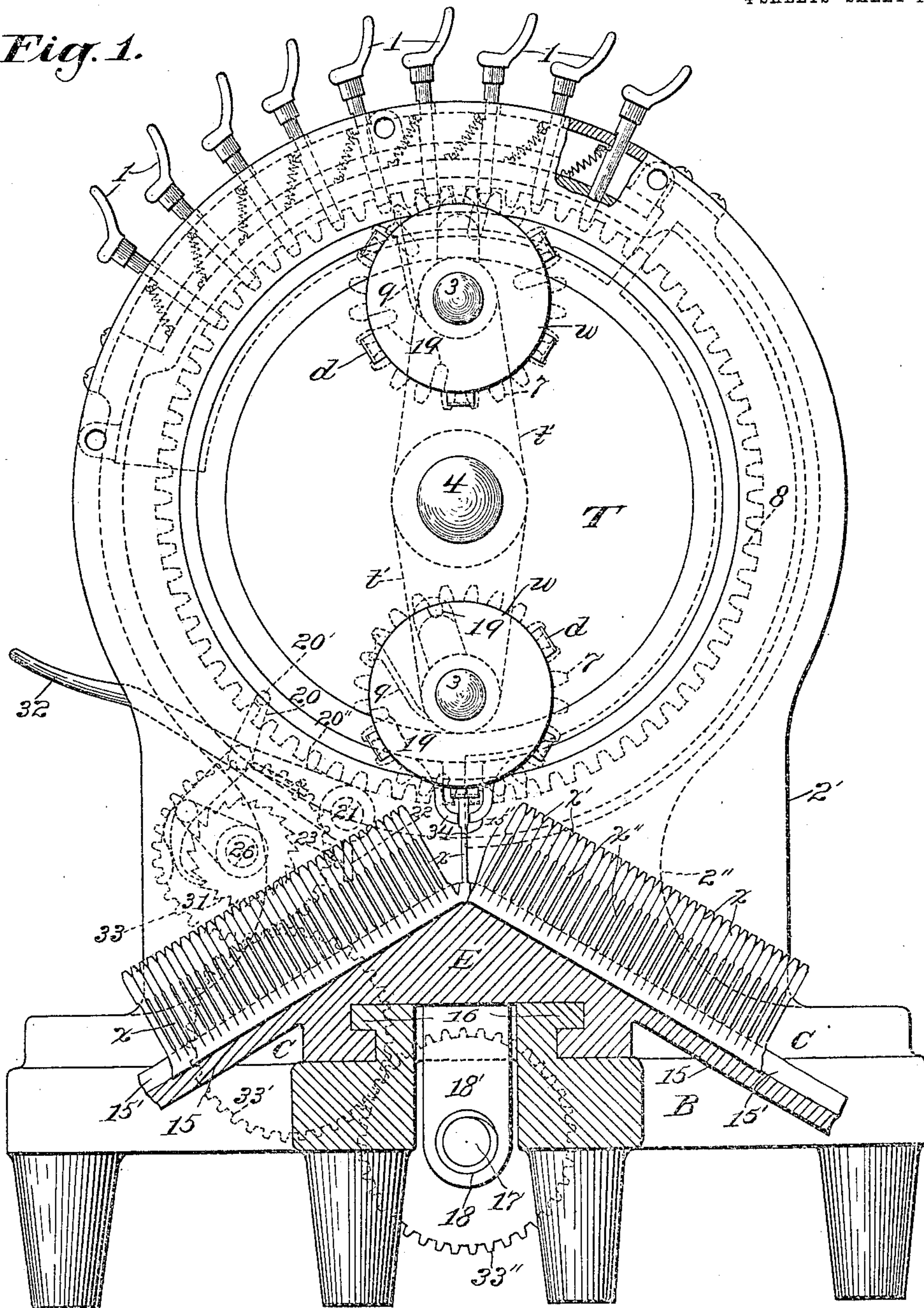
APPLICATION FILED JAN. 2, 1902. RENEWED APR. 16, 1907.

927,597.

Patented July 13, 1909.

4 SHEETS—SHEET 1.

Fig. 1.



Witnesses:-

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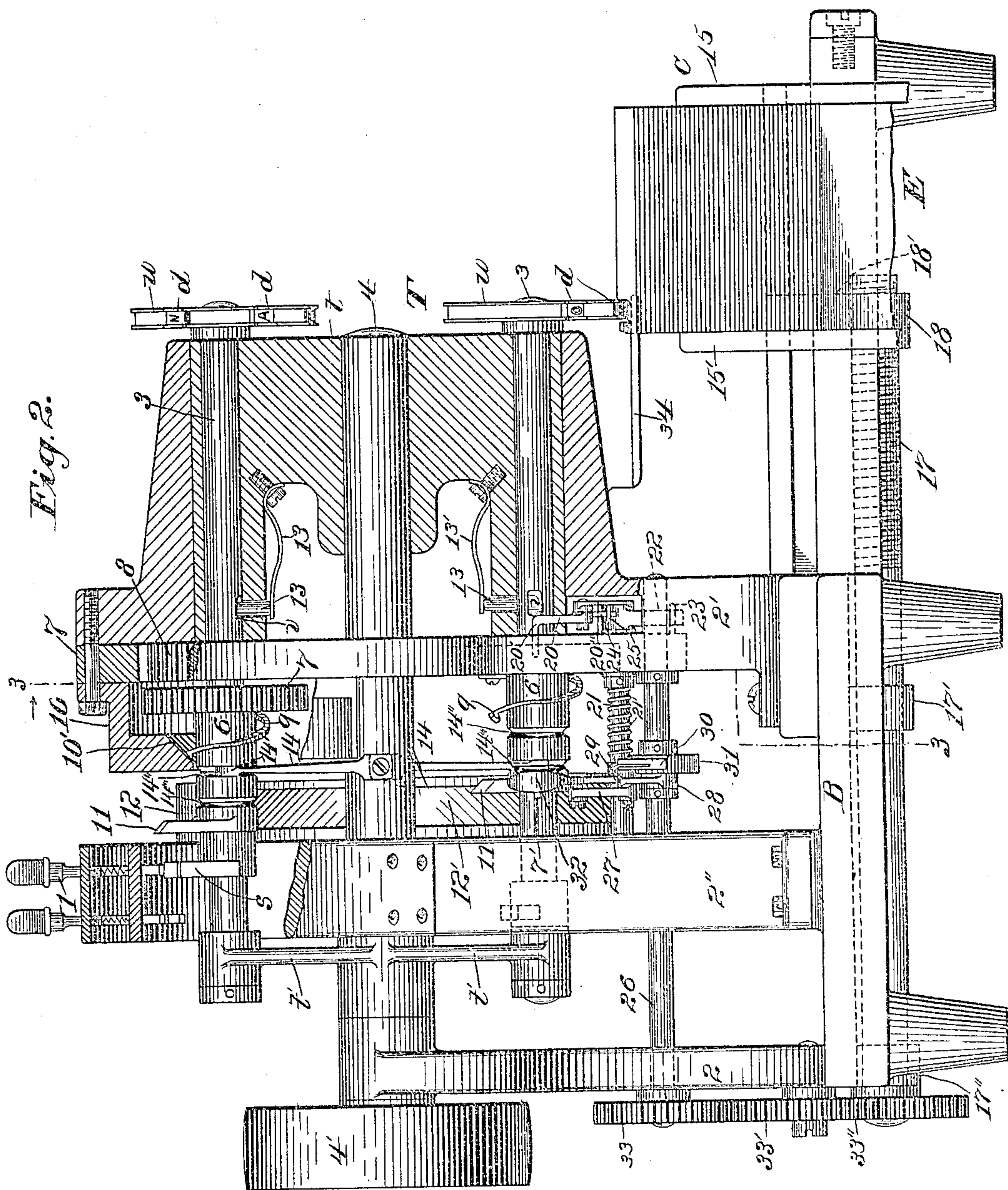
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4 SHEETS—SHEET 2.



