

(No Model.)

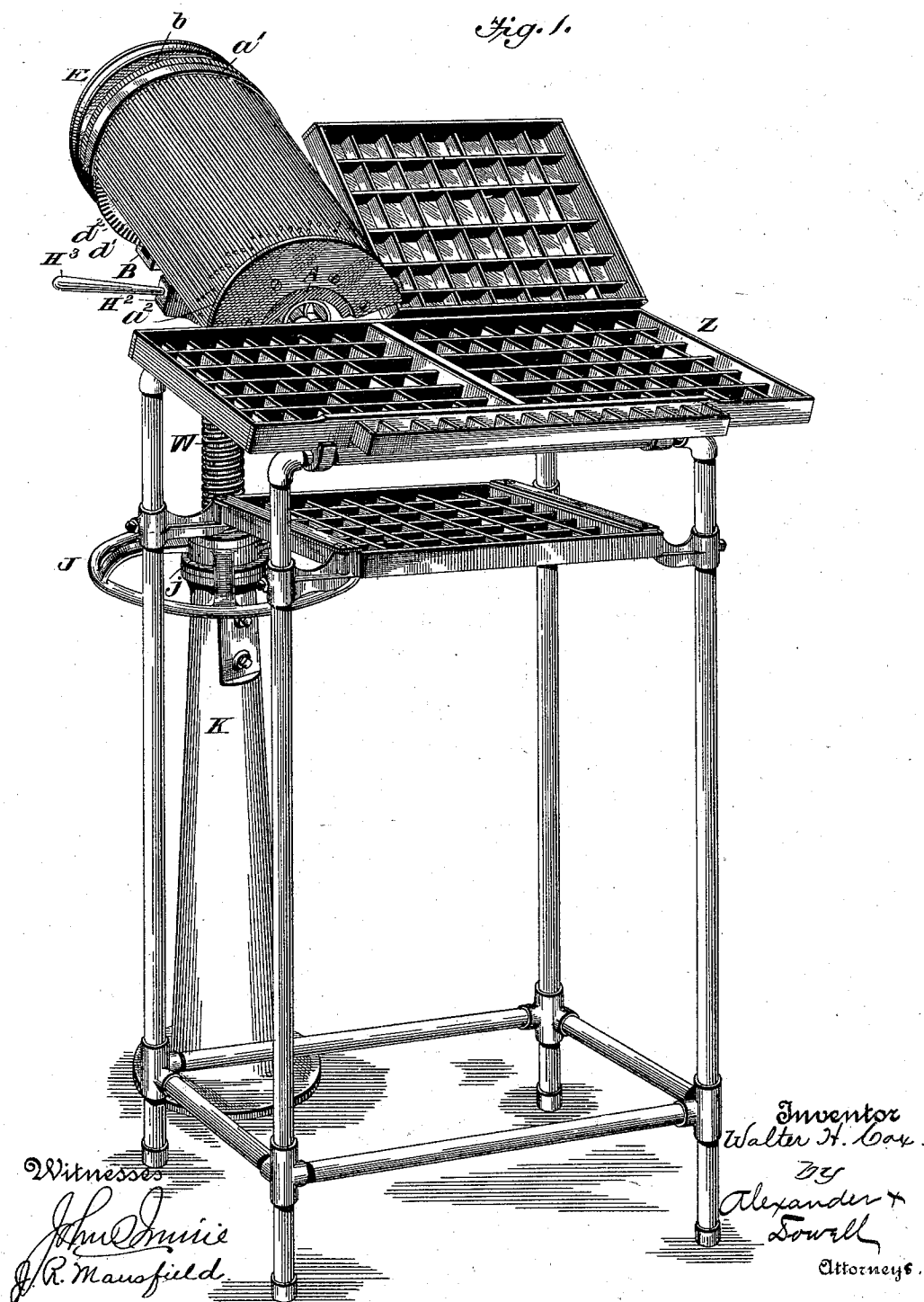
4 Sheets—Sheet 1.

W. H. COX.

AUTOMATIC TYPE DISTRIBUTER AND HOLDER.

No. 547,392.

Patented Oct. 1, 1895.



(No Model.)

