

H. C. GAMMETER.
 ROTATABLE TYPE HOLDING MECHANISM.
 APPLICATION FILED FEB. 13, 1911.

1,015,760.

Patented Jan. 23, 1912.

2 SHEETS—SHEET 1.

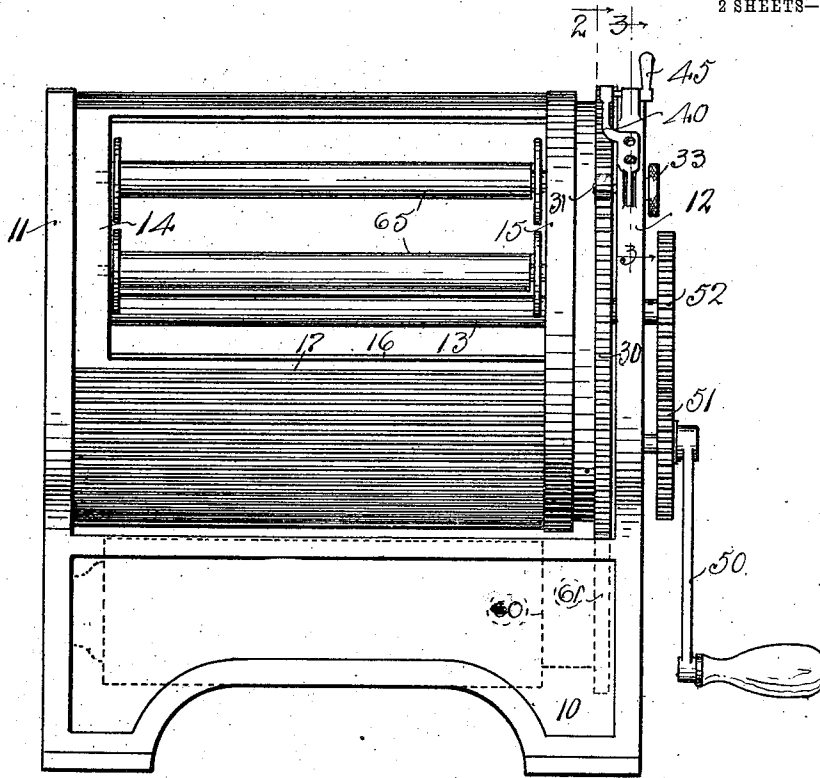


FIG. 1.

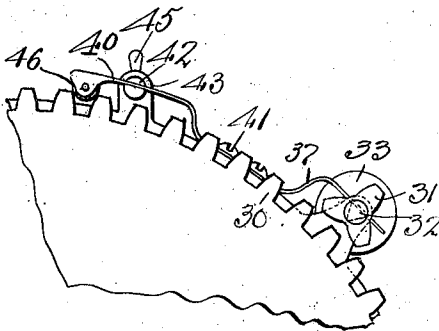


FIG. 2.

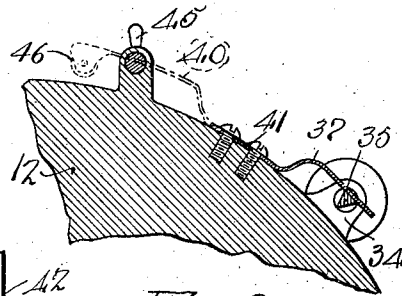


FIG. 3.

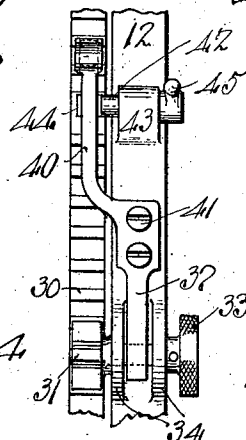


FIG. 4.