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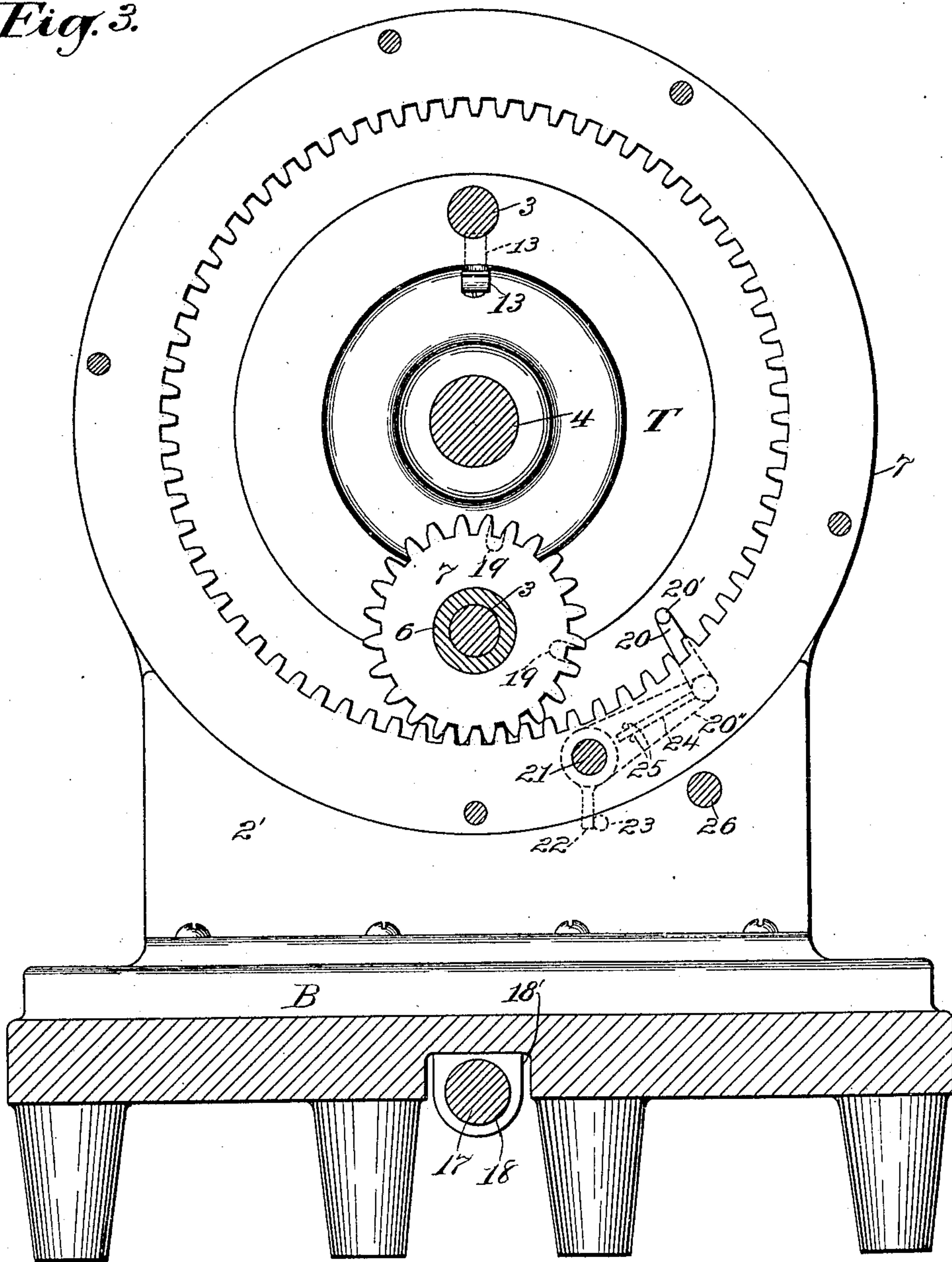
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4 SHEETS—SHEET 3.

Fig. 3.



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4 SHEETS—SHEET 4.

Fig. 4.