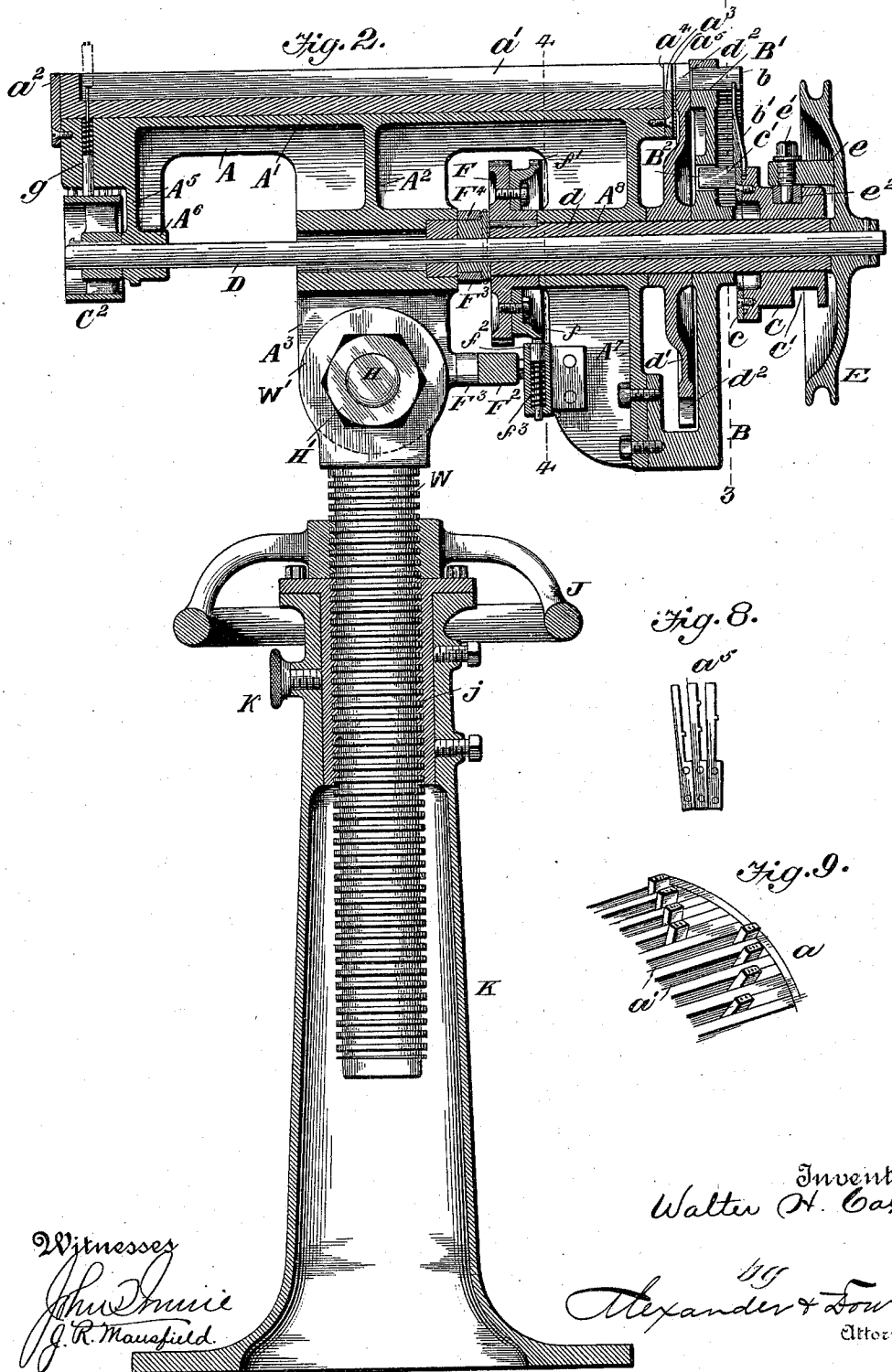
4 Sheets—Sheet 2.

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Inventor
Walter H. Cox.

by
Alexander & Lowell
Attorneys.

W. H. COX.

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Fig. 3.

