

(No Model.)

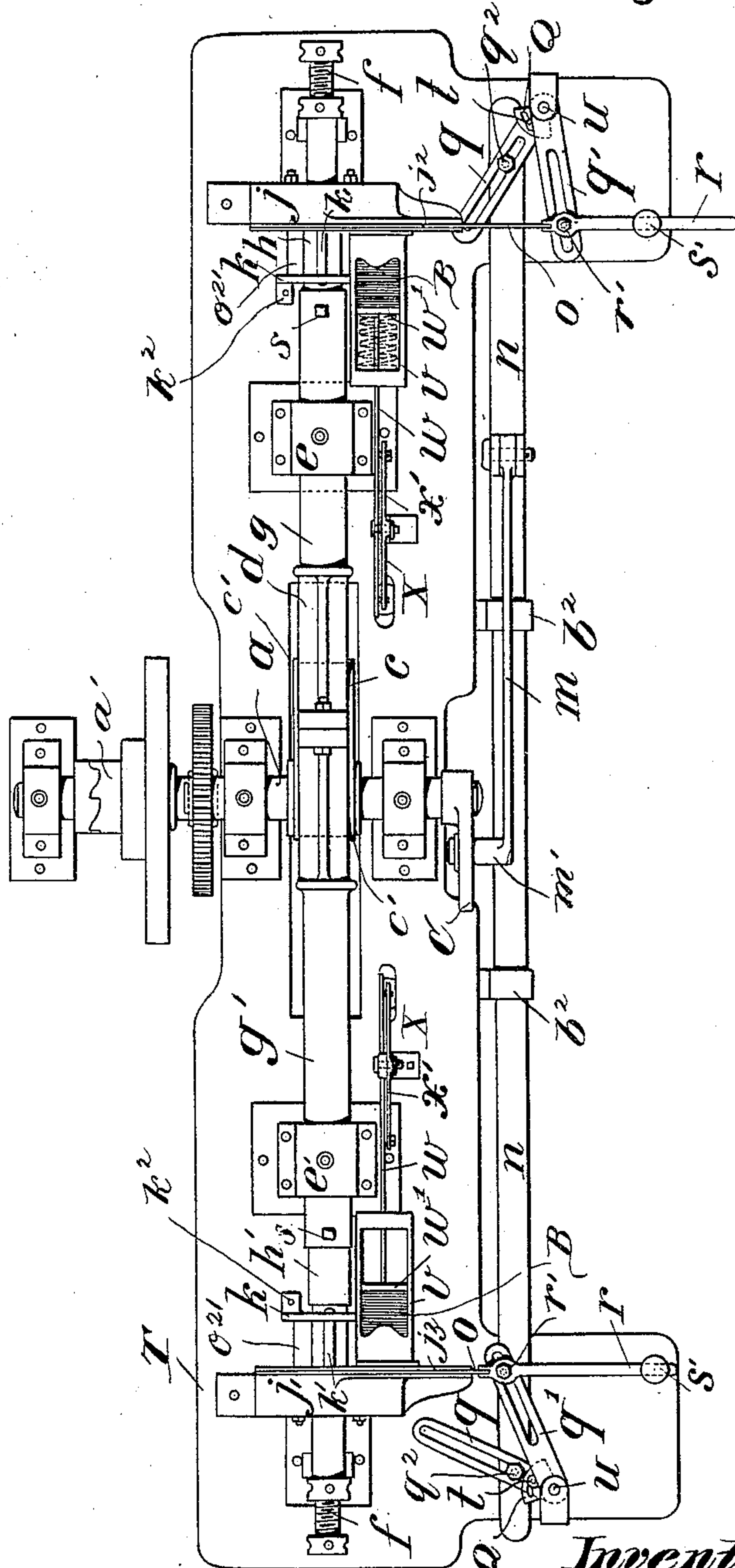
3 Sheets—Sheet 1.

K. RICHTER.
MACHINE FOR MAKING BOXES.

No. 434,526.

Patented Aug. 19, 1890.

Fig. 1.