WITNESSES

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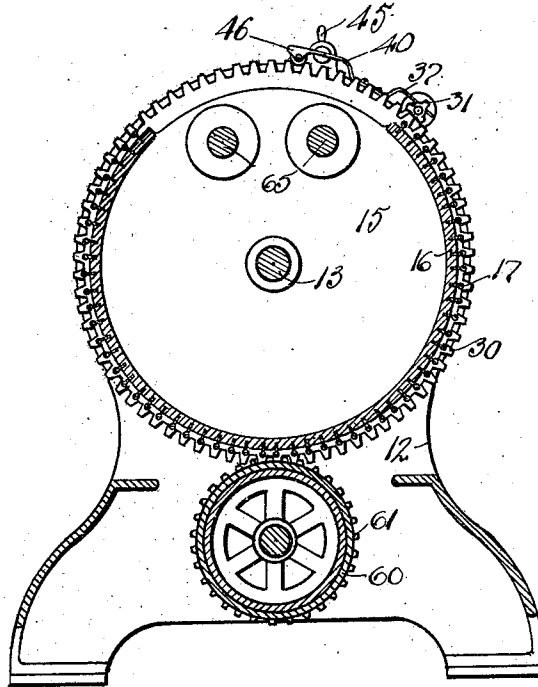


FIG. 5.

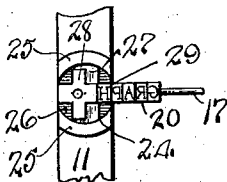


FIG. 7.

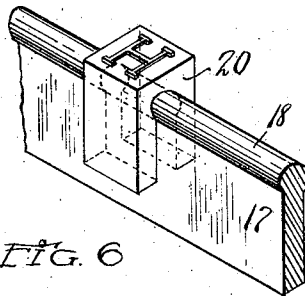


FIG. 6

WITNESSES.

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ROTATABLE TYPE-HOLDING MECHANISM.

1,015,760.

Specification of Letters Patent.

Patented Jan. 23, 1912.

Original application filed March 7, 1904, Serial No. 196,840. Renewed January 23, 1906, Serial No. 297,447. Divided and this application filed February 13, 1911. Serial No. 608,344.

To all whom it may concern:

Be it known that I, HARRY C. GAMMETER, a citizen of the United States, residing at Bratenahl, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Rotatable Type-Holding Mechanism, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

My application No. 196,840 (renewed as No. 297,447) filed March 7, 1904, of which this application is a division, shows a rotary printing mechanism combined with a type setting and distributing mechanism, wherein type may be transferred mechanically from a storage drum to a printing drum, and when on the latter, printed by rotation of the printing drum in coöperation with the rotary platen. Among the features shown in that application are mechanism for continuously rotating the typeholding printing drum and mechanism for feeding it step by step with reference to a recess through which type may be supplied, and mechanism for holding the drum against displacement, thus providing for convenient loading or unloading of the drum. The present application relates to these features.

The invention hereof includes a rotatable drum-like structure having means for holding longitudinal rows of type, combined with means for giving such device partial rotations step by step, corresponding to the distance between type holders to bring any typeholder to the loading or unloading position, and means for restraining the device against accidental movement from its loading or unloading position, and means for giving the device, whenever desired, a continuous rotation through a distance corresponding to a number of typeholders.

My invention is illustrated in the drawings hereof and is hereinafter more fully described and claimed. These drawings are in the nature of extracts from the parent application referred to.

In the drawings, Figure 1 is a front elevation of a rotary typeholding device embodying my invention; Fig. 2 is an enlarged fragmentary elevation of the holding device, the same being on a transverse plane indicated by the line 2 of Fig. 1; Fig. 3 is a similar view in vertical section through the

end member of the frame, as indicated by the line marked 3 in Fig. 1; Fig. 4 is a substantially plan view of the holding device shown in Figs. 1, 2 and 3, this view looking toward the axis of the drum instead of directly downward; Fig. 5 is a transverse, vertical section of the machine shown in Fig. 1; Fig. 6 is a perspective view of one of the type-holding rails and a type thereon, which may be employed in this mechanism; Fig. 7 is a fragmentary plan of the top portion of the left hand end plate showing the type guide carried thereby.