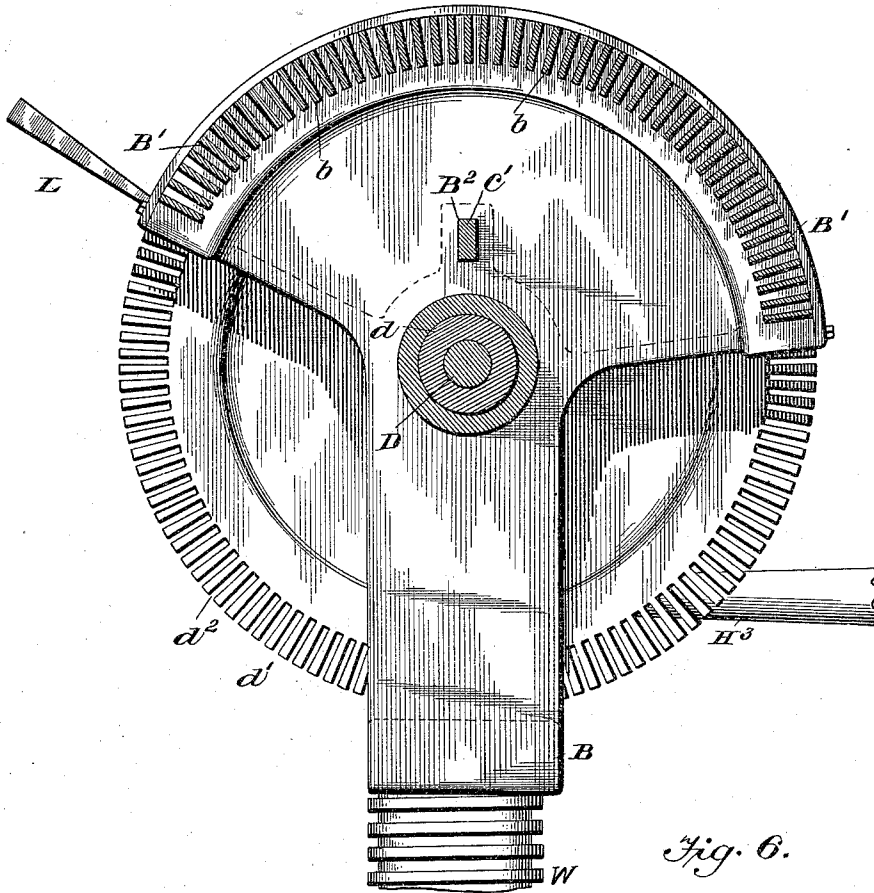


Fig. 5.

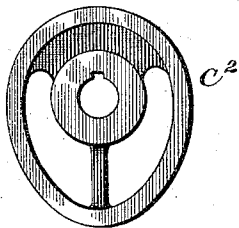
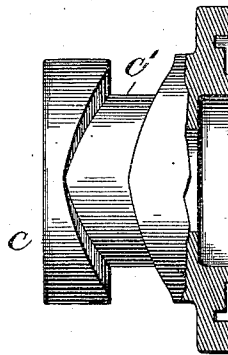


Fig. 6.



Witnesses
John D. Murie
James R. Mansfield

Inventor
Walter H. Cox.

by
Alexander & Dowell
Attorneys

W. H. COX.

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Fig. 4.

