

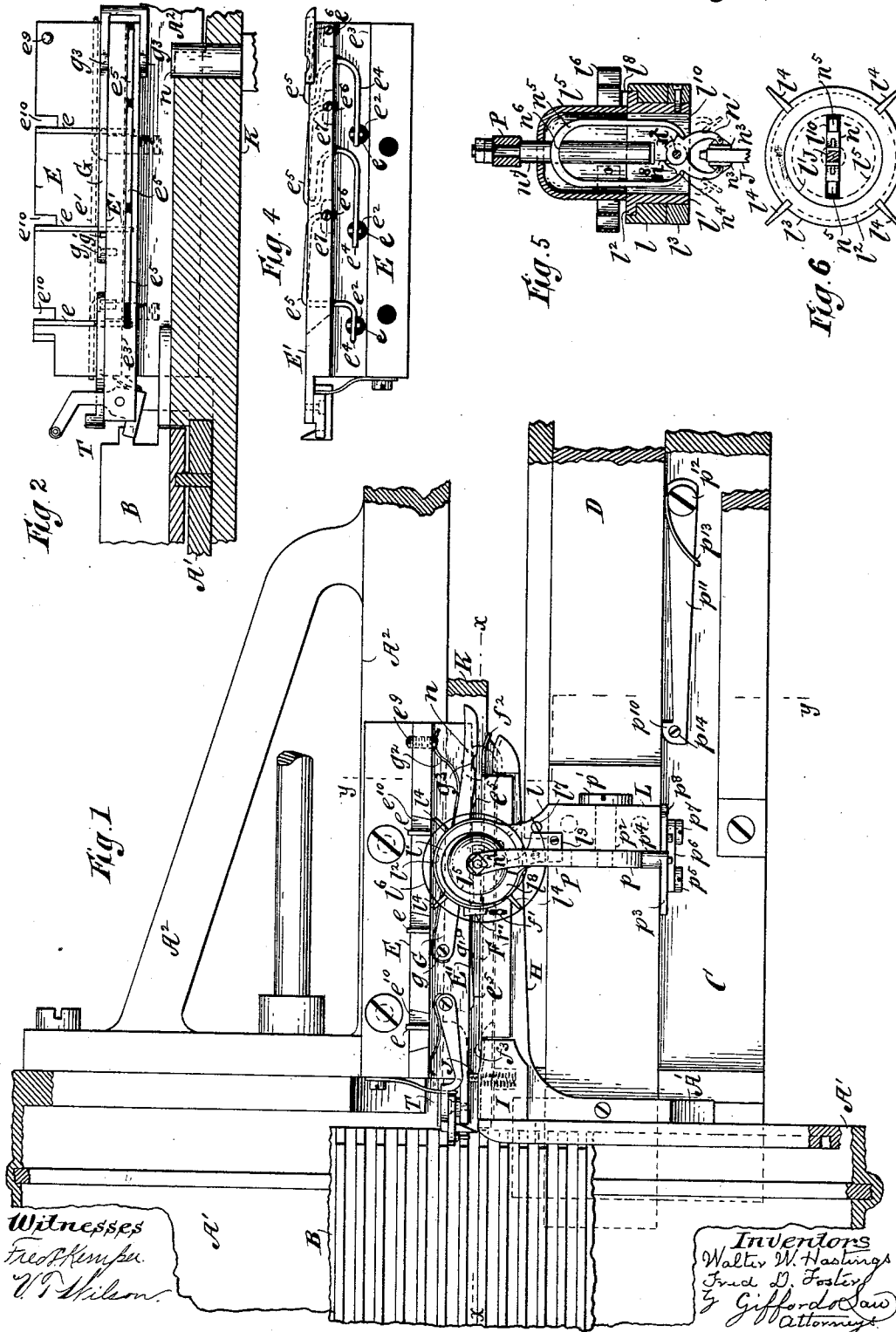
(No Model.)

2 Sheets—Sheet 1.

W. W. HASTINGS & F. D. FOSTER.
TYPE SETTING MACHINE.

No. 480,497.

Patented Aug. 9, 1892.



(No Model.)

