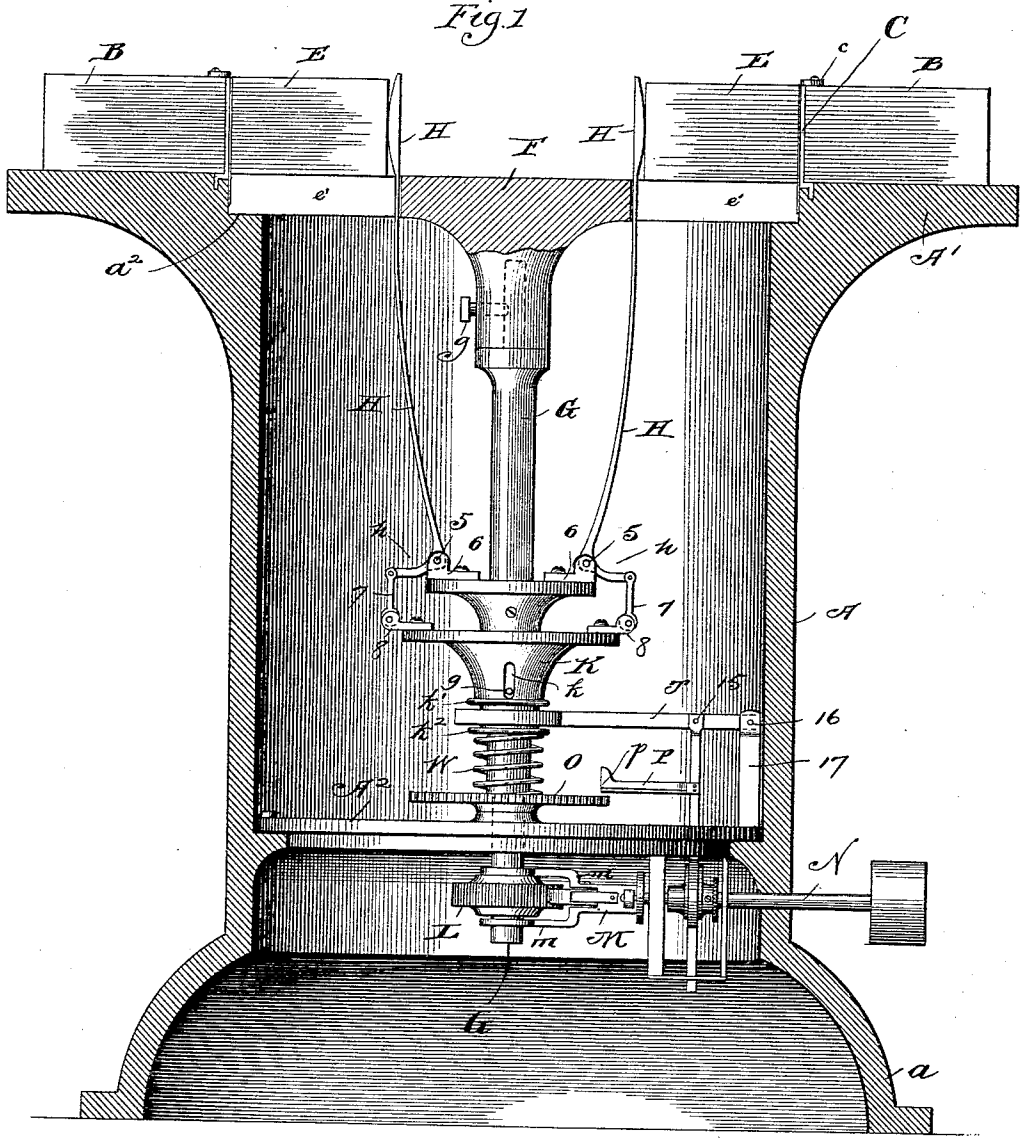
(No Model.) 2 Sheets—Sheet 1.

J. B. ODELL.

TYPE DISTRIBUTING APPARATUS.

