

(No Model.)

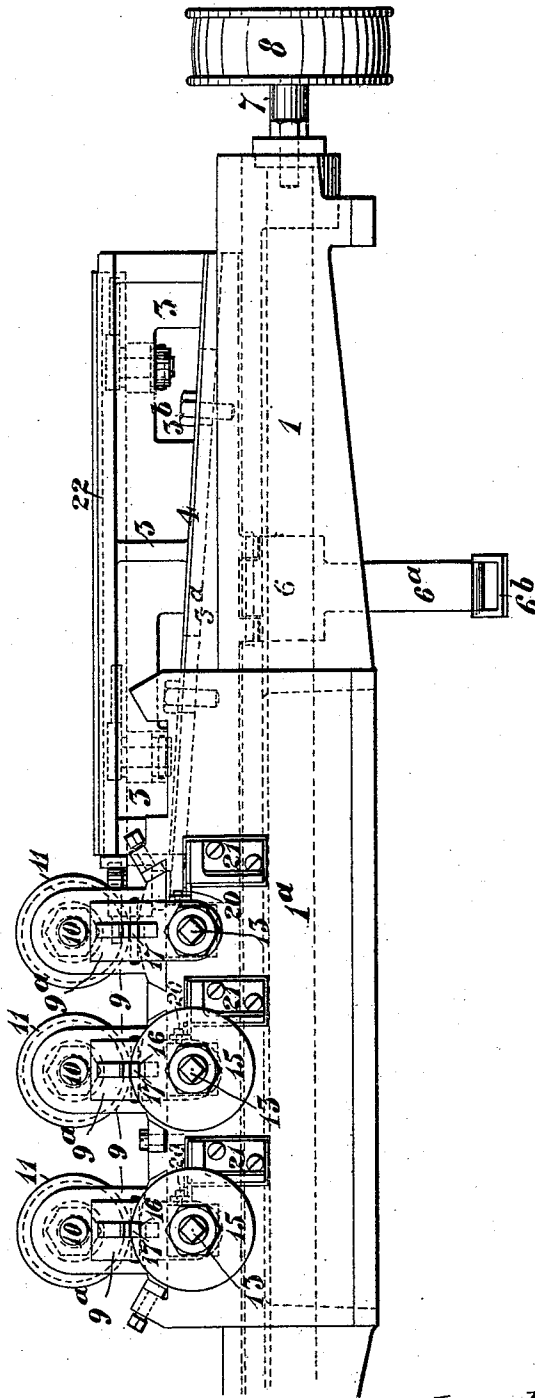
3 Sheets—Sheet 1.

J. R. TOPLISS & J. A. KAY.
MACHINE FOR NICKING PRINTING TYPE.

No. 473,271.

Patented Apr. 19, 1892.

Fig. 1.



Witnesses
C. M. Meade
H. E. Peck

Inventors
J. R. Topliss
J. A. Kay
per O. C. Duff atty

(No Model.)