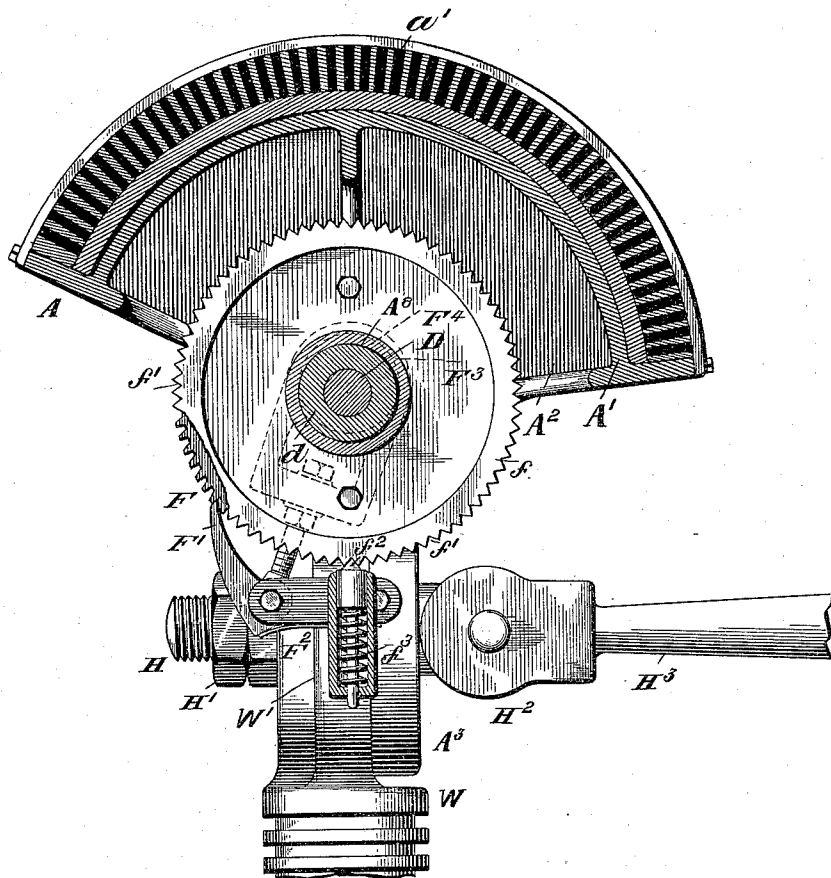
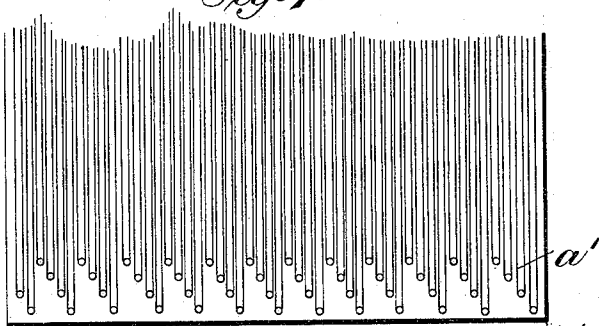


Fig. 7.



Witnesses

John Smile
James R. Mansfield.

Inventor
Walter H. Cox.

By
Alexander & Dowell
Attorneys

UNITED STATES PATENT OFFICE.

WALTER H. COX, OF SIOUX CITY, IOWA.

AUTOMATIC TYPE DISTRIBUTER AND HOLDER.

SPECIFICATION forming part of Letters Patent No. 547,392, dated October 1, 1895.

Application filed April 8, 1895. Serial No. 544,957. (No model.)

To all whom it may concern:

Be it known that I, WALTER H. COX, of Sioux City, in the county of Woodbury and State of Iowa, have invented certain new and useful Improvements in Automatic Type Distributers and Holders; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

This invention is an improved automatic distributor and holder especially designed for logotypes, and to be used in connection with the improved combination-logotype font and type-case described in my application for Letters Patent filed April 8, 1895, Serial No. 544,956.

The objects of the invention are, first, to do away with the large and cumbersome old style "combination-cases," which required many long travels and motions of the hand in setting and distributing type, and to get the logotypes in easy reach of the compositor in a very compact arrangement; second, to provide for the automatic distribution of the logotypes into their proper channels in the holder, so that the compositor in distributing simply drops the logotypes into a funnel irrespective of their characters, and, finally, to provide novel means for partially ejecting the end or lowermost logotypes from their channels, so as to be removed with greater ease by the compositor when needed.

The invention therefore consists in the novel constructions and combinations of parts summarized in the claims, and the best form of apparatus now known to me is constructed as hereinafter described, reference being had to the accompanying drawings, illustrating the same, in which—

Figure 1 is a view of a complete combination logotype-font composing-outfit embodying my inventions, the combined logotype distributor and holder being shown at the upper left-hand corner of the figure in setting position. Fig. 2 is an enlarged vertical sectional view through the distributor and holder as arranged for distributing. Fig. 3 is a cross-section on line 3 3, Fig. 2. Fig. 4 is a similar view on line 4 4, Fig. 2. Fig. 5 is a detail view of the cam for throwing the types from

the slots. Fig. 6 is a detail view of the horizontally-drunken cam. Fig. 7 is a diagrammatic view of the type-slots. Fig. 8 is a detail view of the testing-plates. Fig. 9 is a detail end view of the type-slots.

In order to understand the especial application for which the combined distributor and holder is designed, I will state that my invention (speaking generally) is designed to establish the use of combination logotype-fonts in hand type-setting—that is, the use of type-fonts containing, in addition to the ordinary single types, logotypes—*i. e.*, type-bodies, each containing double letters or syllables or words—and I have provided for the employment of one hundred and fifty or more different logotype characters in the outfit illustrated in Fig. 1, although a greater number of logotypes can be provided, if desired.