Witnesses:

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J. Thomson Cross

Inventor:

Karl Richter,
per J. M. M.
Atty's:

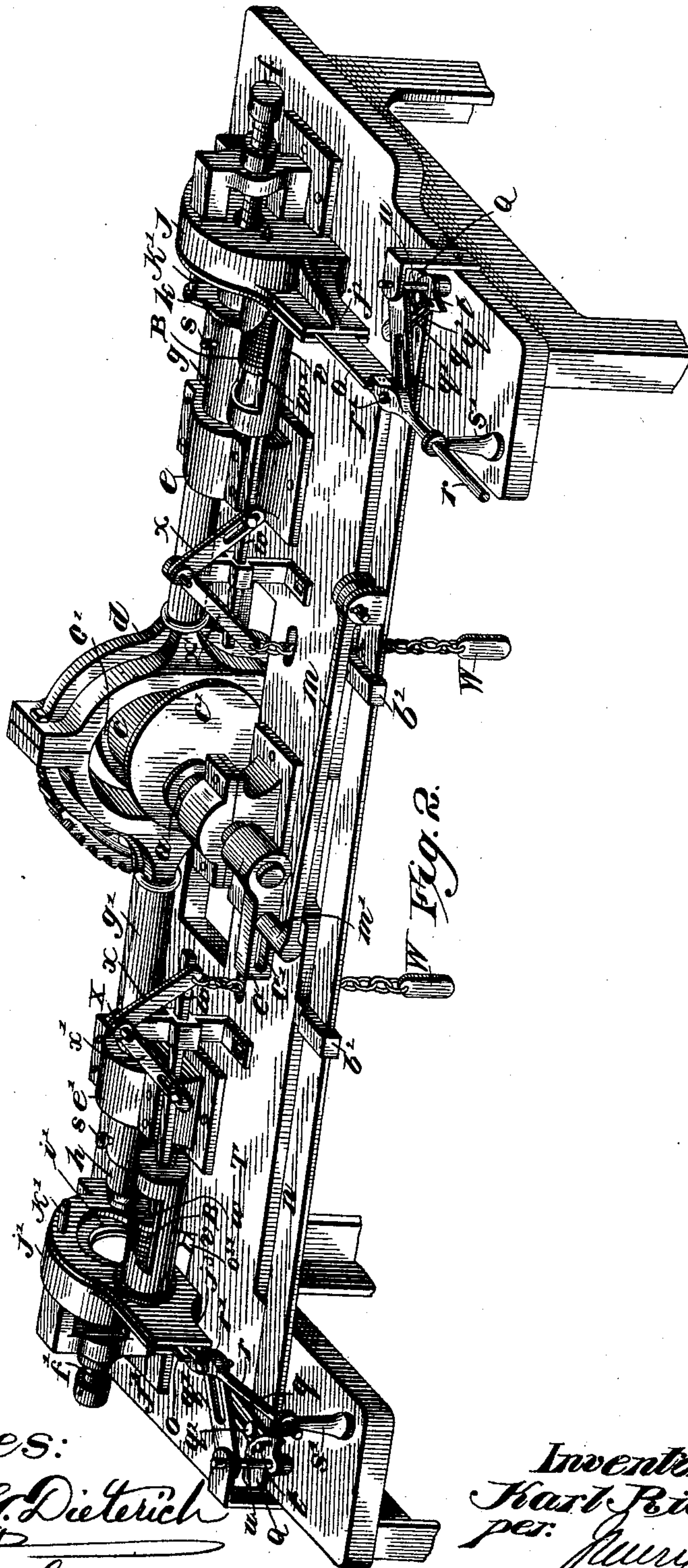
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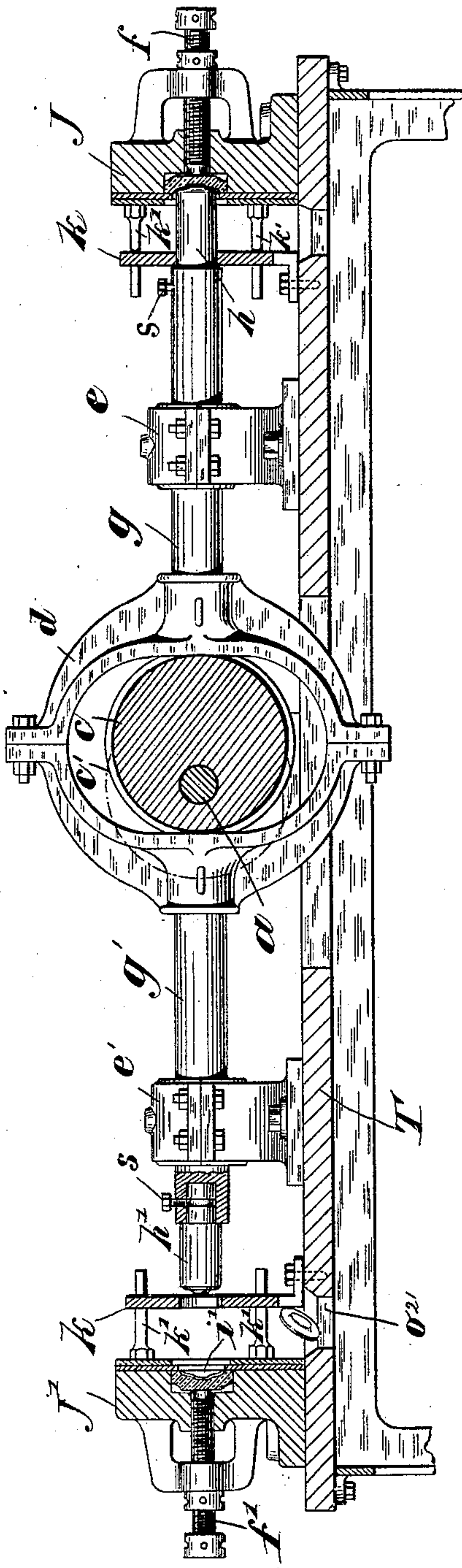
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Fig. 3.