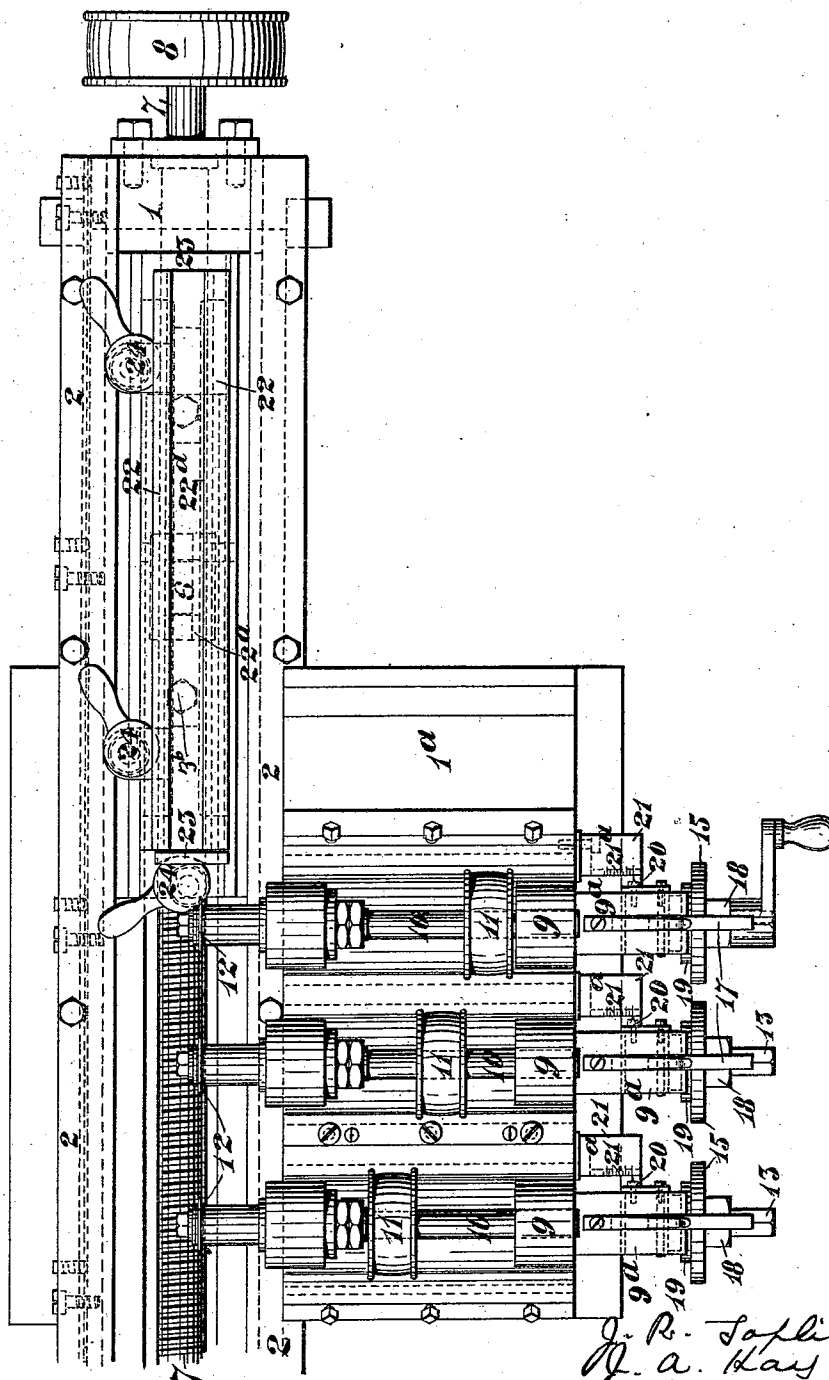
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Fig. 2.



Witnesses
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3 Sheets—Sheet 3.

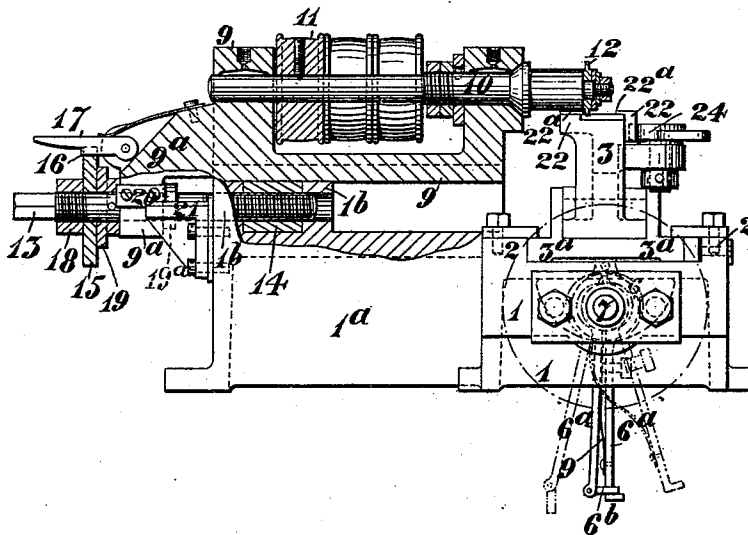
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Fig. 3.