For the purpose of facilitating the work of distribution and to aid the compositor in readily distinguishing the various sized logotypes from each other and from the single-letter types, I preferably have the bodies of each kind or class of logotypes distinguished by a peculiar marking or coloring, a very simple but effective manner of distinguishing them being to electroplate them. Thus if all the single type be of ordinary type metal, all the double-letter logotypes might be copper-plated, all the three-letter logotypes brass-plated, so that the kind of type is distinguishable at a glance. Besides being non-distinguishable, these logotype-fonts as heretofore made have required very cumbersome cases, which required so much moving about of the compositor and were so difficult to memorize that their use was a hinderance rather than an assistance to the compositor, and though means for automatically distributing the logotypes by funnels and chutes of various kinds have been devised, yet when distributed thus they were not conveniently arranged for rapid setting by hand. In addition therefore to distinguishing the types and logotypes it was necessary to get them assembled in compact order for setting and to facilitate their distribution. I therefore employ the novel type-case Z, illustrated in Fig. 1 and covered in my above-mentioned application for containing the single types and double-letter logotypes.

In operation the compositor distributes the type by hand into the combination type-cases in the ordinary manner, so far as pertains to the distribution of the single letter types, the boxes for the said single letters being arranged in the lower case practically in the same positions as they are in the ordinary pair of "news" cases. It will be seen by referring to Fig. 1 that at or in various boxes of the lower case are sub-compartments for all two-letter logotypes, said logotypes commencing with the same letter as is to be contained in the parent compartment. The only operation required for the distribution of the two-letter logotypes is that the compositor shall drop each of them into its respective sub-compartment, which can be done as readily as the dropping of the single letters, the speed of distribution being doubled even in this part of the operation. The only remaining portions of the font to be taken care of in distributing are the larger logotypes, and while engaged in distributing the compositor simply drops each and all of the larger logotypes, regardless of their lettering, into a funnel, which is so arranged as to direct the logotypes into the revolving feeder-wheel of the automatic distributor and case, which I will now describe in detail as follows:

The logotype holder and distributor consists, essentially, of a casting A, having a partly-cylindrical top portion A', underneath which depends a central bracket A², the lower end A³ of which is fitted to joint with the upper face of a supporting-shaft W, hereinafter referred to. At one end of the casting is a short depending bracket A⁵, having a bearing A⁶, in which one end of shaft D is journaled, and at the other end of the casting is a depending bracket A⁷, having a bore A⁸, in which is a sleeve d, loosely fitting on shaft D, which extends through the sleeve and through a bore A⁴ in bracket A² also. On the top portion A' is secured a facing a', having a series of longitudinal parallel slots a', adapted to receive types or logotypes. For cheapness this facing is made of wood and confined on the casting A by end plates a² a³, the latter of which has a series of radial slots a⁴ in it coinciding with the ends of slots a², as shown.

Bolted to bracket A⁷ is a casting B, which corresponds in contour to that end of the case and has a set of slots B' in its upper edge directly opposite the slots a⁴ in plate a³, and also has a bearing for the sleeve d, which, with shaft D, passes therethrough, as shown. In each slot B' is a reciprocating pusher b, which is operated by a spring-rod b', secured to a sliding block C, slidably mounted on the outer end of sleeve d, but not rotating therewith, this being prevented by a lug c' on a plate c, fastened to the inner face of block C to secure the springs b' thereto, as shown, said lug engaging a slot B² in casting B just above shaft D, as shown. In block C is a drunken-cam groove C', which is traversed by a roller e² on a bolt e', tapped through an arm e, pro-