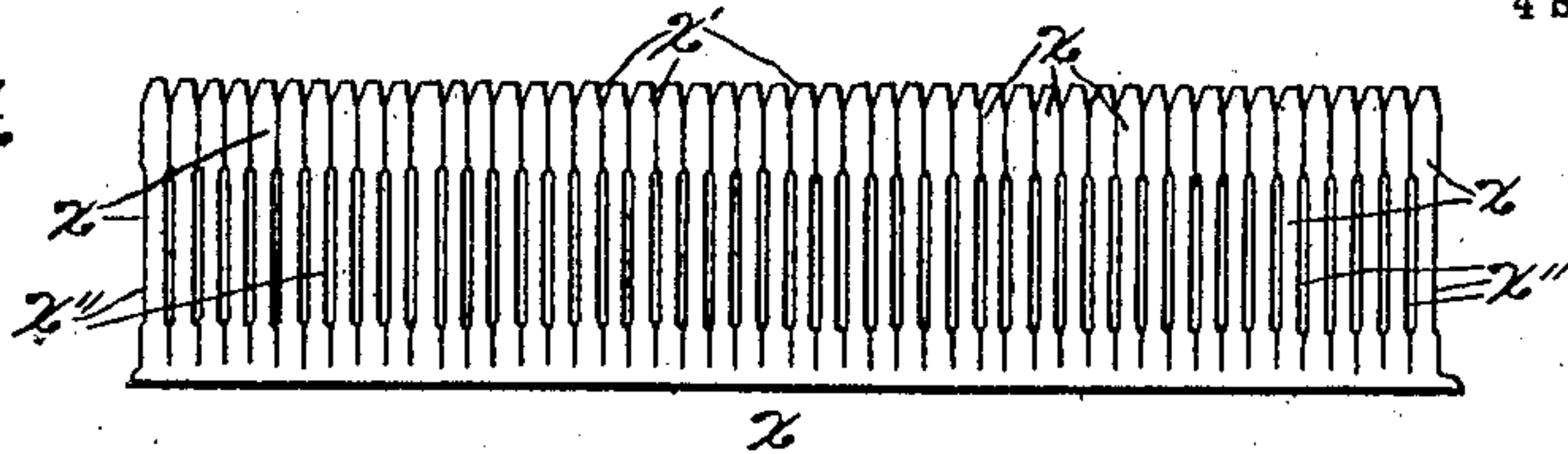


Fig. 5.

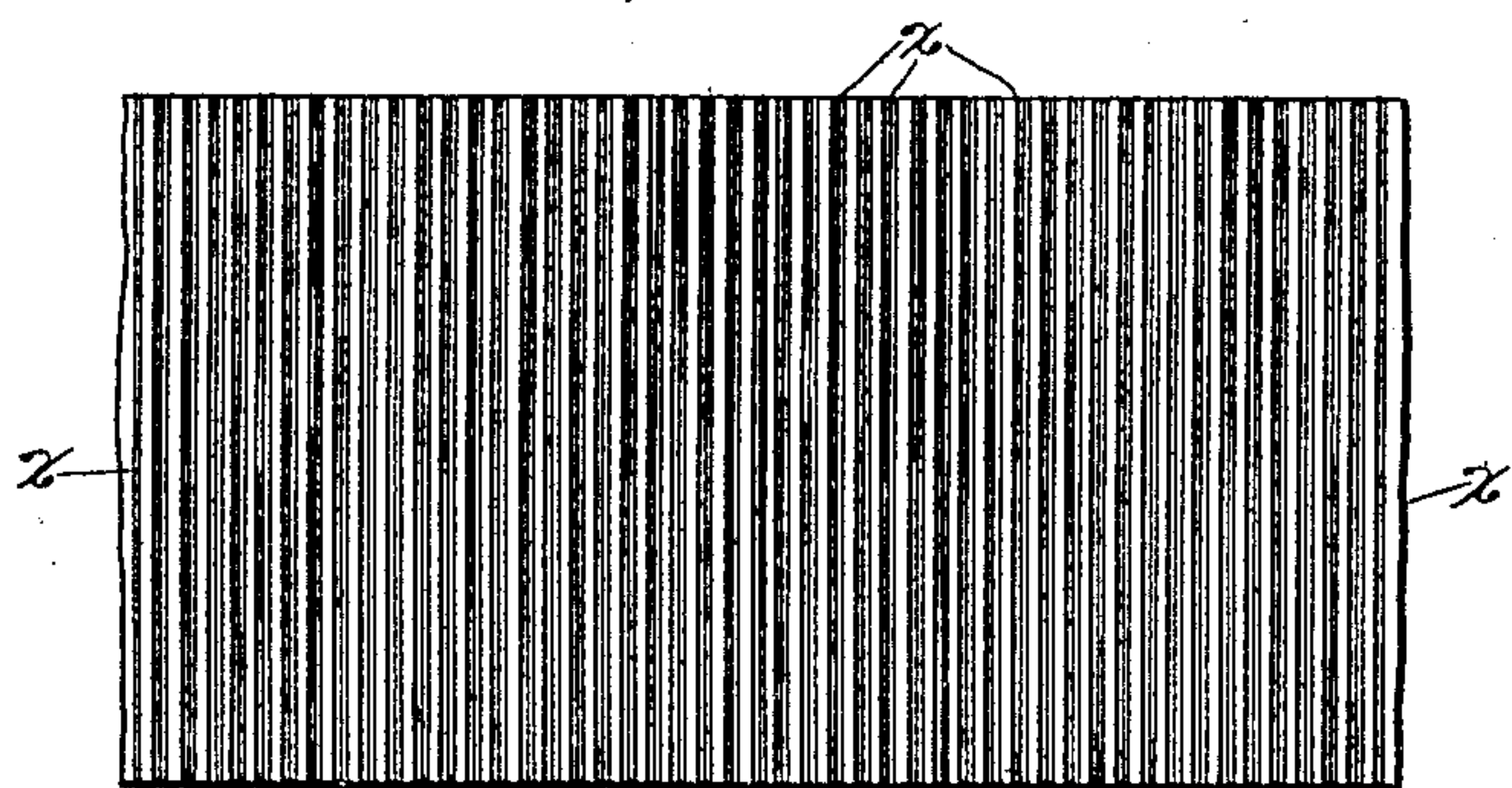


Fig. 6.