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UNITED STATES PATENT OFFICE.

JOHN ROBERT TOPLISS AND JOSHUA ALEXANDER KAY, OF MELBOURNE,
VICTORIA.

MACHINE FOR NICKING PRINTING-TYPE.

SPECIFICATION forming part of Letters Patent No. 473,271, dated April 19, 1892.

Application filed October 24, 1890. Serial No. 369,238. (No model.) Patented in England June 28, 1890, No. 10,008.

To all whom it may concern:

Be it known that we, JOHN ROBERT TOPLISS and JOSHUA ALEXANDER KAY, subjects of the Queen of Great Britain and Ireland, both residing at Melbourne, in the Colony of Victoria, Australia, have invented Improvements in Machinery or Apparatus for Grooving or Nicking Printing-Type, (for which we have obtained Letters Patent in Great Britain, No. 10,008, dated June 28, 1890,) of which the following is a specification.

This invention has reference to the construction of machinery or apparatus by which the combinations of grooves or nicks required in printing-type, especially for type for use in automatic distributing machines or appliances, can be cut with speed and exactitude and also with the least liability of fracturing or otherwise damaging the type-characters. For this purpose one or more rotary saws or cutters (hereinafter referred to as "cutters") is or are used, each fixed upon a shaft provided with suitable driving mechanism and mounted to rotate in a frame or head-stock provided with suitable mechanism for accurately adjusting its position in a transverse direction to a bed or guide upon which a carriage, table, or carrier (hereinafter called a "carrier") for carrying the type to be cut or nicked is arranged to travel. This carrier, which is arranged to move in a longitudinal direction beneath the cutter or cutters, can be made adjustable in height and be provided with means for readily clamping thereon type to be cut or nicked, and for afterward readily unclamping the same.

In the accompanying drawings, Figure 1 is a back elevation, and Fig. 2 a plan, of part of a type grooving or nicking machine constructed according to this invention. Fig. 3 is an end elevation, partly in section, of the machine.

1 is a bed-frame formed with longitudinal guides or projections 2, between which slides a carrier 3 for carrying the type to be cut, which is placed side by side in a row, with that edge uppermost that is to be grooved or nicked. This carrier is so constructed that it can be raised or lowered according to the depth of cut required and to suit different sizes of type. For this purpose the carrier is

shown made in two parts 3^a, as shown, the under side of the upper part 3 being made inclined at 4, Fig. 1, and arranged to work up a correspondingly but reversely arranged inclined surface on the lower part 3^a, the two being normally held together by suitable means—as, for example, bolts 3^b. The carrier may be arranged to slide upon its bed by pressure directly applied to it or suitable mechanical means may be provided for causing it to reciprocate along its bed. In the example shown the carrier is provided with a nut 6, made in two parts, each pivoted to the lower part 3^a of the carriage and provided with an arm 6^a.

7 is a longitudinal screw-shaft carried by the bed-frame 1 and provided with a driving-pulley 8. By bringing the arms 6^a together the two parts of the nut can be caused to engage the screw-shaft, upon which they can be held by causing a link 6^b, hinged to one of the arms 6^a, to engage the other arm.

9 is a spring placed between the arms and adapted to press them apart and disengage the two parts of the nut from the screw-shaft when the link 6^b is turned to disengage the arms from each other.

The bed-frame 1, which may be mounted on a suitable stand, is provided on one side with a centrally-arranged transverse frame 1^a, that carries in suitable guides a number of movable head-stocks 9, in each of which rotates a spindle 10, each provided with a pulley 11 and having one end arranged to overhang the bed-frame 1 to a sufficient distance to carry a rotary cutter 12. The number of cutters employed will depend upon the number of grooves or nicks desired in any combination. In the example shown three head-stocks with cutters are used; but the transverse frame 1^a is shown as made to carry four head-stocks, the bed for the fourth being shown at the right-hand side of Fig. 2. Each head-stock is provided with an adjusting-screw 13, by means of which it is held in position and by which it can be moved backward or forward to any desired extent in a direction transverse to the bed-frame. This screw is mounted to rotate in an extension 9^a of the head-stock and to work through a fixed nut 14, carried by the transverse frame 1^a.