No. 457,481. Patented Aug. 11, 1891.

Fig. 1



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TYPE DISTRIBUTING APPARATUS.

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Fig. 2.

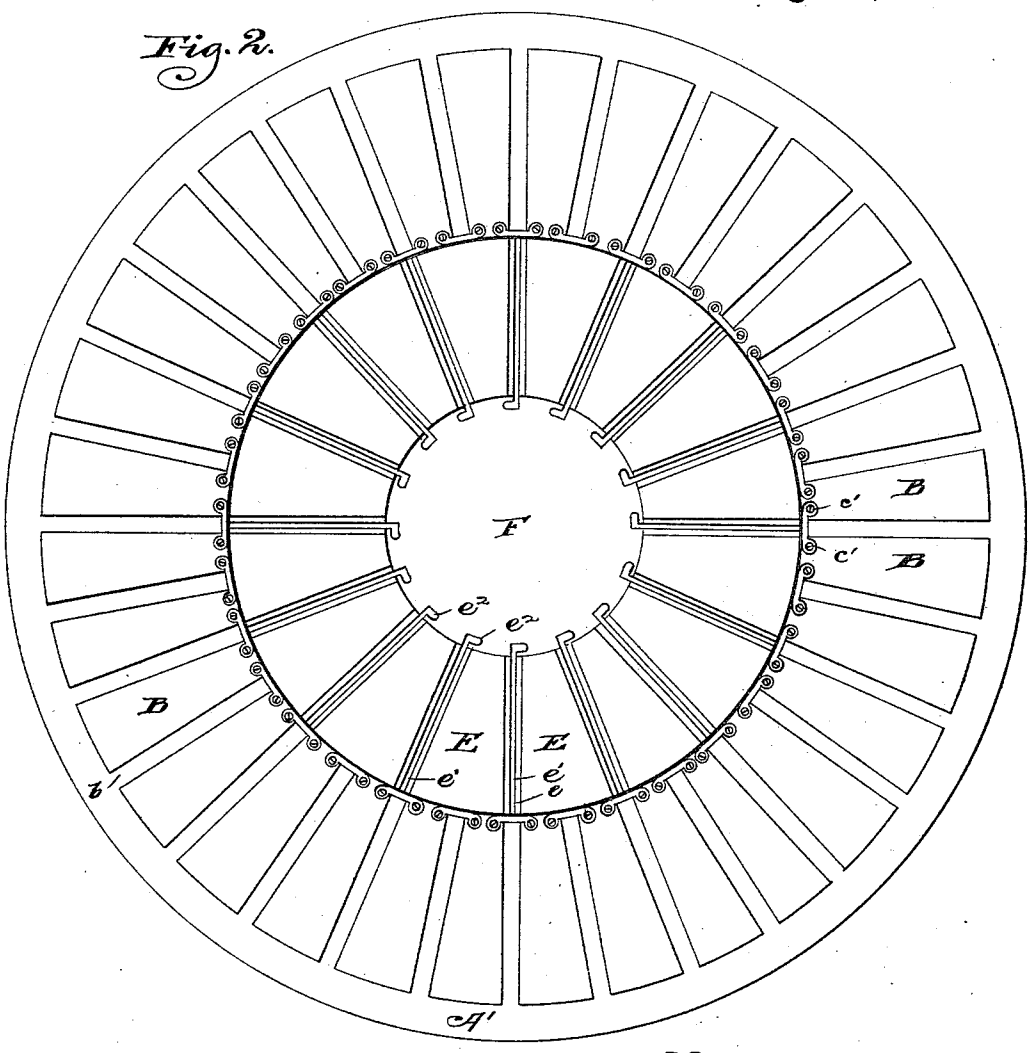


Fig. 3. Fig. 4. Fig. 5.

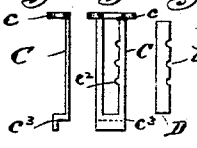


Fig. 6.