jecting from the inner face of a pulley E, fixed on the end of shaft D, as shown. Consequently as pulley E rotates the roller traverses the cam-groove and converts the rotary motion of the pulley into a reciprocating movement of the block C. Thus the pushers b are reciprocated at each rotation of pulley E, which is driven by belting or in other convenient manner, so as to rotate shaft D, or it may be driven by said shaft if power is applied thereto. The shaft D and pulley E rotate together and independent of sleeve d. A feeder-wheel d' is fixed on sleeve d, intermediate casting B and bracket A⁷, and has a series of radial slots d² in its periphery, which register with the opposite slots a⁴ B' as the feeder rotates. The feeder is given a step-by-step rotative movement by means of a ratchet-wheel F on the inner end of sleeve d, engaged by a dog F' on a rocking arm F², pivoted on a stud F³, projecting from bracket A⁷. Arm F² is intermittently rocked back and forth by an eccentric-strap F³, connected to an eccentric F⁴ on shaft D just at the end of sleeve d, as shown, and for each revolution of shaft D the feeder d' will be rotated one notch or slot forward. In order to insure the register of the slots in feeder d' with slots a⁴ B', a register-wheel f is bolted to the back of ratchet F and has a series of notches f' in its periphery, which are successively engaged by a spring-actuated bolt f², mounted in a socket f³, fastened to bracket A⁷, as shown. Each time the feeder is moved forward the bolt springs into a notch of wheel f and locks it, so as to keep the carrier in proper position until it is again shifted. The parts are so adjusted that in the intervals when feeder d' is stationary the pushers b are moved inward, so as to eject type from the feeder into the slots a.

Each logotype is distinctively notched or channeled, and at the outer end of each slot a⁴ is fastened a test-plate a⁵, provided with projections or recesses to match some one particular set of logotypes, so only such logotypes can pass it. Therefore if the feeder stops with a logotype or logotypes opposite the wrong channel or channels the pushers cannot force them into the channel. Instead, the pushers b' yield, preventing injury to the apparatus, and the logotype is carried successively past all the slots until it finally reaches the proper one, wherein it is pushed.

The slots a' are made in sets of one of unequal length. The second slot in a set is one logotype-length shorter than the first, the third shorter than the second, and the fourth shorter than the third, and the shortest slot of one set comes next to the longest slot of the succeeding set. This facilitates the removal of the types from the slots and enables the slots to be made very close to each other.

To further facilitate the removal of the types from the slots a spring-retracted plunger g is placed in a perforation in the bottom of each slot, the plungers resting upon the sur-

face of a small cam-wheel C, mounted on the end of shaft D, and as the shaft rotates the cam-wheel pushes the plungers out, and they partially eject the superimposed logotypes from the slots, so that they remain in position for removal. Then when the plungers drop, if the partially-ejected logotype be removed, the types slide down in the channel and the end type will be again partially ejected at a succeeding rotation of the cam. Until the partially-ejected logotype is removed the other types cannot run down in the channel, and the plungers will reciprocate idly.

The end A³ of bracket A² fits against the corresponding upper end W' of a screw-shaft W and is secured thereto by a bolt H, which forms a horizontal axis on which the case can be turned so as to have the channels in a horizontal position, Fig. 2, during the distributing operation, or in a substantially vertical position during the setting operation, Fig. 1.

On one end of bolt H are adjusting-nuts H', and on its other end is pivoted an eccentric-head H², provided with a handle H³, and by simply turning the handle up or down the joint between the bracket and shaft can be made fast or loose without turning the nuts, the latter being used to adjust the action of the eccentric and compensate for wear.

The body of shaft W is screw-threaded and plays through a split sleeve j, which is suspended in the upper end of a base or supporting-casting K. A hand-wheel J is run on the shaft above and rests on the flanged upper end of the sleeve, and by rotating this wheel the shaft W and the case can be raised or lowered to suit the compositor. By means of a screw k, tapped through base K, the sleeve j can be cramped around the shaft, so as to hold it rigidly when adjusted.

When the logotypes are to be distributed to the case, it is turned to horizontal position, Fig. 2, and a funnel L is fitted onto the case just over the carrier-wheel d', so that the logotypes thrown into the funnel will drop into the slots of the carrier as it rotates and be carried around to the proper channel and pushed therein, as above described. When the types are to be set up, the funnel can be removed and the case then turned into a substantially vertical or inclined position, with the feeder uppermost. In this position the logotypes are removed from the lower ends of the channels, where they are most convenient to the compositor, and as fast as one is removed the logotypes drop by gravity until the supply is exhausted.

Any suitable mechanism or motor may be employed for driving the parts.

It will be observed from the drawings that the combined logotype distributor and holder occupies the position that is usually occupied by the small-cap case, and for convenience the latter is contained in the drawer indi-

cated beneath the printer's case in the drawings.