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UNITED STATES PATENT OFFICE.

KARL RICHTER, OF HERNALS, NEAR VIENNA, AUSTRIA-HUNGARY, ASSIGNOR
OF TWO-THIRDS TO LÖWIT & CO., OF SAME PLACE.

MACHINE FOR MAKING BOXES.

SPECIFICATION forming part of Letters Patent No. 434,526, dated August 19, 1890.

Application filed January 10, 1890. Serial No. 336,600. (No model.)

To all whom it may concern:

Be it known that I, KARL RICHTER, a subject of the Emperor of Austria, residing at Hernal, near Vienna, in the Province of Lower Austria, in the Empire of Austria-Hungary, have invented certain new and useful Improvements in Machines for Making Boxes and the Like; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

Referring to the drawings, Figure 1 is a top plan view, and Fig. 2 is a perspective view, of a machine embodying my invention, which relates to that class of machines especially designed for the manufacture of plates or dishes from blanks of tin or other suitable material, but which by a substitution of proper dies may be employed for the production or manufacture of other articles, the stripper-plate on the left of the machine being removed, and Fig. 3 is a longitudinal sectional elevation of the machine.

The object of the invention is to provide means for rapidly and economically making articles of the class referred to, and in simplifying the construction of the operative devices; and to these ends the invention consists in structural features and combinations of co-operative elements, as will now be fully described.

In the drawings, a' indicates the driving-shaft that is suitably geared to the driven or operative shaft a . The latter shaft carries an eccentric c , that has guide-flanges c' at each end formed on its edges and works in the oblong aperture or eye of an eccentric-strap d . To the eccentric-strap d are connected two die-carriers or plunger-rods g and g' , that are guided in their reciprocating movements imparted thereto by the eccentric through the medium of the strap in bearings e and e' , respectively.

Instead of securing the die-carrier rods to the eccentric-strap d they may form an in-

tegral part thereof, which construction is preferred. Each rod carries a male die h and h' , detachably secured thereto by means of a set-screw s , so that the dies may be readily removed, and others of different dimensions or form substituted. These male dies co-operate with female dies i i' , of which one is shown in Fig. 2, said dies i i' being secured in holders or housings j and j' , and adapted to be adjusted therein by means of set-screws f and f' . These female dies i i' are also detachably connected with their holders so as to adapt them for removal and substitution of others therefor. The die-holders j and j' are each provided with a slotted lateral extension j^2 and j^3 , respectively, in the slot of which operates a feed-slide o , rigidly connected with a guide-rod r , that is guided in its reciprocating movements in a bearing formed in the end of a standard s' . In the front face of the lateral extension or arm of the die-holders is formed an aperture, in which is fitted a cylinder v , that is partly open at top for the ready insertion of the blanks B . The said blanks are fed into the feed-slot through the opening in the front face of the lateral extension of the female-die holders j and j' by means of a piston w' , the rod w whereof is connected to one arm x' of a bell-crank lever X , said arm being slotted and connected to the piston-rod by means of a bolt and nut. From the arm x of the bell-crank lever X is suspended a weight W , that keeps the piston in contact with the blanks B , and feeds the same into the feed-slot as they are displaced by the feed-slide o .