As shown in the drawings, the frame of the machine consists of a suitable base having a pair of uprights or end members 11 and 12. Mounted in these uprights is a shaft 13. On this shaft is a drum-like member adapted to hold parallel lines of type. As shown in the drawings, this drum-like member has end plates or disks 14 and 15 rigid on the shaft. Connecting these disks is a partially cylindrical form-carrier comprising a support 16 and a series of parallel longitudinal rails 17 carried thereby. The rails are shown as rigidly mounted on the support and the support as rigidly connected to the disks. The rails are provided with overhanging edges 18 whereby they are adapted to hold lines of grooved individual type. In the form shown, the type, designated 20 in Fig. 6, has a groove from its bottom upwardly, enlarging interiorly, and this type straddles the rail, being held against outward movement thereon by the enlargement 18. The type, accordingly, occupy channels between the rails, one portion of each type being in one channel and another portion in the adjacent channel. It is to be understood, however, that, in place of this, if desired, the construction shown in my prior Patent #722,404 may be employed, wherein the entire type stands between adjacent rails, the type being grooved on its outer sides to receive the overhang of the rails. In either case the type are loose and shiftable longitudinally with reference to the rails, but are held by the rails against displacement otherwise.

In installing the type in a page form on the drum-like member, the type are shoved lengthwise onto the ends of the respective typeholder. To hold the type in presenta-

tion with any holder which may be brought to transferring position, I have shown herein in the means shown in my parent application referred to. This appears more particularly in Fig. 7 and consists of an upwardly facing, partly circular, recess 24 in the upper end of the frame member or standard 11, this recess being partly bounded by the ribs 25. In this recess is a movable cylindrical head or typeholder 26, which has on it a notch 27 which is occupied by a block 28. The notch is shown as having four arms and the block as being made in the form of a Greek cross. Between one of the lateral arms of the block and the side of the head is a space large enough for a single type, as shown at 29 in Fig. 7. When a type is in such position and the block is moved against it, as it may be by any suitable means, the type is shoved onto the typeholder 17, shoving in advance thereof the type already thereon, indicated by 20. From this construction it follows that when any of the typeholders on the drum-like member are brought into the active position, type may be shoved thereonto from the holder in the recess to assemble type or movement in the reverse direction may distribute type.

My parent application shows means for giving the head 26 half rotations back and forth and for moving the block in the head, so that the type may be received on the left hand side of the member 11 and swing about through a half circle and shoved out laterally on the right hand side. For the present purpose, however, it is believed to be sufficient to show the movable typeholder or head in the recess and the movable member which shoves the type out of such head onto the aligned typeholder. The rotatable head and its operating mechanism is covered in the parent application referred to.

In order to hold the drum-like member in position with reference to the recess 24 and to feed it step by step, I provide the following mechanism. Mounted on the right hand end of the disk 15 is a member having teeth 30. These teeth correspond in their spacing to the typeholders,—as shown, there is one tooth for each rail. Coacting with these teeth, and forming means for rotating the drum-like member step by step, is a driving device shown as a three-tooth pinion 31 mounted on a shaft 32, which has on its outer end a knurled head 33. This shaft is shown as mounted in a pair of separated ears 34 of the frame member 12 and between these ears the shaft is triangular in cross section, as shown at 35, Fig. 3, and on this triangular portion bears a flat spring 37. This spring serves to hold the shaft against accidental displacement and tends to bring it to definite position while allowing it to be rotated. The teeth of the pinion 31 are so placed that, normally, they are all out of