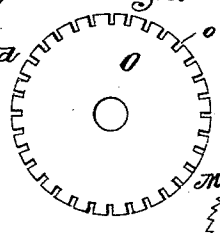


Fig. 7.

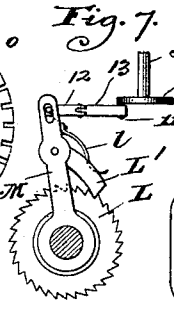


Fig. 8

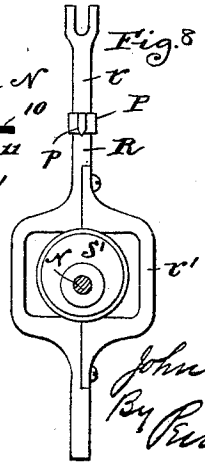
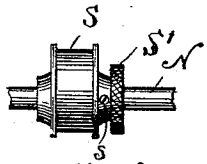


Fig. 9.



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UNITED STATES PATENT OFFICE.

JOHN B. ODELL, OF CHICAGO, ILLINOIS.

TYPE-DISTRIBUTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 457,481, dated August 11, 1891.

Application filed March 25, 1890. Serial No. 345,193. (No model.)

To all whom it may concern:

Be it known that I, JOHN B. ODELL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Type-Distributing Apparatus, of which I do declare the following to be a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

Figure 1 is a view in central vertical section through the case of the apparatus embodying my invention, parts being shown in section and parts in side elevation. Fig. 2 is a plan view. Fig. 3 is a detail view, in side elevation, of one of the wards or guards for the mouths of the type-channels. Fig. 4 is a front view of said ward or guard. Fig. 5 is a side view of a type adapted to enter the ward or guard shown in Fig. 4. Fig. 6 is a detail plan view of the alignment-wheel. Fig. 7 is a view in vertical section through the counter-shaft at a point immediately above the ratchet feed-wheel. Fig. 8 is an enlarged detail view through the inner end of the main drive-shaft, showing the cam and cam-bar that co-operate with the alignment-wheel. Fig. 9 is an enlarged detail view, in side elevation, of that portion of the main drive-shaft whereon the cam is held.

A designates the main casing of the machine, the lower portion of which is preferably expanded, as at *a*, to form a base, and the upper portion of which is expanded to form a table or support A′, from which rise the division walls or plates B, forming the channels or receivers *b*, wherein the type will be received as they are distributed. The table A′ may be of any suitable character or extent to permit the type to be distributed in rows of any desired length. The mouth or induction end of each of the channels or receivers *b* will be provided with a suitable ward or keeper C, (see Figs. 3 and 4,) these wards or keepers C being preferably of the construction shown—that is to say, with vertical bars separated a suitable distance to permit the passage of the type D. By preference, also, each of the wards C will be furnished at its upper end with a cross-plate *c*, having suitable holes to receive the screws *c′*, whereby the wards will be bolted to the side walls B of the channels, and each of the wards C will be provided with projections c^2, the arrangement and number of these projections corresponding to the individual type and serving to determine the character of the type that will be allowed to pass into each of the channels *b*. If desired, also, the side bars of the wards C may be united at their base by a bar c^3 for greater security.

The individual lines of type to be distributed are held within the channels or holders *e*, preferably formed by the walls E, that rise from the face of the rotary bed F, that is mounted upon the upper end of the counter-shaft G, this bed being shown as attached to the reduced upper end of the shaft by means of a set-screw *g*, whereby the exact position of the bed upon the shaft and with respect to the table A′ can be determined. The bed or support F is shown as setting within an annular groove or recess a^2, formed within the table A′, so as to bring the face of the bed F upon a plane with the table A′.