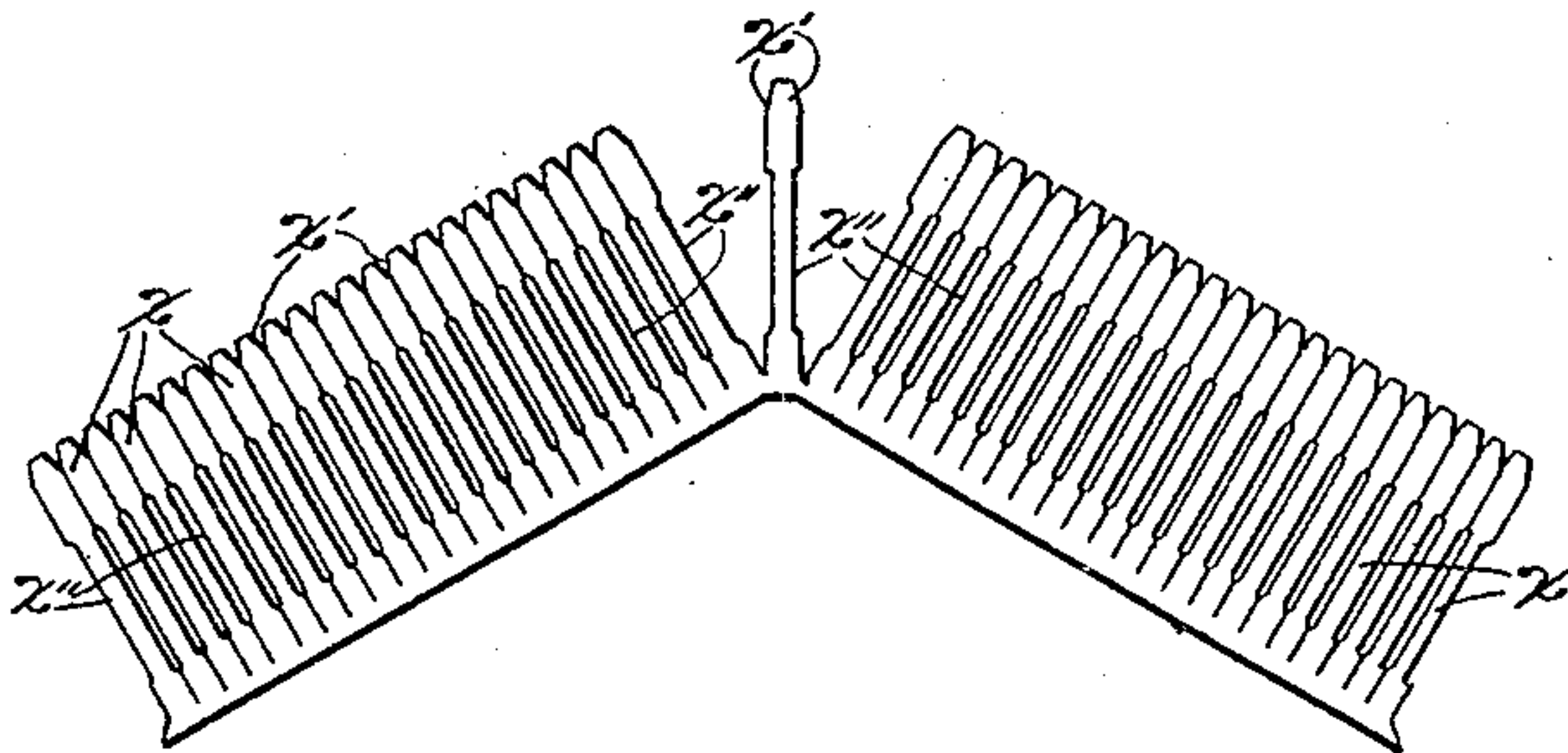
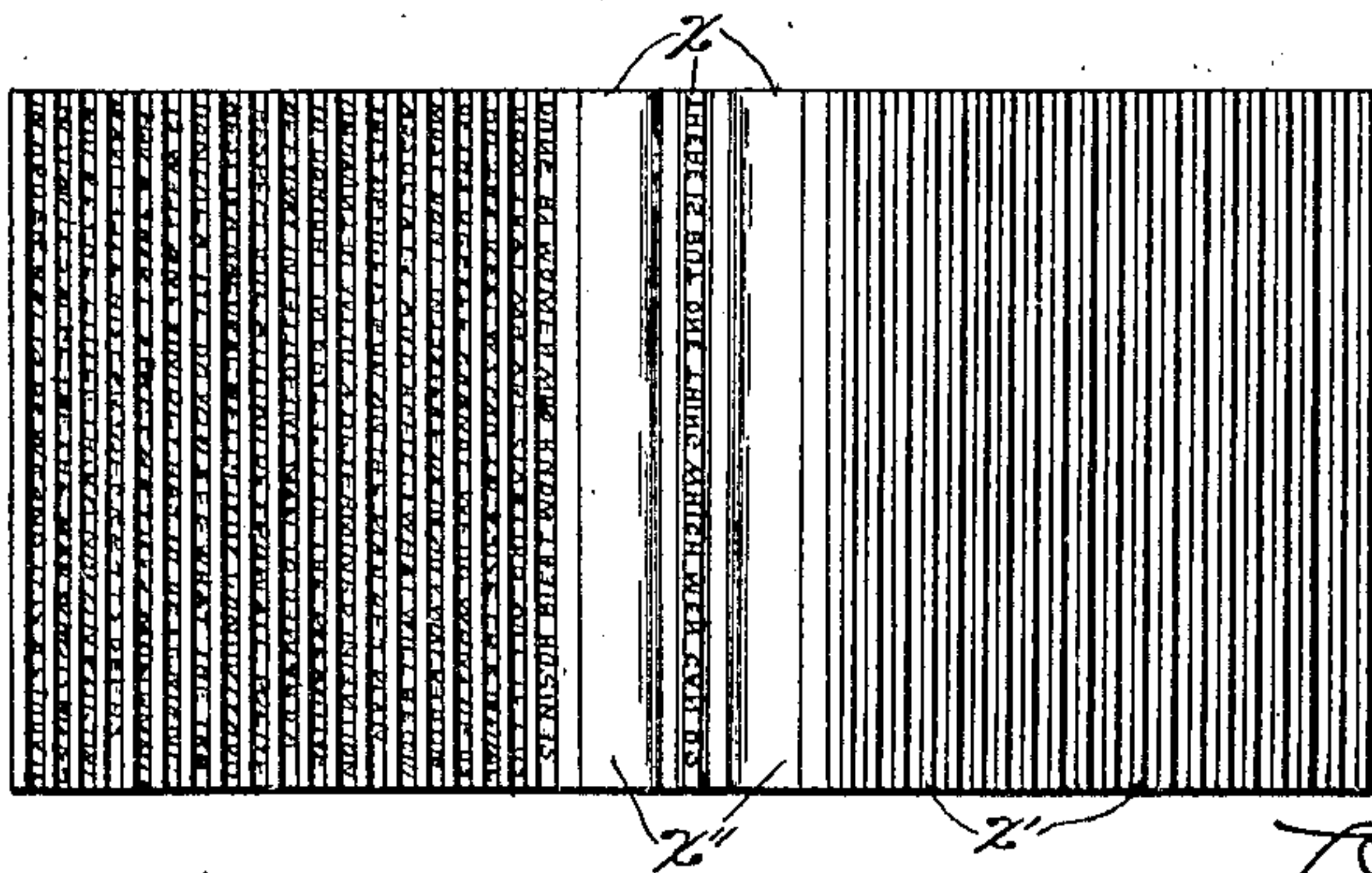


Fig. 7.