My automatic logotype distributor and holder does away with the large and cumbersome old style "combination-case," which necessitated many long travels and motions of the hand in setting and distributing.

The operation of the logotype-distributor is as follows: The channels a' are a trifle wider than the logotype bodies. The feeder is kept in operation by the ratchet-drive, which moves it a notch at a time and lets it remain momentarily quiet after each movement, with the logotypes in its slots directly in front of the openings of the receiving-channels. Every time the feeder stops the series of yielding pushers are moved forward and push the logotypes into the channels if they are at the proper entrances; but if a logotype is at the wrong channel it cannot pass the test-plates, and the pusher yields, and at the next movement of the feeder the logotype is moved to the entrance of the succeeding channel, and so on until it finally enters the proper one. Thus each logotype is successively carried to and tried at the entrance of each channel until it reaches the right one, into which it is mechanically pushed, as described. The shaft-carrying cam C² is driven continually, and consequently as the cam is keyed rigidly on said shaft it operates at all times, both during the time of distribution and the time of setting. This produces one of the most practically-useful results of the machine, since by leaving the holder partially inclined while one person is distributing into the original cases, as shown in the drawings, another person can at the same time be engaged in composing type from the holder and a pair of type-cases arranged in close proximity to the ejecting end of the logotype-holder.

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

1. In a logotype-holder and distributor, the combination of the channeled case, a feeder for moving types successively past the entrances of the channels, means for delivering types one at a time to the feeder and yielding pushers adapted to move the types from the feeder into the case, substantially as described.

2. The combination of the channeled case, an intermittently moving feeder adapted to contain a number of separated types and move them successively past the entrances of the channels, and the pushers mounted in stationary supports opposite the ends of the channels adapted to move the types from the feeder into the channels; with means for directing types successively into the feeder and means for reciprocating said pushers when the feeder is stopped, substantially as described.

3. In a logotype-holder and distributor, the combination of the channeled case, a feeder for moving types successively past the en-

trances of the channels having a series of slots each adapted to contain only a single type, and yielding pushers adapted to move the types from the feeder into the case, with means for directing types successively into the slots of the feeder; and devices for moving the feeder step by step, and for reciprocating the pushers while the feeder is at rest, substantially as described.

4. The combination of the parti-cylindrical longitudinally channeled case, a rotary feeder having a series of radial slots in its periphery each adapted to contain a single type and move it successively past the entrances of the channels; the pushers opposite the ends of the channels adapted to move the types from the feeder slots into the channels; and means for reciprocating said pushers; with means for giving the feeder a step by step movement; alternating with the reciprocations of the pushers and means for directing types successively into the slots, substantially as described.

5. In combination with a parti-cylindrical longitudinally channeled receiver, a type feeder moving past the receiving ends of the channels, having a series of slots each adapted to contain a single type; and pushers for ejecting type from the feeder into the channels of the receiver, with means for directing types one at a time into the feeder, and mechanism for moving the feeder step by step and operating the pushers at each stop of the feeder, substantially as described.

6. In combination with a parti-cylindrical longitudinally channeled receiver, a rotary type feeder beside the receiving ends of the channels, having a series of equidistant slots each adapted to contain a single type; with pushers mounted in stationary bearings exterior to the feeder, adapted to eject type from the feeder into the channels of the receiver, means for moving the feeder step by step and operating the pushers at each stop of the feeder, and means for preventing any type entering a wrong channel, substantially as and for the purpose described.

7. The combination of the semi-cylindrical longitudinally channeled receiver, a rotatable feeder having a series of single-type holding slots for conveying types successively past the receiving ends of the channels in the receiver, means for directing types one at a time into the slots of said feeder, mechanism for ejecting the types from the feeder into the channels, and test plates adapted to prevent any type entering the wrong channels; and means for partially ejecting the end types from the channels of the receiver, substantially as described.

8. The combination of the case, the rotary type-feeder, having a series of single-type holding slots, the stationary casting having slots opposite the receiving ends of the channels in the case, the spring cushioned pushers in said slots adapted to eject types from the feeder slots into the channels of the re-

ceiver, means for rotating the feeder intermittently, and means for reciprocating said pushers when the feeder is at rest, substantially as and for the purpose described.