the path of the teeth 30 so that the drum-like member may be rotated independently of this pinion driver. When the driver is rotated, however, one of its teeth, shoving against one of the teeth 30, feeds the drum member forward. To prevent accidental displacement of the drum I provide a spring brake 40, shown as a leaf spring carrying at its free end a roller 46 adapted to engage the teeth 30 and bear between adjacent teeth. The springs 40 and 37 may, in reality, be opposite extensions of a single spring, which is shown as secured to the frame member 12 by screws 41. This device makes a spring brake on the rotation of the drum so that the turning of the knurled head 33 does not spin the drum, but feeds it gradually forward to present successive typeholders to the active position. To give the drum a more continuous rotation, or portion of it, I provide a suitable handle 50 connected with the shaft 13. This handle is shown as a crank having on its shaft a gear 51 meshing with a gear 52 on the shaft 13. By this means the drum may be rotated in either direction any portion of a rotation, or continuous rotations, as desired. To enable the brake 40 to be thrown out of action, for a less retarded rotation by the handle 50 or otherwise, I provide a rock shaft 42, journaled in an ear 43 rising from the frame member 12. This rock shaft has a flattened portion 44 standing beneath the spring 40 and has on its other end a handle 45. The pressure of the spring 40 normally holds the rock shaft 42 in the position shown, but whenever desired, the same may be turned by the handle 45 to force the spring outwardly, relieving the brake.

Figs. 1 and 5 show a rotary platen 60 mounted parallel with the drum and having a soft exterior adapted to cooperate with the type on the drum. This platen is shown as provided with a gear 61 meshing with the gear teeth 30. These latter teeth, therefore, have the double function of cooperating with the driver to locate the drum and cooperating with the platen gear to drive the platen. In this later action, the drum and platen concurrently rotated by the crank 50, form a rotary printing couple adapted to print paper between them. For purposes of supplying ink for such imprint, I may provide a pair of spools 65 mounted between the drum disks 14 and 15 and adapted to carry the wound-up ends of an inking ribbon passing intermediately across the type, after the manner of my prior patent referred to.

It may be well to note that the combination shown herein of a rotary platen, a rotary typeholding drum coacting therewith, and an inked fabric mounted on the drum and overlying the type thereon is claimed in my application No. 531,451, filed December 130

4th, 1909 as a division of the parent application No. 297,447 heretofore referred to.

Having thus described my invention, what I claim is:—

5 1. The combination of a rotatable member, means for holding on the surface thereof parallel lines of individual type, mechanism for giving said member partial rotations to bring successive typeholders into
10 active position, and a handle adapted to give said member a complete rotation.

2. In a machine of the character described, the combination of a rotatable member having means for loosely holding
15 parallel lines of individual type, means for giving said member portions of a rotation successively to bring different typeholders to active position, other means adapted to give said member a greater continuous ro-
20 tative movement and a typeholder adapted to register with any of the typeholders of said member when the same is in active position.

3. In a machine of the character described, the combination of a rotatable member having means for loosely holding
25 parallel lines of individual type, means for giving said member portions of a rotation successively to bring different typeholders to active position, other means adapted to
30 give said member a greater continuous rotative movement, and means for providing a stationary recess adjacent to the surface of the member at one end for registering
35 a typeholder with it.

4. In a machine of the character described, the combination of a rotatable member having means for carrying on its
40 surface parallel lines of individual type, means for giving partial rotations to said member, other means adapted to give said member a greater continuous rotative movement in either direction, and means for holding said member against accidental dis-
45 placement.

5. In a machine of the character described, the combination of a rotatable member having means for carrying on its
50 surface parallel lines of individual type, means for giving partial rotations to said member, other means manually engaged and operated to give said member a greater continuous rotative movement, and a spring
55 brake for retarding said member.

6. In a machine of the character described, the combination of a rotatable member having means for carrying on its
60 surface parallel lines of individual type, means for giving partial rotations to said member, and other means for giving said rotatable member a greater portion of a rotation in either direction.

7. The combination of a rotatable member having means for carrying on its sur-
65 face parallel lines of individual type, means

for giving partial rotations to said member, means for holding it, and manual means for giving said member a greater portion of a rotation.

8. The combination of a rotatable shaft, 70 disk-like members thereon, a series of parallel rails held on the disk-like members and adapted to loosely carry parallel lines of individual type, mechanism for rotating said shaft, and other mechanism for feed-
75 ing all of the parts mentioned step by step.