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UNITED STATES PATENT OFFICE.

FRANCIS H. RICHARDS, OF HARTFORD, CONNECTICUT, ASSIGNOR, BY MESNE ASSIGNMENTS,
TO AMERICAN TYPOGRAPHIC CORPORATION, A CORPORATION OF NEW JERSEY.

MECHANISM FOR MAKING TYPOGRAPHIC FORMS.

No. 927,597.

Specification of Letters Patent.

Patented July 13, 1909.

Application filed January 2, 1902, Serial No. 88,047. Renewed April 16, 1907. Serial No. 368,584.

To all whom it may concern:

Be it known that I, FRANCIS H. RICHARDS, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Mechanism for Making Typographic Forms, of which the following is a specification.

This invention relates to mechanism adapted for making a selective series of type-like characters along the edges of the successive members of a typographic form-blank, and which when provided with its characters is adapted for use in the typographic art. In the present case, there is disclosed a machine for the manufacture of a typographic form from a composite or compound blank, such as shown, described and claimed in my application filed July 16, 1901, Serial No. 68,454 renewed November 22 1907, Serial No. 403,338. As illustrated in that application, the composite blank from which the typographic form is made, embodies a plurality of separate but associated blanks so united one to the other that although the several blanks are capable of being separated one from the other at those portions upon which the types are to be made, in order to facilitate the production of the latter, yet they form a unitary structure. Such a form-blank as that set forth in that application will during the type making operation of a machine embodying the present improvements, be so bent as to isolate the upper portion of each component blank in turn. When so isolated and with the type forming mechanism of the machine operating in a manner to effect the making of successive types along the edge of a component blank, the form blank will be fed along relatively to such mechanism, provision existing for a variable feed movement in order that types of different widths may be made in regular succession.

The accompanying drawings represent an embodiment of a machine for making a succession of lines of types embodied in a typographic form of the nature set forth in my hereinbefore mentioned application.

In these drawings, Figure 1 is mainly an elevation illustrating a simple form of mechanism for carrying my invention into effect and producing my improved typographic form. Fig. 2 is a side elevation of the mechanism a part however being shown in longi-

tudinal section. Fig. 3 is a section on the plane of the line 3—3 in Fig. 2 looking in the direction of the arrow. Fig. 4 is an elevational view of a set of associated blanks constituting a form-blank suitable for the production of a typographic form the component blanks being viewed in the direction of their length. Fig. 5 is a plan view of the form-blank shown in Fig. 4. Fig. 6 represents the separation of the companion blanks or members from that component blank of the form-blank upon which types are to be made, this isolation of the upper portion of each blank in succession being made for the purpose of facilitating the successive type making operations. Fig. 7 is a plan view of a partially completed form illustrating the various members in the positions indicated in Fig. 5.

Similar characters of reference designate corresponding parts in all the figures.

In carrying my present invention into practice, the several members upon which the several lines of types are to be made and including the connecting base portion may have a height corresponding to the type height of the form, or such structure may be of a less height, since the present improvement relates more particularly to mechanism for making types in succession upon successively isolated blanks for the purpose of producing a series of connected lines of types or typebars. In the production of a typographic form such as the present mechanism is adapted to make the form-blank will therefore have the proper thickness, and the width thereof corresponds ordinarily to the uniform length of the respective lines of types to be formed. Its length is such as desired or convenient; for instance, its length may be equal to the length, more or less, of the column of matter to be composed.

The component or line blanks and the type bars made therefrom are designated in a general way by x herein, and are shown connected with each other by means of a base portion each blank being beveled, in this instance, see x' , along each side of its upper edge, in order to produce the proper spacing between the successive lines, since in the typographic form herein illustrated contiguous type-bars are in contact with each other. Each blank x is also herein illustrated as in my application referred to, as having a recess

x'' upon each of its side faces in order to reduce the bearing contact between the type-bars or lines of types.

The several operative parts of the mechanism, may be mounted in any proper framework, such as that indicated in a general way by B. In the simple species of mechanism illustrated herein for the production of a series of types disposed along the edge of a blank I have shown orbitally movable rotatable carriers supporting type dies, although it will be understood that dies mounted and operating in the manner to be described are chosen merely for the purpose of illustrating a simple type making mechanism, variously mounted and operating dies being suitable for employment for like purposes to the dies herein indicated. In the present organization these type die carriers are mounted upon a rotary member or turret designated in a general way by T, whose shaft 4 is in this instance journaled for rotation in an upright 2 erected upon the main frame B. In the construction shown the turret comprises a head t elongated axially of the turret and journaled in a corresponding bearing provided in an upright $2'$ on the main frame. In this instance the turret carries two shafts 3, 3 upon which are mounted die carriers such as w supporting type dies d , the shafts being journaled in the head t and in arms t' , t' extending from shaft 4. The turret is driven by some proper means, for instance by a pulley wheel $4'$, over which runs a belt or band, actuated from some source of power, not shown.

For the purpose of bringing the dies d upon the respective die carriers selectively into operative engagement with the blank at the type making point of the machine, mechanism is herein shown operating substantially like that disclosed in my Patent No. 403,216, granted May 14, 1889, to which reference may be had for a more detailed description. As in the construction set forth in that patent, each of the present shafts 3 also carries a suitable starting arm, such as s , for the purpose of inaugurating the angular movement of the respective shafts and hence effecting the rotary movement of the die carrier upon which the selected die is mounted. I may make use of the usual starting latches, which in this instance are shown as of simple construction and being designated herein by 1. The latches are disposed in different planes axially of the turret corresponding to the planes of rotation of the respective starting arms, and upon its release a latch will be thrown by a spring into the path of its starting arm thereby starting the rotation of shaft and being re-set or returned to its normal position by the engaging starting arm substantially in the manner described in said patent. As many of these spring