In the bed F, beneath each of the type-channels *e*, is formed the long slot *e′*, adapted to receive a pusher H, each of these pushers being preferably of spring metal, pivotally mounted, as at 5, within brackets 6, that rise from the flanged collar I, fixed to the shaft G. Each of the pushers H has its lower end *h* extending outwardly and pivotally connected by a link 7 to the bracket 8, that projects from the rim of the annular sleeve K, that is provided with a slot *k*, through which extends a pin 9, that keys the sleeve to the shaft G, while permitting it to be moved vertically thereon. The purpose of the pushers H is to cause the lines of type within the channels *e* of the bed F to bear at the proper time against the wards or guards C of the receiving-channels *b*. The bed F has a step-by-step motion imparted thereto in order to bring the channels *e* successively opposite the different receiving-channels *b* of the table A′, this step-by-step motion being imparted to the bed F through the medium of the shaft G, to the lower end of which is keyed a ratchet-wheel L, with which engages a feed-pawl L′, held normally in engagement with the ratchet-wheel L by means of a spring *l*, this pawl being carried by an arm M, the yoke-shaped ends *m* of which encircle the shaft G at a

point above and below the ratchet-wheel L. A back-and-forth movement is preferably imparted to the pawl L′ by means of a crank-wheel 10, the pin 11 of which is connected to the free end of the arm M by means of a suitable link 12. This link 12 is shown as formed of separate parts hinged together, as at 13, to permit a straight back-and-forth movement to be imparted to the arm M from the crank-wheel 10. The crank-wheel 10, whereby motion is given to the pawl L′, is carried at the end of the main drive-shaft N, that receives rotation from any suitable source of power, and from the construction as thus far defined it will be seen that when movement is imparted to this shaft its rotation will cause a back-and-forth movement of the arm M, thereby forcing the pawl L′ to impart a step-by-step rotation to the ratchet-wheel L and through the medium of this ratchet-wheel and the shaft G to the bed F and the lines of type carried in the channels *e* of this bed. The extent of movement imparted to the ratchet-wheel L by each forward movement of the feed-pawl L′ will be just sufficient to rotate the bed F such distance as to move the channels *e* successively opposite each of the type-receiving channels *b* of the table A′, and in order to arrest the bed F with its channels *e* exactly coincident with the channels *b* of the table A′ and hold the channels thus coincident to permit the pushers H to force from the channels *e* into the channels *b* such type as may present notches *d* corresponding in number and location with the projections c^2 of the wards at the mouths of the channels *b*, I provide the mechanism next to be described.

Upon the shaft G, above the bottom plate A^2 of the main casing, is keyed the alignment-wheel O, this wheel having its periphery formed with a series of notches or seats *o*, adapted to receive the end *p* of the alignment-arm P, this end *p* being beveled to enable it to enter the notches *o* of the alignment-wheel and bring this wheel to an exact position. The alignment-bar P is attached to the upper arm *r* of the cam-bar R, this bar being preferably provided with the expanded arms *r′* and r^2, that encircle the cam S, that is mounted upon the main drive-shaft N. By preference the arm *r′* of the cam-bar R is formed as a separate part attached to the bar R to permit the bar to be conveniently fitted about the cam.

In order to provide means whereby the exact adjustment of the cam S upon the main shaft M can be readily effected, I prefer to form this cam with a hub or extension S′, through which will pass a set-screw *s*, whereby the cam will be keyed to the shaft, this hub S′ being milled upon its periphery to enable the easy movement of the cam to the desired extent.

To the upper end of the arm *r* of the cam-bar R is pivotally connected, as at 15, the shifting-bar T, one end of this bar T being pivotally connected, as at 16, to a bracket 17, that rises from the base-plate A^2, while the inner end of this shifting-bar is yoke-shaped to straddle the reduced portion of the sliding sleeve K between the annular ribs or shoulders *k′* and k^2 of this sleeve.

Between the shoulder k^2 of the sleeve K and the alignment-wheel O is preferably placed a coiled spring W, which serves to hold the sleeve K in its normally-raised position, and consequently hold the pushers H normally out of action.