2 Sheets—Sheet 2.

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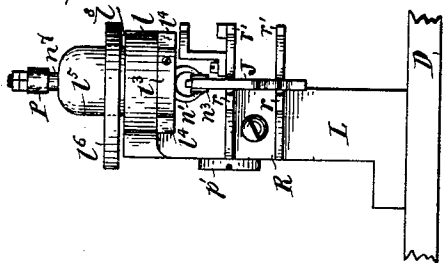


Fig. 8

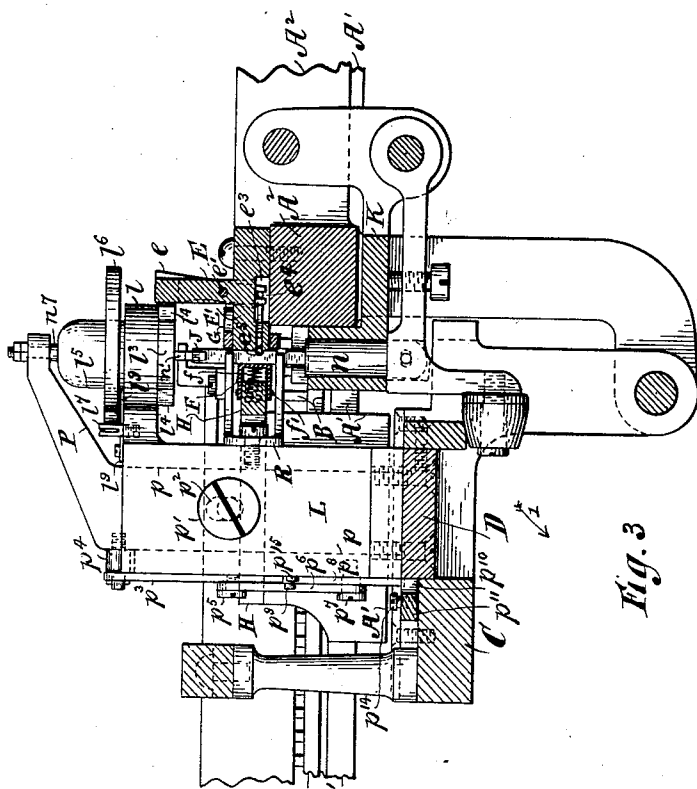


Fig. 3

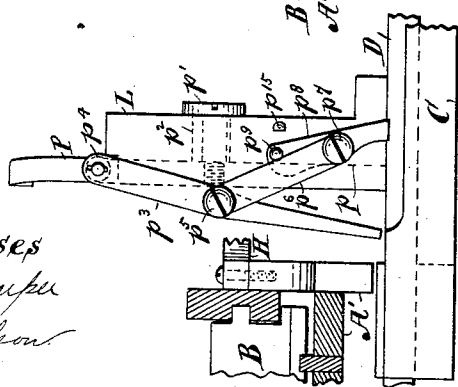


Fig. 7

Witnesses
Fred. Kemper
V. P. Wilson

Inventors.
Walter W. Hastings
Fred. D. Foster
by Gifford & Saw
Attorneys

UNITED STATES PATENT OFFICE.

WALTER W. HASTINGS, OF JERSEY CITY, NEW JERSEY, AND FRED D. FOSTER,
OF NEW YORK, N. Y., ASSIGNORS TO THE LAGERMAN TYPOTHETER COM-
PANY, OF NEW YORK, N. Y.

TYPE-SETTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 480,497, dated August 9, 1892.

Application filed December 1, 1891. Serial No. 413,740. (No model.)

To all whom it may concern:

Be it known that we, WALTER W. HASTINGS, of Jersey City, in the State of New Jersey, and FRED D. FOSTER, of the city, county, and State of New York, have invented a new and useful Improvement in Type-Setting Machines, of which the following is a specification.

This improvement relates to that class of machines shown in Letters Patent No. 362,751, dated May 10, 1887, granted to Alexander Lagerman; also, in Letters Patent No. 427,685, dated May 13, 1890, granted to John Gustafson; also, in Letters Patent No. 429,754, dated June 10, 1890, granted to Julian W. Chadwick.

In this class of machines the type, having been dropped by the compositor into a hopper, encounters two classes of mechanisms as it is conveyed to the galley, the first of which determines whether the type is inverted, and, if so, turns it right side up, and the second of which determines by the position of the nick on the type whether the type is faced in proper direction, and, if not, rotates the type upon its own axis to the extent required.