A reciprocating motion is imparted to the feed-slide through the medium of a crank C on shaft a , the arm of which has a longitudinal slot C' , into which extends an arm m' of a connecting-rod m that is pivoted upon a slide-bar n . The slide-bar n is guided in its movements in suitable brackets b^2 , and its opposite ends are connected, by means of a nut and bolt q^2 with the radial arm q of a segment rigidly secured to a spindle u , that rocks in suitable bearings, the bolt q^2 passing freely through a slot in said radial arm q . The segments Q are provided with a segmental slot by means of which and a bolt

and nut *t* the radial arm *q* is secured to the segment, and by means of which the relative position of the arm *q* is adjusted in order to properly time the movements thereof. To the upper end of spindle *u* is secured a slot-
 5 ted arm *q'*, into the slot of which extends a pin or bolt *r'*, projecting from the under side of the guide-rod *r*. From the front face of the female-die holders *j* and *j'*, and centrally
 10 above the die-seat—a like pin being secured to the die-holder below the die-seat out of the way of the opening in the table through which the stamped article falls—projects a
 15 pin *k'*. On these pins *k'* is loosely mounted a stripper-plate *k*, provided with an opening for the passage of the male-die carrier or rod *g* or *g'*, so that as the said rods recede from the female die the finished article carried
 20 along therewith is stripped off and falls through a suitable opening *o*²¹ in the table of the frame into a receptacle or to the floor. The stripper-plates *k* are centered on the pins
 25 *k'*, on which they slide freely and are detachably and adjustably secured to the table *T*, on which the operative devices are mounted. To this end the plates are provided with a
 30 foot *k*², through which passes a set bolt or screw that also passes through a slot in the table, so that the plates *k* can be adjusted toward or from the female dies within certain
 35 limits. By this means stripper-plates having an opening of a diameter corresponding with that of a particular die may be secured and adjusted in position when the machine
 40 is used for making articles either of different form or the dimension of which varies, the female-die holders being also detachably secured to the table *T*.

Instead of the means described for detach-
 40 ably connecting the plates *k* with and adjusting the same on the pins *k'*, the opening in the said disks or plates *k*, through which the pin *k'* passes, may be screw-threaded and the pin *k'* correspondingly threaded, thereby dis-
 45 pensing with the foot *k*² and the set bolt or screw.

The operation of the machine is as follows: The male-die carriers are so timed in their
 50 movements as that when one moves toward its female die the other recedes, and the feed-slides *o* are timed in their movements to carry a blank to the female die during the receding motion of the male-die carrier, or said
 55 feed-slides may be so timed as to feed a blank to said female die while the male die is moving toward it, so that the operation of feeding the blanks and stamping the articles is practically an uninterrupted one. The feed-
 60 cylinders being filled with blanks and the shaft *a* revolved, one of the male-die carriers—say the carrier *g'*—moves to the female die
 65 *i'*, in which a blank has previously been placed, the blank being shaped between the dies. During this movement of the die-carrier *g'* the other die-carrier *g* recedes from its female die, while the feed-slide *o*, that feeds the blank to the female-die holder *j*, advances

and carries the blank to said die through the slot or passage in its holder, said blank hav-
 70 ing been previously fed into the slot through the medium of the piston *w'*. Of course while the slide *o* is in its forward position the feed-
 75 aperture for the blanks is closed thereby and is uncovered as the slide again returns to its normal position, allowing the piston *w'* to
 80 feed another blank, the diameter of the feed-slot being such as to admit of free motion of a blank along the same under the impulse of
 85 the feed-slide *o*, so that but one blank at a time can be fed to the slot. During the re-
 90 ceding or negative motion of the carrier *g'* and the advancing or positive motion of the carrier *g*, the feed-slide for the female-die holder *j'* advances and feeds a blank to the
 95 die *i'* to be stamped to shape, when the carrier *g'* again advances, these operations taking place alternately.