9. The combination of a rotatable shaft, disk-like members thereon, a series of parallel rails held on the disk-like members and adapted to loosely carry parallel lines
80 of individual type, a toothed annulus rigid with one of the disk-like members, mechanism for rotating said shaft, means adapted to act successively on the teeth of the annulus to give partial rotations, and a spring
85 brake for retarding the rotation.

10. The combination of a rotatable shaft, disk-like members rigid thereon, a series of parallel rails held parallel with the shaft on
90 the disk-like members and adapted to loosely carry lines of individual type, means for rotating said shaft, other means for feeding the structure described step by step, and a spring
95 brake for retarding the rotation during such feed.

11. The combination, with a frame having a pair of upright members, a shaft rotatably mounted therein, a handle connected with
100 the shaft on the outer side of one of the upright members and adapted to rotate it, a pair of disk-like members rigid on the shaft between the upright members, parallel rails held on the disk-like members parallel with
105 the shaft to provide a partially cylindrical typeholder, teeth on one of the disk-like members, and a driving member adapted to coöperate therewith to feed the rotatable structure step by step.

12. The combination, with a frame having a pair of standards, a shaft rotatably mounted therein, a handle connected with the shaft
110 on the outer side of one of the standards, a pair of disk-like members rigid on the shaft between the standards, parallel rails held on the disk-like members parallel with the shaft to provide a partially cylindrical
115 typeholder, teeth on one of the disk-like members, a driving member adapted to co-act therewith to feed the rotatable structure step by step, and a spring brake for retard-
120 ing such movement.

13. The combination, with a frame having a pair of standards, a shaft rotatably mounted therein, a handle connected with
125 the shaft on the outer side of one of the standards, a pair of disk-like members on the shaft between the standards, parallel rails held on the disk-like members parallel with the shaft to provide a partially cylindrical
130 typeholder, teeth on one of the disk-like

members, a driving device carried by one of said standards and movable about an axis to coact with said teeth to feed the rotatable structure described step by step, a spring acting on the driving device and tending to position it, the driving device having finger means whereby it may be operated, and a spring brake for restraining the movement of the rotatable structure when fed by said driving device.

14. The combination, with a frame having a pair of standards, a shaft rotatably mounted therein, a handle connected with the shaft on the outer side of one of the standards, a pair of disk-like members on the shaft between the standards, parallel rails with overhanging edges held on the disk-like members parallel with the shaft to provide a partially cylindrical typeholder, teeth on one of the disk-like members, a driving device adapted to coact with said teeth to feed the rotatable structure described step by step, and a spring brake for restraining the movement of the rotatable structure when fed by said driving device, one of said standards near its upper end terminating adjacent to the ends of the topmost rails and having a recess formed in its upper end adapted to position a movable typeholder registering with the topmost rails carried by the rotatable structure described.

15. The combination, with a rotatable drum-like member adapted to carry individual type, teeth on said member, a mutilated pinion adapted to engage said teeth or clear them, means whereby said pinion may be rotated, and other means for rotating the drum-like member independently of the pinion.

16. The combination, with a rotatable drum-like member adapted to carry individual type, teeth on said member, a mutilated pinion adapted to engage said teeth or clear them, means whereby said pinion may be rotated, other means for rotating the drum-like member independently of the pinion, spring means for holding the pinion against inopportune operation, and a spring brake limiting the drum rotation.

17. The combination of a movable member adapted to carry rows of individual type, mechanism for moving said member, and other mechanism for moving the member step by step to bring different portions into position for loading or unloading.

18. The combination of a typeholding drum having teeth, means for guiding type to the drum, a hand-operated member for engaging the teeth on the drum to give it periodic portions of a rotation to cause it to present different typeholders to said guiding means, other means adapted to give said member a greater continuous rotative movement, and friction means to prevent accidental displacement of the drum.

19. In an assembling and distributing machine, the combination of a typeholding drum, means for holding a typeholder in alinement therewith, mechanism for rotating the drum, and other mechanism for intermittently rotating it to bring successively different portions into alinement with a typeholder held by said means.