This invention relates particularly to the latter class of mechanism; and it consists principally in combining with the trippers a type-holding device upon which the trippers act to turn the type instead of acting directly upon the type itself, as in said patent to Gustafson.

In the accompanying drawings, Figure 1 is a top view of that portion of a type-setting machine which contains the improvement. Fig. 2 is a longitudinal vertical section of the same, taken at the line *x x*, Fig. 1, and showing certain parts. Fig. 3 is a transverse vertical section of the same, taken at the line *y y*, Fig. 1. Fig. 4 is an inverted plan of a detached upper portion shown in Fig. 2. Fig. 5 is a central vertical section of certain type-gripping mechanism and drawn on an enlarged scale. Fig. 6 is an inverted plan of the same. Fig. 7 is a front elevation of mechanism for opening and closing the type-gripping mechanism. Fig. 8 is a rear elevation of the gripping mechanism and other parts.

We have employed the same letters of reference as are used in the said patent of John Gustafson to designate corresponding parts.

A' A² are castings composing the stationary supporting framework of the machine.

B is the galley.

C is the swinging bed, having ways in which the reciprocating slide-bar D is supported.

K is the adjustable bed, in which works the pusher *n*.

All of the above parts are constructed and operated substantially as shown and described in the referred-to patent to Gustafson.

E is a casting secured to the frame A² and provided with notches in which are fitted the trippers *e*, fulcrumed between their ends to a rod *e'*. The lower ends of these levers extend through openings *e²* to a channel *e³* in the base of the casting and are bifurcated to receive the free ends of resilient rod-controllers *e⁴*, which extend through slots formed in a lateral extension or sill E' of the casting E. They normally project slightly in front of the face edge of the sill E' and are bent to extend along the face thereof a suitable distance in the form of ribs *e⁵*, adapted to loosely fit the nicks contained in the type. Their ends *e⁶* extend through apertures contained in solid portions of the sill and are rigidly secured therein by set-screws *e⁷*. The pusher *n* raises the type until the vertical position of its nick corresponds exactly with that of the ribs *e⁵*, after which the type is conveyed toward the galley, being lightly pressed against the sill E' by a spring-actuated plate F. Should the nicked side of the type face the sill E' when delivered on the pusher *n*, as shown in Fig. 3, the type will pass the ribs *e⁵* without disturbing them and enter the galley correctly faced. Should a smooth side of the type face the sill E' when delivered on the pusher *n*, one or more of the ribs *e⁵* will be forced back, thereby rocking their corresponding trip-levers slightly beyond the face of the casting E.

G is a lever pivoted at *g* to the sill E' and pressed against a stop-pin *g'* by a spring *g²*. Its free end is bent downwardly and backwardly beneath the sill and is provided with

grooves g^3 in line with the pusher n for receiving the type and sustaining it in a vertical position.

The plate F is provided with top and bottom side portions, which embrace an arm H, secured to the framework A'. It is pressed toward the sill E' by one or more coil-springs f , inserted in sockets contained in the arm H. f' are pins projecting from the arm H and passing through slots in the top and bottom portions of the plate F to limit its motion and prevent movement endwise thereof. The end f^2 of the plate F, together with that of the lever G, are made to flare in order to admit the type between them. The opposite end of the plate F is provided with a lip f^3 , bearing against the face of a spring-actuated plate I, similar in construction to the plate F. The type after being properly faced is delivered and sustained between this plate and the sill E until forced into the galley during the next motion of the bar D toward the same. A type J is shown in this position in Fig. 1.

L is a post secured to the reciprocating bar D and provided at its upper extremity with an arm l , in which is journaled to rotate a slotted disk l' , having a flange l^2 , resting on the arm l , and a collar l^3 , secured to its lower end, to prevent vertical motion thereof. The collar l^3 is provided with wings or blades l^4 , extending radially therefrom.

l^5 is a dome-shaped shell soldered or otherwise secured to the disk l' .

l^6 is a convolute spring having its inner end secured to the shell l^5 and its outer end to a post l^7 , secured to the arm l , and serves to rotate the shell l^5 and disk l' . The latter contains a projection l^8 , arranged to come in contact with a stop-plate l^9 and limit the motion of the disk in both directions.