pressed latches may be used as there are type dies on the die carriers or wheels. Two sets of latches comprising nine latches in each set are herein shown. In the illustrated construction, the angular movement of each shaft and hence of the die carrier thereon is initiated the engagement of the starting arm on the shaft with a projected latch and the turret rotation is continued subsequent to the disengagement of the starting arm from the latch by means of a gear wheel mounted upon the shaft and caused to engage with a driving gear by reason of the aforesaid initial rotary motion. In detail, this mechanism comprises a sleeve 6 mounted upon each shaft in such a way as to compel the latter to rotate with it when the sleeve is rotated and adapted to move lengthwise of the shaft in order to engage the shaft actuating pinion with and disengage it from a proper driving gear. Such pinion for each shaft is designated herein by 7 the same being attached to its respective sleeve 6, which in this instance, slidably engages a key $7'$ extending from the shaft. The driving gear for rotating both pinions 7, 7 is designated by 8, and is in the nature of an internal driving gear rigidly secured to the upright $2'$. Normally, that is during the rotation of the turret and while no type is being made both pinions 7, 7 are situated to one side of the plane of the internal driving gear but upon the engagement of a starting arm with a projected latch, an actuator or cam arm 9 extending from the sleeve 6 of the actuated shaft and which in this instance, is represented as of a resilient construction is brought into engagement with a cam face $10'$ of a cam 10 rigidly fixed to the body portion of the internal driving gear 7. The position of this cam arm 9 is such that having once been brought into engagement with its coöperative cam face further rotation on the actuated shaft and hence of the members mounted thereon causes the said cam arm to ride up the cam face $10'$ and by this means effect the shifting of the pinion 7 laterally along the shaft upon which it is mounted until the pinion is brought into engagement with the driving gear. Such engagement having taken place, the continued rotation of the turret will plainly cause the continued rotation of the die carrier mounted upon the rotating and revolving shaft. It will be understood by reference to my mentioned patent that the latch selected and projected into the path of the starting arm is so related to the type dies mounted upon the die carrier that when the carrier comes into juxtaposition with a blank located at the type making portion of the machine, the die which is coördinated with the selected latch will have assumed a proper position to form a type upon such blank by rolling over the edge thereof. Some time after the working

die shall have passed the type making point of the machine, a second actuator or cam arm 11 attached to the sleeve 6 of the rotating and revolving shaft will be brought into engagement with a retracting cam face 12' upon a relatively fixed cam 12, secured in this instance to the upright 2, and as the turret continues its rotary movement, the cam arm will ride up said cam and withdraw the pinion from engagement with the driving gear 7. The pinion, the shaft, and the die carrier mounted thereon will thereupon assume their normal rotary positions, this action being preferably assisted by some suitable device such as a precisionizing brake or brake detent, consisting in this instance of a shoe 13 mounted for movement in the turret head and pressed by a spring 13' against the shaft. A flattened portion or face *v* is provided upon this latter, with which the shoe is adapted to engage and precisionize the position of the shaft upon the release of the pinion from the driving gear with the shoe in contact with such face. Preferably some means will be provided for definitely locating each sleeve 6 in the two positions each is adapted to assume axially of its shaft 3 and corresponding to the engaged and released position of the pinion. The means for this purpose shown herein, comprises a spring detent finger 14, (one for each sleeve), extending from the turret and carrying a pawl shaped detent 14' at its outer end adapted to engage with either one of a pair of correspondingly shaped grooves 14'' and 14''' formed in the periphery of the sleeve 6. Although the action of this detent when engaged with either one of the aforesaid grooves is such as to hold the sleeve in either one of its two positions, when however sufficient force is applied to axially shift the sleeve, as aforesaid, such detent readily rides up out of its groove and by its *V* shape form assists in the final positioning of the sleeve in either one or the other of its extreme positions, as it snaps into the groove alining with it.

The form blank, upon each member *x* of which in succession, the successive selective types are to be formed, is supported upon a carriage located contiguous to the type making point of the machine and in order that each individual blank may be separated from its adjacent blanks on each side and the successively located type dies thereby permitted to freely roll across its edge transversely to the line of its length (such being the mode of operation according to which the present mechanism forms types) the carriage *C* is in this instance formed with a supporting bed whose opposite sides incline in different directions on opposite sides of the type making point. This carriage is designated in a general way by *E*, having angularly disposed supporting faces, the oppositely inclined faces

of the supporting bed being designated by 15, 15' and each being of sufficient length to suitably support the series of blanks, as the bent form-blank is shifted step by step past the type making point. Where said faces meet the edge may be flattened off as at 15'', and which face 15'' will constitute the support for that portion or particular member *x* which is at the working position. The face 15'' is angularly disposed to the faces 15—15' and will tend to separate the member *x* which is to be worked upon from the adjacent members supported on the respective faces 15—15'. Side flanges 15' are also provided between which the form is guided.

I have provided in the present machine, mechanism for also imparting a step by step movement to the carriage *C*, in order to enable each type to be formed in its proper place upon the edge of the blank under the dies selectively brought to the type making point and the illustrated mechanism for imparting such step by step movement is of a construction enabling the magnitude or extent of these movements to be varied corresponding with the width of the types successively to be produced. For the accomplishment of this step by step motion of the blank, the carriage *C* is here so mounted as to be slidable in the direction of the length of the blank which is being operated upon. As shown, the carriage is formed with proper guides and guide ways 16 engaging with correspondingly formed guides and guide ways, which are in this instance formed in the base plate of the machine, motion being imparted to the carriage by means of a screw 17, journaled in bearings 17' and 17'' and engaging with a nut 18 formed in an arm 18' depending from the carriage. This feed is shown arranged for feeding the blank in a line parallel with the meeting line of the supporting faces 15—15'. And it will also be seen that the shafts 33 are disposed parallel with such meeting line.

In the organization herein indicated the motion imparted to the carriage is under the control of the selected die, which is caused by means of the projection of the proper latch to roll over the edge of the blank at the type making point, thus enabling the extent of the feed movement imparted to the carriage to be varied to correspond with the width of the die selected. Each die carrier is therefore coördinated with a number of members or faces, each adapted to effect the movement through intervening mechanism of the carriage *C*, during the movement of the selected die. Such relative feed movement of the die carrier and the blank may take place either before or after a die has done its work. The construction in this instance is such that the feed occurs during the advance of the selected die to the working or type making point. These feed faces designated by 19, 130

are herein shown as constituted by the bottoms of recesses, which are conveniently made in the radial face of each pinion 7, and to enable such feed faces to regulate the step
 5 by step movements of the blank, they are shown of different radial depths. As an engaging pinion 7 rolls around the surface of the driving gear 8, a recess 19 corresponding to that die which will ultimately roll over the
 10 blank at the working point, is brought into engagement with a pin 20' extending from an arm 20, pivoted to a rock arm 20'' fixed to a rock shaft 21. The normal position of this rock shaft is determined by a spring 21',
 15 which tends to turn the shaft and bring a stop pin 22 thereon in contact with a stop 23, projecting from a fixed portion of the machine. As the die carrier continues its revolving and rotating movement with the pin
 20 in the recess, the pin is carried outward and through the described connection, the rock shaft 21 is rocked in its bearings until the arm 20 is deflected from its position relatively to the rock arm 20'' and the pinion
 25 leaves the pin 20'. In order to insure the correct normal positioning of the arm 20 with the pin 20' in the path of the die next selected I have indicated a spring finger 24, extending from such arm, and located be-
 30 tween stops 25, 25'. As the result of the action of the spring 21' and the spring finger 24, the rock shaft 21 and the parts mounted thereon are caused to assume their proper relative positions and cooperate with a recess
 35 on a die carrier, when the same is next set in rotation.