It will of course be readily understood that the machine would operate just as well with
 100 a single pair of dies and actuating mechanism, and the advantages derived from the duplication of the operative elements are obvious. On the other hand, it will also be ob-
 105 vious that, instead of weighting the pistons *w'* to cause the same to exert a constant pressure upon the blanks *B*, a helical spring may
 110 be mounted on the piston-rod intermediate of the piston and outer cylinder-head, as shown in dotted lines in Fig. 1, at the right of the machine.

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

1. In a machine of the class described, the combination, with male and female die car-
 105 riers, the latter carrier being provided with an extension at right angles to its horizontal axis, the said extension having a narrow vertical slit or slot opening into the said female-
 110 die carrier and with a feed-opening in its front face communicating with said slot, of a blank-holder connected with said feed-opening, a
 115 piston for feeding the blanks to the feed-slot, a feed-slide for feeding the blanks from the slot to the female-die carrier, a revoluble shaft, and suitable intermediate connections adapt-
 120 ed to reciprocate the male-die carrier and feed-slide at right angles to each other in a horizontal plane, substantially as described.

2. In a machine of the class described, the
 120 combination, with a stationary die-holder having a lateral extension provided with a vertical feed-slot opening into said holder, the ad-
 125 justing-screw *f*, for adjusting the die within its holder, a feed-slide for feeding the blank from the slot to the holder, a blank-holder, and
 130 a feed-piston adapted to automatically feed the blanks from the blank-holder to the slot in the extension of the die-holder, of a male-die carrier, a revoluble shaft, and intermedi-
 135 ate connections adapted to impart a horizontal reciprocating motion to the male-die carrier and feed-slide at right angles to each other, substantially as described.

3. In a machine of the class described, the combination, with two stationary female-die holders arranged to face each other, of two connected male-die carriers adapted to be reciprocated between said female-die holders and to co-operate therewith in shaping the blanks, substantially as described.

4. In a machine of the class described, the combination, with two stationary female-die carriers arranged to face each other, of two male-die carriers, a revoluble shaft interposed between said carriers, an eccentric on said shaft, and an eccentric-strap connected to both male-die carriers to reciprocate the same between the female-die carrier, substantially as described.

5. In a machine of the class described, the combination, with two stationary female-die carriers arranged to face each other and having a lateral extension provided with a feed slot or passage, and a feed-slide arranged in said passage, of two male-die carriers, a revoluble shaft interposed between said carriers, an eccentric on said shaft, an eccentric-strap connected to both male-die carriers to reciprocate the same between the female-die holders, and intermediate mechanism connecting the revoluble shaft with the feed-slides and adapted to impart to them a reciprocating motion in the passage of the extensions of the stationary die-holders, substantially as described.

6. In a machine of the class described, the combination, with two stationary die-holders arranged to face each other and having a lateral extension provided with a feed slot or passage and with a feed-aperture at right angles to said passage, a blank-holder connected with said feed-aperture, a feed-piston adapted to feed the blanks to the passage in said extensions, and a feed-slide arranged in said passage, of two male-die carriers, a revoluble shaft interposed between the carriers,

an eccentric on said shaft, an eccentric-strap connected to both male-die carriers to reciprocate the same between the female-die holders, and intermediate mechanism connecting the shaft with the feed-slides and adapted to impart to them a reciprocating motion in the passage of the extensions of the stationary die-holders, substantially as described.

7. In a machine of the class described, the combination, with two stationary die-holders arranged to face each other and having a lateral extension provided with a feed slot or passage and with a feed-aperture at right angles to said passage, a blank-holder connected with said feed-aperture, a feed-piston adapted to automatically feed the blanks to the passage in said extensions, and a feed-slide arranged in said passage, of two male-die carriers, a revoluble shaft interposed between the carriers, an eccentric on said shaft, an eccentric-strap connected to both male-die carriers to reciprocate the same between the female-die holders, and intermediate mechanism connecting the shaft with the feed-slides and adapted to impart to them a reciprocating motion in the passage of the extensions of the stationary die-holders, substantially as described.

8. The combination, with the feed-slide *o*, the slotted radial arm *q'*, connected with the slide, the rock-spindle *u*, the slotted radial arm *q*, and the rocking bar *n*, of the slotted segment *Q* and the nut and bolt *t*, by means of which said radial arm *q* is adjustably secured to the segment, substantially as and for the purpose specified.

In testimony whereof I affix my signature in presence of two witnesses.

KARL RICHTER.

Witnesses:

RUDOLF VON PLANK,
JULIUS GOLDSCHMIDT.