This nut may with advantage be of white metal cast between projecting portions 1^b on the transverse frame 1^a. Each adjusting-screw 13 is fitted with an adjustable disk 15, formed with a notch 16 (or it may be with two or more notches, recesses or holes) to receive a spring-catch 17 that is pivoted to the extension 9^a. Each catch serves to govern the turning movement of its corresponding adjusting-screw and to hold the screw and attached parts stationary when it is engaged with the disk.

18 is a nut, between which and a collar 19 the disk 15 is normally fixed, so as to be fast with the adjusting-screw. This screw is prevented from moving endwise by the collars 19 19^a, which are fast thereon and bear at opposite sides of the extension 9^a.

Each head-stock has an index-finger 20, adjacent to which is a bracket 21, having on its upper side a scale 21^a to indicate the number of turns to be given to the adjusting-screw 13 to move the head-stock to any required extent.

The row of type to be operated upon is held in position longitudinally by straight bars 22, having lips or flanges 22^a, which overlap the type and keep the same from rising. The row of type is held endwise between two strips 23 of such height as to allow clearance for the cutters. To facilitate the ready adjustment of type in position, one of the flanged side-bars 22 and one end strip 23 are made removable, and eccentric-cam levers 24 are provided pivoted to the upper part 3 of the carriage for quickly clamping and unclamping the said bar and strip.

The operation of the machine is as follows: The several nuts 18 are first turned so as to release the disks 15, and the adjusting-screws 13 are rotated to move the head-stocks toward the bed-frame 1 until all the cutters are in the same plane and overhang one end of the type to a sufficient extent. Each nut 18 is then tightened against its disk 15, care being taken that the corresponding catch 17 is in the notch 16 of its disk 15. Each rotary cutter requiring to be moved forward can now be placed in position by adjusting its head-stock by means of its screw 13, the index 20 and scale 21^a indicating how many turns of the adjusting-screw are necessary to advance the cutter sufficiently to agree with the arrangement of nicks to be cut as determined by a nicking-chart. By lifting the pivoted catch 17 out of the corresponding disk-notch 16 and giving one or more full turns to the respective adjusting-screw 13, the relative arrangement of the nicks can be varied. The carriage 3 3^a is then made to travel underneath the cutters, which then effects the nicking process. When this is done, the eccentric cam-levers 24 are turned to release the side bar 22 and end strip 23, the cut type is removed, and the carrier returned to its normal position to be refilled with type, which after being clamped up is cut by again moving the

carrier forward below the cutters, as before. When the carriage is driven by power, the split releasing-nut 6^a should be disengaged as soon as the row of type has passed from under the cutters, thus stopping the movement of the carrier but allowing of the rotation of the screw-shaft 7.

As will be obvious, instead of making the bed 3 3^a endwise movable, it may be fixed, the type to be grooved or nicked being then pushed over to its upper surface and below the cutters.

What we claim is—

1. In a machine for grooving printing-type, the combination of a bed or table, a series of rotary cutters overhanging said bed or table to groove type passed beneath them, said cutters being separately and independently adjustable transversely to the path in which the type move, so that variously-located combinations of grooves can be formed in type, as described.

2. In a machine for grooving or nicking printing-type, as set forth in the preceding claim, the combination of a movable type-carrier, a clamping device thereon adapted to hold by the ends the type to be grooved or nicked, and a rotary cutter arranged to overhang the bed along which said carrier moves and capable of adjustment in a direction transverse to said bed, substantially as hereinbefore described, for the purpose set forth.

3. In a machine for grooving or nicking printing-type, the combination of an endwise-movable type-carrier having a clamp adapted to hold by the ends the type to be grooved or nicked and two or more rotary cutters arranged to overhang the bed along which said carrier moves and each fixed upon a spindle independently adjustable in a direction transverse to said bed, said spindles being arranged parallel to each other and all at one side of said bed, substantially as herein described, for the purpose specified.