An intermittent rotary movement is in this case imparted to a shaft 26, mounted in bearings in the base of the upright 2' and in
 40 the frame 2'' supporting the latches through a pawl and ratchet mechanism from the shaft 21. The transmitting mechanism herein shown embodies a link 27, pivoted at one end of an arm 28, extending from the lat-
 45 ter shaft and at the other end to a pawl carrier 29 supporting a spring pressed pawl 30, engaging with a ratchet wheel 31, secured to the shaft 26; a hand lever 32 may also be provided to enable the shaft 26 to be rocked
 50 axially when desired. From this shaft 26, motion is transmitted to the feed screw 17 through engaging gears 33, 33' and 33'', shown at the left in Fig. 2. Means are also preferably provided for holding that blank
 55 which is being operated upon rigidly in position, during the rolling over the edge thereof, of the successively selected dies. As herein shown, this means embodies a pair of fixed guides 34, 34 separated by an intervening
 60 space of a width substantially equal to the thickness of the blank. These guides extend from a fixed part of the machine and in the direction of movement imparted to the carriage C by the feed screw 17, and during
 65 the movement of the carriage the blank in

line with the type making point slides between them being thereby held firmly on both sides.

When types are made in the manner in which the present dies operate to form types 70 I will usually employ a proper space forming die for depressing portions of the edge of the blank corresponding to the word separating spaces.

A machine constructed and organized as 75 illustrated and hereinbefore described, operates substantially in the following manner: Assuming the turret T to be in rotation from a suitable source of power and that a form-
 blank of the construction described and indi- 80 cated has been placed upon the oppositely inclined faces of the carriage C with that blank which is to be operated upon at the apex of the angle formed by the side faces, the hand lever 32 may be manipulated to 85 preliminarily adjust the isolated blank into the plane of the dies on the die carriers. At this time, the latch 1 may be operated corresponding to the type it is desired to make upon the edge of the blank. The latch hav- 90 ing thus been projected inwardly the starting arm s located in the plane of the series to which the actuating latch belongs, will engage therewith, and a slight angular movement of the shaft 3 from which the starting 95 arm extends, will ensue as the turret continues its rotary movement. This angular motion continues as the result of the action of the cam arm 9, cam face 10' and of the pinion 7 caused to engage with the gear 8, as 100 already described. Before the die to which the projected latch is related reaches the working point, however, the recess 19 in the radial face of the rotating and revolving pin- 105 ion 7, and which forms a feed face, will be brought into engagement with the pin 20', and the rock shaft 21 will be rocked in its bearings causing the angular movement of the shaft 26 and through the intervening 110 mechanism, the feed movement of the carriage C, this latter shifting lengthwise of its guides into a position in which the proper portion of the edge of the blank is brought under the die. The extent of this movement is determined by the throw of the rock arm 115 20'', which in turn is determined, it will be readily understood by the radial depth of the recess in the face of the pinion. As the given die nears its working position it will approach the edge of the blank along a path 120 corresponding to that adjacent to the cusp of a cycloid. As the die leaves the blank after rolling over the same, it will describe the second or following branch of the cycloidal curve adjacent to such cusp, and at 125 some time subsequent to the disengagement of the die from the blank, the cam arm 11 will by reason of the continued movement of the parts be brought into engagement with the face 12' of the cam 12, whereupon the 130

sleeve 6 and hence the pinion 7 attached thereto will be shifted in the opposite direction, and the latter disengaged from the driving gear 8. The rotary motion of the shaft 3 about its axis is now free to be checked, a result which follows from the performance by the shoe 13 of its function as a precisioning brake, with the shaft in its normal rotarial position, the detent portion 14' carried by the finger 14 being simultaneously shifted from one groove to the other as readily understood. Such substantially is the operation of the various features embodied in the illustrated mechanism, the action being repeated at each actuation of a latch, while the amount to which the blank moves varies with the particular die chosen, in the event that this is desired and there is an existing variation in the depth of the feed recesses as described. A succession of types to form printing members composed of words and word separating spaces, may be thus formed along the edge of each blank. The surplus material shifted laterally from its normal position in the edge may subsequently be trimmed off, although if the upper edge of the blank is beveled as indicated on the blank represented, it may not, under such circumstances be necessary, as the material so removed leaves a slight space to be occupied by such surplus material. After one bar is completed the form may be shifted over the angular portion of the supporting bed, and properly bent at the line to locate the next blank in the plane of the working point and in a position adapting the same to slide through the guide slot between the side guides 34, 34.

Having described my invention, I claim—

1. The combination with a blank support having angularly disposed supporting faces, of means for imparting an intermittent motion to a blank thereon transversely of its length.

2. The combination with a blank support having angularly disposed supporting faces, of means for imparting a variable intermittent motion to a blank thereon in a line parallel with the meeting line of said faces.

3. The combination with a blank support having angularly disposed supporting faces, of means comprising an actuator adapted to engage with said support for imparting an intermittent transverse motion to a blank thereon.

4. The combination with a blank support having angularly disposed supporting faces, of means comprising an actuator adapted to engage with such support for imparting a variable intermittent motion to a blank thereon in a line parallel with the meeting line of said faces.

5. The combination with a blank support having angularly disposed supporting faces, of selective dies, and means for feeding a

blank on such support to bring successive portions of the edge thereof into coöperative relation with the successively selected dies in a line parallel with the meeting line of said faces.

6. The combination with a blank support having angularly disposed supporting faces, of a plurality of selective dies, and means for feeding a blank on such support variable distances in a line parallel with the meeting line of said faces to bring successive portions of the edge of the blank into coöperative relation with successively selected dies.

7. The combination with a support, having angularly disposed supporting faces, of a plurality of selective dies and means coördinated with such dies for controlling the feed of a blank of such support to bring successive portions of the edge thereof into coöperative relation with the successively selected dies.

8. The combination with a support, having angularly disposed supporting faces for a blank of a plurality of selective dies and means coördinated with such dies for controlling the feed of a blank on such support variable distances to bring successive portions of the edge thereof in coöperative relation with the successively selected dies.