9. The combination of the parti-cylindrical longitudinally channeled case, the rotary type feeder having peripheral type holding slots, the sleeve for rotating said feeder, and the driven shaft passing through said sleeve; with the ratchet wheel on the sleeve, the vibrating arm and pawl for rotating said ratchet wheel, an eccentric on said shaft and the connections between said eccentric and the vibrating arm, all substantially as described.

10. The combination of the parti-cylindrical longitudinally channeled case, the rotary type feeder having a series of peripheral slots adapted to contain single types, a sleeve for rotating said feeder, a driven shaft passing through said sleeve; a ratchet wheel on the sleeve, the vibrating arm and pawl for rotating said ratchet wheel, an eccentric on said shaft and the connections between said eccentric and the vibrating arm; with the reciprocating spring yielding pushers, the sliding cam-block for operating the pushers, and the pulley on said shaft having an arm engaging the cam block and reciprocating it, substantially as and for the purpose described.

11. In a type holder the combination of the channeled case and the loose type ejecting plungers at the lower or rear ends of the channels; with a cam rotated beneath the plungers and adapted to both support and project them thereby partially ejecting the bottom or rear-most types in the channels, for the purpose and substantially as described.

12. In a device for facilitating the work of setting and distributing logo-types by hand, in connection with single type characters, from a pair of type cases, the combination of a semi-cylindrical channeled logo-type case, a logo-type carrying wheel or feeder for moving logo-type characters successively past the entrances of the openings to the channels in the semi-cylindrical logo-type case, with a funnel adapted to conduct and deposit all logo-types of any known character into the logo-type carrying wheel; all logo-types to be deposited by hand into said funnel, one at a time, substantially as and for the purpose described.

13. In a combined machine for facilitating the work of setting and distributing logo-types by hand in connection with single type characters, the combination of a channeled logo-type holder, means for partially ejecting one logo-type from each of the several channels in the holder, and an intermittently rotated logo-type carrying wheel, containing a plurality of grooves, for the reception of logo-type characters, in its periphery; with a locking mechanism to bring all of said grooves in said logo-type carrying wheel, successively to register with all of said channels containing said different kind of logo-types, all substan-

tially as described and for the purpose set forth.

14. In a mechanical device for assisting the compositor in setting and distributing logotypes by hand and assembling and associating them in composed matter with single types, the combination of a semi-cylindrical logotype case having a plurality of logotype channels arranged parallel with and in close proximity to each other, along and through its upper or outer periphery, and a cam operating at and under one end of said logotype case, with a series of plungers, one in each logotype channel, all of which logotype ejecting plungers are raised and lowered by the action of the said cam, whereby the lower or last logotype in each channel may be partially ejected from its column, substantially as and for the purpose described.

15. The combination of a semi-cylindrical logotype case or holder, containing a plurality of logotype channels arranged longitudinally through its outer or upper periphery; with a shaft running axially of the semi-cylindrical case, a logotype ejecting arm on one end of said shaft at one end of the logotype holder, and a logotype feeder or distributing wheel at the other end of the said holder, type ejectors operated by said cam, and means for forcing type from the feeder into the channels, all substantially as and for the purpose described.

16. The combination of the channeled case, the feeder wheel, the reciprocating pushers, a rotating pulley having a crank arm carrying a roller; a reciprocating cam block on the pulley shaft having a cam groove engaged by said roller; and the springs connecting said

block to the pushers, all substantially as and for the purpose described.

17. In a logotype-holder and distributor, the combination of the channeled case, a feeder for moving types successively past the entrances of the channels and yielding pushers adapted to move the types from the feeder into the case, with means for moving the feeder step-by-step, and for reciprocating the pushers while the feeder is at rest, and mechanism for partially ejecting the lowermost or rear-most types from the channels substantially as and for the purpose described.

18. The herein described logotype distributor and holder consisting of the bracketed casting, the channeled facing secured thereon, the test-plates at the entrance of the channels, the stationary slotted plate opposite the ends of the channels, the pushers, the spring rods connecting them to a reciprocating cam-block, mounted on a rotary shaft, a pulley on said shaft having an arm for engaging and operating said cam-block; a sleeve on said shaft, a slotted type-feeder mounted on the sleeve and rotating between the pushers and test-plates; the ratchet and pawl movements for rotating said sleeve, and the devices for locking the feeder when its slots register with the channels, all substantially as and for the purpose described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

WALTER H. COX.

Witnesses:

JOHN PETERSON,
A. F. SALTER.