4. In a machine for grooving or nicking printing-type, the combination of a type-carriage, a bed upon which the same is capable of endwise motion, a head-stock mounted on said bed and capable of adjustment in a direction transverse to the direction in which said type-carriage moves, a rotary cutter fixed on a spindle provided with a driving-wheel and mounted to rotate in said head-stock, and mechanism for adjusting said head-stock in the direction of the axis of said spindle, substantially as herein described, for the purpose specified.

5. In a machine for grooving or nicking printing-type, the combination of a type-carriage, a bed upon which the same can travel, an adjustable head-stock, a rotary cutter carried by said head-stock and arranged to overhang the said bed, and mechanism for adjusting said head-stock and cutter in a direction transverse to the motion of said type-carriage, said mechanism comprising an adjusting-screw carried by said head-stock, so as to

be capable of rotation, but not of endwise movement in relation to said head-stock, a disk formed with a notch or hole and normally fixed to said rod, a catch connected to
 5 said head-stock and adapted to be engaged with and disengaged from said disk, and a nut carried by said bed and through which said screw is arranged to work, substantially as herein described, for the purpose specified.

10 6. In a machine for grooving or nicking printing-type, the combination of a type-carriage, a bed upon which the same can travel, a head-stock capable of movement in a direction transverse to said bed, a rotary cutter
 15 carried by said head-stock, an index carried by said head-stock, and a fixed scale arranged in proximity to said index, substantially as herein described, for the purpose specified.

7. In a machine for grooving or nicking
 20 printing-type, a type-carriage comprising a bed with raised sides that partly overlap the same, and raised ends, one of said sides and one of said ends being made removable, and eccentric clamping devices adapted to fix and
 25 release said movable side and end at will, substantially as herein described.

8. In a machine for grooving or nicking printing-type, the combination of a rotary cutter, a horizontally-adjustable head-stock
 30 for carrying said rotary cutter, a type-carriage arranged to travel below said cutter in a direction at right angles to the axis about which said cutter revolves and made in parts
 35 vertically adjustable in relation to one another, and means for reciprocating said type-carriage, substantially as herein described, for the purpose specified.

9. A machine for grooving or nicking printing-type, comprising a bed-frame provided
 40 with a transverse extension or frame, a type-carriage arranged to reciprocate along said bed-frame and capable of vertical adjustment, means, substantially as described, for operating said carriage, a series of head-stocks, each
 45 capable of adjustment in a direction transverse to that in which said carriage travels, a

series of rotary cutters arranged to overhang the bed on which said carriage travels and each fixed upon a spindle provided with a driving-pulley and carried by one of said
 50 head-stocks, and mechanism, substantially as described, for adjusting each of said head-stocks in the direction of the cutter-spindle, substantially as herein described.

10. A machine for grooving or nicking printing-type, having a vertically-adjustable bed or support for the type to be grooved or nicked, and a rotary cutter arranged to overhang said bed and capable of adjustment in the direction of its axis of rotation, substantially as
 60 herein described, for the purpose set forth.

11. In a machine for grooving printing-type, the combination of a bed or way along which the type travels, a series of independent parallel shafts extending transversely of the
 65 plane in which the type move, rotary cutters carried by said shafts over the bed, and means, substantially as described, for longitudinally and independently adjusting said shafts and holding them in the desired position
 70 transversely of the path in which the type move, as described.

12. In a type-grooving machine, the combination of a bed or way along which the type travel, a series of independently-mounted
 75 cutters overhanging said way to groove the type passed beneath them, said cutters being independently adjustable and held transversely of the plane in which the type move, for the purpose described, and indicating
 80 means to locate the position of each cutter.

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

JOHN ROBERT TOPLISS.
 JOSHUA ALEXANDER KAY.

Witnesses:

EDMUND S. SNEWIN,
 THEODORE ALLPRESS.

Both of 2 Pope's Head Alley, Cornhill, London, E. C.