9. The combination with a support comprising angularly disposed supporting faces for a blank constituting a form, of an actuator and means embodying a pawl and ratchet device for imparting a step by step movement to such support crosswise of the contemplated form.

10. The combination with a support comprising angularly disposed supporting faces for a blank, of a plurality of selective dies, an actuator and feed mechanism embodying a pawl and ratchet device for bringing successive portions of the edge of the blank under the successively selected dies.

11. The combination with a support comprising angularly disposed supporting faces for a blank, of a plurality of selective dies, means for feeding a blank on such support to bring successive portions of the edge thereof into coöperative relation with the successively selected dies and feed faces for controlling the amounts of such feed movements.

12. The combination with a support comprising angularly disposed supporting faces for a blank of a plurality of selective dies, an actuator engaging with such support, a series of feed faces, a rock-shaft, an arm supported therefrom and a projection of the arm adapted to engage with the feed faces upon the selection and movement of a die.

13. The combination with a support comprising angularly disposed supporting faces for a blank, of a plurality of selective dies, an actuator engaging with such support, a series of feed faces, a rock-shaft, a rock-lever extending from the rock-shaft, an arm car-

ried by the rock-lever and a projection from the arm adapted to engage with a feed face upon the selection and movement of a die.

14. The combination with a support comprising angularly disposed supporting faces for a blank, of selective mechanism, a die carrier, dies supported upon the carrier, means for bringing the selected dies to the working point, an actuator, and means interposed between the die carrier and the actuator for imparting a movement to the actuator upon the selection and movement of a die.

15. In a type making mechanism, the combination with a plurality of selective dies and means for conveying the same to the type making point, of a support having opposed faces extending in different directions from the working point, a form-blank bent over such support and comprising a series of individual blanks connected at their bases and means for feeding the blanks and imparting a step by step movement thereto during the operation of making types of their edges.

16. The combination with a support, the planes of whose supporting faces are so disposed as to cause the isolation of the type-making edge of an individual blank of a typographic form-blank from the other individual blanks, of means for steadying the isolated type-making edge of the blank during the type-making operation, a plurality of selective dies, and means for selecting and locating the dies at the printing point.

17. The combination with a support, the planes of whose supporting faces are so disposed as to cause the isolation of the type-making edge of an individual blank of a typographic form-blank from the other individual blanks, of means for steadying the isolated type-making edge of the blank during the type-making operation, a plurality of selective dies, means for selecting and locating the dies at the printing point, and a carriage on which the support is mounted.

18. The combination with a support, the planes of whose supporting faces are so disposed as to cause the isolation of the type-making edge of an individual blank, of a typographic form-blank from the other individual blanks, of means for steadying the isolated type-making edge of the blank during the type-making operation, a plurality of selective dies, means for selecting and locating the dies at the printing point, a carriage on which the support is mounted, and a line space feed mechanism for imparting an intermittent feed movement to the carriage.

19. The combination with a support, the planes of whose supporting faces are so disposed as to cause the isolation of the type-making edge of an individual blank, of a typographic form-blank from the other individual blanks, of means for steadying the isolated type-making edge of the blank dur-

ing the type-making operation, a plurality of selective dies, means for selecting and locating the dies at the printing point, a carriage on which the support is mounted, a series of feed faces, and feed mechanism adapted to cooperate with said feed faces and thereby impart a feed movement to the carriage in consonance with the line space values of the dies.

20. The combination with a support, the planes of whose supporting faces are so disposed as to cause the isolation of the type making edge of an individual blank of the typographic form-blank from the other individual blanks, of means for steadying the isolated type-making edge of the blank during the type-making operation, a plurality of selective dies, means for selecting and locating the dies at the printing point, a carriage on which the support is mounted, a feed screw, gearing for rotating the same, feed faces moving in unison with the dies, and a lever adapted to cooperate with a feed face upon the selection of a die and thereby actuate said gearing.

21. The combination of a shiftable angular support, type-making mechanism and mechanism for shifting a blank on the support out from under the dies comprised in the type-making mechanism, and another blank into cooperative relation with the dies.

22. The combination with a support comprising angularly disposed supporting faces for a typebar blank constituting a form, of an actuator and means embodying a pawl and ratchet device for imparting a step by step movement to such support crosswise of the contemplated form, and means to support the type-making edge of the blank.

23. The combination with a support the planes of whose supporting faces are so disposed as to cause the isolation of the type-making edge of an individual blank of a typographic form-blank from the other individuals, of dies to form type thereon; a carriage on which the support is mounted; means to actuate the carriage to shift the isolated blank to present various portions of its length at the working point of the dies; and a stationary support for the said isolated blank adjacent to such working point and through which the blank may pass at the shifting of the carriage.

24. The combination with an orbitally movable impression device, of a blank support having angularly disposed supporting faces connected by a narrow supporting face angularly disposed relatively to both of these and occupying a position parallel with the axis of the orbit of said impression device.

25. The combination with a blank support having angularly disposed supporting faces for the portions of the blank which are not being worked upon, and a supporting face

connecting these and angularly disposed to the same for supporting the portion of the blank at the working position.

26. In a type making mechanism, the combination with a blank support having angularly disposed supporting faces for the portion of a form blank which is not being worked upon, and a supporting face connecting these and angularly disposed relative to the same and disposed adjacent to the working position of the type making mechanism for supporting that portion of the blank which is to be worked upon.

27. In a type making mechanism, the combination with a type making instrumentality movable in a definite path, a blank support having angularly disposed supporting faces connected by a narrow supporting face angularly disposed relative to these, a form blank bent over such support comprising a series of individual blanks connected at their bases, and means for imparting working movement to said instrumentality transversely of such narrow supporting face.

28. In a type making mechanism, the

combination with a type making instrumentality movable in a definite path, a blank support having angularly disposed supporting faces connected by a narrow supporting face angularly disposed relative to these, a form blank bent over such support comprising a series of individual blanks connected at their bases, means for imparting working movement to said instrumentality transversely of such narrow supporting face, and a feed movement for shifting the supports in a line parallel with said narrow supporting face.

29. The combination with a blank support having angularly disposed supporting faces, guides for supporting the sides of a type blank member while this is moving in a line parallel with the meeting line of said faces, means for moving the blank in such parallel line, and a series of type making instrumentalities selectively operative transversely of said parallel line.

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Witnesses:

JOHN O. SEIFERT,
FRED. J. DOLE.