From the foregoing description the operation of my improved apparatus will be seen to be as follows: The type to be distributed are placed in lines within the channels or holders *e* of the rotary bed or support F, and by preference the channels *e* are provided at their inner ends with lateral seats or notches e^2, into which the pushers H can be moved in order to permit the lines of type to be readily inserted into the inner ends of the channels *e*. When the channels *e* of the bed F have been filled, motion will be imparted to the main drive-shaft N, and from this shaft by the feed-pawl L′, ratchet-wheel L, and shaft G a step-by-step motion will be transmitted to the bed F, thereby moving the channels *e* successively opposite the channels or receivers *b*, into which the type are to be distributed. As the sliding sleeve K is held normally in raised position, it is plain that the pushers H will remain normally out of action; but as soon as the pawl L′ has completed its forward stroke the cam S will begin to bear upon the lower portion of the cam-bar R, causing the depression of this bar and thereby causing the beveled end *p* of the alignment-bar P to pass within one of the seats or notches *o* of the alignment-wheel O and bring the notch of this wheel exactly opposite the end of the bar P. As the bed F is set upon the shaft G with respect to the alignment-wheel O and also with respect to the table A′, it is plain that when the alignment-bar P arrests this wheel O, and consequently the shaft G and bed F, it will hold the bed F in such position that its channel *b* will be exactly coincident with the receiving-channel *b* of the table A′. As the cam S continues to revolve and moves downward the cam-bar R, the downward movement of this bar R will carry with it the shifting-bar T, thereby causing the downward movement of the sliding sleeve K against the force of the coiled spring W. As the sleeve K is thus drawn downward, the link 7, projecting from the brackets 8, that are affixed to the sleeve, will draw downward the shorter arms *h* of the pushers H, thereby causing the upper ends of the pushers to bear forcibly against the lines of type within the channels *e* of the bed F and force the type against the wards C, opposite the mouths of the receiving-channels *b* of the table A′. It is obvious that when the outermost type of either of the lines of type carried by the bed F has notches corresponding in number and location with the projections

c^2 of the ward C, against which said type is forced, the pressure of the pusher H will cause the type to pass through the ward C and into the corresponding receiving-channel *b*. As the main drive-shaft N continues to revolve, the sliding sleeve K will be raised in such manner as to relieve the pressure of the pushers H from the lines of type and to again cause the feed-pawl L′ to engage with the ratchet-wheel L to rotate the bed F another step, in order to bring the lines of type in front of the next succeeding receiving-channel *b*. In this way as the bed F continues to rotate with step-by-step movement the type within the channels of this bed are presented to the different wards at the mouths of the receiving-channels until all the type have found corresponding wards, which permit them to pass into their appropriate receiving-channels. By making the pushers H of spring metal, as I prefer to do, these pushers will exert a yielding pressure upon the lines of type, so that all danger of breaking or marring the type or the wards will be avoided when the type do not happen to come opposite the corresponding wards, as must frequently be the case. If desired, the type may be held within the channel *e* in suitable individual tubes or galleys, and may also be received in detachable tubes or galleys within the channels *b*, and it will be readily understood that in order to hold the type in vertical position as they are received into the channels *b*, suitable "slugs" should be placed in these channels.

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

1. In a type-distributing machine, the combination of a bed or support provided with type channels or holders, a table or support provided with type channels or receivers, suitable means for imparting a step-by-step movement to one of said supports, a series of pushers for forcing the type into the receivers, and intermittently-actuating retracting mechanism, which serves to retract said pushers to relieve the pressure from the lines of type, substantially as described.

2. In a type-distributing machine, the combination of a horizontal bed or support having type channels or holders, a table or support provided with type channels or receivers, suitable means for imparting a step-by-step rotation to one of said supports, a series of pushers for forcing the type into the type-receivers, and a suitable movable intermittently-operative device adapted to engage with and positively retract said pushers to relieve the pressure from the lines of type, substantially as described.

3. In a type-distributing machine, the combination of a bed or support provided with type channels or holders, a table or support provided with type channels or receivers, suitable means for imparting a step-by-step movement to one of said supports, a series of pushers consisting of spring-arms, and suitable intermittently-operating mechanism for forcing said arms forward, whereby an intermittent pressure upon the lines of type is secured, substantially as described.