The disk l' contains a slot l^{10} , in which a pair of jaws n' is pivoted on a pin n^2 , secured in the disk. The extremities of these jaws have pivotally connected thereto plates n^3 , capable of sufficient motion about their pivots to adjust themselves vertically when holding a type J. The upper portions of the jaws are provided with shoulders n^4 , with which engage the free ends of an inverted-U-shaped spring n^5 , resting in a notch n^6 , contained in a reciprocating rod n^7 . When this rod is moved upwardly, the jaws are rocked apart to a position shown in dotted outline in Fig. 5, in which position their shoulders n^4 are slightly above their center of motion, and the jaws are then retained open by the spring n^5 .

n^8 are projections arranged to meet and limit the motion of the jaws apart.

The rod n^7 is secured to an arm P, which extends from a side bar p , fitted to slide vertically in a groove contained in the post L and held therein by a screw p' passing through a slotted hole p^2 .

Vertical motion is imparted to the rod n^7 by means of a toggle device, (shown in Fig. 7,) which comprises a lever p^3 , pivotally con-

nected at p^4 to the slide-bar p , and also at p^5 to a link p^6 , which rocks on a pivot p^7 , secured to the post L.

p^8 is a tripping-lever loosely mounted on the pivot p^7 and provided with a stud p^9 to bear against the side of the link p^6 . Its lower end is adapted to engage with a hook p^{10} , formed on a lever p^{11} , pivoted at p^{12} to the frame C and pressed against the slide-bar D by a spring p^{13} .

p^{14} is a screw to adjust the vertical position of the hook portion of the lever p^{11} .

p^{15} is a stop-pin to limit the motion of the lever p^8 . As the post L approaches the framework A' the latter will cause the lever p^8 and link p' to approximately straighten in line with each other, thereby raising the slide-bar p and opening the jaws n' to release the type. The frame C is then rocked in the direction of the arrow 1, Fig. 3, sufficiently to allow the jaws n' to clear the type and be returned in an open position to engage with a succeeding type above the pusher n . The lower end of the lever p^8 will during this return motion open and engage with the hook p^{10} . The frame C is then rocked to the position shown in Fig. 3, carrying the open jaws in line with and inclosing the type. The jaws close and grip the type immediately after the commencement of their motion toward the galley by means of the lever p^8 , which is rocked on its pivot by the stationary hook p^{10} , causing the stud p^9 to rock the toggle-lever p^3 sufficient to lower the points of the spring n^5 from the shoulders n^4 of the jaws n' below their center of motion, whereupon the spring n^5 acts to close them quickly. The type is then conveyed toward the galley and will receive (should its nicked side be wrongly faced) one, two, or three quarter-turns, depending upon the position of its nicked side. This is effected by the wings l^4 , which engage with such of the tripping-levers e that are projected in their path of motion by the smooth sides of the type and cause the rotation of the disk l' against the action of the spring l^6 . The latter returns the disk to its normal position (shown in Figs. 1 and 3) immediately after the completion of its motion toward the galley and the release of the type.

e^9 is a set-screw adjusted to come in contact with that wing of the disk which projects beyond the casting E at the commencement of the motion toward the galley and cause the wings in advance of it to properly engage with the first tripping-lever e .

e^{10} are openings in the casting E to provide for the movement of the wing after engaging with its adjacent tripping-levers e . In passing between the trippers backward movement is prevented by sliding contact between one of the wings and the face of sill E.

R is a bracket secured to the post L and containing projections r to sustain the type vertically and act as a type-pusher to shove it toward the galley.

r' are other projections of the bracket, which serve to push into the galley the type J, (shown in Fig. 1,) delivered during the preceding motion of the slide-bar D.

5 T is a device for automatically advancing the galley and is of usual construction.

In the foregoing description we are to be understood as describing the best mode at present known to us for embodying the principle of our invention; but we are well aware that in form and arrangement and number of parts the particular construction we have described may be departed from to a considerable extent without departing from the principle of our invention, and we therefore do not wish to be understood as limiting ourselves to the details of the foregoing description.

We claim—

1. In a type-setting machine, in combination, type-gripping jaws, mechanism whereby they are reciprocated to and from the galley, and mechanism whereby they are rotated on the axis of the type as they advance toward the galley, substantially as described.