20. The combination of a printing drum, a cooperating platen, mechanism connecting the two and including a gear on the printing drum, means adapted to engage said gear to give partial rotations to the drum, and means for continuously and simultaneously rotating the drum and platen to print.

21. The combination of a rotary printing drum having typeholders adapted to carry longitudinal rows of type which may be transferred to or from the holders, an impression platen cooperating with said drum, means for continuously rotating said drum to print, and additional means for rotating the drum step by step to bring the different typeholders into position for transfer of the type.

22. The combination of a printing drum, a type guide adapted to register therewith, mechanism for rotating the printing drum to print, and other mechanism for intermittently rotating it to bring successively different portions into registration with the type guide.

23. The combination of a printing drum having longitudinal rails for holding individual type, a type guide adapted to register therewith, a platen, mechanism for rotating the printing drum and platen to print, and other mechanism for intermittently rotating the drum to bring successively different portions into registration with the type guide.

24. In a machine of the character described, the combination of a pair of standards, a rotatable shaft journaled therein, disk-like members thereon, a series of parallel rails held on the disk-like members and adapted to loosely carry parallel lines of individual type, one of the standards having at its top an upwardly facing recess adapted to position a typeholder in line to cooperate with such rails as they are presented, and mechanism for feeding the movable structure step by step to cause such presentation.

25. The combination, with a rotatable member carrying a set of typeholding rails parallel with the axis of rotation and arranged in a segmental position, of a circular set of teeth rotatable with said member, the consecutive teeth being spaced the same angular distance apart as the consecutive rails, a movable manually operated driver adapted to engage the said teeth intermittently and exert a propelling action thereon, and means controlling the action of the

driver to restrict it to individual movements corresponding to one tooth at a time, whereby said driver for each actuation may turn the rotatable member to present the next typeholder successively to type receiving position.

26. The combination, with a rotatable member carrying a set of typeholding rails parallel with the axis of rotation and arranged in a segmental position, of a circular set of teeth rotatable with said member, the consecutive teeth being spaced the same angular distance apart as the consecutive rails, a movable manually operated driver adapted to engage the said teeth intermittently and exert a propelling action thereon, means controlling the action of the driver to restrict it to individual movements corresponding to one tooth at a time, whereby said driver for each actuation may turn the rotatable member to present the next typeholder successively to type receiving position, the said rotatable member having a shaft, and a frame in which said shaft is journaled, said frame having a portion adjacent to one end of the set of rails and there being a recess in said portion adjacent to the topmost rails, which recess may position a typeholder in coöperation with the rails for transference of type between them.

27. The combination of a rotatably mounted horizontal shaft, a handle connected with one end of the shaft and adapted to rotate it, a pair of disk-like members rigid on the shaft and rotatable with it, parallel rails held on the disk-like members parallel with the shaft to provide a partially cylindrical typeholder, teeth on one of the disk-like members, and a driving member adapted to coöperate with the teeth to feed the rotatable structure step by step.

28. In a mechanism of the class described,

the combination, with a shaft, means carried thereby for receiving and holding parallel lines of individual type arranged parallel with the shaft in a segmental position, a toothed annulus about the shaft rigid with it, means operative on the shaft to turn the structure described about the axis of the shaft, and other means operating on the toothed annulus to give such structure partial rotations.

29. The combination of a movable printing member adapted to carry rows of individual type, mechanism for moving said member to print, and other mechanism for moving the member step by step to bring different portions into position for loading or unloading.

30. The combination of a rotary printing drum having type holders adapted to carry longitudinal rows of type which may be transferred to or from the holders, an impression platen coöperating with said drum, means for continuously rotating said drum to print, and additional means for rotating the drum step by step to bring the different type holders into position for transfer of the type.

31. The combination of a printing drum, a type guide adapted to register therewith, mechanism for rotating the printing drum to print, and other mechanism for intermittently rotating it to bring successively different portions into registration with the type guide.

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

HARRY C. GAMMETER.

Witnesses:

W. F. WOLFE,
W. A. BALL.