4. In a type-distributing machine, the combination of a bed or support provided with type-holders, a table or support provided with type-receivers, means for intermittently moving one of said supports, suitable pushers for forcing the type into type-receivers, and suitable means operating intermittently for forcing said pushers backward and forward, whereby an intermittent pressure upon the lines of type is secured, substantially as described.

5. In a type-distributing machine, the combination of a horizontal bed or support provided with type channels or holders, a table or support provided with type channels or receivers, one of said supports having a step-by-step rotation imparted thereto, and a series of pushers consisting of pivoted arms movable about their pivots in order to produce an intermittent pressure upon the lines of type, substantially as described.

6. In a type-distributing machine, the combination of a bed or support provided with type channels or holders, a table or support provided with type channels or receivers, suitable means for imparting a step-by-step movement to one of said supports, a series of pushers extending through the type-carrying table, and a movable and intermittently-actuated device connected to said pushers and adapted to shift the same back and forth, substantially as described.

7. In a type-distributing machine, the combination of a horizontal bed or support provided with type channels or holders, a horizontal table or support provided with type channels or receivers, suitable means for imparting a step-by-step rotation to one of said supports, a series of pushers connected to said support to be rotated and extending below said supports and adapted to force the type into the receivers, and a movable and intermittently-actuated device arranged to engage the pushers at a point below the horizontal bed or support and throw said pushers into and out of action, substantially as described.

8. In a type-distributing machine, the combination of a horizontal table or support provided with type channels or holders, a horizontal bed or support provided with type channels or receivers, a closed casing connected with and sustaining said last-named support, a shaft located within said casing for imparting movement to the table or support that sustains the type to be distributed, a ratchet-wheel mounted upon said shaft within said casing, a pawl for actuating said ratchet-wheel, also located within said casing, and suitable means within said casing for imparting a back-and-forth motion to said pawl, substantially as described.

9. In a type-distributing machine, the com-

bination of a table or support provided with type-channels, a bed or support provided with type-channels, a shaft for imparting movement to said bed, a ratchet-wheel separate from said bed and mounted upon said shaft, a pawl for actuating said ratchet-wheel, and suitable means for imparting a back-and-forth motion to said pawl, substantially as described.

10. In a type-distributing machine, the combination of a table or support provided with type-channels, a bed or support provided with type-channels, a shaft for rotating one of said supports, a ratchet-wheel affixed to said shaft, a pawl for engagement with said ratchet-wheel, an arm for sustaining said pawl, a main drive-shaft provided with a crank, and a two-part link uniting said crank to said pawl-carrying arm, substantially as described.

11. In a type-distributing machine, the combination of a rotary bed or support provided with a series of channels for undistributed type, a series of pushers for forcing the type from said channels, said pushers consisting of metal bars provided with angular lower ends, a fixed collar for sustaining said pushers, and a movable sleeve connected with the angular ends of the pushers, and suitable means for reciprocating said sleeve to actuate the pushers, substantially as described.

12. In a type-distributing machine, the combination of a bed F, a table A′, a shaft G, a series of pushers H, having arms *h*, a sliding sleeve K, sustained upon the shaft G and connected to the arm *h* of the pushers, a shifting-bar T for actuating the sliding sleeve, a cam-bar connected with said shifting-bar T, a main drive-shaft, and a cam upon the main drive-shaft for imparting movement to the shifting-bar, substantially as described.

13. In a type-distributing machine, the combination of a table or support provided with type-channels, a bed or support provided with type-channels, a shaft for rotating said bed, a series of pushers carried by said shaft, a sliding sleeve connected to said pushers, a shifting-bar connected to said sleeve, and means for intermittently operating said shifting-bar, substantially as described.

14. In a type-distributing machine, the combination, with a table or support provided with the receiving-channels, of individual wards C, having cross-bars at their tops and having two side bars, one at least of which is furnished with lateral projections, substantially as described.

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