2. In a type-setting machine, in combination, type-gripping jaws adapted to grip the type at one end and maintain its longitudinal position, a carriage whereon the jaws are reciprocated to and from the galley, means whereby the jaws are caused to grip the type on their forward movement toward the galley, and means whereby they are caused to release the type at the end of their forward movement, substantially as described.

3. In a type-setting machine, in combination, type-gripping jaws adapted to grip the type at one end and maintain its longitudinal position, mechanism whereby they are reciprocated to and from the galley, a spring by the reciprocation of which the jaws are held closed or open, and mechanism whereby said spring is reciprocated at each end of the path of the jaws, substantially as described.

4. In combination with type-feeding mechanism, jaws whereby the type is gripped, rotatable mechanism whereby said jaws are carried, and means whereby said last-named mechanism is actuated to rotate the type on its longitudinal axis, substantially as described.

5. The combination, with type-feeding mechanism, of a rotatable type-holder, a tripper movable into and out of the path of a member on said holder, and a controller for regulating the position of said tripper as said holder passes, substantially as described.

6. The combination, with type-feeding mechanism, of a rotatable type-holder provided with radial projections, a tripper movable into and out of the path of said projections, and a controller for regulating the position of said tripper as said holder passes, substantially as described.

7. In a type-setting machine, in combination, jaws whereby the type is grasped at or near the head, mechanism whereby said jaws

are reciprocated to and from the galley, a sill, and a yielding plate opposed thereto between which the type is held while being carried forward in the jaws, substantially as described. 70

8. In a type-setting machine, in combination, type-gripping jaws, mechanism whereby said jaws are reciprocated to and from the galley, a sill, an oppositely-arranged yielding plate between which the type is slid forward, trippers and controllers connected with said sill, and members connected with said jaws, adapted to engage with the trippers in their forward position, substantially as described.

9. In a type-setting machine, in combination, type-gripping jaws, mechanism whereby they are moved toward the galley, a rotary head upon which they are mounted, a spring acting in antagonism to the rotation of said head, radial members projecting from said head, a sill along which said radial members slide to prevent the backward movement thereof, trippers whereby said radial members are moved in antagonism to said spring, said sill being recessed at each tripper to receive the radial member as the same is being moved by the tripper, substantially as described.

10. In a type-setting machine, in combination, a type-guideway leading to the galley, a carriage, mechanism whereby said carriage is reciprocated parallel with said guideway toward the galley, a type-pusher mounted upon said carriage, type-grippers also mounted upon said carriage, and mechanism whereby said grippers may be moved to rotate the type upon its longitudinal axis, substantially as described.

11. In a type-setting machine, in combination, a stationary sill, a spring-pressed plate arranged oppositely thereto and retreating at the receiving end from the sill, a yielding lever projecting beyond said sill at the receiving end, and means whereby the type is fed forward between said lever sill and said plate, substantially as described.

12. In a type-setting machine, in combination, type-gripping jaws, mechanism whereby they are moved toward the galley, guideways between which the type is moved, and a pusher whereby the type is thrust longitudinally between said jaws, substantially as described.

13. In a type-setting machine, in combination, type-gripping jaws, guideways between which the type is carried while engaged in said jaws, a pusher whereby the type is thrust longitudinally between said jaws, and centering mechanism adapted to act upon the sides of the type as it is being shoved between said jaws by said pusher, substantially as described.

14. In a type-setting machine, in combination, guideways between which the type is conveyed to the galley, type-gripping jaws adapted to grip the type at one end and maintain its longitudinal position, means whereby

said jaws are moved toward the galley, and a spring whereby said jaws are held closed with a yielding pressure to adapt itself to varying thicknesses of type, substantially as described.

15. In a type-setting machine, in combination, guideways between which the type is conveyed to the galley, type-gripping jaws, means whereby said jaws are moved toward the galley, a spring whereby said jaws are held closed with a yielding pressure to adapt itself to varying thicknesses of type, and articulated shoes upon the extremities of said jaws, where-

by the gripping surfaces adjust themselves to varying thicknesses of type, substantially as described.

WALTER W. HASTINGS.
FRED D. FOSTER.

Witnesses as to the signature of Walter W. Hastings:

J. E. GREER,
FRED. L. KEMPER.

Witnesses as to the signature of Fred D. Foster:

JAMES T. LAW,
V. T. WILSON.